CEQA INITIAL STUDY
MITIGATED NEGATIVE DECLARATION

ORANGE COUNTY YOUTH TRANSITION CENTER JUVENILE HALL REPLACEMENT PROJECT
PLANNING APPLICATION (PA)
INITIAL STUDY/MITIGATED NEGATIVE DECLARATION
NO. PP24-0174

Prepared for:

County of Orange
OC Public Works
OC Facilities Design & Construction Management
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December 2024

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Abbreviations and Acronyms

AAQS	ambient air quality standards
AB	Assembly Bill
ABC	Alcoholic Beverage Control
ACM	asbestos containing materials
ADA	Americans with Disabilities Act
ADT	average daily traffic
af	acre-foot/feet
AQMP	Air Quality Management Plan
Basin	South Coast Air Basin
bgs	below ground surface
BMPs	best management practices
BRA	Biological Resources Assessment
BTU	British Thermal Units
C&D	Construction & Demolition
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CALGreen Code	California Green Building Standards Code
California Register	California Register of Historical Resources
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
Campus	Orange County Juvenile Hall Campus
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	California Fire Code
CGS	California Geologic Survey
CH_4	methane
CHOC	Children's Hospital of Orange County

City	City of Orange
City TIA Guidelines	Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment
CIWMP	Countywide Integrated Waste Management Plan
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
$CNEL_{existing}$	existing noise level
$CNEL_{future}$	future noise level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
County	County of Orange
County VMT Guidelines	*Guidelines for Evaluating Vehicle Miles Traveled under CEQA*
CRC	Coordinated Re-Entry Center
CTE	Career Technical Education
CWA	Clean Water Act
DAMP	Drainage Area Management Plan
dB	decibels
dBA	A-weighted decibels
DOC	California Department of Conservation
DTSC	Department of Toxic Substances Control
EI	expansion index
EIR	Environmental Impact Report
EMFAC2021	California Emissions Factor Model, Version 2021
EO	Executive Order
EV	electric vehicle
EVCS	electric vehicle charging stations
FEMA	Federal Emergency Management Agency
FHSZ	fire hazard severity zones
Fire Department	Orange City Fire Department
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FRAP	Fire and Resources Assessment Program

ft	foot/feet
FTA	Federal Transit Administration
FTA Manual	Federal Transit Administration's *Transit Noise and Vibration Impact Assessment Manual*
GHGs	greenhouse gases
gpd	gallons per day
Groundwater Discharge Permit	Permit for Discharges to Surface Waters That Pose an Insignificant (De Minimis) Threat to Water Quality
GWh	gigawatt hours
GWP	Global Warming Potential
HCOC	hydrologic condition of concern
HFCs	hydrofluorocarbons
HUD	U.S. Department of Housing and Urban Developments
HVAC	heating, ventilation, and air conditioning
I-5	Interstate 5
IESNA	Illuminating Engineering Society of North America Standards
in/sec	inches per second
IPaC	Information for Planning and Consultation
IS/MND	Initial Study/Mitigated Negative Declaration
kBTU	thousand British thermal units
kW	kilowatts
kWh	kilowatt hours
L_{dn}	day-night average noise level
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent continuous sound level
LID	Low Impact Development
LIP	Local Implementation Plan
LJC	Lamoreaux Juvenile Justice Center
L_{max}	maximum instantaneous noise level
LOS	level of service
LRA	Local Responsibility Area
LSTs	localized significance thresholds

LUST	Leaking Underground Storage Tank
Ma	million years ago
MBTA	Migratory Bird Treaty Act
MCE	Maximum Considered Earthquake
mg	milligram
mgd	million gallons per day
MLD	Most Likely Descendant
MM	Mitigation Measure
MMBtu	million British Thermal Units
MMRP	Mitigation Monitoring and Reporting Program
MOB	Manchester Office Building
MPAH	Master Plan of Arterial Highways
MRC	Multipurpose Rehabilitation Center
MRZs	Mineral Resource Zones
MS4s	Municipal Separate Storm Sewer Systems
MT	metric tons
MT CO_2e	metric tons of carbon dioxide equivalents
MT CO_2e/year	metric tons of carbon dioxide equivalents per year
MWDOC	Municipal Water District of Orange County
MWDSC	Metropolitan Water District of Southern California
N_2O	nitrous oxide
NAHC	Native American Heritage Commission
NAIMA	North American Innovation Manufacturers Association
National Register	National Register of Historic Places
NCCP/HCP	Natural Community Conservation Plan/Habitat Conservation Plan
NCCPs	Natural Community Conservation Plans
NESHAP	National Emission Standards for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
NFPA	National Fire Protection Association
NHMLA	Natural History Museum of Los Angeles County
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos

NOI	Notice of Intent
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OC Public Works	Orange County Public Works
OCFCD	Orange County Flood Control District
OCFD	Orange City Fire Department
OCSD	Orange County Sanitation District
OCTA	Orange County Transportation Authority
OCWD	Orange County Water District
OCWR	OC Waste and Recycling
OHP	Governor's Office of Historic Preservation
OHWM	ordinary high water marks
OSHA	Occupational Safety and Health Administration
Pb	lead
PF/I	Public Facilities and Institutions
PFCs	perfluorocarbons
P-I	Public Institution
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PRDs	Permit Registration Documents
PRIMP	Paleontological Resources Impact Mitigation Program
proposed project	Orange County Youth Transition Center Juvenile Hall Replacement Project
PS&E	Plans, Specifications, and Estimates
PV	photovoltaic
RCM	Regulatory Compliance Measure
RMS	root-mean-square
RRP Rule	Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy

RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAG	Southern California Association of Governments
SC	Standard Condition of Approval
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SE	Siting Element
sf	square foot/feet
SF_6	sulfur hexafluoride
SLCP	short-lived climate pollutants
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act of 1974
SMARTs	Stormwater Multiple Application and Report Tracking System
SO_2	sulfur dioxide
SoCalGas	Southern California Gas Company
SO_X	sulfur oxides
SPR	Site Plan Review
SR-22	State Route 22
SR-91	State Route 91
SRA	Source Receptor Area, also State Responsibility Area
STC	Sound Transmission Class
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Program
SWRCB	State Water Resource Control Board
TAY	Transitional Age Youth
TCA	Transportation Corridor Agencies
TCEs	Temporary Construction Easements
TGD	Technical Guidance Document
TI	tenant improvements
tpd	tons per day
UCI	University of California Irvine
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation

USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UWMP	Urban Water Management Plan
V	root-mean-square velocity amplitude
VdB	velocity in decibels
$V_{existing}$	existing volume
V_{future}	future volume
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles travelled
VOC	volatile organic compounds
V_{ref}	reference velocity amplitude
WDID	Waste Discharge Identification Number
WDR	Waste Discharge Requirements
WM	Waste Management
Working Group	Greenhouse Gas California Environmental Quality Act Significance Threshold Working Group
WOTUS	waters of the United States
WQMP	Water Quality Management Plan
YGC	Youth Guidance Center
YLA	Youth Leadership Academy
YTC	Youth Transition Center

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Chapter 1: Introduction

The purpose of this Initial Study is to evaluate the potentially significant environmental impacts associated with implementing the proposed project. The Initial Study is organized into the following chapters:

- Chapter 1: Introduction
- Chapter 2: Environmental Determination
- Chapter 3: Project Description
- Chapter 4: Environmental Evaluation
- Chapter 5: Summary of Mitigation Measures and Project Design Features
- Chapter 6: References

1.1 Project Title

Orange County Youth Transition Center Juvenile Hall Replacement Project

1.2 Lead Agency Name | Address

Orange County Public Works
OC Facilities Design & Construction Management
601 N. Ross Street
Santa Ana, CA 92701

1.3 Lead Agency Contact Person | Telephone Number | Email

Richard de Jong, Senior Project Manager
Telephone: (714) 667-4966
Email: richard.dejong@ocpw.ocgov.com

1.4 Project Location

The proposed Orange County Youth Transition Center Juvenile Hall Replacement Project (proposed project) is located at 331 The City Drive South in the City of Orange (City) in the County of Orange (County).

Figure 3-1, Regional Location (provided in Chapter 3, Project Description), depicts the proposed project within the regional context while Figure 3-4, Existing Land Uses (Chapter 3), depicts the proposed project within a local context.

1.5 Project Sponsor's Name | Address

Orange County Public Works
OC Facilities Design & Construction Management
601 N. Ross Street
Santa Ana, CA 92701

1.6 General Plan | Specific Plan Designation(s)

City of Orange General Plan Land Use Designation: Public Facilities and Institutions (PF/I)

1.7 Zoning District(s)

City of Orange Zoning Designation: Public Institution (P-I)

1.8 Description of Project

The County of Orange Public Works (County) proposes to overhaul the existing Orange County Juvenile Hall Campus (Campus) located at 331 The City Drive South in the City of Orange, California, which occupies an approximately 17-acre property. The Orange County Juvenile Hall facility is an institution for juvenile law violators between the ages of 12 and 25 and is operated by the Orange County Probation Department. The Orange County Youth Transition Center Juvenile Hall Replacement Project (proposed project) would be constructed in three phases. Phase 1 of the proposed project would demolish and replace ten buildings and associated infrastructure and construct the new Youth Transition Center (YTC), including associated landscaping, hardscaping, accessibility, and utility improvements. Phase 2 consists of constructing new long-term housing, a new classroom and library building, and a Transitional Age Youth (TAY) housing unit. Phase 3 is still in the design phase but generally consists of constructing and installing tenant improvements to the remaining Campus buildings.

1.9 Surrounding Land Uses and Setting

The 17-acre property on which the Campus is located (the "project site") is part of a larger group of County facilities known as the Manchester Complex and is currently developed with the Juvenile Hall and the adjacent Youth Leadership Academy (YLA). The Youth Guidance Center (YGC) is located across the Santa Ana River Channel directly to the east of the project site. The project site is surrounded by the University of California Irvine (UC Irvine) Medical Center research hospital to the north, the Santa Ana River and Interstate 5 (I-5) to the east, the Orangewood Children's Home to the south, and the Lamoreaux Justice Center to the west.

1.10 Other Public Agencies Whose Approval is Required

Table 1.A below provides a list of required and anticipated public agency approvals that are associated with the proposed project.

Table 1.A: Public Agency Approvals

Body	Action
County of Orange	• Adoption of the California Environmental Quality Act (CEQA) Final Initial Study with Mitigated Negative Declaration (IS/MND) • Board of Supervisors Approval of Project Delivery and Construction Agreement Financing Program with State, Construction Agreement with State, Ground Lease, Right of Entry for Construction and Operation, Easement Agreement, Construction Contract, and Facility Sublease • Approval of Water Quality Management Plan (WQMP) • Approval of Plans, Specifications, and Estimates (PS&E) • Temporary Construction Easements (TCEs), if necessary
Santa Ana Regional Water Quality Control Board	• National Pollutant Discharge Elimination System (NPDES) Construction General Permit • NPDES MS4 Permit • Section 401 Water Quality Certification
Board of State and Community Corrections	• Cost, Plans, Specifications, and Estimates (PS&E), and Final Construction Plans
State Fire Marshal	• Plans and Specifications
City of Orange	• Fire Inspections – Site Access Only
Various Utility Companies	• Encroachment Permits • Easements

1.11 California Native American Consultation

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Orange County Public Works (OC Public Works) mailed initial consultation notification letters on October 14, 2024, to the following California Native American Tribes pursuant to Assembly Bill (AB) 52:

- Gabrieleño Band of Mission Indians - Kizh Nation
- Juaneño Band of Mission Indians
- Gabrieleño Tongva San Gabriel Band of Mission Indians
- Soboba Band of Luiseño Indians

Tribal consultation is still ongoing. Refer to Section 4.22, Tribal Cultural Resources, of this IS/MND for further discussion.

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Chapter 2: Environmental Determination

Based on the analysis conducted in this Initial Study, the County of Orange, as the Lead Agency, has made the following determination:

Table 2.A: Environmental Determination

I find that the proposed project COULD NOT have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.	☐
I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.	☒
I find that the proposed project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.	☐
I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.	☐
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	☐
I find that the proposed project has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to the *State CEQA Guidelines* and the County's adopted Local CEQA Guidelines. The proposed project is a component of the whole action analyzed in the previously adopted/certified CEQA document.	☐
I find that the proposed project has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to State and County CEQA Guidelines. Minor additions and/or clarifications are needed to make the previous documentation adequate to cover the project which are documented in this addendum to the earlier CEQA document (CEQA §15164).	☐
I find that the proposed project has previously been analyzed as part of an earlier CEQA document (which either mitigated the project or adopted impacts pursuant to findings) adopted/certified pursuant to State and County CEQA Guidelines. However, there is important new information and/or substantial changes have occurred requiring the preparation of an additional CEQA document (ND or EIR) pursuant to CEQA Guidelines Sections 15162 through 15163.	☐

DocuSigned by:
Virginia Gomez
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Signature

December 2, 2024
Date

Virginia Gomez, Senior Planner
Printed Name

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Chapter 3: Project Description

3.1 Introduction

The County proposes to overhaul the existing Orange County Juvenile Hall Campus (Campus) located at 331 The City Drive South in the City of Orange, California, which occupies an approximately 17-acre property. The Orange County Juvenile Hall facility is an institution for juvenile law violators between the ages of 12 and 25 and is operated by the Orange County Probation Department. The Orange County Youth Transition Center Juvenile Hall Replacement Project (proposed project) would be constructed in three phases. Phase 1 of the proposed project would demolish and replace ten buildings and associated infrastructure and construct the new Youth Transition Center (YTC), including associated landscaping, hardscaping, accessibility, and utility improvements. Phase 2 consists of constructing new long-term housing, a new classroom and library building, and an independent living unit. Phase 3 is still in the design phase but generally consists of constructing tenant improvements (TI) to the remaining Campus buildings.

3.2 Environmental Setting and Surrounding Land Uses

The 17-acre property (the "project site") is currently developed with the Juvenile Hall and the adjacent Youth Leadership Academy (YLA). The Youth Guidance Center (YGC) is located across the Santa Ana River channel directly to the east of the project site. The existing YGC facility offers sobriety education, substance abuse treatment, and transitional services for male and female youth. The YGC also offers academic and work experience programs, including culinary arts, auto detailing, facility laundry, basic housekeeping, building maintenance, carpentry, horticulture, and landscaping. The YLA was established in 2006 with two distinct programs, the Progressive Rehabilitation in a Dynamic Environment Program, and the Leadership Education through Active Development program. The existing Juvenile Hall includes an intake and release center, living units, an academic program, and medical services on site. While Juvenile Hall has a current rated capacity of 380 beds, the YLA currently includes an additional 108-bed camp facility, and the YGC consists of an additional 5-unit, 125-bed facility. The Campus also includes the recently completed Multipurpose Rehabilitation Center (MRC), which opened in 2022 and is located to the east of an existing recreational field on the Campus. The MRC provides classrooms, a multipurpose visitor room, two program rooms, an indoor gymnasium, outdoor hand ball courts, a fitness center, a visitor child play area, a kitchen, and other ancillary uses.

The current Campus is aging, and the number of youths assigned to the facility has declined. Therefore, the proposed YTC project intends to replace portions of the Campus. The YLA facility would remain functional throughout demolition and development of the proposed Project. The project site is bounded by I-5 and the Santa Ana River to the east, Service Way to the north, Justice Center Way to the south, and Hospital Frontage Road to the west. The project site is located within the City of Orange, which is bordered by the cities of Anaheim, Santa Ana, Garden Grove, and Villa Park, as well as unincorporated areas of Orange County. Figure 3-1, Regional Location, depicts the regional location of the project site.

According to the City of Orange General Plan Land Use Element (2010; Revised 2015), the project site is designated for Public Facilities and Institutions (PF/I) land use. Refer to Figure 3-2, General Plan Land Uses, for a visual depiction of the land use designations for the project site and its immediate vicinity. The PF/I land use provides for several types of public, quasi-public, and institutional land uses, including schools, colleges and universities, City and County facilities, hospitals, and major utility easements and properties.

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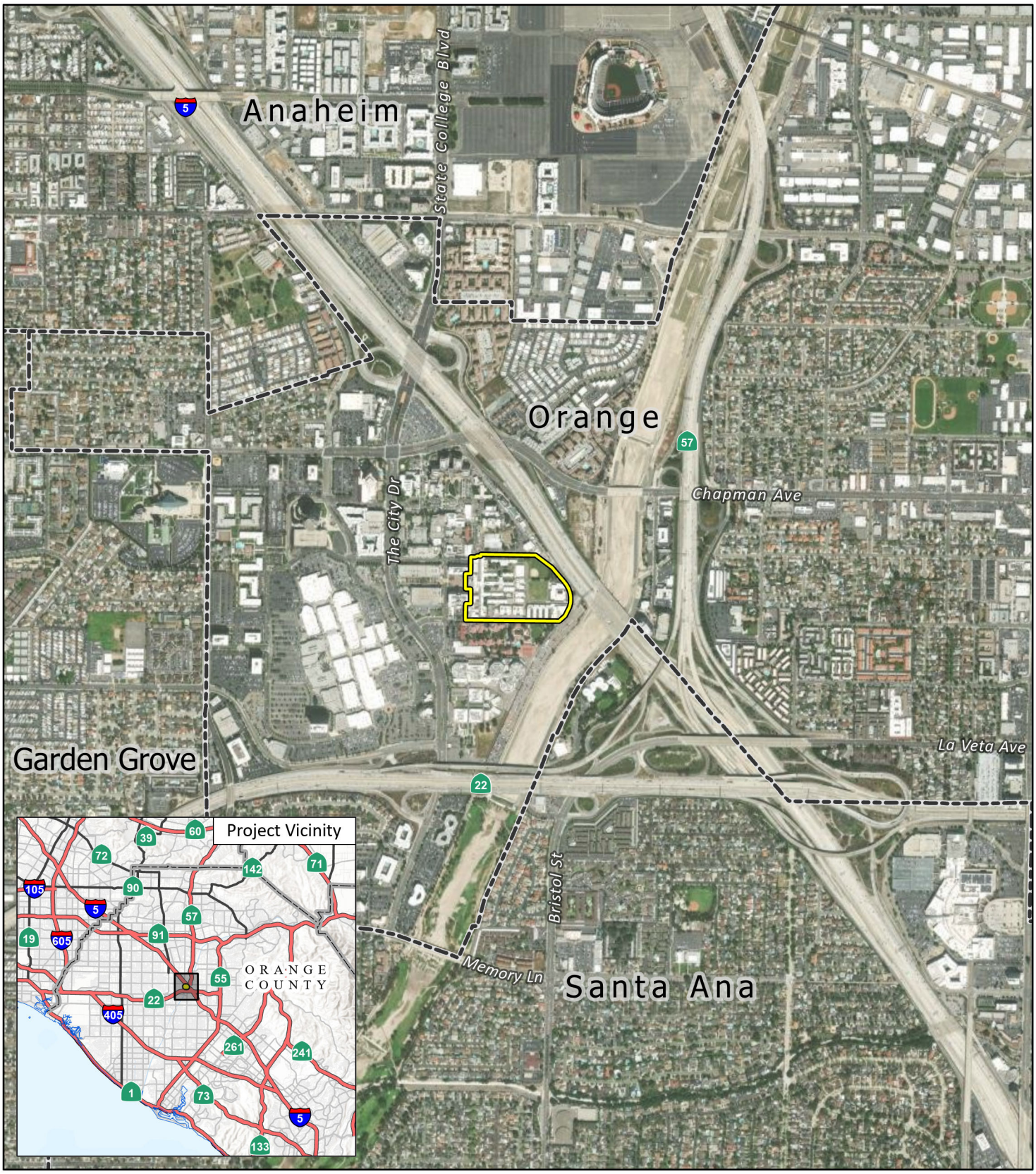

LSA

Project Site

City Boundary

FIGURE 3-1

N

0 750 1500

FEET

SOURCE: Esri Imagery (January 29, 2024)

Orange County Youth Transition Center Juvenile Hall Replacement Project

Regional Location

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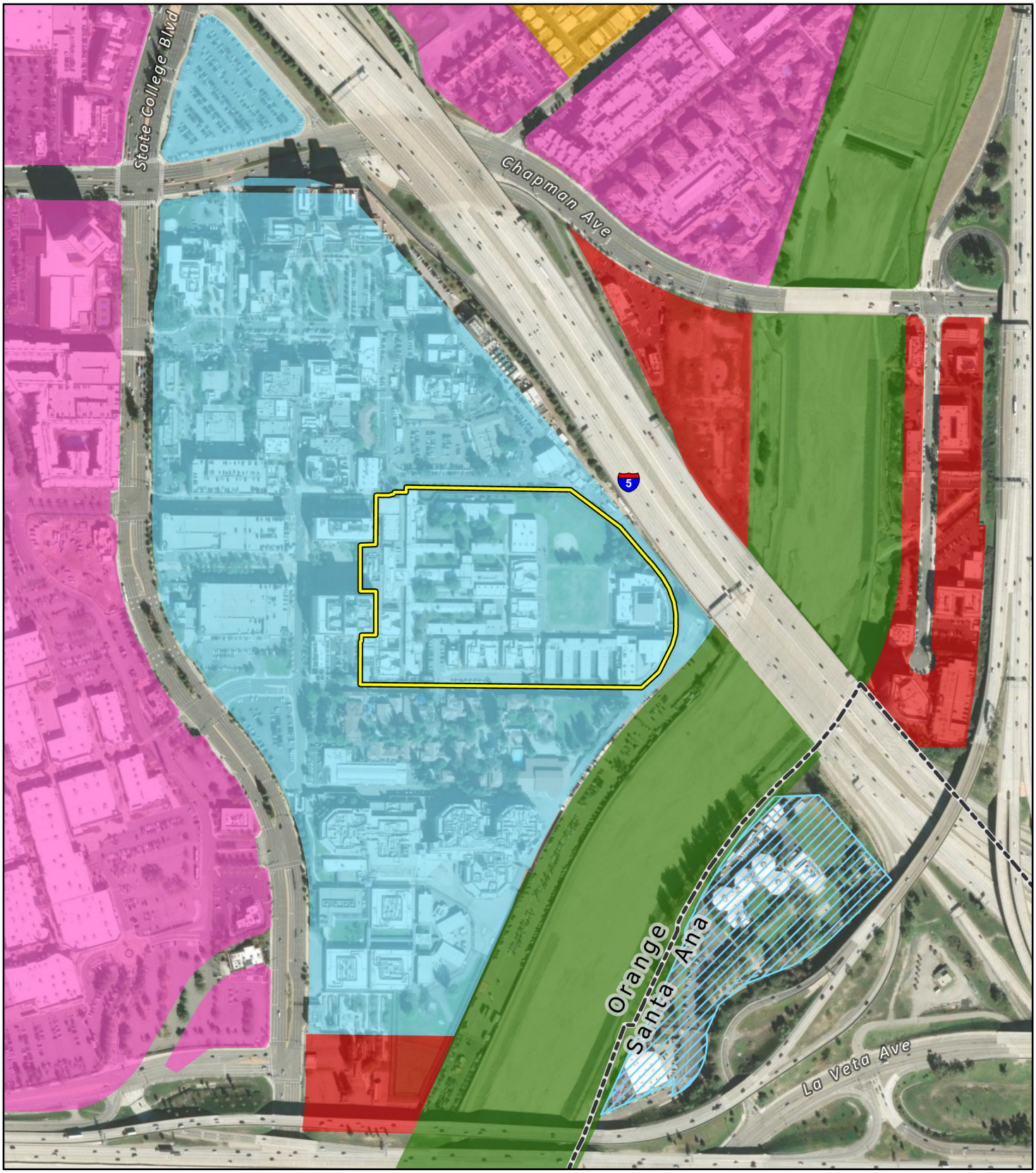

LSA

Project Site
City Boundary
City of Orange General Plan
GC - General Commercial Max. 1.0 FAR
LMDR - Low Medium Residential 6-15 du/ac
OS - Open Space
PFI - Public Facilities Max. 0.5 FAR and Institutions Max. 2.0 FAR
UMIX - Urban Mixed Use 30-60 du/ac 1.5-3.0 FAR
City of Santa Ana General Plan
INS - Institutional

N

0 250 500
FEET

FIGURE 3-2

Orange County Youth Transition Center Juvenile Hall Replacement Project

General Plan Land Uses

SOURCE: Esri Imagery (January 29, 2024), City of Orange (February 2, 2022)

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This land use designation includes service organizations and housing related institutional uses, such as dormitories, employee housing, assisted living, convalescent homes, and skilled nursing facilities.

According to the City of Orange Zoning Code, the project site is currently zoned as Public Institution (P-I). Refer to Figure 3-3, Zoning Designations, for the zoning of the project site and surrounding areas. The P-I zoning district is intended to accommodate a wide range of public and quasi-public uses that need special consideration and may accommodate housing and privately operated medical and office activities.

The proposed project would redevelop the existing institutional uses within the project site with new buildings that would support the same institutional uses and would not result in any changes to applicable land use and planning regulations. Table 3.A, On-Site and Adjacent Land Uses, summarizes the surrounding land uses, General Plan designations, and zoning. Figure 3-4, Existing Land Uses, illustrates the locations of these nearby land uses as they relate to the project site.

Table 3.A: On-Site and Adjacent Land Uses

Direction	Existing Land Use	General Plan Land Use Designation	Zoning District
Project Site	Developed –Juvenile Hall Campus	Public Facilities and Institutions (PF/I)	Public Institution (P-I)
North	Developed – UC Irvine Medical Center research hospital providing cancer, dermatology, digestive, heart, neurology, orthopedics, primary, same-day, and surgery care.	Public Facilities and Institutions (PF/I)	Public Institution (P-I)
East	Developed – I-5 Freeway	N/A	N/A
South	Developed – Orangewood Children's Home providing 24-hour emergency shelter care for children who have been abused, abandoned, and/or neglected.	Public Facilities and Institutions (PF/I)	Public Institution (P-I)
West	Developed – Lamoreaux Justice Center providing court services, including family law, and children's chambers.	Public Facilities and Institutions (PF/I)	Public Institution (P-I)

Sources: City of Orange General Plan Land Use Element (2010; Revised 2015); City of Orange Zoning Map (2020).

3.3 Proposed Project

The proposed project consists of demolition of portions of the current Campus for development of the new buildings under the various phases of the project. Phase 1 would primarily consist of development of the new YTC that would operate independently of Juvenile Hall with added housing for youth, and dining, culinary, education, and vocational spaces along with recreational exterior areas. Phase 2 would consist of a new long-term housing unit and a classroom-library building that would be developed for use within the Campus secure perimeter. In addition, a TAY housing unit would also be built outside of the Campus secure perimeter. Phase 3 is currently being designed and is tentatively anticipated to only include tenant improvements for buildings not being demolished that require updating. In order to comply with modern code requirements, Phases 1 and 2 would include associated accessibility, open space, and landscaping and hardscaping improvements. The new state-of-the-art facilities would be designed to provide a non-institutional, home-like environments and incorporate effective and therapeutic programs to ensure successful outcomes for residents and reduce recidivism.

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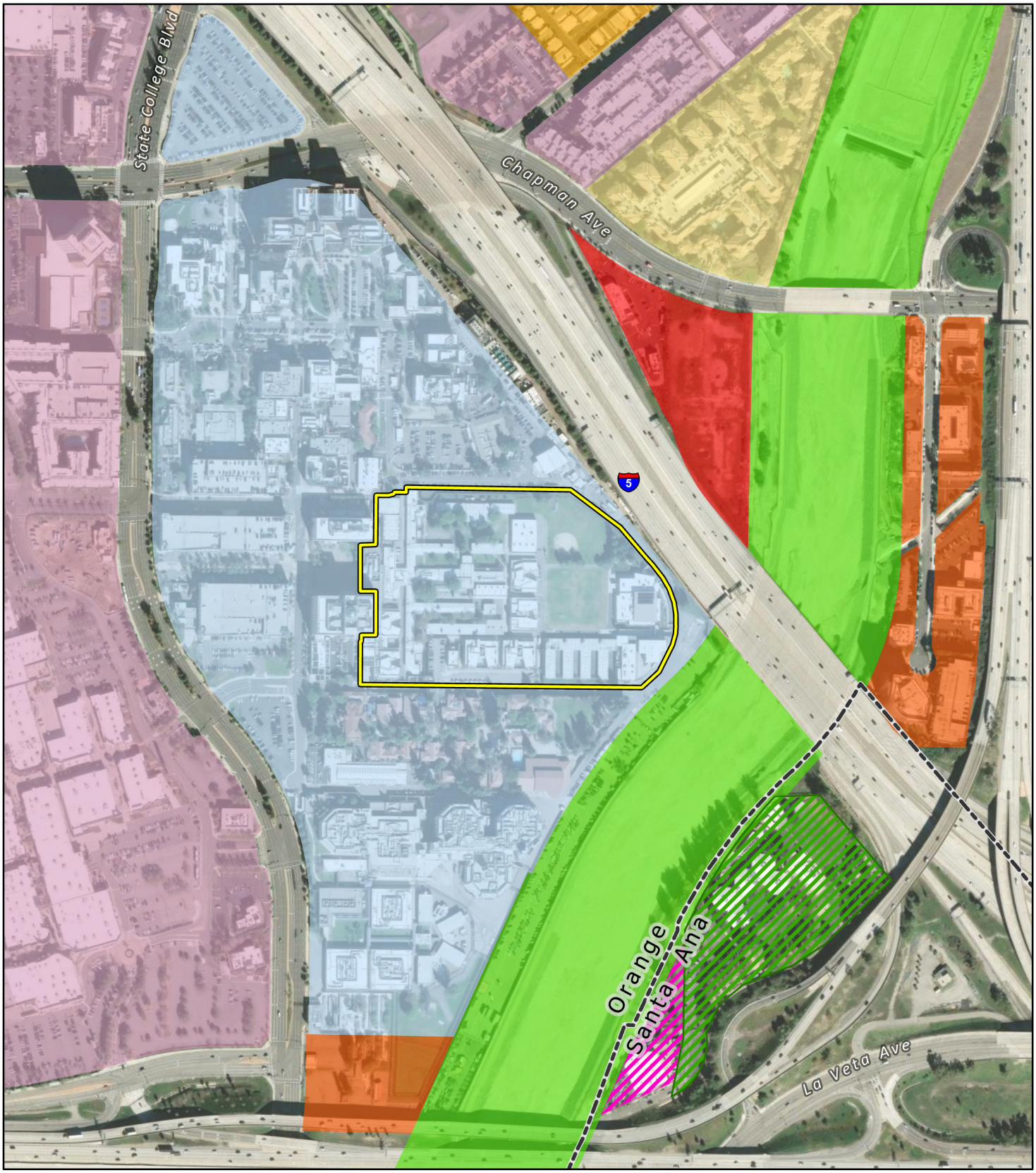

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Project Site
City Boundary

City of Orange Zoning
Mobile Home Residential
Planned Community
Urban Mixed Use
Limited Business
General Business
Public Institution
Recreation Open Space

City of Santa Ana Zoning
Agriculture
Open Space

FIGURE 3-3

N

0 250 500
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Orange County Youth Transition Center Juvenile Hall Replacement Project

Zoning Designations

SOURCE: Esri Imagery (January 29, 2024), City of Orange (January 23, 2024)

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LSA

FIGURE 3-4

Orange County Youth Transition Center Juvenile Hall Replacement Project

Existing Land Uses

SOURCE: Nearmap Aerial Imagery (August 26, 2024)

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3.4 Background and Need

The Campus houses youth between the ages of 12 and 25 who have violated the law and are either being detained as minors pending court hearings or being tried as adults in the Superior Court.

While the Campus currently provides youth with education, activities, and counseling, it is limited in its ability to ensure the successful transition of youth into society upon their release. The proposed project has been designed in a manner consistent with the Orange County Probation Department's recent efforts to pursue alternatives to incarceration, such as reformative programs designed to reduce the overall daily population of youth within its facilities. Between 2014 and 2024, the Orange County Probation Department saw a 50.3 percent decline in the average daily population of youth in its facilities. The proposed project would support this transition through the development of the YTC, a new and innovative camp facility for youth and TAY housing.

Portions of the Campus would be demolished for development of the YTC. The new YTC would meet or exceed State and County requirements for a juvenile detention facility and go above and beyond these requirements to provide a nurturing environment with the goal of significantly enriching the lives of youth within the YTC facility. The new structures would differ from traditional juvenile detention facilities through a new non-institutional design intended to foster a sense of calm and comfort, with the ultimate goal of promoting positivity and well-being within its youth population. The end product would result in the YTC with its own secure perimeter directly adjacent to the Juvenile Hall to serve the various populations of youth under their respective programs.

Through the design process, the building scope for the proposed project is planned to be up to approximately 117,905 square feet (sf) and would incorporate the addition of one alternative camp and enhanced security fencing requirements.

3.5 Project Phasing

Construction of the proposed project would occur in three phases, discussed in detail below. Table 3.B describes the building area of each structure that would be demolished under the proposed project.

Table 3.B: Buildings Proposed for Demolition (Square Feet)

Name/Description	Phase	Square Footage (Approximate)
Building #5 (Units A and I)	Phase 1	14,416
Building #9 (Units R and S)	Phase 1	10,387
Classroom Building #11	Phase 1	2,821
Classroom Building #10	Phase 1	2,514
Visitation Trailer	Phase 1	11,130
Library & Offices Building	Phase 1	11,573
Units O & M	Phase 1	12,721
Classroom Building #12	Phase 2	4,639
Classroom Building #19	Phase 2	4,788
Building #16 (Units G, H, J, and K)	Phase 2	20,600
	TOTAL	**95,589**

Table 3.C below details the total new construction occurring under the proposed project, including the planned area of each proposed building.

Table 3.C: New Buildings (Square Feet)

Name/Description	Phase	Square Footage (Approximate)
YTC Living Unit Buildings (2)	Phase 1	31,276
Vocational/Educational Building	Phase 1	12,678
Culinary Building	Phase 1	4,444
Transitional Housing	Phase 1	3,598
Administrative/Medical Health Building	Phase 1	12,587
Long Term Housing	Phase 2	20,375
Classroom/Library Building	Phase 2	14,360
Independent Living Building	Phase 2	18,587
	TOTAL	**87,223**

Note: These values are approximate and may be subject to change. They likely overestimate the area of each building to provide a conservative, worst-case scenario analysis.

As shown in Tables 3.B and 3.C, the proposed project would demolish a total of approximately 95,589 sf of existing structures within the Campus and would construct a total of approximately 117,905 sf in new structures, for a net increase of 22,316 sf.

3.5.1 Phase 1

Under Phase 1 of the proposed project, the following buildings in the northern portion of the project site would be demolished:

- Building #5, including Housing Unit A (currently occupied) and Housing Unit I (currently unoccupied)
- Building #9, including Housing Units R and S (both of which are currently unoccupied)
- Housing Unit M and Housing Unit O (both of which are currently occupied)
- Classroom Building #10
- Classroom Building #11
- Library and Offices Building
- Visitation Trailer

In addition to the existing permanent buildings, a visitation trailer on the northwestern corner of the Campus would be removed during Phase 1 of the proposed project. In place of the buildings, six buildings comprising the YTC would be developed. Phase 1 also proposes site access reconfigurations, new parking areas, outdoor recreational facilities, landscape development, and connections to the existing Juvenile Hall, discussed in further detail in Section 2.3.3 below.

3.5.2 Phase 2

Phase 2 of the proposed project involves demolition of the following three buildings:

- Classroom Building (located east of Housing Unit B)
- Classroom Building (located north of Building #14)
- Building #16, including Housing Units G and H (currently occupied) and Units J and K (currently unoccupied)

The Phase 2 scope includes a new long-term housing unit and a classroom library replacement building, both of which would be located outside of the YTC boundary but within the secure Campus. The proposed long-term housing facility would be constructed just south of the YTC boundary to provide long-term lodging for youths that allow for more independence and a "dorm-like" feeling with minimal visible security elements. Adjacent to the long-term housing facility would be a new classroom and library building to replace the four classrooms and library that are currently located in the Library and Offices Building. In addition, a new independent living unit would be constructed outside the secure perimeter of both Juvenile Hall and the YTC. The proposed independent living unit would provide youth that have been discharged with housing that would assist them during their transition back into society.

3.5.3 Phase 3

Phase 3 of the proposed project is currently being designed and is tentatively anticipated to consist of tenant improvements to existing building and units that are set to remain on the southwest and southeast areas of the Campus including an administrative/medical building, a control building, and a laundry warehouse and food service building adjacent to the existing independent living units. No demolition or construction is currently proposed under Phase 3.

Figure 3-5, Phasing Plan, depicts the demolition, phasing, and improvement plan for the proposed project, and Figure 3-6, Overall Site Plan, depicts the proposed project's site plan.

3.5.3.1 Youth Transition Center (YTC) Components

The YTC, to be completed during Phase 1, is the most extensive redevelopment plan in the proposed project and consists of six different buildings. The proposed YTC is designed to provide juvenile offenders with the healthcare, education, and skills necessary to re-enter society and avoid recidivism, along with a greater degree of freedom than under existing conditions. The YTC would consist of two distinct living unit buildings, a medical and behavioral health building, an educational and vocational building, a culinary kitchen building, and transitional living units. Additionally, outdoor facilities would include an exercise area, a horticulture area, a class area, and a living garden. Figure 3-7, YTC Site Plan, highlights the various components planned for the facility.

3.5.3.2 Administration, Medical and Behavioral Health Services Building

This proposed building, totaling approximately 12,587 sf, would contain space for both administration services and medical/behavioral health services.

The administration area is intended to support staff with facility and personnel management, training, counseling, and program administration. This space would include a working area for staff members, a storage room, an interior reception space, a 16-person conference room, and associated operational areas. The administration area would serve as the Campus frontage and entry point to the facility via Service Way South, positioned near the parking lot located at the northwest corner of the project site.

The proposed medical and behavioral health service area is intended to provide healthcare to resident youth in a relaxing environment. The space for the medical and behavioral health services would be located within the same building as the administration space, sharing the entry lobby and reception area.

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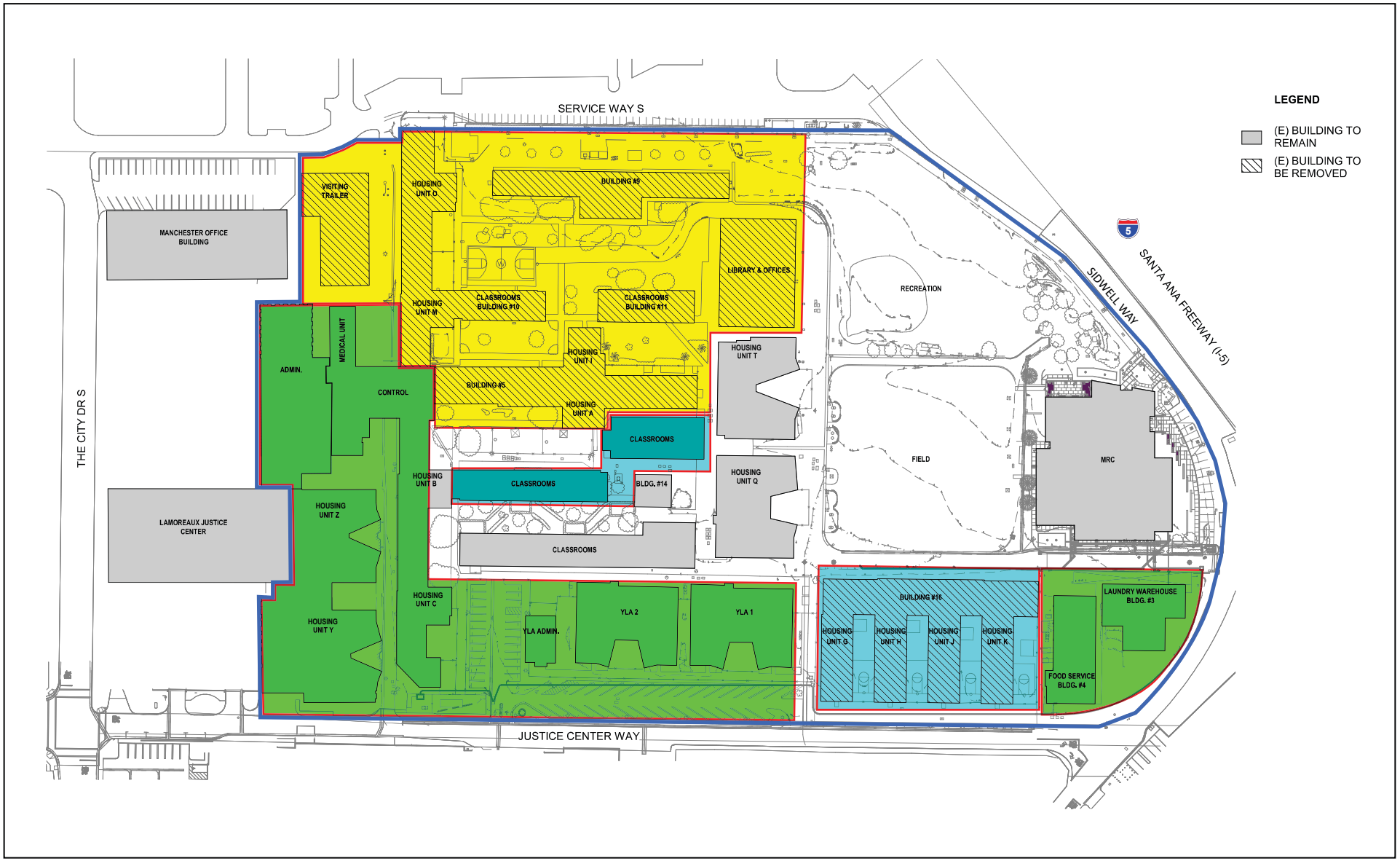

LSA

LEGEND

- Project Site
- Phase 1
- Phase 2
- Phase 3

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SOURCE: Lionakis

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FIGURE 3-5

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Phasing Plan

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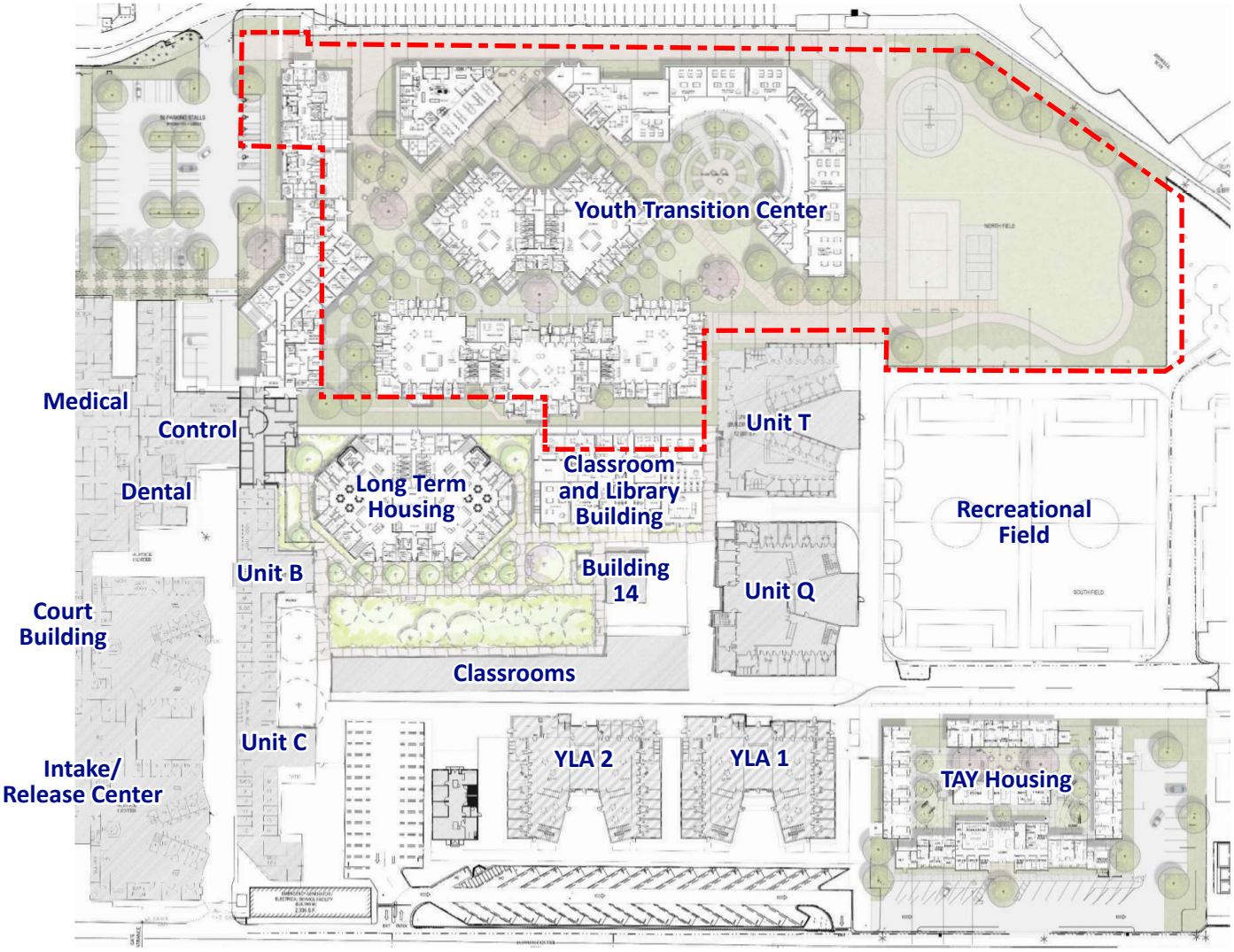

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LEGEND

Youth Transition Boundary

FIGURE 3-6

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NO SCALE

SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

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Orange County Youth Transition Center
Juvenile Hall Replacement Project
Overall Site Plan

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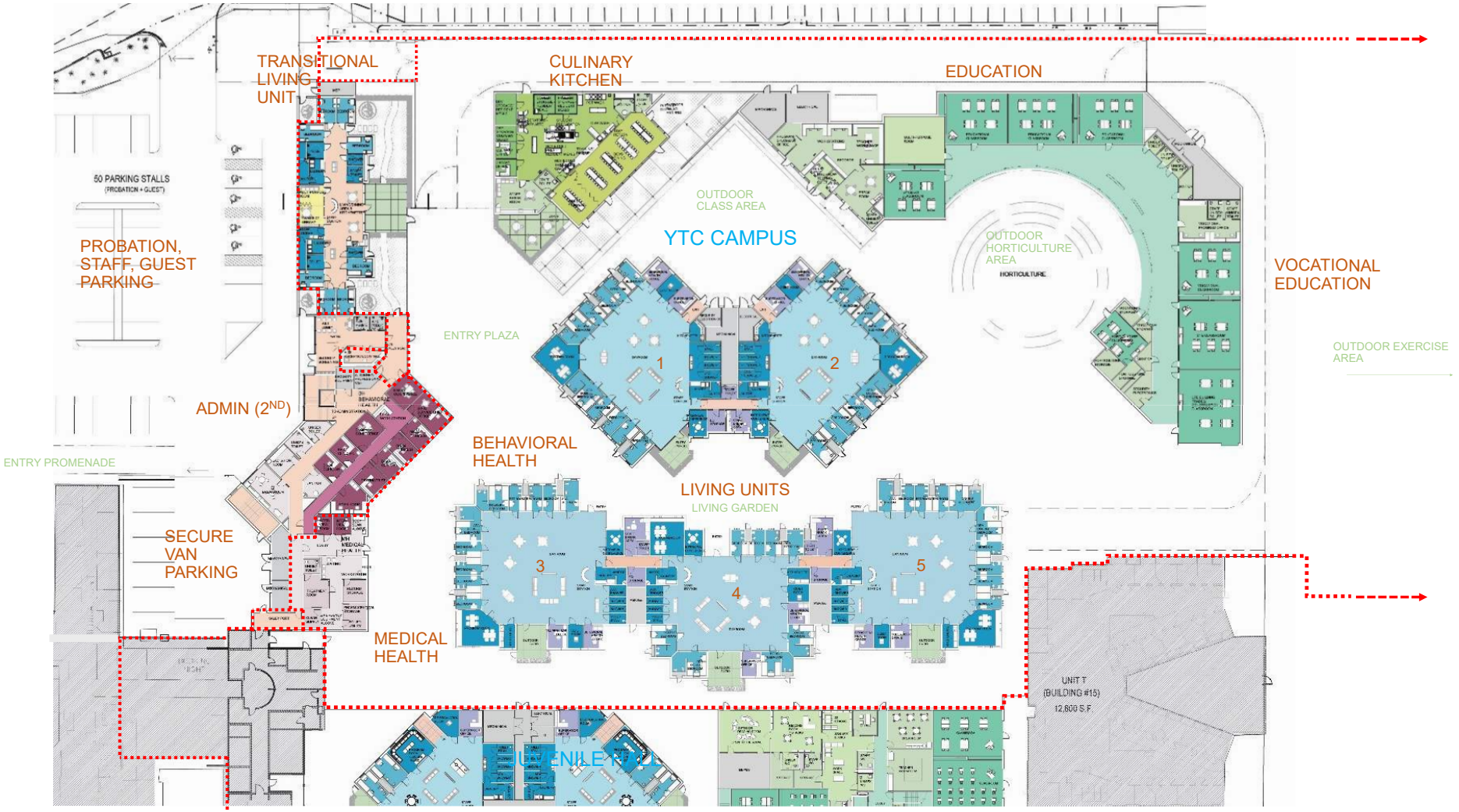

LSA

LEGEND

Security Perimeter

FIGURE 3-7

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NO SCALE

SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

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Orange County Youth Transition Center
Juvenile Hall Replacement Project

YTC Site Plan

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The medical and behavioral health area would provide a medical treatment room and a behavioral health program space. The medical treatment room would consist of a shared office for clinicians and doctors and include associated operational areas. The behavioral health program space would feature six behavioral clinician offices, a workroom, a director's office, and a counseling room. The parking lot near the front entrance would feature an accessible parking space dedicated for ambulances in the event of emergencies.

3.5.3.3 Educational and Vocational Programs Building

The proposed YTC educational and vocational programs building would consist of two educational classrooms, work room, multi-purpose room, and associated infrastructure. It would total approximately 12,678 sf and include a library shared with the remainder of the Campus. The proposed vocational component would include a vocational classroom, horticulture classroom, two Career and Technical Education (CTE) classrooms, storage, office, and other associated infrastructure. These proposed program components are intended to establish educational support to resident youth with the goals of completing high school curriculum or furthering education through college classes. These two programs would be combined into one building with shared support spaces, and programs would be designed with flexibility, providing access to Wi-Fi, laptops, and other technology to assist in learning. Two of the five proposed classrooms would be designated for Special Education use, and CTE classrooms would also have access to special resources supporting the programs including construction, culinary, music, video, animation, and robotics courses.

3.5.3.4 Culinary Kitchen and Dining Building

The proposed YTC culinary kitchen and dining building would total approximately 4,444 sf and provide three meals a day, seven days per week for youth and staff. The building would be located centrally within the YTC and used by all YTC youth housed in the living units. This building would include associated outdoor dining and barbecue areas and infrastructure.

3.5.3.5 YTC Living Units

The proposed YTC living units would consist of five units that can each house up to 12 youth. All of the units together would total 31,276 sf. Living units would share support and utility services but be kept separate to allow for division by gender and/or age. The living units would be single story and designed as a cohesive element of the YTC. The units would also be designed to have access to the surrounding facilities, including the culinary kitchen and dining building, and the educational and vocational building.

Facilities within the YTC living units would include living spaces, a dayroom, interview/counseling rooms, a multi-purpose room, a behavioral health office, a laundry area, an equipment room, and a quiet room. Each living unit would consist of one accessible bedroom, and eleven single-occupant standard bedrooms with a toilet and sink. Staff would have the ability to ensure safety in each of the units through electronic and physical keys, and in emergencies through central control. The bedrooms would be designed to be welcoming and colorful to youth residents.

3.5.3.6 Transitional Living Unit

The proposed YTC transitional living unit would include eight single occupant bedrooms, and shared spaces that include a combined living and dining area with a kitchenette, two bathrooms, music/tv/library room, multi-purpose room, laundry room, and associated infrastructure totaling approximately 3,598 sf. These transitional living units would be designed with the intent to prepare TAY residents for life outside of the Campus. These units would be considered "open" and unlocked during the day to allow youth to travel to and from work or school. This building would still be located within the secure perimeter and

include a staff pick-up and drop-off area for youth as they are prohibited from driving. As a safety measure, youth housed in transitional living units would not be allowed to intermingle with other YTC youth.

3.5.3.7 Recreational and Courtyard Spaces

Proposed YTC outdoor amenities would include a soccer and multi-purpose field, handball courts, a track, outdoor amphitheater and courtyard, and outdoor workout area. These amenities would be incorporated into a park-like area and have access to living units within the YTC. Additionally, the County proposes the potential repurposing of the existing baseball field into a sports/recreational field that would better serve the Campus. Proposed workout areas would be grouped underneath outdoor structures to allow youth to exercise in cold or warm weather.

The proposed amphitheater is intended to allow resident youth to watch movies or to host a speaker. All outdoor amenities would be designed in a manner consistent with the site's proposed landscaping, and the use of sidewalks would be encouraged. In addition, the YTC courtyard and garden areas would be landscaped and provide benches for visitors, residents, and staff.

3.5.4 Other Juvenile Hall Components

3.5.4.1 Independent Living Unit

The proposed independent living unit, totaling up to approximately 18,587 sf, is intended to provide temporary supportive housing for recently discharged youth to assist them in transitioning back into society. This element would consist of ten two-bedroom units with living rooms, kitchenettes, laundry areas, bathrooms, and storage rooms. In addition, the independent living complex would include a music/TV/library room, support office, an office for third-party visitors, multi-purpose room, fitness room, and other associated infrastructure.

The independent living units would be positioned on the southern edge of the Campus, outside of the secure perimeter of Campus. Residents would be free to enter and exit as they please, as this building is designed to feel separate from the remainder of the Campus. Parking would be provided along Justice Center Way. For safety purposes, those living in these units would not be permitted to interact with youth residing in other portions of the Campus, and at least one staff member would be on site 24/7 to provide monitoring. Figure 3-8, Independent Living Site Plan, depicts the independent living units site plan. The Independent Living Units are also known as the TAY Housing.

3.5.4.2 Long-Term Housing

The proposed long-term housing unit, totaling up to approximately 20,375 sf, would consist of one accessible bedroom and 11 standard bedrooms with two beds each, totaling 24 beds. Additionally, the long-term housing unit would include staff areas, a living area, de-escalation room, video visitation rooms, an interview/conference room, behavioral health office, laundry room, and associated operational and storage areas. This long-term housing unit is intended to help youth become more independent and provide a space that feels "non-correctional."

This building would be cohesively integrated into the Campus, and have an attached recreation space including landscaping, gardening, barbecuing, dining, and other recreational opportunities for residents. Figure 3-9, Long-Term Housing Site Plan, depicts the various features planned for the site.

LSA

LEGEND

Security Perimeter

FIGURE 3-8
Page 1 of 2

N

NO SCALE

SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

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Orange County Youth Transition Center
Juvenile Hall Replacement Project
TAY Housing Site Plan – Ground Floor

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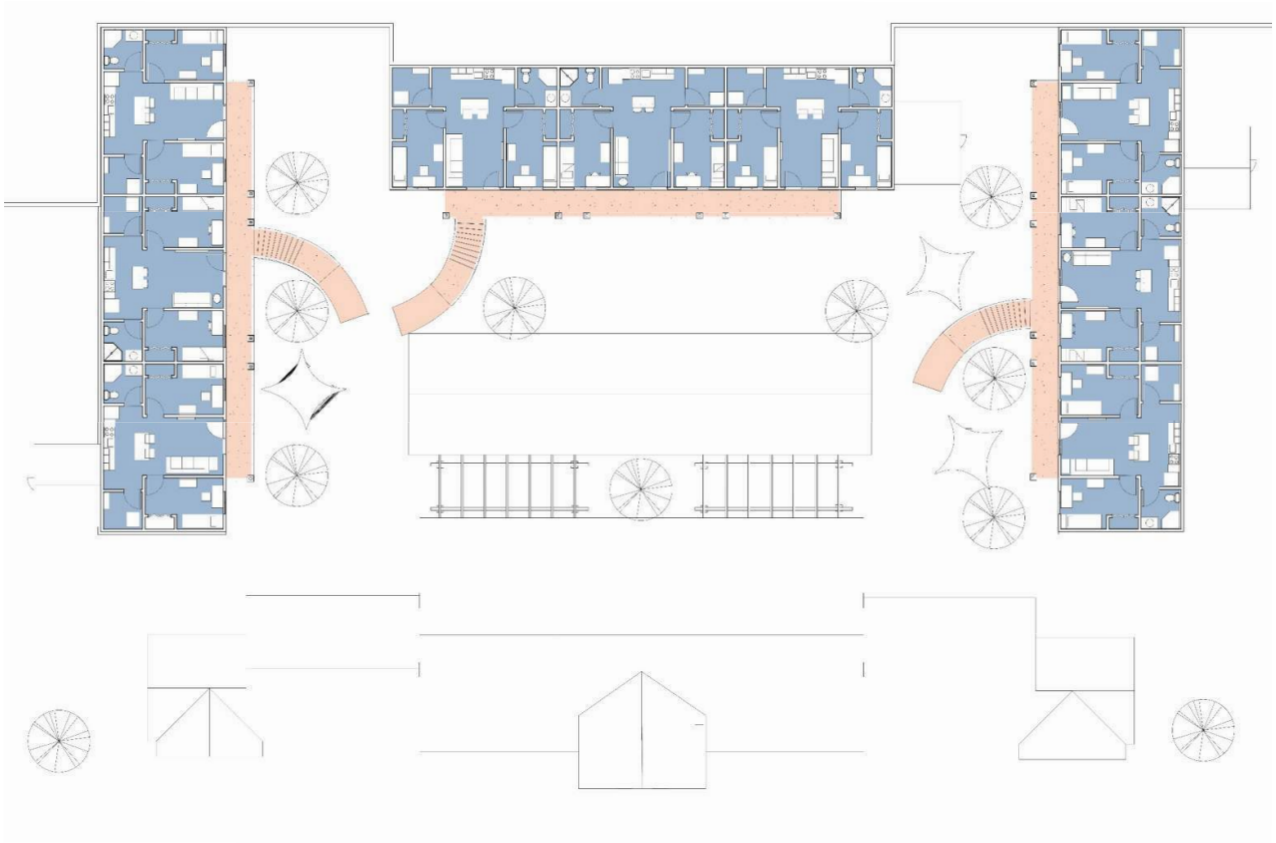

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FIGURE 3-8
Page 2 of 2

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NO SCALE

SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

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Orange County Youth Transition Center
Juvenile Hall Replacement Project
TAY Housing Site Plan – Second Floor

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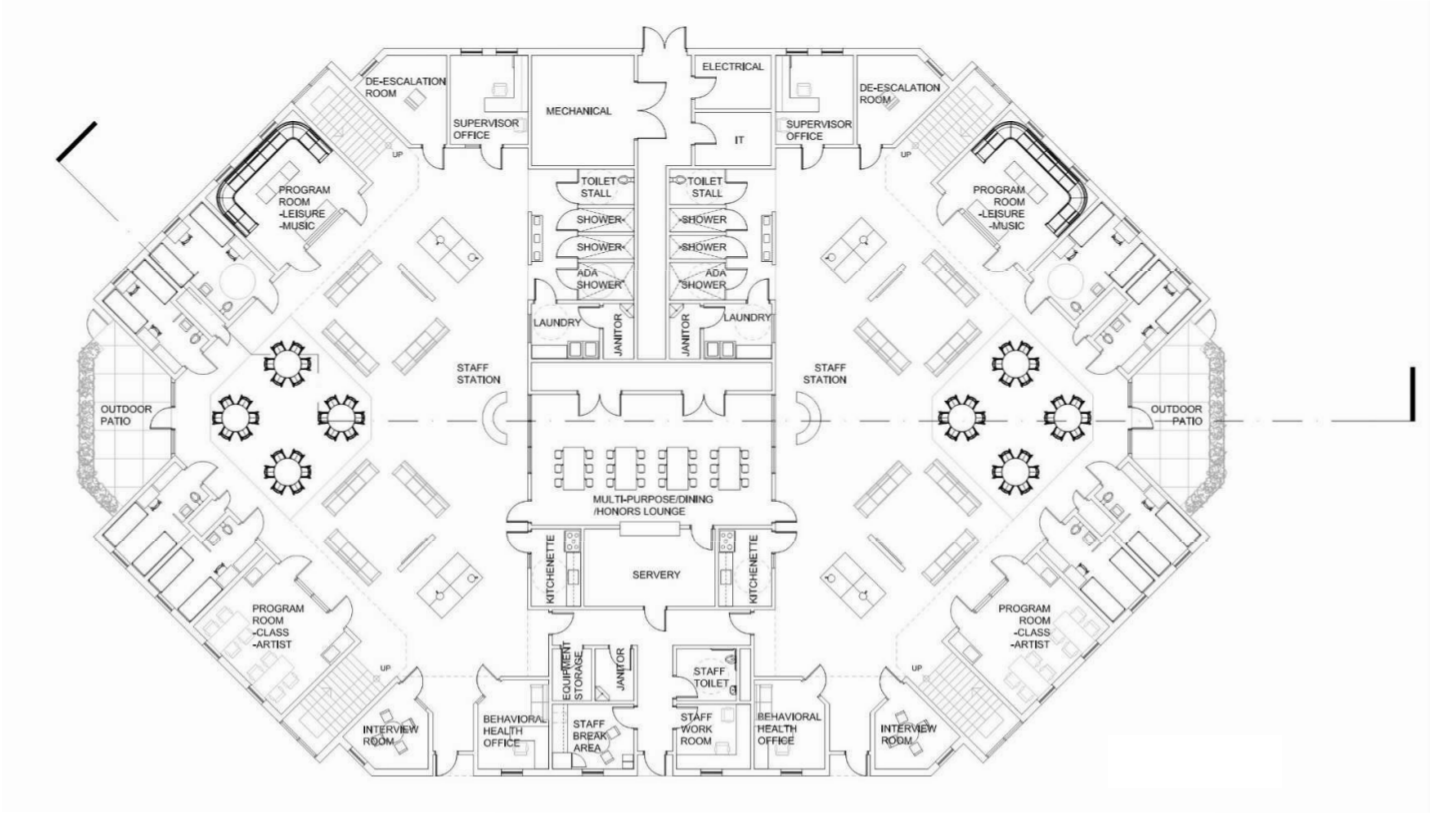

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FIGURE 3-9
Page 1 of 2

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SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

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Orange County Youth Transition Center
Juvenile Hall Replacement Project
Long-Term Housing Site Plan - Ground Floor

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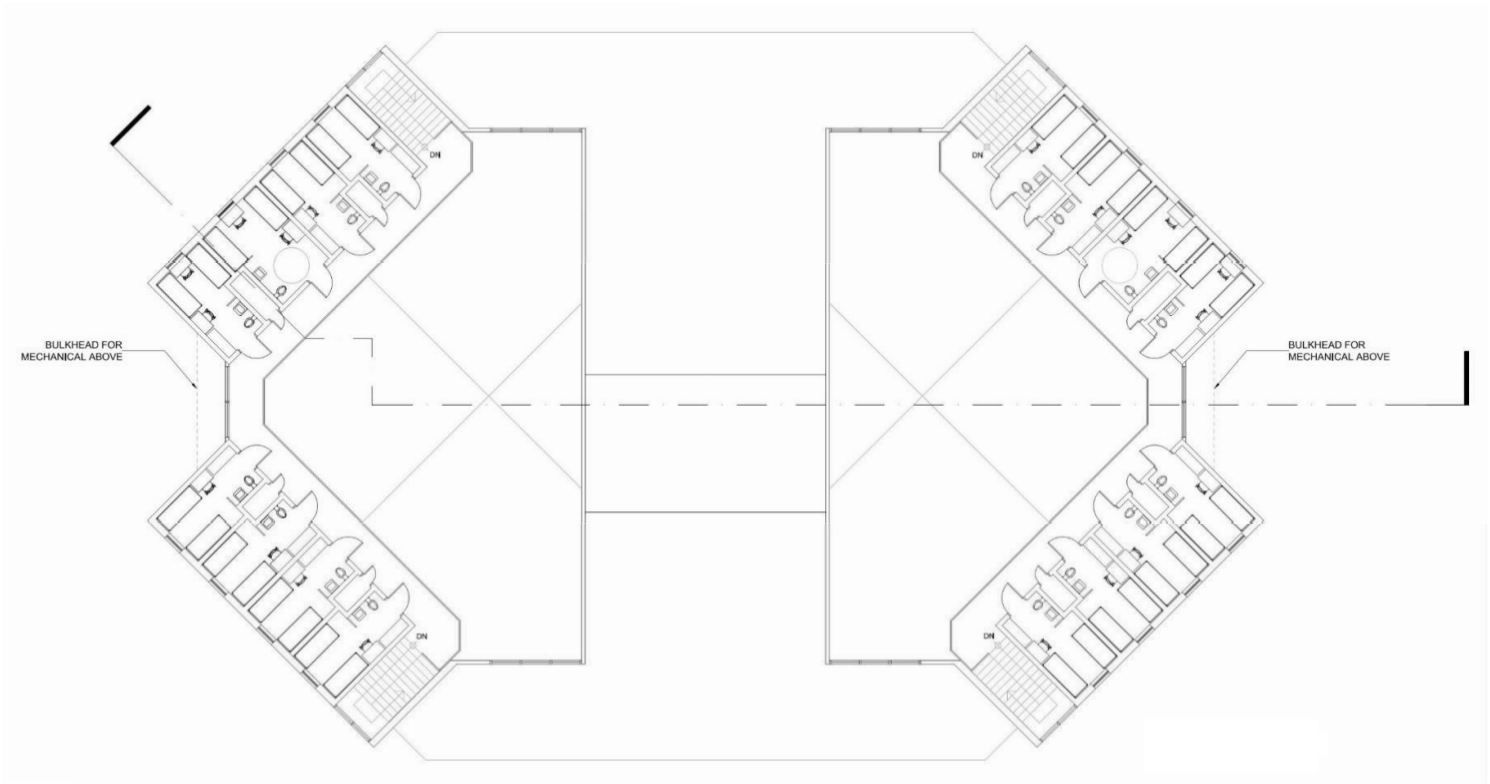

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FIGURE 3-9
Page 2 of 2

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SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

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Orange County Youth Transition Center
Juvenile Hall Replacement Project
Long-Term Housing Site Plan - Mezzanine Floor

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3.5.4.3 Classroom and Library Replacement

The proposed classroom and library replacement is intended to replace the existing four classrooms and library currently located in the Campus library and office building with a new classroom and library building. This building would total up to approximately 14,360 sf, consisting of four educational classrooms, an educational workroom, an office, library, and associated operational areas.

This building would be used by both Juvenile Hall youth and YTC youth and would be accessible from both portions of the Campus. The building is tentatively planned to be located in a central location of the Campus, east of the proposed Long-Term Housing. Figure 3-10, Classroom and Library Building Tentative Site Plan, depicts the various features planned for this use.

3.5.4.4 Daily Operations

The Orange County Probation Department is responsible for providing administrative duties for the Campus through their Juvenile Operations Bureau. The Juvenile Operations Bureau provides oversight and direction for the existing Juvenile Hall, YGC, and YLA. These facilities operate 24-hours-per-day, 7-days-per-week, providing a broad range of treatment and rehabilitative programs for resident youth, and the services currently provided at the YGC would be transferred onto the YTC site. The current YGC space, which is physically separated from the Campus by the Santa Ana River Channel, would become the Coordinated Re-Entry Center (CRC) for adults and would be operated by an external agency. As such, the existing YGC is not considered part of the proposed project or its physical footprint.

The proposed project is intended to provide a therapeutic and integrative approach to correctional juvenile facilities. The proposed developments are intended to be multi-use and flexible, providing access to open, outdoor, and green space. The non-institutional design is intended to provide dignity and hope while maintaining security. The proposed project intends to foster a sense of community with a campus-like environment, be adaptive to changing population needs, and provide functional working and living spaces for residents and staff alike.

The proposed project is intended to be youth focused, with numerous enrichment programs ranging from educational to specialized activities, with emphasis on behavioral counseling and a promotion of family participation to establish support systems.

3.5.4.5 Facility Capacity

In 2022, the average daily population of Juvenile Hall was 143 and the average population of YLA was 63. The proposed YTC living units and transitional living units would have a rated capacity of 68, while the proposed independent living units and long-term housing units would have rated capacities of 20 and 24, respectively. It is expected that one housing unit may be vacant upon completion and opening of the new facility and would be occupied at a later date.

3.5.4.6 Movement within the Campus

Movement between facilities, including Juvenile Hall, YLA, and the proposed YTC, would be directly supervised by staff, with the goal for the YTC to eventually allow youth unescorted movement between buildings. Entry and exit from secure areas would be achieved through a system of multiple secure doors, and individual or group movement would be controlled by staff escort in addition to monitoring through cameras at Juvenile Control.

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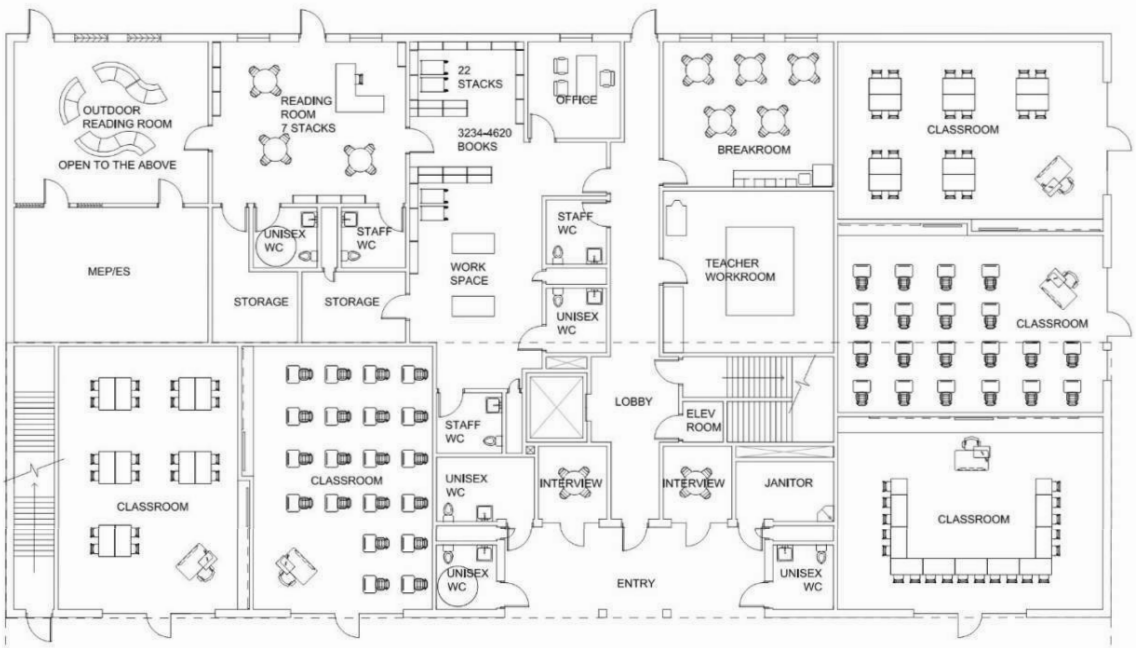

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FIGURE 3-10

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SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

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Orange County Youth Transition Center
Juvenile Hall Replacement Project
Classroom and Library Building Site Plan

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3.5.4.7 Programs

The proposed YTC is envisioned to provide several enriching programs, ranging from general education and CTE programs to music and horticulture programs. In addition, the existing MRC is used for religious activities, and the gymnasium and multi-purpose room are used for performance arts programs. The Orange County Department of Education provides comprehensive school curriculum for resident youth and provides physical education classes at the MRC. Under the proposed project, the MRC would continue to accommodate these programs and activities.

3.5.4.8 Physical and Mental Health Services

The Orange County Health Care Agency provides 24-hour medical care at the Campus. Upon entrance, initial mental health screenings are completed at the Juvenile Hall Intake and Release Center. The Orange County Health Care Agency and the Orange County Department of Education Safe Schools Division provide mental health services at the Campus. The YTC would be specifically designed to minimize the potential for self-harm or suicide attempts and utilize Orange County's robust suicide prevention program. Under the proposed project, the various physical and mental health services would continue to be provided by these agencies.

3.5.4.9 Disability and Accessibility Elements

The proposed project would be designed in compliance with all Americans with Disabilities Act (ADA) standards, including standards for path of travel and parking stall requirements. The proposed project would provide accessible living units and sufficient space for wheelchairs, gurneys, and other assistive devices. The proposed project would include one dedicated ambulance parking space in the parking lot located on the northwest portion of the Campus for use in the event of medical emergencies. Additionally, the ADA requires a minimum of 3 accessible parking spaces for facilities totaling 51 to 75 parking spaces, as discussed further in Section 3.5.7 below.

3.5.5 Building and Structural Design

Aesthetically, the proposed project is intended to be built consistent with the architectural style of the recently constructed MRC. The building design would be in accordance with all applicable County standards and guidelines and the proposed General Architectural Site Design Criteria. In addition, the proposed project has outlined criteria and plans for fire protection and sustainability on the Campus.

3.5.5.1 Fire Protection

The proposed project would incorporate fire protection through an automatic wet fire suppression system in accordance with the California Fire Code (CFC), National Fire Protection Association (NFPA) Standards, and local amendments. The suppression system would connect to a dedicated fire water supply line through a dedicated fire riser room space adjacent to the building's exterior. The suppression system would include drains, valves, monitoring, sprinklers, alarms, and an overall central control panel.

3.5.5.2 Sustainability

The proposed project would emphasize sustainability as a key goal and be designed in compliance with the California Green Building Standards Code (CALGreen Code) for residential and non-residential buildings to the extent feasible. Additionally, the proposed project would be designed to achieve a sustainability goal of Leadership in Energy and Environmental Design (LEED) Silver equivalency. The proposed project would include electric vehicle (EV) capable spaces and EV charging spaces pursuant to CALGreen Code standards, including 40 percent of total parking spaces for EVs, 25 percent of spaces to be EV ready (installation of Level 2 EV charging receptacles), 5 percent with Level 2 EV chargers, and 10 percent EV capable spaces (infrastructure is installed for future EV chargers).

3.5.6 Landscaping and Hardscaping

The proposed hardscape and landscape improvements for the proposed project would be considered an extension of the architecture on the Campus, and be designed consistent with the style, plant palette, and hardscape recently installed at the MRC facility. The proposed improvements are intended to unify the Campus, create distinct outdoor character, promote safe interactions, reinforce sustainable design, and protect and preserve existing mature trees.

Proposed hardscaping improvements to the YTC include additions at the entry arrival plaza and shaded accessible granite pathways with concrete edging, using materials, colors, textures, and forms consistent with the architectural style and MRC standard. In addition, landscaping additions include an educational and interpretive garden located at the northeast corner of the project site and native and drought-tolerant tree groves and shrub planting throughout the Campus. The proposed project would also include a horticultural program, high-efficiency irrigation equipment, and mulch planting areas for water retention, controlled water loss, erosion, and weed control.

Figure 3-11, YTC Landscaping Plan, details landscaping plans within the Campus, which the other project components would emulate.

3.5.7 Vehicle Access, Site Circulation, and Parking

Primary access to the project site would be from the northwest corner of the Campus, with additional access in between the Manchester office building and the existing Juvenile Hall Administration building. The proposed project includes the addition of two new parking lots. The first parking lot would be located in front of the administration building and would be accessible via Service Way South. An additional parking lot along Justice Center Way would be constructed to serve the independent living units.

Each parking lot would meet code requirements for accessible and electric vehicle charging stations (EVCS) parking spots, and would need to serve YTC staff, clinicians, community-based organizations, and visitors. Parking lots would also contain security measures to prevent contraband entry. In order to provide sufficient parking, the existing visitor trailer on the northwestern corner of the Campus would be removed and replaced with parking spaces during Phase 1 of the proposed project. Additional parking could also be provided along the site of the existing independent living units, and along the Facility Support building, which would be reserved and secured for staff only.

The proposed project would include 51 parking spaces including those required by code for EVCS and accessibility; 46 spaces would be designated for cars, while 5 spaces would be designated for vans. All proposed parking spaces would be implemented in compliance with both ADA and EVCS standards. According to ADA standards, three accessible parking spaces would be required for a facility of this size. In addition, EVCS standards require that at least 40 percent of the parking spaces be designated for EVs (25 percent of spaces to be EV ready, 5 percent with Level 2 EV chargers, and 10 percent to be EV capable spaces).

3.5.8 Utilities

The proposed project would add new wet utility laterals (i.e., sewer, water, storm drain) to the Campus to support the proposed new buildings, as needed. In addition, new electrical improvements would be provided for the proposed new buildings.

LSA

FIGURE 3-11

N

NO SCALE

SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

I:\O\OCY2001.48\G\Landscaping_Plan.ai (11/22/2024)

Orange County Youth Transition Center
Juvenile Hall Replacement Project
YTC Landscaping Plan

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3.5.8.1 Sewer

The proposed project would include one or more new 4-inch sewer laterals, and potential grease interceptors to be extended from the existing 10-inch mainline sewer system provided on the Campus. Any new proposed sewer laterals or grease interceptors would be verified and potholed during final design to ensure adequate fall for the existing gravity system. If field verification shows an inadequacy, a pump/injector system would be installed.

3.5.8.2 Storm Drainage and Stormwater

The proposed project would include new storm drainage laterals to be extended as needed from the existing 42-inch mainline storm drain provided on the Campus. In addition to the existing series of 24-inch by 24-inch inlets in the courtyard areas around the existing Campus buildings, the proposed project would add a new low point with a relocated inlet to direct storm flows to a water quality treatment basin. All hydrology and hydrologic calculations would be performed and verified for protection in a 100-year storm event according to the Orange County Hydrology Manual (1986) and its Addendum (1996) during final design.

The proposed project would capture on-site water via roof drains, atrium area rains, and catch basins located throughout the Campus. The project site would be designed to help route water into a series of designated bioretention basins prior to discharge. One storm drain would be connected to the existing mainline, which runs south along The City Drive and discharges into the Santa Ana River Channel, which ultimately leads to the Pacific Ocean. A site-specific Water Quality Management Plan ("WQMP") has been prepared for the proposed project and outlines Stormwater Management Best Practices ("BMPs") that are in compliance with this document, ensure conservation, and mimic natural hydrologic patterns.

The proposed project would provide a series of proposed bioretention planter systems in order to capture and treat stormwater runoff.

3.5.8.3 Electrical

The electrical and lighting plans for the proposed project are designed with flexibility, efficiency, sustainability, and maximization of building performance. The design, manufacture, testing, and method of installation of all apparatus and materials would conform with the latest applicable codes and standards. At a minimum, the proposed project would require new pull boxes and existing underground utilities to be rerouted in accommodation of the new construction.

The YTC would encompass most of the new construction, and therefore would require the most extensive changes and additions to electrical infrastructure. The YTC would include a main electrical room that would serve all the buildings on the north side of the Campus. In addition, a new main switchboard in the main electrical room would require a new electrical feeder to serve the YTC buildings. The independent living units would be served by an existing feeder in the facility.

All new and existing switchboards, panelboards, transformers, and conduit conductors would follow applicable codes, standards, and criteria. All new YTC buildings would be served by a new emergency generator, while the independent living units would be served by the existing generator. In addition, a new solar photovoltaic (PV) system and battery storage system would serve the new YTC buildings as required by the California Energy Code and California Building Code (CBC) Title 24.

The proposed project's interior, exterior, and emergency lighting designs would follow existing applicable standards. Lighting levels on site would conform to the Illuminating Engineering Society of North America Standards (IESNA). Energy efficiency would be achieved through zone lighting, task lighting, and the use of light-emitting diode (LED) luminaries.

Exterior lighting would adhere to existing on-site aesthetics and design standards and be designed to minimize light pollution and glare. Exterior lighting would comply with the latest IESNA handbook, and CBC Title 24. All new luminaires would be LED and incorporated into the Building Management System for the Campus. Additionally, emergency egress lighting to the adjacent public right-of-way would be provided.

Emergency egress lighting would be designed to meet National Electrical Code Requirements and emergency LED emergency "EXIT" signs would be provided.

3.5.8.4 Gas

The proposed project would include the use of natural gas, limited to the culinary kitchen. Existing natural gas infrastructure would serve the proposed project, including gas lines at the southern portion of the project site and gas lines within the northern portion of the Campus. Additional connections may be necessary.

3.5.9 Construction and Phasing

Construction of the proposed project would comply with the CBC, the County of Orange Building Department Requirements, and additional vertical design criteria including roof live load requirements, floor live load requirements, and vibration criteria. In addition, materials and construction would comply with mechanical and acoustic design requirements, minimum CBC solar readiness requirements, soil design criteria based on site-specific geotechnical and geohazard reports, and lateral design criteria including seismic, wind, and wall exterior cladding deflection. Phase 1 of the proposed project is estimated to begin in February 2025 and would last approximately 30 months, concluding in December 2027. The exact timelines of Phases 2 and 3 are yet to be determined, but it is anticipated that neither phase would have a duration longer than Phase 1.

During Phases 1 and 2 of demolition and construction, construction equipment would be staged on the northeastern side of the Campus, where the existing recreational field is located. Construction vehicles would access the project site via Justice Center Way to Sidwell Way. Additionally, a controlled construction access point south of the MRC would serve the project site during Phases 1 and 2.

3.5.9.1 Construction Materials

The proposed project's building materials would include concrete, plane joints, mortar, grout, reinforcing bars, concave mortar joints, steel, steel decking, steel framing, and wood framing. Structural materials and concrete properties would be designed to meet American Concrete Institution, American Society for Testing and Materials, the Division of the State Architect, the Society for Protective Coatings, the American Institute of Steel Construction, and CBC requirements. All cold formed steel framing products would be manufactured by either a current member of the Steel Stud Manufacturers Association or the Steel Framing Industry Association.

3.5.10 Grading and Earthwork

The existing grade on the project site is relatively flat, with gentle slopes ranging from 0.5 percent to 2 percent. The proposed pad grades and finish floor elevations for all new buildings would be elevated over the existing highest-grade point at the perimeter of each building, allowing surface drainage to be directed away from the proposed structures and toward appropriate drainage facilities. Existing earth materials in the building footprint areas would be excavated and properly compacted to an anticipated maximum depth of 6 feet (ft) below the existing ground surface. Deeper excavations could be conducted, as necessary, at the direction of the Geotechnical Engineer.

Grading would commence with the removal of all existing vegetation and improvements, and debris such as wood and root structures would be exported from the site. Fill and backfill soils would be placed in horizontal loose layers ranging from approximately 6 to 36 inches thick. It is not anticipated that the importation of soil would be necessary under the proposed project, as grading quantities are expected to be balanced on site.

The proposed project does not propose any retaining walls but may include vertical mounding landscaping improvements including planter drains and plaza drains in between buildings. An overall Campus Path of Travel Exhibit would be developed in accordance with ADA standards to confirm key walkway locations.

3.5.10.1 Demolition/Interim Security Fencing

Given the secure nature of the facility, security perimeter maintenance would be a top priority during construction of the proposed project. As such, in cases where demolition would occur near the existing security fence or would potentially compromise the fence, temporary security fencing would be installed.

3.5.11 Required Permits and Approvals

The County and other applicable agency approvals required for implementation of the proposed project may include, but are not limited to, the following:

County of Orange

- Adoption of the California Environmental Quality Act (CEQA) Final Initial Study with Mitigated Negative Declaration (IS/MND)
- Board of Supervisors Approval of Project Delivery and Construction Agreement Financing Program with State, Construction Agreement with State, Ground Lease, Right of Entry for Construction and Operation, Easement Agreement, Construction Contract, and Facility Sublease
- Approval of Water Quality Management Plan (WQMP)
- Approval of Plans, Specifications, and Estimates (PS&E)
- Temporary Construction Easements (TCEs), if necessary

Santa Ana Regional Water Quality Control Board

- National Pollutant Discharge Elimination System (NPDES) Construction General Permit
- Section 401 Water Quality Certification

Board of State and Community Corrections

- Cost, PS&E, and Final Construction Plans

State Fire Marshal

- Plans and Specifications

City of Orange

- Fire Inspections – Site Access Only

Various Utility Companies

- Encroachment Permits
- Easements

Chapter 4: Environmental Evaluation

4.1 Analysis Methodology

Analysis of potentially significant impacts of each of the environmental factors identified in Table 4.A below is based on the project site environmental setting, project description, and the sample questions/ thresholds of significance. Potentially significant impacts that are reduced below the level of significance by sample questions/thresholds of significance will detail how the potentially significant impact is reduced. Potentially significant impacts that are unable to be reduced below the level of significance will detain the various mitigation options applied and why none would reduce the impact.

The analysis will consider the whole of the actions and include the following:

- On-site impacts
- Off-site impacts
- Short-term construction impacts
- Long-term operational impacts
- Direct impacts
- Indirect impacts
- Cumulative impacts

4.2 Environmental Factors Potentially Affected

This document incorporates the Environmental Checklist Form from Appendix G of the CEQA Guidelines.

Table 4.A below lists the environmental factors that are evaluated in this document. Environmental factors that are checked contain at least one impact that has been determined to be a "Potentially Significant Impact." Environmental factors unchecked indicate those topics for which the project was determined to result in no impacts, less than significant impacts, or less than significant impacts with regulatory compliance measures, standard conditions, and mitigation measures incorporated into the project, as defined below:

- **Regulatory Compliance Measure (RCM):** A regulatory compliance measure is mandated by federal, State, regional, or local statutes and regulations. Because a regulatory compliance measure is derived from a legal requirement, it is applicable to all projects within a particular jurisdiction. A regulatory compliance measure is therefore not specific to individual projects and is applicable regardless of whether any potentially significant impacts would occur under a proposed project. Failure to comply with a regulatory compliance measure could result in legal action against a project.
- **Standard Condition (SC):** A standard condition, or standard condition of approval, is established by a lead agency, in this case OC Public Works, and is applicable to all projects subject to discretionary approval by the lead agency. A standard condition is therefore not specific to individual projects and is applicable regardless of whether any potentially significant impacts would occur under a proposed project. Failure to comply with a lead agency's standard condition(s) may prevent a proposed project from being approved.
- **Mitigation Measure (MM):** As defined in *State CEQA Guidelines* Section 15126.4, a mitigation measure is a measure that could minimize significant adverse impacts of a proposed project, and is only required when significant adverse impacts could potentially occur. A mitigation measure is fully enforceable through permit conditions, agreements, or other legally-binding instruments, and is often tracked through a Mitigation Monitoring and Reporting Program (MMRP).

Table 4.A: Environmental Factors Potentially Affected

☐ Aesthetics (4.5)	☐ Mineral Resources (4.16)
☐ Agriculture & Forestry Resources (4.6)	☐ Noise (4.17)
☐ Air Quality (4.7)	☐ Population & Housing (4.18)
☐ Biological Resources (4.8)	☐ Public Services (4.19)
☐ Cultural Resources (4.9)	☐ Recreation (4.20)
☐ Energy (4.10)	☐ Transportation (4.21)
☐ Geology and Soils (4.11)	☐ Tribal Cultural Resources (4.22)
☐ Greenhouse Gas Emissions (4.12)	☐ Utilities & Service Systems (4.23)
☐ Hazards & Hazardous Materials (4.13)	☐ Wildfire (4.24)
☐ Hydrology & Water Quality (4.14)	☐ Mandatory Findings (4.25)
☐ Land Use & Planning (4.15)	

4.3 Thresholds of Significance

Thresholds of significance are identifiable quantitative, qualitative or performance level standards of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by a Lead Agency and compliance with which means the effect will normally be determined to be less than significant (*State CEQA Guidelines* §15064.7(a)).

With the exception of Transportation Vehicle Miles Traveled (VMT), the County has not adopted specific thresholds of significance and rather relies upon the specific questions relating to the topical environmental factors listed in Appendix G of the *State CEQA Guidelines* to assist in the determination of a potentially significant impact. The Orange County Board of Supervisors adopted County VMT guidelines at its November 17, 2020, meeting pursuant to SB 743 to include VMT analysis methodology and thresholds. The implementation of SB 743 requires CEQA documents to include VMT analysis for land use projects.

4.4 Environmental Baseline

To adequately determine the significance of a potential environmental impact, the environmental baseline must be established. *State CEQA Guidelines* Section 15125(a) states in pertinent part that the existing environmental setting will normally constitute the baseline physical conditions that will assist the County in a determining if an impact is significant.

Therefore, the environmental baseline for this project constitutes the existing physical conditions as they exist at the time that the environmental process commenced.

4.5 *Aesthetics*

Except as provided in Public Resources Code Section 21099, would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Question 4.5 a): Have a substantial adverse effect on a scenic vista?

Response to Question 4.5 a):

Less than Significant Impact. The project site is located in a relatively flat, urbanized portion of the City of Orange, directly west of I-5. The surrounding area contains a large cluster of government/institutional uses known as the Manchester Complex, which includes the University of California Irvine (UCI) Medical Center, the Orangewood Children's Home, the Theo Lacy Jail, the Lamoreaux Justice Center, and various related buildings.

Viewsheds refer to the visual qualities of a geographical area that are defined by the horizon, topography, and other natural features that give an area its visual boundary and context, or by development that has become a prominent visual component of the area. Similarly, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the public. Aesthetic components of a scenic vista generally include (1) scenic quality, (2) sensitivity level, and (3) view access. According to the Natural Resources Element of the City of Orange General Plan, portions of the City are characterized

by scenic vistas that include hillsides, ridgelines, or open space areas that provide a unifying visual backdrop to the urban environment. The City's General Plan identifies the largely undeveloped Santiago Hills and East Orange portions of the City as scenic resources, and Santiago Canyon Road as a planned City Scenic highway, which the City aims to preserve.[1] These scenic resources are located in the eastern portion of the City, approximately 11 miles east of the project site. The scenic views associated with these resources are not visible from the project site due to distance, terrain, and intervening urban development.

The project site is directly adjacent to the Santa Ana River Trail, which is designated as an open space corridor and potential scenic resource by the Orange County General Plan Resources Element. However, the proposed project would be constructed within the footprint of the existing Campus, which currently consists of several buildings and a secure fenced perimeter. Existing views of the project site from the Santa Ana River Trail are partially obstructed by a brick wall. The southeast portion of the Campus is partially visible, including the existing MRC. Demolition and construction associated with the proposed project would not impact the MRC, and therefore any existing views of the project site from the Santa Ana River Trail would not change.

The project site itself is currently developed with the Campus, generally consisting of institutional structures and minimal landscaping. In comparison, the proposed project involves architectural design elements and a comprehensive landscaping plan intended to soften the institutional appearance of the proposed structures and improve their aesthetic appearance. Therefore, demolition and development activities associated with the proposed project would have less than significant impacts related to scenic vistas, and no mitigation would be required.

Question 4.5 b): Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Response to Question 4.5 b):

No Impact. The California Department of Transportation (Caltrans) manages the State Scenic Highway Program (see Streets and Highways Code Sections 260-263). The State legislature created the State Scenic Highway Program to conserve and protect scenic highways and adjacent corridors from changes that would diminish their aesthetic value. A State highway may be designated scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. A scenic corridor is the land generally adjacent to and visible from a highway and is identified using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon.

State Scenic Highways can be classified as either "eligible" or "officially designated." The nearest designated State Scenic Highway to the project site is California State Route 91 (SR-91), which is located approximately 5.4 miles northeast of the project site.[2] The project site is not visible from this designated State Scenic Highway. Therefore, the proposed project would have no impact on scenic resources

[1] City of Orange. 2015. City of Orange General Plan. Natural Resources Element. Visual and Aesthetic Resources. Website: https://www.cityoforange.org/home/showpublisheddocument/210/637698172559270000 (accessed October 2024).

[2] California Department of Transportation (Caltrans). 2019. State Scenic Highway Mapper. Website: https://www.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa (accessed October 2024).

including trees, rock outcroppings, and historic buildings within a State Scenic Highway, and no mitigation would be required.

Question 4.5 c): Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Response to Question 4.5 c):

Less than Significant Impact.

Site Character and Quality. The project site is located in an urbanized portion of the City of Orange and is currently developed with the Campus, including various institutional buildings, two athletic fields, paved walkways, minimal landscaping, hardscaping, and a secure perimeter fence. The proposed project intends to demolish several of these buildings and replace them with the YTC and associated facilities.

As previously stated, the proposed project intends to improve aesthetic and visual quality within the project site by implementing more extensive landscaping, hardscaping, and outdoor improvements. Additionally, all proposed buildings would replicate a campus-like environment, straying from the existing institutional character, and replicating the architectural and aesthetic design of the recently developed MRC.

All proposed development would be consistent with the policies set forth in the City of Orange's General Plan Land Use designation of Public Facilities and Institutions (PFI),[3] and the design guidelines and development standards of the City of Orange's Public Institution (P-I) zoning district.[4] As the proposed project intends to improve the visual character and quality of the project site, there would be a positive impact on site character and quality. Therefore, the proposed project's impacts related to site character and quality would be less than significant, and no mitigation is required.

Surrounding Character and Quality. The area immediately surrounding the project site is heavily characterized by public institutional uses, including the UCI Medical Center, Orangewood Children's Home, and the Lamoreaux Justice Center complex. Surface and garage parking areas and I-5 are also located in the surrounding area, as is the Santa Ana River and an adjacent Class 1 bicycle path. The project site and surrounding area are in an area designated for Public Facilities and Institutional land uses by the City of Orange General Plan and the Public Institution zoning district. The proposed land uses are consistent with both the applicable General Plan land use and zoning.

From the north, the project site's secure perimeter fence is visible from Service Way South. From the east, views of the proposed project's secure perimeter and obstructed views of existing Campus structures may be seen from Sidwell Way, whereas existing soundwalls on the west side of I-5 obscure visibility to the project site. From the south, intervening structures associated with the Orangewood Children's Home obstruct visibility to the project site. State Route 22 (SR-22), located approximately 0.3 mile south of the project site, offers partially obstructed views of the Lamoreaux Justice Center, while visibility to the

[3] City of Orange. 2015. City of Orange General Plan Land Use Element. Website: https://www.cityoforange.org/home/showpublisheddocument/208/637698172555630000 (accessed October 2024).

[4] City of Orange. City of Orange Zoning Map. Website: https://www.cityoforange.org/home/showpublisheddocument/40/637707607413300000 (accessed October 2024).

project site is concealed by existing infrastructure at the Theo Lacy Facility. Views of the project site's secure perimeter, parking lots, Youth Leadership Academy, and Independent Living Units can be seen from Justice Center Way, adjacent to the southern portion of the facility.

As the proposed project would demolish several of the structures on the project site and replace them with improved facilities that would feature extensive landscaping, improved architectural design, and an aesthetic shift from an institutional to a campus-like environment, the visual character and quality of public views of the project site would also be improved upon project completion. Therefore, public views around and from surrounding areas would not be adversely impacted by the proposed project, and impacts would be less than significant. No mitigation is required.

Question 4.5 d): Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

Response to Question 4.5 d):

Less than Significant Impact. Under existing conditions, the project site produces exterior light and glare from buildings and security lighting. Existing sources of light in the project site vicinity are typical of commercial areas of the City and include streetlights and headlights on nearby roadways, building facade and interior lighting, and pole-mounted lighting in pedestrian and parking areas of adjacent developments. Lighting from existing surrounding development within the City also contributes to the background lighting in the project vicinity.

The proposed project would include the installation of new indoor and outdoor lighting throughout the facility, including interior lighting, site lighting, emergency egress lighting, and lighting controls. These light sources would be comparable to lighting under existing conditions and would replace some of the lighting associated with the current uses on site. All new lighting would be LED luminaires designed to minimize light pollution and glare while also meeting the light distribution requirements for the area. In addition, all exterior lighting and egress emergency lighting would be in compliance with the latest edition of the IESNA Lighting Handbook, 10th Edition (2011) and the 2025 State Building Energy Efficiency Standards (Title 24), which governs structural safety and sustainability for California's public buildings. Additionally, the proposed project would provide vandal resistant lighting and architectural exterior canopies for both architectural enhancement and daylight/glare control.

The proposed lighting sources would be similar to other lighting sources in the project site vicinity and would not generate artificial light levels that are out of character with the surrounding area, which is densely developed and characterized by a high degree of human activity and ambient light during the day and night. Further, the proposed project would comply with Section 7-9-67 of the County's Zoning Code, which states that "all lighting shall be designed and located so as to confine direct rays to the premises".[5] As such, the design of the proposed project would minimize lighting spillover toward surrounding land uses.

[5] County of Orange. 2024. County of Orange Comprehensive Zoning Code. July 25. Website: https://ocds.ocpublicworks.com/sites/ocpwocds/files/2024-08/Adopted%20Orange%20County%20Zoning%20Code%207-25-24.pdf (accessed November 2024).

In addition to light fixture design considerations as discussed above, landscaping associated with the proposed project would also be designed in a manner to shield surrounding land uses from potential glare. With adherence to the Orange County Zoning Code and given the illumination of the project site under existing conditions, the proposed project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the surrounding urban area. Impacts would be less than significant, and no mitigation is required.

4.6 *Agriculture and Forestry Resources*

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code 12220 (g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51004)g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or forest land to non-forest use?	☐	☐	☐	☒

Question 4.6 a): Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Response to Question 4.6 a):

No Impact. The project site is located in an urbanized and developed portion of the City of Orange. Pursuant to Government Code Section 65570, the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) compiles consistent, timely, and accurate data to decision makers for use in planning for the present and future of California's agricultural land resources. The FMMP provides maps and statistical data to the public, academia, and local, State, and federal governments on the nature, location, and extent of farmland, grazing land, and urban built-up areas in the State. According to the California Department of Conservation's California Important Farmland Finder, the project site is designated as Urban and Built-Up Land.[6] The project site does not contain any agricultural soils and is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, the proposed project would not convert any existing Farmland to a non-agricultural use. No impact would occur, and no mitigation is necessary.

Question 4.6 b): Conflict with existing zoning for agricultural use, or a Williamson Act contract?

Response to Question 4.6 b):

No Impact. The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is a nonmandated State program, administered by counties and cities to preserve agricultural land and discourage the premature conversion of agricultural land to urban uses. According to the California Department of Conservation California Williamson Act Enrollment Finder, Orange County did not report any Williamson Act data in 2023.[7] Therefore, the project site does not conflict with any agricultural zoning or Williamson Act contract sites. No impact would occur, and no mitigation is necessary.

Question 4.6 c): Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code 12220 (g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51004)(g))?

[6] California Department of Conservation. n.d. California Important Farmland Finder. Website: https://maps.conservation.ca.gov/dlrp/ciff/ (accessed October 2024).

[7] California Department of Conservation. n.d. California Williamson Act Enrollment Finder. DLRP Important Farmland Finder. Website: https://maps.conservation.ca.gov/dlrp/WilliamsonAct/App/index.html (accessed October 31, 2024).

Response to Question 4.6 c):

No Impact. The project site is not located within an area zoned for forest land, timberland, or timberland zoned Timberland Production, nor would it result in rezoning of these resources. Therefore, no impact would occur, and no mitigation is necessary.

Question 4.6 d): Result in the loss of forest land or conversion of forest land to non-forest use?

Response to Question 4.6 d):

No Impact. As described above, the project site is urbanized and developed and does not contain forest land. Accordingly, the proposed project would not result in the loss or conversion of forest land to non-forest use. No impact would occur, and no mitigation is necessary.

Question 4.6 e): Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or forest land to non-forest use?

Response to Question 4.6 e):

No Impact. Refer to the responses above. The proposed project would not affect any Farmland or forest land. No impact would occur, and no mitigation is necessary.

4.7 *Air Quality*

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors affecting a substantial number of people?	☐	☐	☒	☐

The project site is within the South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) is the regional government agency that monitors and regulates air pollution within the Basin. The federal Clean Air Act and the California Clean Air Act mandate the control and reduction of specific air pollutants. Under these respective laws, the United States Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established ambient air quality standards for specific "criteria" pollutants, designed to protect public health and welfare. Primary criteria pollutants include carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_X), particulate matter that is less than 10 microns in diameter (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). Secondary criteria pollutants include ozone (O_3), and particulate matter that is less than 2.5 microns in diameter ($PM_{2.5}$). The ambient air quality standard for each criteria pollutant represents the level that is considered safe to the public and avoids specific adverse health effects associated with each criteria pollutant.

The Basin is in nonattainment of the federal and State standards for O_3 and $PM_{2.5}$, and in nonattainment of the State PM_{10} standard. In addition, the Basin is in attainment/maintenance of the federal PM_{10}, CO, SO_2, and nitrogen dioxide (NO_2) standards. The SCAQMD has established project-level thresholds for VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$, shown in Table 4.7.A. The SCAQMD considers any project in the Basin with construction- or operation-related emissions that exceed any of the emission thresholds shown in Table 4.7.A to have potentially significant impacts.

Table 4.7.A: SCAQMD Construction and Operation Thresholds of Significance

Emission Source	Pollutant Emissions Threshold (lbs/day)					
	VOCs	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Thresholds	75	100	550	150	150	55
Operation Thresholds	55	55	550	150	150	55

Source: South Coast Air Quality Management District (1993).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_2 = sulfur dioxide
VOC = volatile organic compounds

In addition, the SCAQMD published its Final Localized Significance Threshold Methodology in June 2003 (updated July 2008), recommending that all air quality analyses include an assessment of air quality impacts to nearby sensitive receptors.[8] This guidance was used to analyze potential localized air quality impacts associated with construction of the proposed project. Localized significance thresholds (LSTs) have been established based on the size or total area of the emission source, the ambient air quality in the source receptor area, and the distance between the project and the nearest sensitive receptor. The SCAQMD defines structures that house persons (e.g., children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise) or places where they gather as sensitive receptors (i.e., residences, schools, hospitals, playgrounds, child-care centers, convalescent centers, retirement homes, and athletic fields). The closest sensitive receptors to the project site include medical facilities (UC Irvine Medical Center) which are located approximately 100 ft north of the northern boundary of the project site. Other sensitive receptors include the Orangewood Children's Home located approximately 470 ft south of the southern boundary of the project site.

LSTs are based on the ambient concentrations of a particular pollutant within the project Source Receptor Area (SRA) and the distance to the nearest sensitive receptor. For the proposed project, the appropriate SRA for the LST is Central Orange County (SRA 17). The SCAQMD provides LST screening tables for 25-, 50-, 100-, 200-, and 500-meter source-receptor distances. As mentioned above, the closest sensitive receptor to the project are the medical facilities (UC Irvine Medical Center) located approximately 100 ft north (30 meters) of the project site. Based on the anticipated construction equipment, it is assumed that the maximum daily disturbed area for the proposed project would be 5 acres.[9] In addition, the project site is 17 acres; therefore, the operational LST is based on the maximum 5.0-acre threshold. Table 4.7.B shows the emissions thresholds that would apply based on the project size and distance to nearby receptors during project construction and operation, respectively.

Table 4.7.B: SCAQMD Localized Significance Thresholds

Emissions Source	Pollutant Emissions Threshold (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Construction (5.0-acres, 100-foot distance)	180.0	1,349.0	18.0	7.4
Operations (5.0-acres, 100-foot distance)	180.0	1,349.0	4.4	2.2

Source: Final Localized Significance Threshold Methodology (SCAQMD 2008).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
SCAQMD = South Coast Air Quality Management District

[8] South Coast Air Quality Management District (SCAQMD). 2008. Final Localized Significance Threshold Methodology. July. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf (accessed November 2024).

[9] SCAQMD. n.d. Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. Website: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod- guidance.pdf (accessed November 2024).

Question 4.7 a): Conflict with or obstruct implementation of the applicable air quality plan?

Response to Question 4.7 a):

Less than Significant Impact. An Air Quality Management Plan (AQMP) describes air pollution control strategies to be undertaken by a city or county in a region classified as a nonattainment area to meet the requirements of the federal Clean Air Act. The main purpose of an AQMP is to bring an area into attainment of federal and State ambient air quality standards (AAQS). The Basin is in nonattainment for the federal and State standards for O_3 and $PM_{2.5}$. Therefore, the Basin is classified as a nonattainment area and an AQMP is required. The applicable air quality plan is the SCAQMD's adopted 2022 AQMP.[10] The AQMP is based on regional growth projections developed by the Southern California Association of Governments (SCAG).

A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to air quality plans. A consistency determination fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are addressed. Only new or amended General Plan elements, Specific Plans, and significantly unique projects need to undergo a consistency review given that the air quality plan strategy is based on projections from local General Plans.

The proposed project would include the demolition of 95,589 sf of existing uses to construct a new Youth Transition Center (YTC). The YTC would include housing for youth, dining, culinary, education, and vocational spaces along with recreational exterior areas for combined total of 117,905 sf of building area. The proposed project is not considered a project of statewide, regional, or area-wide significance (e.g., large-scale projects such as airports, electrical generating facilities, petroleum and gas refineries, residential developments of more than 500 dwelling units, and shopping centers or business establishments employing more than 1,000 persons or encompassing more than 500,000 sf of floor space) as defined in the California Code of Regulations (Title 14, Division 6, Chapter 3, Article 13, §15206(b)). Because the proposed project would not be defined as a regionally significant project under CEQA, it does not meet SCAG's Intergovernmental Review criteria.

The County's General Plan is consistent with the SCAG Regional Comprehensive Plan Guidelines and the SCAQMD AQMP. Pursuant to the methodology provided in the SCAQMD *CEQA Air Quality Handbook,* consistency with the Basin 2022 AQMP is affirmed when a project: (1) would not increase the frequency or severity of an air quality standards violation or cause a new violation and (2) is consistent with the growth assumptions in the AQMP. Consistency review is presented as follows:

1. The proposed project would result in short-term construction and long-term operational pollutant emissions that are all less than the CEQA significance emissions thresholds established by SCAQMD, as demonstrated in Response 4.7(b), below. Therefore, the proposed project would not result in an increase in the frequency or severity of an air quality standards violation or cause a new air quality standards violation.

[10] SCAQMD. 2022 Air Quality Management Plan. December 2. Website: aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16 (accessed November 2024).

2. The *CEQA Air Quality Handbook* indicates that consistency with AQMP growth assumptions must be analyzed for new or amended General Plan elements, Specific Plans, and significant projects. Significant projects include airports, electrical generating facilities, petroleum and gas refineries, designation of oil drilling districts, water ports, solid waste disposal sites, and offshore drilling facilities. The proposed project would involve the construction of a new YTC and associated uses, totaling 117,905 sf of building area. Therefore, the proposed project would not be defined as significant. In addition, the proposed project would not require a change to the General Plan land use designation or the current zoning, and would be consistent with the County's General Plan and Zoning Ordinance.

Based on the consistency analysis presented above, the proposed project would not conflict with or obstruct implementation of the applicable air quality plan. Impacts would be less than significant, and no mitigation is required.

Question 4.7 b): Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Response to Question 4.7 b):

Less than Significant Impact. As identified above, the Basin is currently designated as being in nonattainment of the federal and State standards for O_3 and $PM_{2.5}$. The Basin's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, to result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the SCAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified SCAQMD significance thresholds identified in Table 4.7.A, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is not necessary. The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the proposed project.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by site preparation and grading activities. Emissions from construction equipment are also anticipated and would include CO, NO_X, VOC, directly emitted $PM_{2.5}$ or PM_{10}, and toxic air contaminants such as diesel exhaust particulate matter.

Project construction activities would include demolition, site preparation, grading, building construction, architectural coating, and paving activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction

activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and amount of operating equipment. Larger dust particles would settle near the source, whereas fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. SCAQMD has established Rule 403: Fugitive Dust, which would require the project Applicant to implement measures that would reduce the amount of particulate matter generated during the construction period. The Rule 403 measures that were incorporated in this analysis include:[11]

- Water active sites at least three times daily (locations where grading is to occur shall be thoroughly watered prior to earthmoving).

- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet (0.6 meter) of freeboard (vertical space between the top of the load and the top of the trailer) in accordance with the requirements of California Vehicle Code Section 23114.

- Reduce traffic speeds on all unpaved roads to 15 miles per hour or less.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, sulfur oxides (SO_X), NO_X, VOCs, and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles idle in traffic. These emissions would be temporary in nature and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the California Emissions Estimator Model (CalEEMod) version 2022.1. As described in Chapter 3, Project Description, construction of the proposed project would occur in three phases. Phase 1 of the proposed project would include the demolition of approximately 65,589 sf and the construction of the five living units, educational buildings, culinary kitchen, transitional housing, and the administration/medical health buildings. Phase 2 of the proposed project would include the demolition of approximately 30,027 sf and the construction of the long-term housing, classrooms/library, and independent living buildings. Phase 3 of the proposed project is still being designed and is tentatively anticipated to consist of tenant improvements; however, no demolition or exterior building construction is currently proposed under Phase 3. Construction of Phase 1 is anticipated to begin in February 2025 and occur for approximately 30 months, ending in August of 2027. The construction schedule for Phase 2 has not yet been determined. Therefore, as a conservative assumption, this analysis assumes buildout of the proposed project over the course of Phase 1 (30 months). This represents a conservative analysis, because if the proposed construction activities should occur at a later timeframe, estimated emissions would be expected to decrease in the future due to technological advances and the implementation of forthcoming regulatory requirements. In addition, this analysis assumes compliance with SCAQMD Rule 403 and Rule 1113 measures. SCAQMD Rule 1113 addresses emissions from use of architectural coatings. This analysis also assumes the use of Tier 2 construction equipment. It is not anticipated that the import or export of soil would be necessary under the proposed project, as grading quantities are expected to be balanced on site. All other construction details are not yet known; therefore, default assumptions (e.g., construction worker and truck trips, fleet activities,

[11] SCAQMD. Rule 403: Fugitive Dust. Website: www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf (accessed November 2024).

construction equipment) from CalEEMod were used. Construction emissions are summarized in Table 4.7.C below. Appendix A provides CalEEMod output sheets.

Table 4.7.C: Short-Term Regional Construction Emissions

Construction Year	Total Daily Regional Pollutant Emissions (lbs/day)							
	VOCs	NO_X	CO	SO_X	Fugitive PM_{10}	Exhaust PM_{10}	Fugitive $PM_{2.5}$	Exhaust $PM_{2.5}$
Demolition	0.8	25.8	19.3	<0.1	1.1	0.8	0.2	1.2
Site Preparation	1.1	39.9	29.1	<0.1	7.9	1.1	4.0	0.5
Grading	1.4	48.9	36.5	<0.1	3.9	1.4	1.5	1.2
Building Construction	0.8	19.4	16.7	<0.1	0.6	0.7	0.2	0.6
Paving	0.6	13.3	11.2	<0.1	0.2	0.6	<0.1	0.5
Architectural Coating	16.5	1.1	1.2	<0.1	0.1	0.1	<0.1	0.1
Peak Daily Emissions	**17.3**	**68.3**	**53.2**	**<0.1**	**10.9**		**5.9**	
SCAQMD Threshold	**75.0**	**100.0**	**550.0**	**150.0**	**150.0**		**55.0**	
Significant?	**No**	**No**	**No**	**No**	**No**		**No**	

Source: Compiled by LSA (November 2024).
Note: Peak daily emissions of VOCs occurred during the overlapping of building construction and architectural coating phases. Peak daily emissions of NO_X and CO emissions occurred during the overlapping of building construction and grading phases. Peak PM emissions occurred during the overlapping of demolition and site preparation phases.
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOCs = volatile organic compounds

As shown in Table 4.7.C, construction emissions associated with the project would not exceed the SCAQMD's thresholds for VOC, NO_X, CO, SO_X, $PM_{2.5}$, and PM_{10}. Therefore, construction of the proposed project would not result in a cumulatively considerable increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State ambient air quality standard. Impacts would be less than significant, and no mitigation is required.

Operational Emissions. Long-term air pollutant emissions associated with operation of the proposed project include emissions from mobile, energy, area, and stationary sources, as discussed below. The quantity of emissions is the product of usage intensity (i.e., the amount of natural gas) and the emission factor of the fuel source.

Mobile source emissions include ROG and NO_X emissions that contribute to the formation of ozone. Additionally, PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways.

Energy-source emissions result from activities in buildings that use natural gas. The quantity of emissions is the product of usage intensity (i.e., the amount of natural gas) and the emission factor of the fuel source. The proposed project would include the use of natural gas, limited to the culinary kitchen. All the remaining buildings would be designed to be all electric.

Area source emissions associated with the project would include emissions from the use of landscaping equipment and consumer products. Stationary source emissions would be associated with the use of the backup diesel generator.

Long-term operational emissions associated with the proposed project were calculated using CalEEMod. The proposed project would include the demolition of 95,589 sf of existing uses to construct a new YTC, which would include housing for youth, dining, culinary, education, and vocational spaces along with recreational exterior areas for combined total of 117,905 sf of building area. Therefore, the proposed project analysis was conducted using land use codes *Apartments Mid Rise, Library, General Office Building, Medical Office Building, High Turnover (Sit Down Restaurant), City Park*, and *Other Asphalt Uses.* The *General Office Building* land use was used to represent the proposed YTC buildings, and the *City Park* land use was used to represent the proposed landscape area. Trip generation rates used in CalEEMod for the project were based on Section 4.21, Transportation, which determined that the proposed project would generate a net increase of 130 average daily trips over existing conditions. The proposed project would include a 617-horsepower diesel generator that would run for approximately 50 hours per year, which was also included in CalEEMod. As mentioned above, natural gas would be limited to the culinary kitchen, with the rest of the buildings designed to be all electric, which was included in CalEEMod. The proposed project would include water efficient, drought tolerant landscaping, and low flow fixtures, which was also included in CalEEMod. When project-specific data were not available, default assumptions from CalEEMod were used to estimate project emissions. Operational emissions associated with the proposed project are summarized in Table 4.7.D below. Appendix A provides CalEEMod output sheets.

Table 4.7.D: Project Operational Emissions

Emission Type	Pollutant Emissions (lbs/day)					
	VOCs	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Mobile Sources	0.4	0.3	3.5	<0.1	0.9	0.2
Area Sources	3.2	<0.1	4.0	<0.1	<0.1	<0.1
Energy Sources	<0.1	0.1	0.1	<0.1	<0.1	<0.1
Stationary Sources	0.1	0.4	0.4	<0.1	<0.1	<0.1
Total Project Emissions	**3.7**	**0.8**	**8.0**	**<0.1**	**0.9**	**0.2**
SCAQMD Threshold	**55.0**	**55.0**	**550.0**	**150.0**	**150.0**	**55.0**
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Compiled by LSA (November 2024).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = nitrogen oxides
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
PM_{10} = particulate matter less than 10 microns in size
SCAQMD = South Coast Air Quality Management District
SO_X = sulfur oxides
VOCs = volatile organic compounds

As shown in Table 4.7.D, the proposed project would not exceed the significance criteria for daily VOC, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$ emissions. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State ambient air quality standard. Impacts would be less than significant, and no mitigation is required.

Long Term Microscale (CO Hot Spot) Analysis. Although the Basin is designated as in attainment/ maintenance for CO AAQS, localized CO concentrations are evaluated to determine whether project-related CO impacts would exceed State or national AAQS. This is because vehicular trips associated with the proposed project could contribute to congestion at intersections and along roadway segments in the project vicinity. Localized air quality impacts would occur when emissions from vehicular traffic increase as a result of the proposed project. The primary mobile-source pollutant of local concern is CO, a direct function of vehicle idling time and, thus, of traffic flow conditions. CO transport is extremely limited; under normal meteorological conditions, CO disperses rapidly with distance from the source. However, under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection

may reach unhealthful levels, affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentrations, modeling is recommended to determine a project's effect on local CO levels.

An assessment of project-related impacts on localized ambient air quality requires that future ambient air quality levels be projected. Existing CO concentrations in the immediate vicinity of the project site are not available. Ambient CO levels monitored at the Anaheim air quality monitoring station located at 812 West Vermont Street, the closest station to the project site, showed a highest recorded 1-hour concentration of 2.5 parts per million (ppm) (the State standard is 20 ppm) and a highest 8-hour concentration of 1.9 ppm (the State standard is 9 ppm) during the past 3 years. The highest CO concentrations would normally occur during peak traffic hours; therefore, CO impacts calculated under peak traffic conditions represent a worst-case analysis.

As discussed in Section 4.21, Transportation, the proposed project would generate 21 new AM peak hour trips and 16 new PM peak-hour trips. As the proposed project would not generate 100 or more AM or PM peak hour trips, it is assumed that the addition of the proposed project traffic would not contribute substantial traffic volumes to nearby intersections. Additionally, the proposed project is defined as a public institution providing a broad range of rehabilitative treatment and programs for resident youth within a consolidated facility. Therefore, the proposed project qualifies for project-type screening and is presumed to have a less than significant impact on VMT. Given the extremely low level of CO concentrations in the vicinity of the project site, and lack of traffic impacts at any intersections, project-related vehicles are not expected to contribute significantly to CO concentrations or contribute to the result of CO concentrations exceeding the State or federal CO standards. Because no CO hot spot would occur, as identified in the proposed project, there would be no project-related impacts on CO concentrations. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable NAAQS and CAAQS, and impacts would be less than significant.

Question 4.7 c): Expose sensitive receptors to substantial pollutant concentrations?

Response to Question 4.7 c):

Less than Significant Impact. Sensitive receptors are people who have an increased sensitivity to air pollution or environmental contaminants. The SCAQMD defines structures that house persons (e.g., children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise) or places where they gather (i.e., residences, schools, playgrounds, child-care centers, convalescent centers, retirement homes, and athletic fields) as sensitive receptors.

As previously discussed, LSTs are based on the ambient concentrations of a particular pollutant within the project SRA and the distance to the nearest sensitive receptor. The closest sensitive receptor to the project are the medical facilities (UC Irvine Medical Center) located approximately 100 ft north of the project site. Table 4.7.E and Table 4.7.F shows the results of the LST analysis based on a 5.0-acre daily disturbance area for construction and operation of the site at a distance of 100 ft (30 meters).

Table 4.7.E: Project Localized Construction Emissions (in Pounds Per Day)

Source	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Project Emissions	49.0	35.3	8.8	5.0
Localized Significance Threshold	**180.0**	**1,349.0**	**18.0**	**7.4**
Exceeds Threshold?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (November 2024).
Note: Source Receptor Area 17, based on a 5-acre construction disturbance daily area, at a distance of 30 meters (100 feet) from the project site boundary.
CO = carbon monoxide $PM_{2.5}$ = particulate matter less than 2.5 microns in size
NO_X = nitrogen oxides PM_{10} = particulate matter less than 10 microns in size

Table 4.7.F: Project Localized Operational Emissions (in Pounds Per Day)

Source	NO_X	CO	PM_{10}	$PM_{2.5}$
On-Site Project Emissions	0.5	4.7	<0.1	<0.1
Localized Significance Threshold	**180.0**	**1,439.0**	**4.4**	**2.2**
Exceeds Threshold?	**No**	**No**	**No**	**No**

Source: Compiled by LSA (November 2024).
Note: Source Receptor Area 17, 5 acres, 30 meters (100 feet) distance; on site traffic is assumed to be 5 percent of total.
CO = carbon monoxide $PM_{2.5}$ = particulate matter less than 2.5 microns in size
NO_X = nitrogen oxides PM_{10} = particulate matter less than 10 microns in size

By design, the localized impacts analysis only includes on-site sources; however, the CalEEMod outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions detailed in Table 4.7.F assume all area, stationary, and energy source emissions would occur on site, and 5 percent of the project-related new mobile sources, which is an estimate of the amount of project-related on-site vehicle and truck travel, would occur on site. Considering the total trip length included in CalEEMod, the 5 percent assumption is conservative. Table 4.7.F indicates the localized operational emissions would not exceed the LSTs at nearby sensitive receptors. Therefore, the proposed operational activity would not result in a locally significant air quality impact.

As detailed in Tables 4.7.E and 4.7.F, the emission levels indicate that the project would not exceed SCAQMD LSTs during project construction or operation. The project's peak operational on-site NO_X emissions are approximately less than 1 pound per day. Due to the small size of the proposed project in relation to the overall Basin, the level of emissions is not sufficiently high to use a regional modeling program to correlate health effects on a Basin-wide level. On a regional scale, the quantity of emissions from the project is incrementally minor. Because the SCAQMD has not identified any other methods to quantify health impacts from small projects, and due to the size of the project, it is speculative to assign any specific health effects to small project-related emissions. However, based on this localized analysis, the proposed project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, the project would not expose sensitive receptors to substantial levels of pollutant concentrations. Impacts would be less than significant, and no mitigation would be required.

Naturally Occurring Asbestos. The project site is located in Orange County, which is among the counties found to have serpentine and ultramafic rock in their soils.[12] However, according to the California Geological Survey, no such rock has been identified in the project site vicinity. As described above, the proposed project would demolish the existing buildings. As such, demolition may expose asbestos used

[12] California Department of Conservation (DOC). California Geological Survey. n.d. Asbestos. Website: https://www.conservation.ca.gov/cgs/minerals/mineral-hazards (accessed November 2024).

in building materials; however, the proposed project would be required to comply with SCAQMD Rule 1403: Asbestos Emissions from Demolition/Renovation Activities, which specifies requirements to limit asbestos emissions from building demolition and renovation activities through surveying, notification, asbestos-containing materials (ACM) removal procedures and scheduling, and ACM handling. Therefore, with compliance of SCAQMD Rule 1403, the potential risk for naturally occurring asbestos (NOA) during project construction is small and would be considered to be less than significant.

Based on the analysis presented above, impacts related to exposure of sensitive receptors to substantial pollutant concentrations would be less than significant, and mitigation is not required.

Question 4.7 d): Result in other emissions (such as those leading to odors affecting a substantial number of people?

Response to Question 4.7 d):

Less than Significant Impact. Heavy-duty equipment on the project site during construction would emit odors, primarily from equipment exhaust. However, the construction activity would cease after individual construction is completed. No other sources of objectionable odors have been identified for the proposed project.

SCAQMD Rule 402 regarding nuisance states: “A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.” Once operational, the proposed uses are not anticipated to emit any objectionable odors. Therefore, the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Impacts would be less than significant, and no mitigation is required.

4.8 *Biological Resources*

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐

f) Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The following analysis is based upon information presented in the *Biological Resources Assessment* (BRA) prepared for the proposed project by LSA in November 2024, included as Appendix B to this IS/MND.

Question 4.8 a): Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Response to Question 4.8 a):

Less than Significant Impact. As discussed throughout this IS/MND, the project site is currently fully developed with an institutional complex and is generally surrounded by urban development. Nevertheless, given the existence of landscaped areas within the project site, a BRA was prepared in November of 2024. Preparation of the BRA (Appendix B to this IS/MND) involved a literature review, record search, and field surveys by qualified biologists in order to determine the existence and potential for occurrence of sensitive or special-status plant and animal species[13] within the project site or its direct vicinity. Current electronic database reviews included the California Natural Diversity Database (CNDBB) RareFind 5 tool, the Information for Planning and Consultation (IPaC) tool, and the United States Fish and Wildlife Service (USFWS) Natural Wetlands Inventory tool. In addition to these databases, the review included historic and current aerial imagery, existing environmental reports for developments in the project vicinity, and regional habitat conservation plans and local land use policies related to biological resources.

An initial field survey was conducted on November 1, 2024, and included a pedestrian review of general site conditions, vegetation, and suitability of habitat for various special-status species. In addition to the general field survey, a focused roosting bat habitat assessment was conducted on November 8, 2024, to determine the presence of potentially suitable bat roosting habitat. Because it was determined during this survey that several trees on site were identified as containing suitable roosting habitat, a follow-up nighttime acoustic and emergence survey were conducted on November 13, 2024, to determine whether bats were roosting within any of these trees. This survey involved the use of infrared light and ultrasound detection technology to observe the trees for the presence of bats.

[13] For the purposes of this analysis, the term "special-status species" refers to those species that are listed or proposed for listing under the California and Federal Endangered Species Acts (CESA and/or FESA, respectively); California Fully Protected Species; plants with a California Rare Plant Rank of 1, 2, or 3; California Species of Special Concern; and California Special Animals. It should be noted that "Species of Special Concern" and "California Special Animal" are administrative designations made by the CDFW and carry no formal legal protection status. However, Section 15380 of the *State CEQA Guidelines* indicates that these species should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

Please refer to the BRA for a full list of existing and special interest plant and animal species detected and potentially present within the Campus (biological resource study area). Vegetation within the project site was determined to largely consist of ornamental landscaping, including Bermuda grass (*Cynodon dactylon*) and various non-native tree species. The presence of these species limits the potential for native vegetation growth within the project site. Wildlife within the project site included various bird species as well as the striped skunk (*Mephitis mephitis).* In addition, the Mexican free-tailed bat (*Tadarida brasiliensis mexicana*) and hoary bat (*Lasiurus cinereus*) were observed on site during the nighttime survey but are not presumed to be roosting within the project site.

Ultimately, the analysis presented in the BRA revealed 38 special-status species with the potential to occur within the biological resource study area for the project site. Of these 38 species, 13 are federally/State listed. However, none of these 13 species are considered to have the potential to occur within the project site. Of the remaining 25 non-listed special-status species, 22 are considered absent due to lack of suitable habitat. The remaining three species are listed below:

- Cooper's hawk (*Accipiter cooperii*);
- Peregrine falcon (*Falco peregrinus anatum*); and
- Yuma myotis (*Myotis yumanensis*).

However, according to the BRA, these three species have a low probability to occur within the project site. Due to the highly developed nature of the project site and surrounding development, the BRA anticipates that impacts from the project would have a less than significant effect on threatened, endangered, and non-listed special-status species with adherence to federal and State regulations, as discussed further below.

Nesting Birds. Nesting bird species, including special-status species identified in Appendix B of the BRA, with potential to occur (i.e., burrowing owl and black-tailed gnatcatcher) are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the Migratory Bird Treaty Act (MBTA) (16 USC 703–711). These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey. However, the USFWS has recently determined that the MBTA should apply only to "…affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs"[14] and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities.

In compliance with the regulations discussed above, the BRA recommends that any vegetation removal activities occurring under the proposed project be conducted outside the general bird nesting season (February 15 through August 31), as discussed in Regulatory Compliance Measure (RCM) BIO-1. Pursuant to RCM BIO-1, if vegetation is removed during the nesting bird season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal. Compliance with RCM BIO-1 would ensure that potential impacts to nesting birds would be less than significant.

Bats. Various regulations afford protections to bats, which are classified as indigenous nongame mammal species, regardless of their status under the California or federal Endangered Species Acts. These regulations include Title 14, Section 251.1 of the California Code of Regulations, which prohibits harassment (defined in that section as an intentional act that disrupts an animal's normal behavior patterns, including breeding, feeding, or sheltering) of nongame mammals (e.g., bats), and California Fish

[14] 50 Code of Federal Regulations Section 10.14.

and Game Code Section 4150, which prohibits "take" or possession of all nongame mammals or parts thereof. Any activities resulting in bat mortality (e.g., the destruction of an occupied bat roost that results in the death of bats), disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), or various modes of nonlethal pursuit or capture may be considered "take" as defined in Section 86 of the California Fish and Game Code. In addition, impacts to bat maternity colonies, which are considered native wildlife nursery sites, can be considered potentially significant under CEQA.

For compliance with the California Fish and Game Code and to avoid potential mortality of bats roosting in trees, the BRA recommends adherence to specific tree removal techniques, discussed further in RCM BIO-2, in the event that any of the trees identified as containing potential roosting habitat on BRA Figure 5 are removed during construction of the proposed project. Adherence to RCM BIO-2 would ensure that potential impacts to nesting birds would be less than significant.

Given the urbanized nature of the project site, the lack of suitable habitat, and the low probability for special-status species to be present on the project site, and with incorporation of RCM BIO-1 and RCM BIO-2, potential impacts of the proposed project to special-status species would be less than significant. No project-specific mitigation is required.

Regulatory Compliance Measures:

RCM BIO-1 **Migratory Bird Treaty Act.** In order to avoid potential impacts to nesting birds that are protected under the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code, vegetation clearing or construction activities that impact or encroach upon existing vegetation shall be conducted outside the general bird nesting season (February 15 through August 31). If construction occurs during the nesting season, a preconstruction nesting bird survey shall be conducted by a qualified biologist within 3 days prior to vegetation removal or at the beginning of construction activities. If a nest with eggs or young of any species covered under the MBTA or the California Fish and Game Code is found, work shall not be permitted within a buffer distance to be determined by the qualified biologist involved. Commencing project construction activities, including vegetation clearing, outside of the primary nesting season for birds reduces the need for preconstruction nesting bird surveys.

RCM BIO-2 **Roosting Bat Protection Measures.** In the event that any of the trees identified as containing potential roosting habitat within the Biological Resources Assessment (November 2024) prepared for the proposed project are removed during project construction activities, the construction contractor shall ensure that the trees are removed in two phases. During the first phase, the tree limbs shall be removed leaving the main trunk of the tree. This action will create disturbance resulting in the bats leaving the tree that evening and not returning. The following day, the remainder of the tree can be removed.

Question 4.8 b): Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Response to Question 4.8 b):

No Impact. In accordance with Section 1602 of the California Fish and Game Code, the CDFW asserts jurisdiction over rivers, streams, and lakes, as well as any riparian vegetation associated with those features.

As stated in the Response to Question 4.8 a) above, the project site is fully developed under existing conditions, with the exception of portions of the project site containing ornamental landscaping. According to the BRA, no riparian habitat or special-status natural communities are present within the biological resources study area for the proposed project. Therefore, construction and operation of the proposed project would not have the potential to adversely impact any riparian habitat or other sensitive natural communities. No impact would occur, and no mitigation is required.

Question 4.8 c): Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Response to Question 4.8 c):

No Impact. The United States Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States (WOTUS). These waters include wetland and non-wetland bodies of water that meet specific criteria.

As previously stated, the project site is currently developed and located within a highly urbanized area. According to the BRA, there are two artificially constructed stormwater run-off control features on the eastern end of the project site. These features are used to quickly remove stormwater runoff from the Campus. They do not consist of ordinary high-water marks (OHWM) and do not contain relatively permanent water. In addition, they do not feature any defined bed-and-banks due to their vertical concrete walls and are vegetated with ornamental landscaped plant species. Therefore, no potential jurisdictional waters regulated pursuant to the Clean Water Act (CWA) by the USACE or the Regional Water Quality Control Board (RWQCB), and no lake, rivers, or streambeds regulated pursuant to the California Fish and Game Code by the CDFW are present within the biological resource study area of the proposed project. Therefore, the proposed project would have no impact on federally protected wetlands, and no mitigation is required.

Question 4.8 d): Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Response to Question 4.8 d):

Less than Significant Impact. Wildlife movement and habitat fragmentation are important issues in assessing effects to wildlife. Habitat fragmentation occurs when a proposed action results in a single, unified habitat area being divided into two or more areas such that the division isolates the two new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or from one habitat type to another. An example is the fragmentation of habitats within and around “checkerboard” residential development. Habitat fragmentation can also occur when a

portion of one or more habitats is converted into another habitat, as when scrub habitats are converted into annual grassland habitat because of frequent burning.

The project site does not lie within a designated wildlife corridor and is generally surrounded by industrial/ manufacturing/office uses. While the Santa Ana River and associated open space area is located adjacent to the eastern project site boundary, the proposed project would not interfere with regional wildlife movement associated with this open space. As such, potential impacts of the proposed project would be less than significant, and no mitigation is required.

Question 4.8 e): Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Response to Question 4.8 e):

Less than Significant Impact. City and County general plans and development ordinances may include regulations or policies governing biological resources. For example, policies may require tree preservation or designate local species survey areas, species of interest, or significant ecological areas.

Under the County of Orange Tree Preservation Ordinance, codified in Section 7-9-69 of the County of Orange Zoning Code, a Tree Removal Permit application would be required and submitted to Orange County Development Services prior to removal of any Protected Tree[15] within County-owned land or obtained prior to any encroachment into the Tree Protection Zone.[16] Only one tree observed within the project site during the pedestrian field surveys, a California sycamore tree located in the northern-central portion of the project site, would be considered a Protected Tree. As such, if this tree is planned for removal during construction of the proposed project, a Tree Preservation Permit application shall be required and submitted to the Deputy Director of Orange County Development Services, or designee, as summarized in RCM BIO-3. Once the application has been reviewed and approved by the Deputy Director of Orange County Development Services, or designee, installation of a replacement tree of the same or similarly appropriate native species may be required.

Further, preliminary landscaping plans for the proposed project include a minimum replanting ratio of 2:1 (2 Replacement Trees per 1 Protected Tree removed). Replacement Trees are those trees installed either on-site or off-site as part of the required replacement for removal of a Protected Tree. Therefore, any existing tree removed to accommodate the proposed project would be replaced with two trees. Adherence to RCM BIO-3 would ensure that the proposed project would not conflict with any local policies or ordinances protecting biological resources. Impacts would be less than significant, and no project-specific mitigation is required.

[15] Protected Tree means any individual native tree with a species-dependent minimum Diameter at Breast Height (DBH) as defined in Section 7-9-69.2. Trees outlined in Section 7-9-.69.2 include native oak trees and oak tree hybrids, southern California black walnut (*Juglans californica*), California sycamore (*Platanus racemosa*), and Tecate cypress (Hesperocyparis forbesii).

[16] Tree Protection Zone is defined as that area within the drip line of a Protected Tree and extending to a point five (5) feet outside the greatest extent of the drip line, or fifteen (15) feet from the trunk of a tree, whichever distance is greater.

Regulatory Compliance Measure:

RCM BIO-3 **Tree Preservation Permit.** Consistent with Section 7-9-69.4 of the County of Orange Municipal Code, a Tree Preservation Permit application shall be required and submitted to the Deputy Director of Orange County Development Services, or designee, prior to removal of the singular California sycamore tree that was observed in the northern-central portion of the project site, or obtained prior to any encroachment into the Tree Protection Zone. The application, as a whole, shall be reviewed and approved by the County of Orange Director of Public Works, or designee. The project Applicant shall adhere to any instructions provided by the Deputy Director of Orange County Development Services, or designee, regarding Replacement Trees.

Question 4.8 f): Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Response to Question 4.8 f):

No Impact. The Natural Communities Conservation Planning Act was enacted to encourage broad-based planning to provide for effective protection and conservation of the State's wildlife resources while continuing to allow appropriate development and growth.[17] Natural Community Conservation Plans (NCCPs) may be implemented that identify measures necessary to conserve and manage natural biological diversity within the planning area, while allowing compatible and appropriate economic development, growth, and other human uses. The County, in conjunction with State and federal resource agencies, local jurisdictions, utility companies, the Transportation Corridor Agencies (TCA), and major private landowners, prepared the Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for the County of Orange Central-Coastal Subregion. The NCCP/HCP was approved, followed by execution of an Implementation Agreement, in 1996. The NCCP/HCP aims to conserve natural communities whose numbers have declined while accommodating compatible land uses.

Figure NR-3 of the City of Orange General Plan Natural Resources Element illustrates the location of NCCP Reserve areas relative to the City's boundaries. As shown in Figure NR-3, land included within the NCCP/HCP habitat reserve is located along the City's eastern boundary, while the project site is located toward the City's western boundary. As such, there is a substantial distance from the project site to any NCCP/HCP reserves, and the proposed project would not have the potential to affect this land or any species within. Further, the NCCP is largely concerned with "target species" for long-term protection, none of which are present within the project site.

The proposed project does not include vegetation removal activities with the potential to adversely impact "target species" under the NCCP. Because of this, and because the project site is not located within a NCCP/HCP Reserve area, the proposed project would have no impacts pertaining to conflicts with an adopted NCCP or other plans, and no mitigation is required.

[17] California Research Bureau, Natural Community Conservation Planning (NCCP). March 2021. Website: https://wildlife.ca.gov/Conservation/Planning/NCCP (accessed November 14, 2024).

4.9 *Cultural Resources*

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

The following analysis is based upon information presented in the Historic Resources Evaluation prepared for the proposed project in November 2024 and the Archaeological Resource Memorandum prepared for the proposed project in November 2024, included as Appendix C and Appendix D to this IS/MND, respectively.

Question 4.9 a): Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Response to Question 4.9 a):

No Impact. Enacted in 1966, the National Historic Preservation Act (NHPA) established the National Register of Historic Places (National Register) program under the authority of the Secretary of the Interior. The National Register is managed by the National Park Service and serves as the nation's official list of historic and cultural resources. On the state level, the Office of Historic Preservation (OHP), a division of the California Department of Parks and Recreation, administers the California Register of Historical Resources (California Register), which was established to serve as an authoritative guide to the State's significant historical and archaeological resources.

A Historic Resources Evaluation was prepared for the proposed project in November 2024 (see Appendix C). The Historic Resources Evaluation analyzed the potential historical significance of buildings located on the existing Campus. The evaluation focused on a Historical Resources Survey Area (approximately seventeen acres) that included the Manchester Office Building (MOB/probation department), the Betty Lou Lamoreaux Juvenile Justice Center (LJC), and the Campus, which includes the YLA. The Campus was constructed in 1957 and has since undergone several renovations. The most recent building on the Campus, the MRC, was built in 2022.

An intensive level field survey and archival research were conducted as part of the Historic Resources Evaluation. The buildings within the Historical Resources Survey Area were evaluated using the criteria for listing in the California Register and the City of Orange (City) criteria for historic districts. It has been determined that, of the 26 buildings considered within the Historical Resources Study Area, eight have been standing for 50 years or longer. Both federal and State regulations identify fifty years as the threshold for identifying a historic age structure (see 36 CFR § 60.4; PRC § 5024). However, none of the eight historic-era buildings identified met any of the State or local criteria for listing in the California Register or as a City historic district and would not individually or collectively qualify as a "historical resource" as defined in the *State CEQA Guidelines*. As such, the proposed project would have no potential to cause a substantial adverse change in the significance of a historical resource. No impact would occur, and no mitigation is required.

Question 4.9 b): Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Response to Question 4.9 b):

Less than Significant with Mitigation Incorporated. Orange County is within the San Diego sub-region of the southern coast archaeological region of California.[18] The project site is currently fully developed with the Campus, consisting of buildings, paved surfaces, and several areas of ornamental landscaping. It is likely that soils underlying the project site would have been disturbed previously as part of the development of the existing Campus. Analysis indicates that the project site contains surficial deposits that likely include Artificial Fill. Artificial Fill is typically not anticipated to include significant archaeological resources. Excavation activities associated with development of elevator shafts within several buildings included as part of the proposed project would reach a maximum depth of 6 feet below ground surface (bgs).

In order to identify any potentially present archaeological resources within the project site and its immediate vicinity, a records search was conducted at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS), located at California State University, Fullerton. As discussed in the Archaeological Resource Memorandum, the records search did not identify the presence of any previously documented archaeological resources within the project site or immediate vicinity. In addition, a pedestrian field survey to identify and document visible archaeological resources was conducted on October 21, 2024. No cultural materials were observed during the pedestrian field survey.

Based on the results of the record search and pedestrian field survey, it was determined that the project site has limited potential to yield archaeological resources. However, as the proposed project would include ground disturbance in the form of excavation and grading, there is potential for inadvertent discovery of previously unrecorded resources. Incorporation of Mitigation Measure (MM) CUL-1 would ensure that construction personnel are trained to identify potentially significant archaeological resources during grading activities. MM CUL-2 sets forth procedures to follow in the event of an inadvertent archaeological discovery.

[18] City of Orange. 2010. City of Orange General Plan Program Environmental Impact Report. March. Website: https://www.cityoforange.org/home/showpublisheddocument/240/637698173340500000 (accessed November 13, 2024).

Incorporation of MMs CUL-1 and CUL-2 would reduce any potential impacts to archaeological resources to a less than significant level.

Mitigation Measures:

MM CUL-1 **Cultural Resources Sensitivity Training**. Prior to ground disturbing activities, a qualified archaeologist shall conduct a pre-grading meeting with contractors and construction personnel to provide cultural resources sensitivity training for all construction personnel. The training shall describe the type of resources that may be identified, procedures to be followed during ground disturbance, and protocols that apply in the event that unanticipated resources are discovered. The crew shall be cautioned not to collect artifacts and directed to inform a construction supervisor and the on-site archaeological monitor in the event that cultural remains are discovered during the course of construction, including if a cultural resources monitor is not present. A qualified archaeologist is someone who either meets the Secretary of the Interior's Professional Qualification Standards for archaeology (48 Federal Register 44738) and is a Registered Professional Archaeologist or has a Bachelor of Arts in archaeology or a closely related field and is a Registered Archaeologist.

MM CUL-2 **Inadvertent Archaeological Discoveries.** In the event that any cultural resources are encountered during earthmoving activities, all work within 50 feet of the find shall be halted until a qualified archaeologist can evaluate the findings and make recommendations. The archaeologist may evaluate the find in accordance with federal, State, and local guidelines, including those set forth in the California Public Resources Code Section 21083.2, to assess the significance of the find and identify avoidance or other measures as appropriate. If suspected prehistoric or historical archaeological deposits are discovered during construction, all work within the immediate area of the discovery shall be redirected and the find must be evaluated for significance by a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983).

Question 4.9 c): Disturb any human remains, including those interred outside of dedicated cemeteries?

Response to Question 4.9 c):

Less than Significant Impact. No known human remains are present within the project site, and there are no facts or evidence to support the idea that Native Americans or people of European descent are buried within the project site or its vicinity. However, as described previously, buried and undiscovered archaeological remains, including human remains, have the potential to be present below the ground surface in portions of the project site. Disturbing human remains could violate the State's Health and Safety Code, as well as destroy the resource. In the unlikely event that human remains are encountered during grading activities associated with the proposed project, the proper authorities would be notified, and standard procedures for the respectful handling of human remains during the earthmoving activities would be adhered to. Construction contractors are required to adhere to California Code of Regulations (CCR) Section 15064.5(e), Public Resources Code (PRC) Section 5097, and Section 7050.5 of the State's Health and Safety Code. To ensure proper treatment of remains in the event of an unanticipated discovery of a burial, human bone, or suspected human bone, State law requires that all excavation or grading in the vicinity of the find halt immediately, the area of the find be protected, and the contractor immediately

notify the County Coroner of the find. Compliance with these provisions, as specified in Regulatory Compliance Measure (RCM) CUL-1 below, would ensure that any potential impacts to unknown buried human remains would be less than significant by ensuring appropriate examination, treatment, and protection of human remains as required by State law. As such, no project-specific mitigation is required.

Regulatory Compliance Measure:

RCM CUL-1 **Human Remains.** In the event that human remains are encountered on the project site, work within 50 feet of the discovery shall be redirected and the County of Orange (County) Coroner notified immediately consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e). State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a Most Likely Descendant (MLD). With the permission of the property owner, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials. Consistent with CCR Section 15064.5(d), if the remains are determined to be Native American and an MLD is notified, the County shall consult with the MLD as identified by the NAHC to develop an agreement for treatment and disposition of the remains. Prior to the issuance of grading permits, the County of Orange Public Works Department, or designee, shall verify that all grading plans specify the requirements of CCR Section 15064.5(e), State Health and Safety Code Section 7050.5, and PRC Section 5097.98, as stated above.

4.10 *Energy*

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Electricity Background. The project site is within the service territory of Southern California Edison (SCE). SCE provides electricity to more than 15 million people in a 50,000-square-mile area of Central, Coastal, and Southern California.[19] According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2022 was 85,870 gigawatt hours (GWh) (31,604 GWh for the residential sector and 54,266 GWh for the non-residential sector). Total electricity consumption in Orange County in 2022 was 20,244 GWh (20,243,721,856 kilowatt hours [kWh]).[20]

Natural Gas Background. The Southern California Gas Company (SoCalGas) is the natural gas service provider for the project site. SoCalGas provides natural gas to approximately 21.8 million people in a 24,000 sq mi service area throughout Central and Southern California, from Visalia to the Mexican border.[21] According to the CEC, total natural gas consumption in the SoCalGas service area in 2022 was 5,026 million therms (2,230 million therms for the residential sector). Total natural gas consumption in Orange County in 2022 was 572 million therms (572,454,744 therms).[22]

Fuel Usage Background. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. In 2022, total gasoline consumption in California was 316,425 thousand barrels or 1,597.6 trillion British Thermal Units (BTU).[23] Of the total gasoline consumption, 299,304 thousand barrels or 1,511.2 trillion BTU were consumed for

[19] Southern California Edison (SCE). 2020. About Us. Website: https://www.sce.com/about-us/who-we-are (accessed November 2024).

[20] CEC. 2022a. Electricity Consumption by County and Entity. Websites: http: http://www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed November 2024).

[21] Southern California Gas Company (SoCalGas). 2020. About SoCalGas. Website: https://www3.socalgas.com/about-us/company-profile (accessed November 2024).

[22] CEC. 2022b. Gas Consumption by County and Entity. Website: http://www.ecdms.energy.ca.gov/gasbycounty.aspx and http://www.ecdms.energy.ca.gov/gasbyutil.aspx (accessed November 2024).

[23] U.S. Energy Information Administration (EIA). 2022. California State Profile and Energy Estimates, Data. Website: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA (accessed November 2024).

transportation.[24] Based on fuel consumption obtained from CARB's California Emissions Factor Model, Version 2021 (EMFAC2021), approximately 1.2 billion gallons of gasoline and approximately 157.1 million gallons of diesel will be consumed from vehicle trips in Orange County in 2024.

Question 4.10 a): Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Response to Question 4.10 a):

Less than Significant Impact. The proposed project would increase the demand for electricity, natural gas, and fuel usage when compared to existing site conditions. The discussion and analysis provided below is based on the data included in the CalEEMod output, which is included in Appendix A.

Construction-Period Energy Use. The anticipated construction schedule assumes that Phase 1 of the proposed project would be completed over approximately 30 months. As described in Section 4.7, Air Quality, the construction schedule for Phase 2 has not yet been determined. Therefore, as a conservative assumption, this analysis assumes buildout of the proposed project over the course of Phase 1. The proposed project would require demolition, site preparation, grading, building construction, paving, and architectural coating during construction.

Construction and demolition activities would require energy for the manufacture and transportation of construction materials, preparation of the site for grading and building activities, and development of the project limits. All or most of this energy would be derived from non-renewable resources. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. Construction of the proposed project would not involve the consumption of natural gas because none of the construction-related equipment would be powered by natural gas.

Construction activities are not anticipated to result in an inefficient use of energy because gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the proposed project. Energy usage within the project limits during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Therefore, construction energy impacts would be less than significant, and no mitigation would be required.

Operational Energy Use. Energy consumed by the proposed project would be associated with electricity, natural gas, and fuel used for vehicle trips associated with the project. The proposed project would result in diesel usage associated with the backup diesel generator; however, the diesel generator is only expected to run approximately 50 hours per year. Therefore, use of the diesel generator is not expected to substantially increase diesel fuel usage and is not evaluated further.

Natural gas use in CalEEMod is measured in units of a thousand British thermal units (kBTU) per year; however, this analysis converts the results to natural gas in units of therms. Electricity use in CalEEMod is measured in kilowatt hours (kWh) per year.

[24] U.S. Energy Information Administration (EIA). 2022. California State Profile and Energy Estimates, Data. Website: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_mg.html&sid=CA (accessed November 2024).

The proposed project would result in energy usage associated with gasoline and diesel to fuel project-related trips. Trip generation rates used in CalEEMod for the proposed project were based on the project's trip generation estimates in Section 4.21, Transportation, which identifies that the proposed project is anticipated to generate a net increase of 130 new average daily trips. In addition, natural gas would be limited to the culinary kitchen, with the rest of the buildings designed to be all electric, which was included in CalEEMod.

Table 4.10.A shows the estimated potential increased electricity, natural gas, gasoline, and diesel demand associated with the proposed project. The electricity rates are from the CalEEMod analysis, while the gasoline and diesel rates are based on the traffic analysis in conjunction with the United States Department of Transportation (USDOT) fuel efficiency data and using the United States Environmental Protection Agency (USEPA) fuel economy estimates for 2020 and the California diesel fuel economy estimates for 2021.

Table 4.10.A: Estimated Annual Energy Use of Proposed Project

	Electricity Use (kWh per year)	Natural Gas Use (kBTU per year)	Gasoline (gallons per year)	Diesel (gallons per year)
Proposed Project	870,183	5,116	16,787	11,115

Source: Compiled by LSA (November 2024).
kBTU = thousand British thermal units
kWh = kilowatt hours

As shown in Table 4.10.A, the estimated increase in electricity demand associated with the operation of the proposed project would be 870,183 kWh per year. Total electricity consumption in Orange County in 2022 was 20,243,721,856 kWh; therefore, operation of the proposed project would negligibly increase the annual electricity consumption in Orange County by approximately less than 0.1 percent.

As shown in Table 4.10.A, the estimated potential increase in natural gas demand associated with the proposed project is 5,116 therms per year. Total natural gas consumption in Orange County in 2022 was 572 million therms (572,454,744 therms). Therefore, operation of the proposed project would negligibly increase the annual natural gas consumption in Orange County by approximately less than 0.1 percent.

Electricity and natural gas demand associated with project operations would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. Furthermore, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. The proposed project would be required to adhere to all federal, State, and local requirements for energy efficiency, including the Title 24 standards. Title 24 building energy efficiency standards establish minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting, which would reduce energy usage. In addition, proposed new development would be constructed using energy efficient modern building materials and construction practices, and the proposed project also would use new modern appliances and equipment, in accordance with the Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608). The proposed project would also be Leadership in Energy and Environmental Design (LEED) certified. However, energy consumption is largely a function of personal choice and the physical structure and layout of buildings.

In 2018, Senate Bill (SB) 100 was passed, which has committed California to generate all electricity from carbon free sources by 2045. As mentioned above, natural gas usage would be limited to the culinary

kitchen, with all other buildings designed to be all electric. The proposed project's all-electric design considers the context of the changing electricity grid and is designed to displace natural gas emissions over the lifetime of the project. The all-electric building design would result in decreasing emissions as California's grid becomes cleaner, and once the grid consists of 100 percent renewable generation sources, the project would have zero operational emissions associated with electricity usage.

The proposed project would result in the annual consumption of 16,787 gallons of gasoline and 11,115 gallons of diesel fuel, as shown in Table 4.10.A. This analysis conservatively assumes that all vehicle trips generated as a result of project operation would be new to Orange County. Based on fuel consumption obtained from EMFAC2021, approximately 1.2 billion gallons of gasoline and approximately 157.1 million gallons of diesel will be consumed from vehicle trips in Orange County in 2024. Therefore, vehicle trips associated with the proposed project would increase the annual fuel use in Orange County by approximately less than 0.01 percent for gasoline fuel usage and approximately less than 0.01 percent for diesel fuel usage. In addition, vehicles associated with trips to and from the project site would be subject to fuel economy and efficiency standards, which are applicable throughout the State. As such, it is reasonable to assume that the fuel efficiency of vehicles associated with project operations would increase throughout the life of the proposed project. Therefore, implementation of the proposed project would not result in a substantial increase in transportation-related energy uses.

The proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment uses, and transportation. Impacts would be less than significant, and no mitigation is required.

Question 4.10 b): Conflict or obstruct a state or local plan for renewable energy or energy efficiency?

Response to Question 4.10 b):

Less than Significant Impact. In 2002, the Legislature passed SB 1389, which required the CEC to develop an integrated energy plan every 2 years for electricity, natural gas, and transportation fuels for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The CEC recently adopted the *2023 Integrated Energy Policy Report*[25] that provides the results of the CEC's assessments of a variety of energy issues facing California. The City of Orange relies on the State's integrated energy plan and does not have its own local plan to address renewable energy or energy efficiency. As indicated above, energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the overall use in the County. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the overall use in Orange County and the State's available energy sources. Therefore, energy impacts at the regional level would be negligible. Because California's energy conservation planning actions are conducted at a regional level, and because the proposed project's total impact on regional energy supplies would be minor, the proposed project would not conflict with or obstruct California's energy conservation

[25] CEC. 2023. 2023 Integrated Energy Policy Report Update. Docket No. 23-IEPR-01.

plans as described in the CEC's Integrated Energy Policy Report. Additionally, as demonstrated above, the proposed project would not result in the inefficient, wasteful, and unnecessary consumption of energy. Potential impacts related to conflict with or obstruction of a State or local plan for renewable energy or energy efficiency would be less than significant, and no mitigation is required.

4.11 *Geology and Soils*

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The analysis presented in this section is based upon information presented in the *Geotechnical Investigation Orange County Youth Transition Center Project (OC YTC)* (Geotechnical Investigation) prepared for the proposed project by Geocon West, Inc. in March 2024 and the *Results of Paleontological Resources Analysis for Inclusion in the Initial Study/Mitigated Negative Declaration for the Orange County Juvenile Hall Youth Transition Center Project Memorandum* (Paleo Memo) prepared for the proposed project by LSA in November 2024. These documents are included within this IS/MND as Appendices E and F, respectively.

Question 4.11 a): Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

Question 4.11 a-i): Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Response to Question 4.11 a-*i*):

Less than Significant Impact. The Alquist-Priolo Earthquake Fault Zoning Act of 1972 establishes regulatory zones surrounding surface traces of active faults within California in order to reduce losses from surface fault rupture.[26] In compliance with the Alquist-Priolo Earthquake Fault Zoning Act, Alquist-Priolo earthquake fault zones are periodically mapped by the California Geological Survey, a division of the California Department of Conservation (DOC).

According to the Geotechnical Investigation, the project site is not located within a State-designated Alquist-Priolo earthquake fault zone. There are no known active or potentially active faults or fault traces shown on current geologic maps as crossing or being in close proximity to the project site. Therefore,

[26] California Department of Conservation (DOC). n.d. Alquist-Priolo Earthquake Fault Zones. Website: https://www.conservation.ca.gov/cgs/alquist-priolo (accessed October 16, 2024).

potential for the exposure of people or structures to potential substantial adverse effects related to fault rupture as provided in the Alquist-Priolo Earthquake Fault Zoning Act is less than significant. No mitigation is required.

Question 4.11 a-*ii*): Strong seismic ground shaking?

Response to Question 4.11 a-*ii*):

Less than Significant With Mitigation Incorporated. Ground shaking due to seismic events (earthquakes) would typically be considered the greatest source of potential damage to structures. Seismic shaking is characterized by the physical movement of the land surface during and subsequent to an earthquake. Seismic shaking has the potential to cause destruction and damage to buildings and property, including damage resulting from damaged or destroyed gas or electrical utility lines; blockage of surface seepage and groundwater flow; changes in groundwater flow; dislocation of street alignments; displacement of drainage channels and drains; and possible loss of life.

As stated above in the Response to Question 4.11 a-*i*), the proposed project is not located in the immediate vicinity of a State-designated Alquist-Priolo Earthquake Fault Zone and therefore is not considered susceptible to surface fault rupture hazards. However, the project site is located within Southern California, which contains various active and inactive faults and is generally considered a seismically active region.

The closest surface trace of a potentially active fault to the project site is the Newport-Inglewood Fault Zone, which is located approximately 9.7 miles southwest of the project site. Other potentially active faults in the regional vicinity of the project site include the Whittier Fault, the Chino Fault, the Elsinore Fault, and the offshore segment of the Palos Verdes Fault Zone. The distance of these faults to the project site ranges from 10 to 41 miles.

In addition to surface traces of faults, the region also contains buried thrust faults, also known as blind thrusts, which are not exposed at the ground surface. Although the Puente Hills Blind Thrust underlies the project site at a substantial depth, this feature is considered capable of generating an earthquake that could result in ground shaking within the project site.

Given the location of this feature, and based on seismicity trends in the region, the project site could be subject to strong ground shaking in the event of an earthquake. However, the Geotechnical Investigation identifies seismic design criteria, consistent with Chapter 16, Structural Design, of the 2022 California Building Code (CBC). As described in Mitigation Measure (MM) GEO-1 below, the proposed project would be required to comply with the recommendations set forth in the Geotechnical Investigation, which include these seismic design criteria as well as other design recommendations to increase the stability of the proposed project.

With the proposed project's adherence to the seismic design criteria identified in the Geotechnical Investigation pursuant to MM GEO-1, potential ground-shaking effects to the proposed structures would be minimized. Therefore, the proposed project would not cause potential substantial adverse effects related to seismic ground shaking, and impacts with respect to this topic would be less than significant with mitigation incorporated.

Mitigation Measure:

MM GEO-1 **Compliance with the Recommendations in the Geotechnical Investigation.** Prior to the issuance of demolition or grading permits, the County of Orange (County) Public Works Department shall verify that requirements and recommendations in the Geotechnical Investigation have been appropriately incorporated into the project plans. All grading operations and construction shall be conducted in conformance with all of the recommendations included in the Geotechnical Investigation, which was prepared by Geocon West, Inc., titled *Geotechnical Investigation Orange County Youth Transition Center Project (OC YTC)* (Geotechnical Investigation) (March 15, 2024) as well as any subsequent geotechnical reports prepared for the project. All recommendations found in the Geotechnical Investigation shall be incorporated into project design and shall include, but not be limited to:

- Seismic design recommendations
- Foundation design recommendations
- Lateral design recommendations
- Preliminary pavement recommendations
- Grading recommendations
- Construction considerations

Additional site construction plans, including grading plans, shall be reviewed by the project Geotechnical Consultant prior to construction to check for conformance with all of the recommendations of the Geotechnical Investigation. Design, grading, and construction shall be performed in accordance with the requirements of the applicable seismic standards identified in the Geotechnical Investigation, as well as the recommendations of the project Geotechnical Consultant as summarized in the Geotechnical Investigation subject to review by the Orange County Public Works, prior to the start of grading activities.

Question 4.11 a-*iii*): Seismic-related ground failure, including liquefaction?

Response to Question 4.11 a-*iii*):

Less than Significant With Mitigation Incorporated. Liquefaction is caused by sudden temporary increases in pore water pressure due to seismic densification or other displacement of submerged granular soils. Layers of loose sand and sandy silt may, therefore, be subject to liquefaction if these materials are or were to become submerged and are also exposed to strong seismic ground shaking. Seismic ground shaking of relatively loose granular soils that are saturated or submerged can cause the soils to liquefy and temporarily behave as a dense fluid. This loss of support can produce local ground failure such as settlement or lateral spreading that may damage overlying improvements. Liquefaction commonly occurs when three conditions are present simultaneously: (1) high groundwater; (2) relatively loose, cohesion-lacking, primarily sandy soil; and (3) earthquake-generated seismic waves.

According to Figure PS-1, Environmental and Natural Hazard Policy Map, of the City's General Plan Public Safety Element,[27] the City considers the project site to be located within a Liquefaction Hazard Area. In

[27] City of Orange. 2015. General Plan Public Safety Element. Website: https://www.cityoforange.org/home/showpublished document/214/637698172567530000 (accessed October 16, 2024).

addition, according to the Geotechnical Investigation, the State of California Seismic Hazard Zone Map for the Anaheim quadrangle indicates that the project site is located within a zone of required investigation for liquefaction.

Consistent with standard practice, the Geotechnical Investigation analyzed liquefaction potential of the project site to a depth of 50 ft below the lowest portion of the proposed structures. While exploratory borings collected as part of the Geotechnical Investigation encountered groundwater at a depth of approximately 54 ft bgs, historic high groundwater levels within the project site vicinity are recorded as approximately 30 to 40 ft bgs. As such, the liquefaction analysis prepared for the proposed project was performed using a historic high groundwater table of 30 ft bgs in order to ensure a conservative approach.

The liquefaction analysis presented in the Geotechnical Investigation ultimately determined that alluvial soils underlying the historic high groundwater depth of 30 ft bgs could be prone to up to 1.1 inches of liquefaction-induced settlement during an earthquake with a magnitude of 6.12, or a Design Earthquake as determined by historic earthquake data. The analysis also included a more conservative scenario, referred to as the Maximum Considered Earthquake (MCE), which evaluated a potential earthquake with a magnitude of 6.65. Under this scenario, the soils underlying the historic high groundwater depth of 30 ft bgs could be prone to up to 2.5 inches of liquefaction-induced settlement. Because these potential settlement values exceed allowable limits, the Geotechnical Investigation sets forth grading and foundation design recommendations in order to reduce the effects of liquefaction-induced settlement on the proposed structures. These recommendations include a reinforced mat foundation system or a conventional foundation system with interconnection foundation ties in order to provide additional stability. At the minimum, the Geotechnical Investigation recommends that existing earth materials underlying each proposed building footprint be excavated and properly compacted to a depth of at least 5 ft bgs.

The proposed project's adherence to the grading and foundation design recommendations presented in the Geotechnical Investigation, pursuant to MM GEO-1, would reduce potential liquefaction-related substantial adverse effects related to a less than significant level with mitigation incorporated.

Question 4.11 a-*iv*): Landslides?

Response to Question 4.11 a-*iv*):

Less than Significant Impact. The project site is relatively flat and slopes gently from 0.5 percent to 2.0 percent to the southwest. According to Figure PS-1, Environmental and Natural Hazard Policy Map, of the City's General Plan Public Safety Element,[28] the project site is not located within a Landslide Hazard Area. Further, no known landslides have occurred within the project site or its vicinity.

The proposed project would not introduce any new topographical features or elements that would increase the risk of landslide within the project vicinity. In addition, as previously stated, the project site is generally flat. Therefore, the potential for the proposed project to expose people or structures to potential substantial adverse effects related to landslides would be less than significant, and no mitigation is required.

[28] City of Orange. 2015. General Plan Public Safety Element. Website: https://www.cityoforange.org/home/showpublished document/214/637698172567530000 (accessed October 16, 2024).

Question 4.11 b): Result in substantial soil erosion or the loss of topsoil?

Response to Question 4.11 b):

Less than Significant Impact. The primary concern in regard to soil erosion or loss of topsoil would be during the construction phase of the proposed project. Grading and earthwork activities associated with the proposed demolition and construction activities under Phases 1 and 2 of the proposed project could temporarily expose soils to potential short-term erosion by wind and water. However, since the project site is relatively flat, potential soil erosion can be controlled via implementation of standard construction erosion control practices such as the use of water to prevent fugitive dust and other construction best management practices (BMPs) required pursuant to the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. Because the project limits surfaces would not be prone to erosion with implementation of erosion control practices, the proposed project would not result in substantial soil erosion or the loss of topsoil. Furthermore, the exposure of soils during construction would be short-term and subject to requirements established by the NPDES, which is discussed further in Section 4.14, Hydrology and Water Quality, of this IS/MND.

Once operational, the proposed project would increase the proportion of pervious surface area within the project site by approximately 40 percent. As such, the proposed project would result in decreased peak flow runoff and volumes from those under existing conditions. Therefore, operations of the proposed project would ensure that the potential for erosion or the loss of topsoil is less than or equal to existing conditions. Nevertheless, incorporation of Regulatory Compliance Measures (RCM) HYD-1 through RCM HYD-4, as discussed further in Section 4.14, would minimize the volume of runoff within the project site that could potentially contribute to erosion. Therefore, direct and indirect impacts related to erosion and loss of topsoil would be less than significant, and no mitigation would be required.

Question 4.11 c): Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

Response to Question 4.11 c):

Less than Significant With Mitigation Incorporated. According to the Geotechnical Investigation, geologic maps indicate that the project site is underlain by artificial fill to depths of approximately 3.5 ft, associated with prior disturbance of the project site. Beneath the artificial fill, Holocene age young alluvial fan deposits were encountered. The Geotechnical Investigation notes that the characteristics of these soils would not necessarily preclude construction of the proposed project.

During construction of the proposed project, soil stability would be maintained through the use of appropriate sloping or shoring measures, as recommended by the Geotechnical Investigation. The proposed project would be required to establish a stable excavation bottom within the project site prior to placing fill during grading activities. In the event that the subgrade materials are saturated or soft, subgrade stabilization measures would be required. All excavations would be stabilized within 30 days of initial excavation, pursuant to the Geotechnical Investigation. Areas of loose or overly moist soils, which could be considered unstable, may be encountered during grading activities. In this event, the soils would undergo spreading and drying practices to increase stability and ensure appropriate conditions for development. Lastly, prior to placing fill, the foundation excavation bottom of the proposed structures would be compacted using a compaction wheel or mechanical whacker to increase stability.

***Landslides*.** As previously stated, because the project site is located in a relatively flat area with no significant slopes nearby, landslides or other forms of natural slope instability do not represent a significant hazard to the project site. As such, the risk of on- or off-site landslides under the proposed project would be less than significant, and no mitigation is required.

Subsidence. Subsidence refers to vertical displacement of land. Common causes of land subsidence are pumping water, oil, and gas from underground reservoirs; dissolution of limestone aquifers (sinkholes); collapse of underground mines; drainage of organic soils; and initial wetting of dry soils (hydro compaction). Subsidence is also caused by heavy loads generated by large earthmoving equipment. The project site is not located within an area of groundwater, peat loss, or oil extraction. However, the project site is located within an area of known ground subsidence according to the United States Geological Survey. However, the Geotechnical Investigation notes that subsidence related to groundwater pumping typically occurs in small magnitudes spread out over large areas, therefore minimizing impacts to individual sites. Because the proposed project consists of discrete structures on a singular project site rather than a regionally extensive structure, subsidence-related elevation changes would not be expected to damage the proposed buildings. As such, the risk of subsidence-related adverse effects under the proposed project is less than significant, and no mitigation is required.

Liquefaction. As previously stated, the project site is susceptible to liquefaction concerns. However, the *Geotechnical Investigatio*n sets forth grading and foundation design recommendations in order to reduce the effects of liquefaction-induced settlement on the proposed structures. These recommendations include a reinforced mat foundation system or a conventional foundation system with interconnection foundation ties in order to provide additional stability. At the minimum, the Geotechnical Investigation recommends that existing earth materials underlying each proposed building footprint be excavated and properly compacted to a depth of at least 5 ft bgs. With adherence to these stabilization recommendations pursuant to MM GEO-1, the risk of liquefaction under the proposed project would be less than significant.

Lateral Spreading. Lateral spreading often occurs on very gentle slopes or flat terrain. This ground failure is caused by liquefaction and is usually triggered by rapid ground motion, such as that experienced during an earthquake, but can also be artificially induced. When coherent material, either bedrock or soil, rests on materials that liquefy, the upper units may undergo fracturing and extension and may then subside, translate, rotate, disintegrate, or liquefy and flow.

The Geotechnical Investigation contains various lateral design measures with the ultimate intention of establishing friction between the bottom of the foundation and the underlying soils. With adherence to these measures and other stability measures identified in MM GEO-1, the proposed project would exhibit resistance to lateral spreading. As such, the risk of lateral spreading under the proposed project would be less than significant with incorporation of MM GEO-1, and no mitigation is required.

Collapse. The Geotechnical Investigation does not identify collapse as a potential hazard to the project site. Nevertheless, as discussed above, the proposed project would adhere to all feasible design measures identified in the Geotechnical Investigation to increase the stability of the proposed structures, foundations, and underlying soils, pursuant to MM GEO-1. As such, the risk of collapse under the proposed project would be less than significant with mitigation incorporated, and no mitigation is required.

In summary, with implementation of design recommendations set forth in the Geotechnical Investigation pursuant to MM GEO-1, potential impacts of the proposed project related to unstable soils or geologic

units that could result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse would be reduced to a less than significant level.

Question 4.11 d): Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal of waste water?

Response to Question 4.11 d):

Less than Significant Impact. Expansive soils are characterized by their ability to undergo substantial volume changes (shrink or swell) due to variations in moisture content as a result of precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors. Expansive soils contain types of clay minerals that occupy considerably more volume when they are wet or hydrated than when they are dry or dehydrated. Volume changes associated with changes in the moisture content of near-surface expansive soils can cause uplift or heave of the ground when they become wet or, less commonly, cause settlement when they dry out.

According to the Geotechnical Investigation prepared for the proposed project, the upper five ft of soils currently underlying the project site are considered to have an expansion index (EI) of 0 to 2, meaning the expansion potential of the soils is considered “very low” in accordance with the 2022 CBC. The proposed project is not anticipated to require the use of imported fill; however, in the event that imported fill is necessary, the proposed project would import soil with a “very low” EI (20 or less) pursuant to the recommendations set forth in the Geotechnical Investigation.

Further, the Geotechnical Investigation evaluated the stormwater infiltration potential of soils within the project site and ultimately concluded that stormwater generated by the proposed project would not affect soil structures of existing or proposed foundations due to expansive soils. As such, the proposed project would not create substantial direct or indirect risks to life or property associated with expansive soils. Impacts would be less than significant, and no mitigation is required.

Question 4.11 e): Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal of waste water?

Response to Question 4.11 e):

No Impact. The proposed project would not use septic tanks or alternative methods for disposal of wastewater into subsurface soils. The entire City, as well as the Campus, are currently served by an existing sewer system; as such, there is no need for septic tanks or other alternative wastewater systems. Under the proposed project, new 4-inch sewer laterals would be established in order to connect the existing on-site sewer mainline with the proposed buildings. Therefore, the proposed project would not result in any impacts related to septic tanks or alternative wastewater disposal methods. No mitigation is required.

Question 4.11 f): Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Response to Question 4.11 f):

Less than Significant With Mitigation Incorporated. The County of Orange has mapped general areas of paleontological sensitivity, based on known sites and underlying geological formations, within Figure VI-9 of its General Plan Resources Element.[29] According to Figure VI-9, the project site is not located within an area of paleontological sensitivity as identified by the County. Nevertheless, in order to evaluate the potential presence of paleontological resources within the project site, a Paleo Memo was prepared for the proposed project in November 2024. Preparation of this assessment included consultation of geologic maps of the project site, review of relevant geological and paleontological literature to determine the geological makeup of the project site and any known fossils in the region, and a search of the Natural History Museum of Los Angeles County (NHMLAC) to determine the status and extent of previously recorded paleontological resources within and surrounding the project site.

Using the results of the literature review, the Paleo Memo established the existing setting for paleontological resources underlying the project site. According to the Paleo Memo, the project site is located within the Peninsular Ranges Geomorphic Province, a 900-mile-long northwest-southeast trending structural block with similarly trending faults. This block contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rocks covered by Cenozoic (less than 66 Ma) sedimentary deposits.

Specifically, the project site is underlain by Late Pleistocene to Holocene Young Alluvial Fan Deposits, formed roughly 2.58 million years ago to 11,700 years ago. Young Alluvial Fan Deposits are considered to have low paleontological sensitivity from the surface to a depth of 10 ft and high paleontological sensitivity below that mark due to the presence of older material. Below depths of 10 ft, there is potential for the discovery of large and small mammal, reptile, fish, invertebrate, and plant fossils.

Given the developed nature of the project site, Artificial Fill is likely present on the project site and adjacent roads in addition to the Young Alluvial Fan Deposits. Artificial Fill consists of sediments that have been removed from one location and transported to another location by human activity, rather than by natural means. The transportation distance can vary from a few feet to many miles, and composition depends on the source and purpose. Artificial Fill can sometimes contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material. Although Artificial Fill may contain fossils, these fossils have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study, and Artificial Fill is considered to have no paleontological sensitivity.

According to the fossil locality search through the NHMLAC, there are no known fossil localities within the boundaries of the project. However, the search did note several fossil localities in the general vicinity of the project site, within sediments similar in nature to those found underlying the project site. This, in conjunction with the high paleontological sensitivity of Young Alluvial Fan Deposits below 10 ft, indicates a potential for paleontological resources to exist within the project site.

Excavation activities associated with the proposed project would reach a maximum depth of 6 ft, which would be associated with elevator shafts within several proposed buildings. Excavation activities

[29] County of Orange. 2012. Orange County General Plan Resources Element. Website: https://ocds.ocpublicworks.com/service-areas/oc-development-services/planning-development/codes-and-regulations/general-plan (accessed October 16, 2024).

associated with the establishment of various utility connections, which would reach approximately 18 inches to 36 inches in depth, with storm drain and sanitary sewer potentially deeper to accommodate flow. As such, excavation activities under the proposed project are not anticipated to reach depths of Young Alluvial Fan Deposits that would be considered paleontologically sensitive (10 ft or deeper). Nevertheless, to ensure that potential impacts to undiscovered paleontological resources remain less than significant, preparation of a monitoring program, monitoring of construction activities, appropriate treatment of newly discovered resources, and preparation of a final monitoring report would be required, as outlined in MM GEO-2 below. With adherence to MM GEO-2, potential impacts of the proposed project to undiscovered paleontological resources would be reduced to a less than significant level.

Mitigation Measure:

MM GEO-2 **Paleontological Resources.** Prior to the commencement of ground-disturbing activities, a qualified, professional paleontologist who meets the standards set by the Society of Vertebrate Paleontology (SVP) shall be retained to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall be consistent with the guidelines of the SVP and shall include the methods that will be used to protect paleontological resources that may exist within the project limits, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of ground disturbance.

If ground-disturbing activities occur in deposits with high paleontological sensitivity (i.e., Young Alluvial Fan Deposits below a depth of 10 feet), those activities shall be monitored by a qualified paleontological monitor following the PRIMP. If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find in order to assess its significance. Once soils have been monitored during the excavation stage and determined to lack the presence of paleontological resources, monitoring of these soils would no longer be necessary for the remainder of grading activities. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.

Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.

4.12 *Greenhouse Gas Emissions*

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Greenhouse Gases (GHGs) are present in the atmosphere naturally, are released by natural sources, or form from secondary reactions taking place in the atmosphere. Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which is believed to be causing global warming. Although manmade GHGs include naturally occurring GHGs such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), some gases like hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3), and sulfur hexafluoride (SF_6) are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG; the definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

State CEQA Guidelines Section 15064(b) provides that the "determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data," and further states that an "ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting." Currently, there is no Statewide GHG emissions threshold that has been used to determine the potential GHG emissions impacts of a project. Threshold methodology and thresholds are currently developed and revised by air districts in California.

To provide guidance to local lead agencies on determining significance for GHG emissions in their California Environmental Quality Act (CEQA) documents, the South Coast Air Quality Management District (SCAQMD) convened a GHG CEQA Significance Threshold Working Group (Working Group). The Working Group has identified a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency:

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.

- **Tier 2.** If the project complies with a GHG emissions reduction plan or mitigation program that avoids or substantially reduces GHG emissions in the project's geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.

- **Tier 3.** If GHG emissions are less than the screening-level threshold, project-level and cumulative GHG emissions are less than significant.

  For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, SCAQMD requires an assessment of GHG emissions. SCAQMD, under Option 1, is proposing a "bright-line" screening-level threshold of 3,000 metric tons (MT) of CO_2e (or MT CO_2e) per year (MT CO_2e/year) for all land use types or, under Option 2, the following land use-specific thresholds: 1,400 MT CO_2e for commercial projects; 3,500 MT CO_2e for residential projects; or 3,000 MT CO_2e for mixed-use projects. This bright-line threshold is based on a review of the Office of Planning and Research (OPR) database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal and therefore less than cumulatively considerable impact on GHG emissions.

- **Tier 4.** If emissions exceed the numerical screening threshold, a more detailed review of the project's GHG emissions is warranted. The SCAQMD has proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is per-capita efficiency targets. The SCAQMD is not recommending use of a percentage emissions reduction target. Instead, the SCAQMD proposes proposed a 2020 efficiency target of 4.8 MT CO_2e/year per service population for project-level analyses and 6.6 MT CO_2e/year per service population for plan-level projects (e.g., program-level projects such as General Plans).

For the purpose of this analysis, the proposed project will be compared to the threshold of 3,000 MT CO_2e/year for all land use types. The project is also evaluated for compliance with the 2022 Scoping Plan and the 2024 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

Question 4.12 a): Generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment?

Response to Question 4.12 a):

Less than Significant Impact. This section describes the proposed project's construction- and operation-related GHG emissions and contribution to global climate change. The SCAQMD has not addressed

emission thresholds for construction in its *CEQA Air Quality Handbook*; however, SCAQMD requires quantification and disclosure. Thus, this section discusses construction emissions.

Construction Greenhouse Gas Emissions. Demolition and construction activities associated with the proposed project would produce combustion emissions from various sources. During construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The SCAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are required to quantify and disclose GHG emissions that would occur during construction. The SCAQMD suggests that construction GHG emissions be amortized over the life of the project (defined as 30 years), added to the operational emissions, and compared to the applicable interim GHG significance threshold tier.

Using CalEEMod, it is estimated that the proposed project would generate a total of approximately 1,432.0 MT CO_2e during construction of the project. When annualized over the 30-year life of the project, annual emissions would be 47.7 MT CO_2e.

Operational Greenhouse Gas Emissions. Long-term operation of the proposed project would generate GHG emissions from area, mobile, waste, and water sources, as well as indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions would include project-generated vehicle trips associated with trips to the proposed project. Area-source emissions would be associated with activities such as landscaping and maintenance on the project site and other sources. Stationary source emissions would be associated with the use of the diesel backup generator. Waste-source emissions generated by the proposed project include energy generated by landfilling and other methods of disposal related to transporting and managing project-generated waste. In addition, water-source emissions associated with the proposed project are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

GHG emissions were estimated using CalEEMod. Table 4.12.A shows the estimated operational GHG emissions for the proposed project. Energy emissions are the largest source of GHG emissions for the project, at approximately 47 percent of the project total. Mobile sources are the next largest category, at approximately 31 percent. Waste and water sources are about 15 percent and 4 percent of the total emissions, respectively. Stationary sources are about 2 percent of the total emissions. Area-source emissions make up 1 percent of the total emissions.

As discussed above, a project would have less than significant GHG emissions if it would result in operational GHG emissions of less than the SCAQMD threshold of 3,000 MT CO_2e per year. Based on the analysis results, when the amortized annual construction emissions are added to the annual operation emissions, the proposed project is anticipated to generate approximately 551.4 MT CO_2e per year, which is well below the SCAQMD's 3,000 MT CO_2e per year threshold. Therefore, operation of the proposed project would not generate significant GHG emissions that would have a significant effect on the environment. Impacts would be less than significant, and no mitigation would be required.

Table 4.12.A: Greenhouse Gas Emissions

Emission Type	Operational Emissions (MT/yr)				
	CO_2	CH_4	N_2O	CO_2e	Percentage of Total
Mobile Source	155.9	<0.1	<0.1	158.2	31
Area Source	1.5	<0.1	<0.1	1.5	1
Energy Source	237.1	<0.1	<0.1	238.0	47
Water Source	12.6	0.2	<0.1	19.3	4
Waste Source	21.4	2.1	0.0	74.9	15
Stationary Sources	11.7	<0.1	<0.1	11.8	2
Total Operational Emissions				**503.7**	**100**
Amortized Construction Emissions				47.7	—
Total Annual Emissions				**551.4**	**—**
SCAQMD Threshold				**3,000**	
Exceedance?				**No**	

Source: Compiled by LSA (November 2024).
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
GHG = greenhouse gas
MT/CO_2e = metric tons of carbon dioxide equivalent
MT/yr = metric tons per year
N_2O = nitrous oxide
SCAQMD = South Coast Air Quality Management District

Question 4.12 b): Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Response to Question 4.12 b):

Less than Significant Impact. The following discussion evaluates the proposed project according to the goals of the 2022 Scoping Plan, Executive Order (EO) B-30-15, Senate Bill (SB) 32, Assembly Bill (AB) 197, AB 1279, and SCAG's 2024–2050 RTP/SCS.

2022 Scoping Plan. EO B-30-15 added the immediate target of reducing GHG emissions to 40 percent below 1990 levels by 2030. SB 32 affirms the importance of addressing climate change by codifying into statute the GHG emissions reduction target of at least 40 percent below 1990 levels by 2030 contained in EO B-30-15. CARB released the 2017 Scoping Plan to reflect the 2030 target set by EO B-30-15 and codified by SB 32.[30] SB 32 builds on AB 32 and keeps us the State on its path toward achieving its 2050 objective of reducing emissions to 80 percent below 1990 levels. AB 197, the companion bill to SB 32, provides additional direction to CARB that is related to the adoption of strategies to reduce GHG emissions. Additional direction in AB 197 that is intended to provide easier public access to air emission data collected by CARB was posted in December 2016. AB 1279 codifies the State goals of achieving net carbon neutrality by 2045 and maintaining net negative GHG emissions thereafter.

The State's 2022 Scoping Plan[31] assesses progress toward the statutory 2030 target while laying out a path to achieving carbon neutrality no later than 2045. The 2022 Scoping Plan focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

[30] CARB. 2022 Scoping Plan for Achieving Carbon Neutrality. December. Website: https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf (accessed November 2024).
[31] CARB. 2017. California's 2017 Climate Change Scoping Plan. November.

The 2022 Scoping Plan focuses on building clean energy production and distribution infrastructure for a carbon-neutral future, including transitioning existing energy production and transmission infrastructure to produce zero-carbon electricity and hydrogen, and utilizing biogas resulting from wildfire management or landfill and dairy operations, among other substitutes. The 2022 Scoping Plan states that in almost all sectors, electrification will play an important role. The 2022 Scoping Plan evaluates clean energy and technology options and the transition away from fossil fuels, including adding four times the solar and wind capacity by 2045 and about 1,700 times the amount of current hydrogen supply. As discussed in the 2022 Scoping Plan, EO N-79-20 requires that all new passenger vehicles sold in California be zero-emission by 2035 and that all other fleets transition to zero-emission as fully as possible by 2045, which will reduce the percentage of fossil fuel combustion vehicles.

- **Energy-efficient measures** are intended to maximize energy-efficiency building and appliance standards, pursue additional efficiency efforts including new technologies and new policy and implementation mechanisms, and pursue comparable investment in energy efficiency from all retail providers of electricity in California. In addition, these measures are designed to expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings. The proposed project would limit the use of natural gas to the culinary kitchen, with the rest of the buildings designed to be all electric. The elimination of natural gas in new development would help projects implement their "fair share" of achieving long-term 2045 carbon neutrality consistent with State goals. As such, if a project does not utilize natural gas, a lead agency can conclude that it would be consistent with achieving the 2045 neutrality goal and will not have a cumulative considerable impact on climate change.[32] Therefore, the proposed project would help the State remain on track to meeting its carbon neutrality goals. In addition, the proposed project would comply with the latest California Energy Code and CALGreen standards regarding energy conservation and green building standards. The proposed project would also be LEED certified. Therefore, the proposed project would comply with applicable energy measures.
- **Water conservation and efficiency measures** are intended to continue efficiency programs and use cleaner energy sources to move and treat water. Increasing the efficiency of water transport and reducing water use would reduce GHG emissions. As noted above, the project would be required to comply with the latest CALGreen standards, which include a variety of different measures, including reduction of wastewater and water use. In addition, the proposed project would be required to comply with the California Model Water Efficient Landscape Ordinance. The proposed project would include water efficient, drought tolerant landscaping, and low flow fixtures. Therefore, the proposed project would not conflict with any of the water conservation and efficiency measures.
- The goal of **transportation and motor vehicle measures** is to develop regional GHG emission reduction targets for passenger vehicles. Specific regional emission targets for transportation emissions would not directly apply to the proposed project. However, vehicles traveling to the project site would comply with the Pavley II (LEV III) Advanced Clean Cars Program. The second phase of Pavley standards will reduce GHG emissions from new cars by 34 percent from 2016 levels by 2025. Therefore, the proposed project would not conflict with the identified transportation and motor vehicle measures.

[32] Bay Area Air Quality Management District (BAAQMD). 2022. Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans. April. Website: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/final-ceqa-thresholds-report-for-climate-impacts-02092022-alt-pdf.pdf?rev=a3f6b70f316b4637864fb0b2cff78ebd&sc_lang=vi-vn (accessed November 2024).

- Therefore, the proposed project would comply with existing State regulations adopted to achieve the overall GHG emission reduction goals identified in the 2022 Scoping Plan, EO B-30-15, SB 32, AB 197, and AB 1279.

SCAG's 2024-2050 RTP/SCS. SCAG's 2024–2050 RTP/SCS[33] identifies land use strategies that focus on new housing and job growth in areas served by high-quality transit and other opportunity areas would be consistent with a land use development pattern that supports and complements the region's proposed transportation network. The core vision in the 2024–2050 RTP/SCS is to better manage the existing transportation system through design management strategies, integrate land use decisions and technological advancements, create complete streets that are safe for all roadway users, preserve the transportation system, expand transit, and foster development in transit-oriented communities. The 2024–2050 RTP/SCS contains transportation projects to help more efficiently distribute population, housing, and employment growth, as well as a forecasted development pattern that is generally consistent with regional-level General Plan data. The forecasted development pattern, when integrated with the financially constrained transportation investments identified in the 2024–2050 RTP/SCS, would reach the regional target of reducing GHG emissions from autos and light-duty trucks by 19 percent per capita by 2035 (compared to 2005 levels). The 2024–2050 RTP/SCS does not require that local General Plans, Specific Plans, or zoning be consistent with the 2024–2050 RTP/SCS, but it provides incentives for consistency for governments and developers.

Implementing SCAG's RTP/SCS will greatly reduce the regional GHG emissions from transportation, helping to achieve statewide emissions reduction targets. As demonstrated in Section 4.7, Air Quality, the proposed project does not meet the criteria identified in *State CEQA Guidelines* Section 15205.b.2 (Projects of Statewide, Regional, or Areawide Significance) for projects of statewide, regional, or areawide significance. In addition, the proposed project would not require a change to the General Plan land use designation or the current zoning, and would be consistent with the City's General Plan and Zoning Ordinance. As such, the proposed project would not interfere with SCAG's ability to achieve the region's GHG reduction target of 19 percent below 2005 per capita emissions levels by 2035. Furthermore, the proposed project is not regionally significant per *State CEQA Guidelines* Section 15206 and as such, it would not conflict with the SCAG RTP/SCS targets since those targets were established and are applicable on a regional level.

The proposed project would include the demolition of existing uses to construct a new YTC, which would include housing for youth, dining, culinary, education, and vocational spaces along with recreational exterior areas for combined total of 117,905 sf of building area. The proposed project would be consistent with existing local planning assumptions for the project site. Therefore, it is anticipated that implementation of the proposed project would not interfere with SCAG's ability to implement the regional strategies outlined in the RTP/SCS. Impacts would be less than significant, and no mitigation is required.

[33] Southern California Association of Governments (SCAG). 2024. Connect SoCal 2024–2050 Regional Transportation Plan/ Sustainable Communities Strategy. April. Website: https://scag.ca.gov/sites/main/files/file-attachments/23-2987-tr-demographics-growth-forecast-final-040424.pdf?1712261839 (accessed November 2024).

4.13 *Hazards and Hazardous Materials*

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☒	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

The following analysis is based upon information presented in the various Asbestos Survey Reports and Lead Based Paint Inspection Reports prepared for each of the ten buildings proposed for demolition by MTGL, Inc. in April 2024 (compiled in Appendix G of this IS/MND).

Question 4.13 a): Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Response to Question 4.13 a):

Less than Significant With Mitigation Incorporated. State regulations defines "hazardous material" as a substance or combination of substances that may cause or significantly contribute to an increase in serious, irreversible, or incapacitating illness or may pose a substantial presence or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed (22 CCR Section 66261.10). Hazardous materials have the potential to impact public health and the environment, and risk is determined by the probability of exposure and to the inherent toxicity of a material.

Materials are considered by the U.S. Environmental Protection Agency (USEPA) and State of California to be asbestos containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent. Similarly, State regulation defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent asbestos by weight (CCR Title 8, Section 1529). Asbestos containing materials (ACM) are regulated by federal, State, and local agencies including the National Emission Standards for Hazardous Air Pollutants (NESHAP).

The lead-based paint testing conducted for the proposed project was conducted in accordance with State regulations (17 CCR Section 35001) and the U.S. Department of Housing and Urban Developments (HUD) *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections*, published in June 1995 and revised in 1997. The State, HUD, and the USEPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1 milligram (mg) per square centimeter, or equal to or greater than 0.5 percent by weight.

Construction. The proposed project includes the demolition of ten existing buildings and the redevelopment of improved facilities within the Campus. The Asbestos Survey Reports and Lead Based Paint Inspection Reports (Appendix G to this IS/MND) concluded that several of the existing buildings to be demolished contain trace amounts of asbestos and lead. These assessments identified lead in seven buildings and asbestos in eight buildings. The findings of identified hazardous materials by building are provided in Table 4.13.A:

Table 4.13.A: Asbestos Survey Reports and Lead Based Paint Inspection Reports Results

Building	Asbestos Present?	Lead Present?
Old Visiting Center Building	**Yes (*Presumed*).** Roofing material was inaccessible but assumed to contain asbestos (roofing materials are assumed to contain asbestos until further testing can determine otherwise).	**No.** No lead-based paint or lead containing components were identified in the components tested.
Units O and M	**Yes.** Asbestos was identified in existing roof mastic on the north end of Building 2 under vinyl cap sheet.	**Yes.** Intact lead containing less than 1 mg per cm^2 was identified in existing pink ceramic wall, base and wall tile, porcelain sink, and yellow countertop in the building's bathrooms, kitchen, rooms, and kitchenette.
Building #9 (Units R and S)	**Yes.** Asbestos was identified in the pipe elbow insulation at more than one percent throughout the building.	**Yes.** Intact lead containing more than 1 mg per cm^2 was identified in the existing green exterior, metal canopy and frame, yellow ceramic wall, base and wall tile, and yellow countertop in the building's frame, bathrooms, and kitchenettes. Additionally, deteriorated lead containing more than 1 mg per cm^2 was identified in porcelain sinks within the building's mop/storage rooms.
Library and Offices Building	**No.** Asbestos was not identified in the building.	**No.** No lead-based paint or lead containing components were identified in the components tested.
Building #10 Classrooms	**Yes.** Asbestos was identified in the pipe elbow insulation at more than one percent throughout the building.	**Yes.** Intact lead containing less than 1 mg per cm^2 was identified in the existing pink ceramic wall, base and wall tile, tan countertop, and porcelain sink located in the building's bathrooms, classrooms, and kitchens. Additionally, deteriorated lead containing less than 1 mg per cm^2 was identified in the existing painted entry door/ frames and window frames.
Building #11 Classrooms	**Yes.** Asbestos was identified in the fissured ceiling tile and floor tile and mastic at more than one percent and cove base adhesive at less than one percent throughout the building.	**No.** Intact lead containing more than 1 mg per cm^2 was identified in ceramic wall and base tile located in the classroom bathrooms.

Table 4.13.A: Asbestos Survey Reports and Lead Based Paint Inspection Reports Results

Building	Asbestos Present?	Lead Present?
Building #5 (Units A and I)	**Yes.** Asbestos was identified in the pipe elbow insulation at more than one percent throughout the building and fissured ceiling tile at more than one percent in the hallway.	**Yes.** Intact lead containing more than 1 mg per cm^2 was identified in the green and yellow ceramic walls in staff restrooms.
Building #19 Classrooms	**No.** Asbestos was not identified in the building.	**No.** No lead-based paint or lead containing components were identified in the components tested.
Building #12 Classrooms	**Yes.** Asbestos was identified in the pipe insulation wrap and pipe elbow insulation at more than one percent throughout the building.	**Yes.** Intact lead containing less than 1 mg per cm^2 was identified in the existing green ceramic wall, base tile, and painted entry door/frames located in the building's bathrooms. Additionally, deteriorated lead containing less than 1 mg per cm^2 was identified in the porcelain sink located in the electrical room.
Building #16 (Units G, H, J, and K)	**Yes.** Asbestos was identified in the fissured ceiling tile at more than one percent in the hallway ceilings and pipe elbow wrap at more than one percent throughout the building.	**Yes.** Intact lead containing more than 1 mg per cm^2 was identified in the existing green ceramic wall and base tile located in the building's bathrooms. Additionally, deteriorated lead containing more than 1 mg per cm^2 was identified in porcelain sinks located in the hallway laundry rooms.

Sources: Various Asbestos Survey Reports and Lead Based Paint Inspection Reports prepared by MTGL, Inc. in April 2024 (compiled as Appendix G of this IS/MND).

Current U.S. EPA and CalEPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. However, the proposed project would follow the Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling (RRP Rule) (40 CFR 745, Subpart E). The EPA RRP Rule requires anyone who works in pre-1978 structures to become a USEPA Certified Renovator by taking Lead Safe Work Practices classes by a USEPA accredited training provider.

Additionally, all buildings found to contain lead would be required to comply with State regulations requiring the minimization of lead dust hazards and the inclusion of worker protection during demolition (CCR Title 8, Section 1532.1). As such, demolition of these existing structures under the proposed project would not create a significant hazard to the public.

According to the findings in the Asbestos Survey Reports (see Appendix G of this IS/MND), demolition of existing buildings for the proposed project could create a hazard to the public or environment through exposure to asbestos-containing materials. However, the Asbestos Survey Reports identify criteria, in accordance with Occupational Safety and Health Administration (OSHA) requirements for Federal, State and Local rules and regulations to reduce airborne fiber concentrations of asbestos. As described in

Mitigation Measure (MM) HAZ-1 below, the proposed project would be required to comply with the recommendations set forth in the Asbestos Survey Reports.

Demolished building materials would be hauled from the project site via 8 one-way hauling trips per day during the demolition phase, which would consist of approximately 34 working days. During this period, it would be ensured that the transportation of demolition waste would not represent a harm to receptors along potential hauling routes. As discussed in greater detail in Section 4.23, Utilities and Service Systems, the project Applicant would either self-haul demolition waste to a diversion facility approved by OC Waste and Recycling (OCWR), or would contract with an OCWR-approved hauler for the removal of the waste from the project site. Regardless of whether these materials are hauled by the project Applicant or by an approved hauler, the materials would be transported in accordance with all of the regulations described above, and in compliance with MM HAZ-1. With the proposed project's adherence to MM HAZ-1, potential exposure to hazardous asbestos-containing materials during project demolition and construction activities would be minimized to a less than significant level.

Operation. The proposed project would replace existing institutional structures with upgraded facilities providing the same general services, which would include, but are not limited to, medical and behavioral health services, living units, culinary services, educational services. Hazardous substances associated with these land uses are typically limited in both amount and use such that they can be contained without impacting the environment. Project operation would involve the use of potentially hazardous materials (e.g., solvents, cleaning agents, paints, fertilizers, and pesticides) typical of these land uses that, when used correctly and in compliance with existing laws and regulations, would not result in a significant hazard to people in the vicinity of the proposed project. No manufacturing, industrial, or other uses utilizing large amounts of hazardous materials would occur within the project site.

Long-term operational activities typical of the proposed medical facility are likely to involve the use and storage of small quantities of potentially hazardous materials in the form of cleaning solvents, radiologicals, pesticides, sterilants, and disinfectants, and the handling of discarded needles. For example, maintenance activities related to the sanitizing of patient assessment and care areas may involve the limited use of cleaning chemicals and disinfectants. As stated previously, these types of activities do not involve the use of a large or substantial volume of hazardous materials. In addition, such materials would be contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable federal, State, and local regulations. Any associated risk would be less than significant through compliance with these standards and regulations.

Further, OCWR maintains a directory of business hazardous materials and hazardous waste collection companies to assist with the properly disposal of hazardous waste materials.[34] It is anticipated that the proposed project would adhere to such programs, or medical waste collection services, to properly dispose of household hazardous waste.

Therefore, potential impacts from the routine transport, use, or disposal of hazardous materials resulting from operation of the proposed project would be less than significant with mitigation incorporated.

[34] Orange County Waste and Recycling Business Hazardous Waste. Website: https://oclandfills.com/hazardous-waste/business-hazardous-waste-referrals (accessed November 11, 2024).

Mitigation Measure:

MM HAZ-1 **Compliance with the Recommendations in the Asbestos Survey Reports.** Prior to and during demolition, a State of California Licensed Abatement Contractor shall perform removal of all asbestos containing materials. Removal of Asbestos Containing Materials shall be conducted in accordance with U.S. Environmental Protection Agency (USEPA) and Occupational Safety and Health Administration (OSHA) requirements and federal, State, and local rules and regulations to reduce airborne fiber concentrations. In addition, personal protective equipment and decontaminant methods shall be used by all workers on the project site.

Question 4.13 b): Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Response to Question 4.13 b):

Less than Significant With Mitigation Incorporated. The proposed project includes the demolition of ten existing buildings and the reconstruction of new facilities that would maintain existing institutional uses. The Asbestos Survey Reports and Lead Based Paint Inspection Reports prepared for the proposed project (Appendix G to this IS/MND) indicate that trace amounts of lead and asbestos exist in many of the buildings to be demolished. All proposed demolition and construction of the proposed project, as well as hauling off demolition and construction waste, would occur in compliance of federal, State, and local regulations regarding hazardous materials, including regulations applicable to treatment and removal of asbestos and lead (see the Response to Question 4.13 a)), and compliance with MM HAZ-1, which would ensure that no significant impacts related to the release of hazardous materials into the environment would occur during construction of the proposed project.

As previously stated, operations of the proposed project would use limited amounts of hazardous substances associated with residential uses, the potential release of which would not create a significant hazard to the public or the environment. Based on this, and the information presented above, the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Impacts would be less than significant with incorporation of MM HAZ-1.

Question 4.13 c): Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Response to Question 4.13 c):

Less than Significant With Mitigation Incorporated. The proposed project site is located within 0.25 mile of the Orangewood Children's Home and the Children's Home Society of California, both of which include educational programs on-site. The proposed project includes the demolition of ten existing buildings, some of which are educational buildings, and the redevelopment of improved facilities, including improved educational, classroom, library, and vocational facilities. As described above, the demolition and construction of the proposed project would comply with all federal, State, and local requirements relating to hazardous materials (see Response to Question 4.13 a)), and MM HAZ-1. Compliance would ensure that any hazardous materials resulting from demolition and construction activities would be

handled in a manner that would not result in effects to nearby school uses. While demolition and construction activities would be limited to the perimeter of the Campus and would therefore be contained within the existing site, waste from construction and demolition activities may be hauled away from the project site along Justice Center Way, which serves as the northern boundary of the Orangewood Children's Home. However, as previously stated, these hauling trips would be conducted in accordance with all federal, State, and local requirements relating to hazardous materials and MM HAZ-1. Therefore, potentially significant impacts related to emission or handling of hazardous materials in proximity to an existing or proposed school would be less than significant with incorporation of MM HAZ-1.

Question 4.13 d): Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Response to Question 4.13 d):

No Impact. The State of California Hazardous Waste and Substances Site List (also known as the Cortese List) is a planning document used by State and local agencies and by private developers to comply with CEQA requirements in providing information about the location of hazardous materials sites. California Government Code Section 65962.5 requires the California Environmental Protection Agency to update the Cortese List annually.[35]

The Department of Toxic Substances Control's (DTSC) EnviroStor database provides DTSC's component of Cortese List data by identifying sites that have known contamination or sites for which further investigation is warranted. According to the EnviroStor mapper, no potential cleanup sites are located within the project site. The closest potential cleanup site to the proposed project site is approximately 0.4 miles northwest of the project site, off West Chapman Avenue, at the Children's Hospital of Orange County (CHOC) Pediatric Urgent Care Clinic. This site is under evaluation but the record does not specify previous use(s) that may have caused contamination.[36] In addition, the State Water Resource Control Board's (SWRCBs) Geotracker Mapper does not identify any hazardous materials sites within the project site, and the nearest active site is located at the same CHOC Pediatric Urgent Care Clinic facility.[37] While CHOC facility is still considered active, the Geotracker website does not list this site as a Leaking Underground Storage Tank (LUST) site or a site of groundwater or soil contamination concern. Therefore, any hazardous materials are likely contained on-site and would not impact the proposed project site. In addition, intervening structures between this site and the project site, such as buildings comprising the UCI Medical Center, would eliminate any risk or threat posed by the CHOC facility.

As such, the project site is not identified as a site of concern within any database compiled pursuant to Government Code Section 65962.5. The proposed project would not pose a significant hazard to the public or the environment, and no impacts would occur. As such, no mitigation is necessary.

[35] Department of Toxic Substances Control (DTSC). Site Mitigation and Restoration Program. Website: https://dtsc.ca.gov/dtscs-cortese-list/ (accessed November 2024).

[36] EnviroStor Mapper. Department of Toxic Substances Control. Website: https://www.envirostor.dtsc.ca.gov/public/map/ (accessed October 2024).

[37] State Water Resource Control Board (SWRCB). Geotracker Map. Website: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Sacramento (accessed November 2024).

Question 4.13 e): For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Response to Question 4.13 e):

No Impact. The proposed project site is not located near or within an airport land use plan, nor within two miles of a public or public use airport. The closest airport to the project site is John Wayne Airport, located approximately 7.5 miles south of the project site. Therefore, no impact would occur, and no mitigation is necessary.

Question 4.13 f): Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Response to Question 4.13 f):

Less than Significant Impact. As discussed in the Response to Question 4.24 a-*i*) of Section 4.24, Wildfire, an emergency plan for the site is a required element of the existing facility and the proposed project for compliance with the State Fire Code and California Code of Regulations. According to the City of Orange General Plan Safety Element Generalizes Evacuation Corridors Map, the City Drive South is designated as an evacuation corridor. In addition, according to the City or Orange Local Hazard Mitigation Plan, Orangewood Avenue is the only road within proximity to the project site designated as an evacuation route. However, as noted by the City's Emergency Operations Plan, evacuation routes for emergency situations are contingent upon the scale and location of the emergency and would change depending on the direction of evacuation required by the situation. Demolition and construction of the proposed project would be contained within the existing site and would have minimal impact on surrounding roadways as all construction equipment would be staged on-site. Additionally, construction equipment would access the project site via Sidwell Way, keeping both the south and west roadways open in the event of an emergency. In addition, the main site entrance would be located along the northern side of the proposed project site, which is not designated for emergency vehicle access. During construction, temporary delays, road closures, or road obstructions may occur, creating potential minor delays in emergency situations. Demolition debris would be hauled off-site, utilizing main roads to arrive at an OCWR-approved construction and demolition waste diversion facility yet to be determined. The project would not result in any changes to the public street systems and would therefore not create any significant impacts on any emergency plans in the local or regional area. Therefore, any impacts would be less than significant, and no mitigation is necessary.

Question 4.13 g): Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Response to Question 4.13 g):

Less than Significant Impact. The proposed project site is in an urbanized and developed area within the City of Orange and is not located near any wildlands or urbanized areas adjacent to wildlands. Therefore, as discussed in greater detail in Section 4.24, Wildfire, of this IS/MND, impacts would be less than significant. No mitigation is required.

4.14 *Hydrology and Water Quality*

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:	☐	☐	☒	☐
i) result in substantial erosion or siltation on- or offsite?	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial sources of polluted runoff?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

The following analysis is based upon information presented in the Preliminary WQMP and Preliminary Hydrology Report prepared for the proposed project by Fuscoe Engineering, Inc. in November 2024. These documents are included within this IS/MND as Appendices H and I, respectively.

Question 4.14 a): Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Response to Question 4.14 a):

Less than Significant Impact. Under existing conditions, the project site is developed with the existing Campus and consists of mostly impervious surfaces, including various youth housing units and support buildings. Pervious areas within the project site consist of ornamental landscaping or grassy recreational fields. Under existing conditions, the site does not include any existing stormwater Best Management Practices (BMPs) to treat runoff prior to discharge. The proposed project would involve demolition of existing Campus structures and the construction of new structures and outdoor spaces in a rearranged layout.

An existing 33-inch reinforced concrete pipe storm drain runs along the project site in the north-south orientation and bisects the project site, serving as a collection point for stormwater runoff generated within the project site under existing conditions. This runoff connects to an existing 42-inch mainline reinforced concrete pipe storm drain, which is located just south of the project site and runs south along The City Drive before discharging into the Santa Ana River, a concrete trapezoidal flood control channel with an earthen bottom managed by the Orange County Flood Control District (OCFCD). The Santa Ana River ultimately flows into the Pacific Ocean between Newport Beach and Huntington Beach.

The proposed project would involve the extension of new laterals as needed to the existing 33-inch storm drain on site. On-site water would be captured and conveyed to these laterals via roof drains, atrium area drains, and catch basins dispersed throughout the project site. Prior to runoff, flows would be treated by infiltration features and/or bioretention features.

Pollutants of concern during construction include, but are not limited to: solid or liquid chemical spills; wastes from paints, stains, sealants, glues, lime, pesticides, herbicides, wood preservatives and solvents, asbestos fibers, paint flakes or stucco fragments; fuels, oils, lubricants, and hydraulic, radiator or battery fluids; concrete, detergent or floatable wastes; wastes from any engine/equipment steam cleaning or chemical degreasing; and super-chlorinated potable water line flushing. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters (i.e., the municipal storm drain system which discharges into the Santa Ana River, and ultimately into the Pacific Ocean). Stormwater runoff is regulated by the National Pollutant Discharge Elimination System (NPDES) Program (established through the federal Clean Water Act [CWA]). The objective of the NPDES Program is to control and reduce pollutant discharges to surface water bodies. Compliance with NPDES permits is mandated by State and federal statutes and regulations. Locally, the NPDES Program is administered by the Santa Ana Regional Water Quality Control Board (RWQCB). Construction activities can be subject to the SWRCB NPDES *General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2022-0057-DWQ, NPDES No. CAS000002* (Construction General Permit) depending on the degree of soil disturbance. Any construction activity, including grading, that would result in the

disturbance of 1 acre or more of soil would require compliance with SWRCB's Construction General Permit, which requires preparation of a Stormwater Pollution Prevention Program (SWPPP) and implementation of Construction BMPs to address water quality concerns during construction activities. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site as well as Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

The proposed project's operational activities are subject to the NPDES *Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the Orange County Region, Order No. R8-2009-0030, NPDES No. CAS618030 as amended by Order No. R8-2010-0062* (MS4 Permit). The MS4 Permit prohibits discharges, sets limits on pollutants being discharged into receiving waters, and requires implementation of technology-based standards. The MS4 Permit requires co-permittees, including the County of Orange, to develop and implement standard design and post-development BMP guidance to guide application of Low Impact Development (LID) BMPs to the maximum extent practicable. The MS4 Permit also requires preparation of a Water Quality Management Plan (WQMP), implementation of post-construction BMPs, and hydromodification requirements (where applicable) for new development and significant redevelopment projects that qualify as "Priority Development" projects.

Section 7.01 of the City of Orange Municipal Code codifies requirements related to water quality and stormwater discharges with the intention to enhance and protect water quality by prescribing requirements to reduce pollution in surface runoff for all new development and significant redevelopment projects. Chapter 7.01 includes, but is not limited to, general provisions, prohibited discharges, BMP requirements, and monitoring and inspection procedures. Section 7.01.050 of the City's Municipal Code requires that new development projects and significant redevelopment projects adhere to the City's Local Implementation Plan (LIP) prepared as part of a compliance program to satisfy the requirement of the area-wide Drainage Area Management Plan (DAMP) and the Santa Ana RWQCB municipal storm water permit issued to the City. The LIP outlines protocols for citywide projects to implement in order to contribute to regional stormwater pollution control efforts and adhere to the requirements of applicable NPDES permits described above.

Division 13 of the Orange County Code of Ordinances codifies requirements related to water quality and stormwater discharges with the intention to improve water quality by controlling the pollutants which enter the network of storm drains throughout Orange County. Division 13 includes, but is not limited to, general provisions, prohibited discharges, control requirements, and monitoring and inspection procedures.

Section 4-13-50 of Division 13 requires that all new development and significant redevelopment projects under the County's jurisdiction shall be undertaken in accordance with the area-wide 2007 Drainage Area Management Plan (DAMP) and all applicable provisions of the Santa Ana RWCB municipal storm water permit issued to the County. The DAMP provides a blueprint for the County and co-permittees to follow during implementation of stormwater pollution control programs. The County has also prepared a Local Implementation Plan (LIP) as part of a compliance program to satisfy the requirements set forth in the DAMP. The LIP outlines protocols for Countywide projects to implement in order to contribute to regional stormwater pollution control efforts and adhere to the requirements of applicable NPDES permits described above. In addition, all projects requiring discretionary and some requiring ministerial County

approval are required to prepare a WQMP in accordance with the Orange County DAMP.[38] Therefore, all development projects, regardless of priority status, would be required to implement these features where applicable and feasible.

Construction. During construction, the total disturbed soil area would be approximately 7.5 acres. Because construction of the proposed project would disturb greater than 1 acre of soil, the project is subject to the requirements of the Construction General Permit, as specified in Regulatory Compliance Measure (RCM) HYD-1. The Construction General Permit requires preparation of a SWPPP and implementation of construction BMPs during construction activities. Construction BMPs would include, but are not limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site as well as Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters.

Exploratory borings collected as part of the Geotechnical Investigation prepared for the proposed project encountered groundwater at a depth of approximately 54 ft bgs, while historic high groundwater levels within the project site vicinity are recorded as approximately 30 to 40 ft bgs. As such, a historic high groundwater table of 30 ft bgs shall be used in order to ensure a conservative approach. The maximum depth of excavation anticipated under the proposed project would be 6 ft bgs. Therefore, groundwater dewatering is not anticipated during construction of the proposed project, but still a possibility. As specified in RCM HYD-2, in the event groundwater dewatering activities would occur, the proposed project would comply with the *Waste Discharge Requirements (WDR) Permit for Discharges to Surface Waters That Pose an Insignificant (De Minimis) Threat to Water Quality (Groundwater Discharge Permit)* (Order No. R8-2020-0006, NPDES No. CAG998001). In compliance with the requirements of the Groundwater Discharge Permit, groundwater would be tested and treated (if necessary) prior to discharge to surface waters. With adherence to RCM HYD-2, groundwater dewatering during construction activities, if necessary, would not introduce pollutants to receiving waters at levels that would violate water quality standards or water discharge requirements, degrade water quality, or alter the quality of receiving waters.

Infiltration of stormwater can have the potential to affect groundwater quality in areas of shallow groundwater. As discussed above, the groundwater table was not encountered up to a depth of 54 ft bgs. Pollutants in stormwater are generally removed by soil through absorption as water infiltrates. Therefore, in areas of deep groundwater, there is more absorption potential and, as a result, less potential for pollutants to reach groundwater. Therefore, due to the depth to groundwater, it is not expected that any stormwater that may infiltrate during construction would affect groundwater quality because there is not a direct path for pollutants to reach the groundwater table. Therefore, project construction would not substantially degrade groundwater quality.

With implementation of RCM HYD-1 and RCM HYD-2, which require adherence to the NPDES Construction General Permit and Groundwater Discharge Permit, construction of the proposed project would not interfere with surface water quality standards, waste discharge requirements, and surface water quality.

Operation. The proposed project consists of an institutional campus for youth law violators, designed to emphasize rehabilitation, education, and transition back into society during residence within the project site. The proposed project would also include medical, culinary, administrative buildings. Pollutants of

[38] City of Orange Storm Water Program – Water Quality Management Plans. Website: https://www.cityoforange.org/our-city/departments/public-works/engineering-division/storm-water (accessed November 8, 2024).

concern from long-term operations of the proposed project include suspended solids/sediments, nutrients, heavy metals, pathogens (bacteria/virus), pesticides, oil and grease, and trash and debris.

As previously stated, operational activities are subject to the NPDES MS4 Permit. The MS4 Permit prohibits discharges, sets limits on pollutants being discharged into receiving waters, and requires implementation of technology-based standards. The MS4 Permit requires co-permittees, including the County of Orange, to develop and implement standard design and post-development BMP guidance to guide application of LID BMPs to the maximum extent practicable. The MS4 Permit also requires preparation of a WQMP and implementation of post-construction BMPs, as well as hydromodification requirements for new development and significant redevelopment projects that qualify as "Priority Development" projects.

As previously stated, a Preliminary WQMP has been prepared for the proposed project. The Preliminary WQMP specifies the Site Design and Source Control BMPs that would be implemented to target the pollutants of concern in runoff from the project site in order to reduce impacts to water quality during operation. As specified in RCM HYD-3, the Preliminary WQMP will be refined and finalized during final design based on the final site plan.

Site Design BMPs would also be utilized for treatment of storm water on site using project design features, consistent with the requirements of the North Orange County Model WQMP[39] and Technical Guidance Document (TGD). The proposed project would provide a series of proposed flowthrough planter systems in order to capture and treat stormwater runoff before discharging it into the Santa Ana River Channel. In addition, the proposed project's design may include up to two modular wetlands systems, which would similarly use biofiltration techniques to capture and treat stormwater.

As specified in the Preliminary WQMP, the proposed project would also incorporate Source Control BMPs, including routine non-structural BMPs and routine structural BMPs. Specifically, routine non-structural BMPs under the proposed project include education for property owners, tenants, and occupants; activity restrictions (e.g., no discharges of fertilizer, pesticides, and wastes to streets or storm drains; no hosing down of paved surfaces; no vehicle washing or maintenance); common area landscape management; BMP maintenance; common area litter control; employee training; common area catch basin inspection; and street sweeping private streets and parking lots. Routine structural BMPs to be incorporated into the proposed project include storm drain stenciling and signage; design and construction of trash and material storage areas to reduce pollution introduction; and use of efficient irrigation systems and landscape design.

As discussed previously, infiltration of stormwater could have the potential to affect groundwater quality in areas of shallow groundwater. Due to the depth to groundwater, it is not expected that any stormwater that may infiltrate during construction would affect groundwater quality because there is not a direct path for pollutants to reach groundwater. In addition, the proposed project would be required to implement operational BMPs to pre-treat stormwater before it could reach groundwater. With implementation of RCM HYD-1 through RCM HYD-3, which are required and based on local and State regulations, construction and operational impacts related to waste discharge requirements, water quality standards, and degradation of surface or groundwater quality would be less than significant. No project-specific mitigation is required.

[39] OC Public Works. 2011. Model Water Quality Management Plan (Model WQMP). May.

Regulatory Compliance Measure:

RCM HYD-1 **Construction General Permit.** Prior to issuance of a grading permit, the project Applicant shall obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) *General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities,* Order No. 2022-0057-DWQ, NPDES No. CAS000002 (Construction General Permit). This shall include submission of Permit Registration Documents (PRDs), including a Notice of Intent for coverage under the permit to the State Water Resources Control Board (SWRCB) via the Stormwater Multiple Application and Report Tracking System (SMARTs). The project Applicant shall provide the Waste Discharge Identification Number (WDID) to the Director of the County of Orange (County) Public Works Department, or designee, to demonstrate proof of coverage under the Construction General Permit. Project construction shall not be initiated until a WDID is received from the SWRCB and is provided to the Director of the County Public Works Department, or designee. A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared and implemented for the proposed project in compliance with the requirements of the Construction General Permit. The SWPPP shall identify construction best management practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is minimized and to control the discharge of pollutants in stormwater runoff as a result of construction activities. Upon completion of construction and stabilization of the site, a Notice of Termination shall be submitted via SMARTs.

RCM HYD-2 **Groundwater Discharge Permit.** If groundwater dewatering is required during construction of the proposed project, the project Applicant shall submit a Notice of Intent (NOI) for coverage under the permit to the Santa Ana RWQCB at least 60 days prior to the start of excavation activities and anticipated discharge of dewatered groundwater to surface waters in order to obtain coverage under the Waste Discharge Requirements (WDR) Permit for Discharges to Surface Waters That Pose an Insignificant (De Minimis) Threat to Water Quality (Groundwater Discharge Permit) (Order No. R8-2020-0006, NPDES No. CAG998001). Groundwater dewatering activities shall comply with all applicable provisions in the Groundwater Discharge Permit, including water sampling, analysis, treatment (if required), and reporting of dewatering-related discharges. Upon completion of groundwater dewatering activities, a Notice of Termination shall be submitted to the Santa Ana RWQCB.

RCM HYD-3 **MS4 Permit.** Prior to the issuance of grading or building permits, the project Applicant shall submit a Final Water Quality Management Plan (WQMP) to the County of Orange (County) Public Works Department, or designee, for review and approval in compliance with the requirements of the NPDES *Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the Orange County Region,* Order No. R8-2009-0030, NPDES No. CAS618030 as amended by Order No. R8-2010-0062 (MS4 Permit). The Final WQMP shall be prepared consistent with the requirements of the North Orange County Technical Guidance Document for Water Quality Management Plans (TGD) and the North Orange County Water Quality Management Plan template, or subsequent guidance manuals. The Final WQMP shall specify the BMPs to be incorporated into the project design to target pollutants of concern in runoff from the project site. The County of Orange (County) Public Works Department, or designee, shall ensure that the BMPs specified in the Final WQMP are incorporated into the final project design, and shall implement, maintain and operate all such BMPs in a timely and reasonably diligent manner.

Question 4.14 b): Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Response to Question 4.14 b):

Less than Significant Impact.

Construction. Overall, construction of the proposed project would not generate a substantial demand for groundwater. Please refer to Section 4.23, Utilities and Service Systems, for a detailed discussion of water supply and demand during construction of the proposed project. As mentioned previously, according to the Geotechnical Investigation prepared for the proposed project, groundwater was encountered in borings as shallow as 54 ft bgs during a field investigation, while historically high groundwater has been reported at depths of approximately 30 to 40 ft bgs. As previously stated, the proposed project could require excavation activities reaching depths of up to 6 ft bgs. While groundwater dewatering during construction could decrease groundwater supplies or interfere with groundwater recharge, this activity is unlikely to occur during construction of the proposed project. However, because it is still a possibility, the proposed project would adhere to RCM HYD-2. As specified in RCM HYD-2, in the event groundwater dewatering activities would occur, the proposed project would comply with the Groundwater Discharge Permit, under which groundwater would be tested and treated (if necessary) prior to discharge to surface waters. With adherence to RCM HYD-2, groundwater dewatering, if necessary during construction activities, would not interfere with groundwater recharge. In addition, if groundwater dewatering is required during construction of the proposed project, dewatering activities would be temporary, and the volume of groundwater removed would not be substantial. Therefore, construction of the proposed project would not substantially decrease groundwater supplies such that the project may impede sustainable groundwater management or recharge of the basin. Construction impacts associated with substantial decrease in groundwater supplies or interference with groundwater recharge would be less than significant, and no mitigation is required.

Operation. Operations of the proposed project would not directly require groundwater extraction. Water usage within the project site, which may be partially sourced from groundwater sources and supplemented by purchased imported water and surface water. Water usage within the project site would be typical of the proposed land uses, and water services currently utilized within the project site would continue to serve the proposed project. As such, the proposed project would not represent a significant contribution to regional water consumption. Refer to Section 4.23, Utilities and Service Systems, for more details regarding the proposed project's anticipated water usage.

Under current conditions, the project site is developed with the existing Campus, which consists of both pervious and impervious surfaces. According to the Preliminary WQMP, the proposed project would increase the pervious area on the project site (defined as the limits of construction for Phases 1 and 2) by approximately 40 percent. The increase in pervious surface area as a result of project implementation would increase on-site infiltration and therefore would not interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. In addition, the reduction in impervious surfaces under the proposed condition would result in reduced peak flow runoff conditions as compared to existing conditions.

For the reasons listed above, and with implementation of RCM HYD-2 if construction dewatering is required, impacts related to the decrease of groundwater supplies or interference with groundwater recharge would be less than significant, and no project-specific mitigation is required.

Question 4.14 c): Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:

Question 4.14 c-*i*): result in substantial erosion or siltation on- or offsite?

Response to Question 4.14 c-*i*):

Less than Significant Impact. An existing 33-inch reinforced concrete pipe storm drain runs along the project site in the north-south orientation and bisects the project site, serving as a collection point for stormwater runoff generated within the project site under existing conditions. This runoff connects to an existing 42-inch mainline reinforced concrete pipe storm drain, which is located just south of the project site and runs south along The City Drive before discharging into the Santa Ana River, and ultimately the Pacific Ocean. The proposed project would involve the extension of new laterals as needed to the existing 33-inch storm drain on site. On-site water would be captured and conveyed to these laterals via roof drains, atrium area drains, and catch basins dispersed throughout the project site.

While the proposed project would not alter the course of an existing stream or river, including the Santa Ana River, the proposed project would result in changes to the ratio of impervious surfaces to pervious surfaces within the project site. Specifically, the proposed project would increase the proportion of pervious surfaces within the project site through the proposed landscaped areas. In addition, the proposed project would involve the extension of new stormwater laterals as needed from the existing reinforced concrete pipe storm drain system on site. Runoff from the project site would be captured and conveyed to these laterals via roof drains, atrium area drains, and catch basins incorporated into the design of the proposed project.

Construction. During construction activities, soil would be exposed and disturbed, drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. As discussed above in Response 4.10(a) and as specified in RCM HYD-1, the Construction General Permit requires preparation of a SWPPP to identify construction BMPs to be implemented as part of the proposed project to reduce impacts to water quality during construction, including those impacts associated with soil erosion and siltation. With compliance with the Construction General Permit as indicated in RCM HYD-1, construction impacts related to on- or off-site erosion or siltation would be less than significant, and no mitigation is required.

Operation. The proposed project would demolish and replace several existing buildings within the Campus and would also include reconfigurations of landscaped open spaces. The proposed reconfiguration of the Campus, including the addition of the Youth Transition Center, would change the existing ratio of impervious to pervious surfaces within the project site. Under proposed conditions, the proportion of pervious surface area would increase by approximately 40 percent from existing conditions, which would subsequently decrease peak flow runoff and volumes from those under existing conditions. Therefore, operations of the proposed project would ensure that the potential for downstream erosion or siltation is less than or equal to existing conditions. Nevertheless, as specified in Regulatory Compliance Measure (RCM) HYD-4, a Final Hydrology Report would be required in order to demonstrate that the proposed project would not increase runoff from the project site beyond that generated under existing conditions.

Hydromodification is defined as hydrologic changes resulting from increased runoff from increases in impervious surfaces. Hydromodification impacts can included changes in downstream erosion and sedimentation. Significant redevelopment projects are subject to specific hydromodification requirements of the North Orange County MS4 Permit and must implement measures for site-design, source control, runoff reduction, stormwater treatment, and baseline hydromodification management. However, according to the *Preliminary WQMP*, the project site is not located in an area of hydrologic condition of concern (HCOC)[40] and is exempt from hydromodification requirements. Because the downstream receiving waters are not susceptible to hydromodification, the proposed project is not anticipated to result in downstream erosion or siltation. Impacts would be less than significant, and no project-specific mitigation is required.

Regulatory Compliance Measure:

RCM HYD-4 **Final Hydrology Report.** Prior to issuance of a grading permit, the Applicant shall prepare a Final Hydrology Report to demonstrate that the post-construction runoff from the project site does not exceed existing conditions. The project Applicant shall provide the Final Hydrology Report to the County of Orange (County) for review and approval.

Question 4.14 c-*ii*): substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Response to Question 4.14 c-*ii*):

Less than Significant Impact.

Construction. Construction activities would alter the on-site drainage pattern, potentially compacting on-site soil and increasing the potential for flooding compared to existing conditions. As discussed in Response to Question 4.14 c-*i*) above, the Construction General Permit requires preparation of a SWPPP to identify construction BMPs to be implemented as part of the proposed project, as specified in RCM HYD-1. The SWPPP would include construction BMPs to control and direct on-site surface runoff to ensure that flooding does not occur. The County's LIP also requires compliance with all applicable construction BMPs set forth in the Orange County DAMP. Under these requirements, fill slopes at the construction site perimeter must drain away from the top of the slope that the conclusion of each working day, which would reduce the volume of surface runoff beyond the project site. Proper management of stormwater during construction would reduce impacts associated with on and off-site flooding.

Operation. As previously noted, the reconfiguration of the Juvenile Hall Campus under the proposed project would not increase the volume of runoff from the project site compared to existing conditions due to the reduction of impervious surfaces for the proposed condition. The proposed project would also feature BMPs, such as infiltration planters, flow-through filtration planters filters and, potentially, modular wetland systems, in order to further reduce peak flow rates generated within the project site under post-project conditions.

Further, the proposed project would include the construction of on-site storm drain laterals and BMPs in the form of filtration planters and other features listed in the analysis presented above. With the proposed decrease in impervious surfaces and incorporation of stormwater runoff BMPs, operation of the proposed

[40] Areas designated as hydrologic conditions of concern are watersheds of unarmored or soft-armored drainages that are vulnerable to geomorphology changes due to hydromodification.

project would not increase the rate or amount of surface runoff in a manner that would result in flooding on- or off site. Impacts would be less than significant, and no project-specific mitigation is required.

Question 4.14 c-*iii*): create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial sources of polluted runoff?

Response to Question 4.14 c-*iii*):

Less than Significant Impact.

Stormwater Drainage System Capacity. As a co-permittee of the Santa Ana RWQCB, the County of Orange is responsible for ensuring that existing infrastructure is capable of supporting new development and redevelopment under its jurisdiction. As previously stated, the 40 percent increase in pervious surface area under the proposed project would be expected to slightly decrease peak flow and stormwater runoff volumes generated from the project site in comparison to existing conditions. Implementation of BMPs during construction and operation of the proposed project, pursuant to RCM HYD-1, would ensure that the proposed project would not create or contribute runoff water to the project site's stormwater drainage system in excess of the system's capacity. Further, the proposed project would not eliminate or otherwise interfere with the operation of any drainage infrastructure or facilities. Therefore, the proposed project would not exceed the capacity of the existing downstream stormwater drainage system.

Polluted Runoff. As discussed in the Response to Question 4.14 a), pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals, and each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. Drainage patterns would be temporarily altered during grading and other construction activities, and construction-related pollutants could be spilled, leaked, or transported via storm runoff into adjacent drainages and downstream receiving waters. The proposed project would be required to contain runoff from construction equipment and vehicle washing within the project site unless treated to remove sediment and other pollutants. As previously discussed, the proposed project must comply with the Construction General Permit, as specified in RCM HYD-1, which requires the preparation of a SWPPP and implementation of construction BMPs, both of which would address the presence of pollutants in stormwater generated within the project site.

Expected pollutants of concern from long-term project operations include suspended solids/sediments, nutrients, heavy metals, pathogens (bacteria/virus), pesticides, oil and grease, and trash and debris. As previously discussed, the proposed project's compliance with the DAMP, LIP, and project-specific Final WQMP, as specified in RCM HYD-3, would ensure the implementation of applicable BMPs to target pollutants of concern during operations of the proposed project. Further, as discussed in the Preliminary Drainage Report and the analysis above, the proposed project would decrease peak flow stormwater runoff volumes from existing conditions. As such, the proposed project would not discharge substantial sources of polluted runoff from the project site during operations.

With compliance with applicable regulations, including the Construction General Permit and MS4 permit as specified in RCM HYD-1 and RCM HYD-3, impacts associated with creating or contributing runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff would be less than significant, and no project-specific mitigation is required.

Question 4.14 c-iv): Impede or redirect flood flows?

Less than Significant Impact. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 06059C0142J (effective since December 3, 2009), the project site is classified as Zone X, Area with Reduced Flood Risk due to Levee. As such, the project site is protected from the 1-percent-annual-chance or greater flood hazard by a levee system along the Santa Ana River channel. In addition, the project site sits on an elevated grade from the Santa Ana River channel, and does not propose any improvements to the channel. Further, according to both the City of Orange General Plan Public Safety Element[41] and the Orange County General Plan Safety Element,[42] the project site is not within a 100-year or 500-year flood zone.

According to the Safety Element of the County of Orange General Plan (2010), the project site is located within both the Santiago Reservoir Inundation Area and the Prado Dam Inundation Area.[43] However, as stated in the Geotechnical Investigation, these reservoirs are continually monitored by various governmental agencies in order to prevent the threat of dam failure. Further, various measures and practices are in place to ensure that the dams are capable of withstanding the maximum considered earthquake (MCE) for each site. Therefore, the potential for inundation at the project site as a result of an earthquake-induced dam failure is considered insignificant.

Based on the information presented above, the project site is not considered at risk of flooding from storm events or dam failure. Therefore, the proposed project would not have the potential to impede or redirect flood flows. Impacts would be less than significant, and no mitigation is required.

Question 4.14 d): In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Response to Question 4.14 d):

Less than Significant Impact. As discussed above in the Response to Question 4.14 c-*iv*), the project site is not located within an area susceptible to flood hazards and would therefore would not result in the risk of releasing pollutants during flooding.

Tsunamis are ocean waves generated by tectonic displacement of the seafloor associated with shallow earthquakes, seafloor landslides, rock falls, and exploding volcanic islands. Upon reaching shallow coastal waters, the waves can reach up to 50 ft in height, causing great devastation to near-shore structures. The project site is not located within a coastal area, and is located approximately 11 miles from the Pacific Ocean coastline. Therefore, the project site is not subject to inundation from tsunamis, and there is no risk of release of pollutants due to inundation from tsunami.

Seiching occurs when seismic ground shaking induces standing waves (seiches) inside water retention facilities (e.g., reservoirs and lakes). Such waves can cause retention structures to fail and flood downstream properties. According to the Geotechnical Investigation, there are no large lakes, reservoirs, or other water retention facilities in the vicinity of the project site; therefore, the project site is not subject

[41] City of Orange. 2015. City of Orange General Plan Public Safety Element. Website: https://www.cityoforange.org/home/showpublisheddocument/214/637698172567530000 (accessed November 11, 2024).

[42] County of Orange. 2012. Orange County General Plan Safety Element. Website: https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/40234.pdf (accessed November 11, 2024).

[43] City of Orange. 2015. City of Orange General Plan Public Safety Element. Website: https://www.cityoforange.org/home/showpublisheddocument/214/637698172567530000 (accessed November 11, 2024).

to inundation from seiche waves, and there is no risk of release of pollutants due to inundation from seiche.

Based on the information presented above, the project site is not at risk of pollutant release associated with inundation from a flood, tsunami, or seiche. Impacts would be less than significant, and no mitigation is required.

Question 4.14 e): Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Response to Question 4.14 e):

Less than Significant Impact. As previously stated, the project site is within the jurisdiction of the Santa Ana RWQCB. The Santa Ana RWQCB has adopted a Water Quality Control Plan (i.e., Basin Plan) that designates beneficial uses for all surface and groundwater within their jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. As summarized below, the project would comply with the applicable NPDES permits and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff.

As discussed in the Response to Question 4.14 a), during construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition, chemicals, liquid products, petroleum products (e.g., paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via stormwater runoff into receiving waters. As specified in RCM HYD-1, the proposed project would be required to comply with the NPDES Construction General Permit, which requires preparation of a SWPPP and implementation of construction BMPs to control stormwater runoff and discharge of pollutants.

As previously discussed, the primary pollutants of concern during project operations are suspended solids/sediments, nutrients, heavy metals, pathogens (bacteria/virus), pesticides, oil and grease, and trash and debris. As discussed in RCM HYD-3, a final WQMP would be prepared in compliance with the North Orange County MS4 Permit. The final WQMP would detail the Site Design, LID, and Source Control and/or Treatment Control BMPs that would be implemented to treat stormwater runoff and reduce impacts to water quality during operation. The proposed biotreatment BMPs (modular wetland systems) included within the design of the proposed project would treat stormwater runoff.

Because the proposed project would comply with applicable NPDES provisions, including preparation of a final WQMP, and includes implementation of construction and operational BMPs to reduce pollutants of concern in stormwater runoff, the project would not result in water quality impacts that would conflict with Santa Ana RWQCB's Basin Plan.

As discussed in the Response to Question 4.14 a), due to the depth to groundwater in comparison to anticipated excavation activities, it is not expected that any stormwater that may infiltrate during construction would affect groundwater quality because pollutants in stormwater are generally removed by soil through absorption as water infiltrates. In addition, the project would be required to implement operational BMPs to treat stormwater before it could reach groundwater. Additionally, groundwater extraction would not occur during operation of the proposed project as water services currently utilized within the project site would continue to serve the proposed project. Therefore, the proposed project does not have the potential to substantially impact groundwater quality, interfere with groundwater recharge, or decrease groundwater supplies. For the reasons outlined above and with implementation of

RCM HYD-1 through RCM HYD-4, a less than significant impact would occur related to conflict with or obstruction implementation of water quality control plans or sustainable groundwater management plans, and no project-specific mitigation is required.

4.15 *Land Use and Planning*

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Question 4.15 a): Physically divide an established community?

Response to Question 4.15 a):

No Impact. As stated in Chapter 3.0, Project Description, the project site is currently occupied by various secure facilities that provide housing, support, and rehabilitation to juvenile law offenders. The proposed project involves the demolition of existing structures, including housing units within the project site, which would be replaced by upgraded structures. These housing units are institutional in nature and therefore are not considered to be an established community. The project site is purposely divided from adjacent land uses by the existing security perimeter, which would be maintained and reconfigured as necessary under the proposed project. The project site would maintain existing physical barriers, with modifications, and would not introduce any new physical barriers. As such, the proposed project would not physically divide an established community, and no impact would occur. No mitigation is required.

Question 4.15 b): Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Response to Question 4.15 b):

Less than Significant Impact.

County of Orange General Plan. As required by Section 65300 of the California Government Code, the County of Orange has adopted a long-term, comprehensive plan for its future growth and land use decisions. Under current conditions, the Campus serves the County and its residents by providing a safe location for juvenile law violators to undergo behavioral rehabilitation and serve time assigned based upon specific law violations.

The proposed project would ultimately improve the existing institution in order to better meet the goals of the County pertaining to reformative programs and alternatives to incarceration. Not only would the

proposed project meet all applicable requirements for juvenile detention facilities, but it would also provide additional services to ensure the well-being of youth residents and provide a more human-centered approach to juvenile rehabilitation. The Youth Transition Center would provide comprehensive support to youths as they transition from juvenile detention to external society, which is intended to increase their chances of success and decrease recidivism rates. In turn, the County could see a decrease in criminal activity, which would result in a safer region overall. This is consistent with Goal 1, Policy 4 of the County's General Plan Safety Element, which states, "To encourage development of programs and practices which incorporate crime prevention methods, techniques, and experience into the planning process."[44] The proposed improvements to the Campus would promote proactive crime prevention methods as opposed to traditional institutional design features and therefore would be consistent with this provision of the County's General Plan.

City of Orange General Plan. In addition to the County's General Plan, the proposed project would also be subject to the City of Orange General Plan. Because the project site is located within the incorporated City of Orange, it would be subject to the City's General Plan Land Use Element. As previously stated, the project site is designated for Public Facilities and Institutions (PFI) land uses in the City of Orange General Plan Land Use Element,[45] which allows for public, quasi-public, and institutional land uses, including schools, colleges and universities, City and County facilities, hospitals, and major utility easements and properties. This land use designation includes service organizations and housing related to an institutional use, such as dormitories, employee housing, assisted living, convalescent homes, and skilled nursing facilities.

Under existing conditions, the Campus is a County-owned facility that provides various support systems and housing for juvenile law violators, and is therefore consistent with the City's General Plan Land Use designation described above. The proposed project would redevelop the Campus with upgraded facilities and programs but would not change the overarching land use type or purpose of the facility. In addition to various youth housing structures, the proposed project would provide additional services such as education, vocational training, and behavioral/medical health facilities that would support the development of youth residents. As such, land uses within the project site would remain consistent under the proposed project with the applicable City of Orange General Plan land use designation.

City of Orange Zoning Code. According to the City of Orange Zoning Code,[46] the project site is currently zoned as Public Institution (P-I), which is intended to accommodate a wide range of public and quasi-public uses and may accommodate housing and privately operated medical and office activity. As previously stated, the proposed project would redevelop an existing juvenile detention and rehabilitation facility with facilities intended to ensure the successful rehabilitation and societal integration of juvenile law violators. Proposed on-site housing, including independent living units and long-term housing units, would be allowable under the site's current zoning. As such, under the proposed project, land uses within the project site would remain consistent with the applicable City of Orange Zoning Code designation.

The proposed project would be limited to the Campus and does not propose changes to land uses within any surrounding parcels. As such, the proposed project would not create any new conflicts with applicable

[44] County of Orange. 2012. Orange County General Plan Safety Element. December. Website: https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/59953.pdf (accessed October 21, 2024).

[45] City of Orange. 2015. City of Orange General Plan Land Use Element. December. Website: https://www.cityoforange.org/home/show publisheddocument/208/637698172555630000 (accessed October 21, 2024).

[46] City of Orange. 2020. City of Orange Zoning Map. September. Website: https://www.cityoforange.org/home/show publisheddocument/ 40/637707607413300000 (accessed October 21, 2024).

land use plan, policy, or regulations with respect to land uses outside of the Campus. Implementation of the proposed project would not conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. As such, impacts would be less than significant, and no mitigation is required.

4.16 *Mineral Resources*

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Question 4.16 a): Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Response to Question 4.16 a):

No Impact. Minerals are defined as naturally occurring elements or compounds, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat, and oil-bearing rock, but excluding geothermal resources, natural gas, and petroleum by the United States Geological Survey.[47]

The California Department of Conservation (DOC), California Geologic Survey (CGS), and the California State Mining and Geology Board are required by the Surface Mining and Reclamation Act of 1974 (SMARA) to categorize lands into four Aggregate and Mineral Resource Zones (MRZs). These MRZs classify lands that contain significant regional or Statewide mineral deposits. Jurisdictions are mandated by the State to incorporate MRZs into their General Plans. According to the City of Orange General Plan Natural Resources Element, many significant mineral resources are present within the City of Orange. These mineral resource deposits are limited to sand and gravel resources. Sand and gravel are aggregate resources, a primary component in cement concrete. These resources are important to the region's economy as they are widely used in the construction industry.[48]

The proposed project is located in a western portion of the City of Orange, adjacent to the Santa Ana River. The nearest designated mineral resource area is approximately 11 miles southeast of the proposed project site, a designated mineral resource area located in the northwestern portion of the City is approximately 4 miles northeast of the proposed project site, and a potential mineral resource area near Irvine Lake is approximately 9.4 miles east of the proposed project site. Additionally, City Resource Area

[47] United States Geological Survey (USGS). What is the difference between a rock and a mineral? Website: https://www.usgs gov/faqs/what-difference-between-rock-and-mineral (accessed October 2024).

[48] City of Orange General Plan. Natural Resources Element. Mineral Resources. Website: https://www.cityoforange.org/home/showpublisheddocument/210/637698172559270000 (accessed October 2024).

Land Use designations are located approximately 4.8 miles northwest, 1 mile south, and 10 miles east of the proposed project site, respectively.

As such, the proposed project site is not located within or adjacent to any designated mineral resource areas of value to the region and state. Therefore, the proposed project would not result in the loss of availability of a known mineral that would be of value to the region and the residents of the state. No impact would occur, and no mitigation is necessary.

Question 4.16 b): Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Response to Question 4.16 b):

No Impact. Historically, the City of Orange has been characterized by numerous state-designated MRZs and contributed to the gravel industry, but most of the City's mineral resources have since been exhausted, and the MRZs declassified because of completed mining activity or urban development.[49] As described above, there are several mineral resource areas located within the City of Orange. However, none of these resource areas are located within or adjacent to the proposed project site. The proposed project would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan because it is not located within or adjacent to city or state designated resource areas and is already developed with a similar facility to the proposed project. No impact would occur, and no mitigation would be required.

[49] City of Orange General Plan. Natural Resources Element. Mineral Resources. Website: https://www.cityoforange.org/home/showpublisheddocument/210/637698172559270000 (accessed October 2024).

4.17 *Noise*

Would the project result in:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The following analysis is based upon information presented in the Noise Survey Sheets prepared for the proposed project by LSA in November 2024. This document is included within this IS/MND as Appendix J.

Technical Background

The following provides an overview of the characteristics of sound, fundamentals of vibration, and noise and vibration regulatory settings that apply to the proposed project.

Characteristics of Sound. Sound is increasing in the environment and can affect quality of life. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations (or cycles per second) of a wave, resulting in the tone's range from high to low. Loudness is the strength of a sound and describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves combined with the reception characteristics of the human ear. Sound intensity refers to how hard the sound wave strikes an object, which in turn produces the sound's effect. This characteristic of sound can be precisely measured with instruments.

Measurement of Sound. Sound intensity is measured through the A-weighted scale to correct for the relative frequency response of the human ear. That is, an A-weighted noise level de-emphasizes low and very high frequencies of sound similar to the human ear's de-emphasis of these frequencies. Unlike units of measurement that use a linear scale (e.g., inches or pounds), decibels use a scale based on powers of 10.

For example, 10 decibels (dB) is 10 times more intense than 0 dB, 20 dB is 100 times more intense than 0 dB, and 30 dB is 1,000 times more intense than 0 dB. Thirty decibels (30 dB) represents 1,000 times as much acoustic energy as 0 dB. The decibel scale increases as the square of the change, representing the sound-pressure energy. A sound as soft as human breathing is about 10 times greater than 0 dB. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. A 10 dB increase in sound level is perceived by the human ear as only a doubling of the loudness of the sound. Ambient sounds generally range from 30 A-weighted decibels (dBA) (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source, and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. For a single point source, sound levels decrease approximately 6 dB for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by stationary equipment. If noise is produced by a line source, such as highway traffic or railroad operations, the sound decreases 3 dB for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases 4.5 dB for each doubling of distance.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. However, the predominant rating scales for human communities in California are L_{eq} and the Community Noise Equivalent Level (CNEL) or the day-night average noise level (L_{dn}) based on dBA. CNEL is the time-varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during relaxation hours. CNEL and L_{dn} are within 1 dBA of each other and are normally interchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance, when assessing the annoyance factor, include the maximum instantaneous noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

Another noise scale often used together with L_{max} in noise ordinances for enforcement purposes is noise standards in terms of percentile noise levels. For example, the L_{10} noise level represents the noise level exceeded 10 percent of the time during a stated period. The L_{50} noise level represents the median noise level. Half of the time the noise level exceeds this level, and half of the time it is less than this level. The L_{90} noise level represents the noise level exceeded 90 percent of the time and is considered the background noise level during a monitoring period. For a relatively constant noise source, L_{eq} and L_{50} are approximately the same.

Noise impacts can be described in three categories. The first category, audible impacts, refers to increases in noise levels noticeable to humans. Audible increases in noise levels generally involve a change of 3 dB or greater because that level has been found to be barely perceptible in exterior environments. The second category, potentially audible impacts, refers to a change in the noise level between 1 and 3 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category involves changes in noise levels of less than 1 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

Physiological Effects of Noise. Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure and functions of the heart and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear, even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 160 to 165 dBA will potentially result in dizziness or loss of equilibrium. The ambient or background noise problem is widespread and generally more concentrated in urban areas than in outlying, less-developed areas. Table 4.14.A lists definitions of acoustical terms, and Table 4.14.B shows common sound levels and their noise sources.

Fundamentals of Vibration. Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors where the motion may be discernible. However, without the effects associated with the shaking of a building, there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Building damage is not a factor for normal operation and construction activities with the occasional exception of blasting and pile driving during construction.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Impacts with ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 ft of the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 ft (Federal Transit Administration [FTA] *Transit Noise and Vibration Impact Assessment Manual* (FTA Manual).[50] When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. For most projects, it is assumed that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, construction activities have the potential to result in ground-borne vibration that could be perceptible and annoying. Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path usually will be greater than ground-borne noise.

[50] Federal Transit Administration (FTA). 2018. *Transit Noise and Vibration Impact Assessment Manual.* FTA Report No. 0123. September. Website: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf (accessed November 2024).

Table 4.17.A: Definitions of Acoustical Terms

Term	Definition
Decibel, dB	A unit of noise level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency, Hz	Of a function periodic in time, the number of times that the quantity repeats itself in 1 second (i.e., number of cycles per second).
A-Weighted Sound Level, dBA	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low- and very high-frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. (All sound levels in this report are A-weighted unless reported otherwise.)
L_2, L_8, L_{50}, L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period.
Equivalent Continuous Noise Level, L_{eq}	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level, CNEL	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 dB to sound levels occurring in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level, L_{dn}	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 dB to sound levels occurring in the night between 10:00 p.m. and 7:00 a.m.
L_{max}, L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter during a designated time interval using fast-time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time; usually a composite of sound from many sources from many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, time of occurrence, and tonal or informational content, as well as the prevailing ambient noise level.

Source: *Handbook of Acoustical Measurements and Noise Control* (Harris 1991).

Table 4.17.B: Common Sound Levels and Their Noise Sources

Noise Source	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Evaluations
Near Jet Engine	140	Deafening	128 times as loud
Civil Defense Siren	130	Threshold of Pain	64 times as loud
Hard Rock Band	120	Threshold of Feeling	32 times as loud
Accelerating Motorcycle a Few Feet Away	110	Very Loud	16 times as loud
Pile Driver; Noisy Urban Street/Heavy City Traffic	100	Very Loud	8 times as loud
Ambulance Siren; Food Blender	95	Very Loud	—
Garbage Disposal	90	Very Loud	4 times as loud
Freight Cars; Living Room Music	85	Loud	—
Pneumatic Drill; Vacuum Cleaner	80	Loud	2 times as loud
Busy Restaurant	75	Moderately Loud	—
Near-Freeway Auto Traffic	70	Moderately Loud	Reference Level
Average Office	60	Quiet	½ as loud
Suburban Street	55	Quiet	—
Light Traffic; Soft Radio Music in Apartment	50	Quiet	¼ as loud
Large Transformer	45	Quiet	—
Average Residence without Stereo Playing	40	Faint	⅛ as loud
Soft Whisper	30	Faint	—
Rustling Leaves	20	Very Faint	—
Human Breathing	10	Very Faint	Threshold of Hearing
—	0	Very Faint	—

Source: Compiled by LSA (2004).

Ground-borne vibration has the potential to disturb people as well as damage buildings. As stated in the FTA Manual, although it is very rare for ground-borne vibration to cause even cosmetic building damage, there is potential for construction processes such as blasting and pile driving to cause vibration of sufficient amplitudes to damage nearby buildings. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_V = 20 \log_{10} [V/V_{ref}]$$

where L_V is the velocity in decibels (VdB), "V" is the RMS velocity amplitude, and "V_{ref}" is the reference velocity amplitude, or 1 x 10-6 inches per second (in/sec) used in the United States.

Regulatory Setting

Federal Guidelines

Federal Transit Administration. The construction noise criteria included in the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (2018) was used to evaluated potential construction noise impacts. In addition, any noise sources associated with construction would be prohibited from taking place between 8:00 p.m. to 7:00 a.m. on weekdays and Saturdays, and all day on Sundays, in compliance with the County Noise Ordinance (Orange County Municipal Code Section 4-6-7). Table 4.17.C shows the FTA's Detailed Assessment Daytime Construction Noise Criteria based on the composite noise levels for each construction phase.

Table 4.17.C: Detailed Assessment Daytime Construction Noise Criteria

Land Use	Daytime 1-hour L_{eq} (dBA)
Residential	80
Commercial	85
Industrial	90

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
dBA = A-weighted decibels
L_{eq} = equivalent continuous sound level

Vibration standards included in the FTA *Transit Noise and Vibration Impact Assessment Manual* (2018) were used to evaluate vibration impacts because the County does not have vibration standards. Table 4.17.D provides the criteria for assessing the potential for interference or annoyance from vibration levels in a building, while Table 4.17.E lists the potential vibration building damage criteria associated with construction activities.

Table 4.17.D: Interpretation of Vibration Criteria for Detailed Analysis

Land Use	Maximum L_v (VdB)[1]	Description of Use
Workshop	90	Vibration that is distinctly felt. Appropriate for workshops and similar areas not as sensitive to vibration.
Office	84	Vibration that can be felt. Appropriate for offices and similar areas not as sensitive to vibration.
Residential Day	78	Vibration that is barely felt. Adequate for computer equipment and low-power optical microscopes (up to 20×).
Residential Night and Operating Rooms	72	Vibration is not felt, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power microscopes (100×) and other equipment of low sensitivity.

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
[1] As measured in ⅓-octave bands of frequency over the frequency range 8 to 80 Hertz.
FTA = Federal Transit Administration
L_V = velocity in decibels
VdB = vibration velocity decibels

Table 4.17.E: Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Nonengineered-timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).
FTA = Federal Transit Administration
in/sec = inches per second
PPV = peak particle velocity

Local Regulations

City of Orange General Plan Noise Element. As previously stated, while the project site is owned and operated by the County, it is located within the City of Orange. The City of Orange General Plan Noise Element[51] has established noise standards from transportation sources for various land uses and has goals and policies to meet the City's noise-related goals. The City's noise standards from transportation and stationary sources are shown in Tables 4.17.F and Table 4.17.G. As shown in Table 4.17.F, the City has an exterior noise standard of 65 dBA CNEL for single- and multi-family residential uses. Applicable goals and policies for the project are listed below:

- **Goal 7.0:** Minimize construction, maintenance vehicle, and nuisance noise in residential areas and near noise-sensitive land uses.
    - **Policy 7.1:** Schedule City maintenance and construction projects so that they generate noise during less sensitive hours.
    - **Policy 7.2:** Require developers and contractors to employ noise minimizing techniques during construction and maintenance operations.

[51] City of Orange. 2015. Orange General Plan Noise Element. December. Website: https://www.cityoforange.org/home/showpublisheddocument/212/637698172563500000 (accessed November 2024).

Table 4.17.F: Maximum Allowable Noise Exposure-Transportation Sources

Land Use		Noise Level (dBA CNEL)	
Designations	**Uses**	**Interior**	**Exterior**
Estate Low Density Residential Low Density Residential Low Medium Density Residential	Single-family, duplex, and multiple-family	45	65
	Mobile home park	N/A	65
Medium Density Residential Neighborhood Mixed-use Neighborhood Office Professional Old Towne Mixed-use General Commercial Yorba Commercial Overlay Urban Mixed-use Urban Office Professional	Single-family	45	65
	Mobile home park	N/A	65
	Multiple-family, mixed-use	45	65
	Transient lodging—motels, hotels	45	65
	Sports arenas, outdoor spectator sports	N/A	N/A
	Auditoriums, concert halls, amphitheaters	45	N/A
	Office buildings, business, commercial and professional	50	N/A
Light Industrial Industrial	Manufacturing, utilities, agriculture	N/A	N/A
Public Facilities and Institutions	Schools, nursing homes, day care facilities, hospitals, convalescent facilities, dormitories	45	65
	Government Facilities—offices, fire stations, community buildings	45	N/A
	Places of Worship, Churches	45	N/A
	Libraries	45	N/A
	Utilities	N/A	N/A
	Cemeteries	N/A	N/A
Recreation Commercial Open Space Open Space-Park Open Space-Ridgeline Resource Area	Playgrounds, neighborhood parks	N/A	70
	Golf courses, riding stables, water recreation, cemeteries	N/A	N/A

Source: City of Orange General Plan Noise Element (2015).

[1] Interior habitable environment excludes bathrooms, closets and corridors.

[2] Exterior noise level standard to be applied at outdoor activity areas; such as private yards, private patio or balcony of a multi-family residence. Where the location of an outdoor activity area is unknown or not applicable, the noise standard shall be applied inside the property line of the receiving land use.

[3] Interior noise standards shall be satisfied with windows in the closed position. Mechanical ventilation shall be provided per Uniform Building Code (UBC) requirements.

[4] Within the Urban Mixed-Use, Neighborhood Mixed-Use, Old Towne Mixed-use, and Medium Density Residential land use designations, exterior space standards apply only to common outdoor recreational areas.

[5] Within Urban Mixed-Use and Medium Density Residential land use designations, exterior noise levels on private patios or balconies located within 250 feet of freeways (I-5, SR-57, SR-55, SR-22, or SR-241) and Smart Streets and Principal Arterials identified in the Circulation & Mobility Element that exceed 70 dB should provide additional common open space.

N/A = Not Applicable to specified land use category or designation

Table 4.17.G: Maximum Allowable Noise Exposure-Stationary Sources

Land Use	Time Period	Noise Level (dBA)	
		L_{eq}	L_{max}
Residential	7:00 a.m. to 10:00 p.m.	55	70
	10:00 p.m. to 7:00 a.m.	50	65

Source: City of Orange Municipal Code (2024).

Notes:

[1] These standards apply to new or existing noise sensitive land uses affected by new or existing non-transportation noise sources, as determined at the outdoor activity area of the receiving land use. However, these noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

[2] Each of the noise levels specified above should be lowered by 5 dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises. Such noises are generally considered by residents to be particularly annoying and are a primary source of noise complaints. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

[3] No standards have been included for interior noise levels. Standard construction practices that comply with the exterior noise levels identified in this table generally result in acceptable interior noise levels.

[4] The City may impose noise level standards which are more or less restrictive than those specified above based upon determination of existing low or high ambient noise levels. If the existing ambient noise level exceeds the standards, then the noise level standards shall be increased at 3 dB increments to encompass the ambient environment. Noise level standards incorporating adjustments for existing ambient noise levels shall not exceed a maximum of 70 dB L_{eq}.

- **Policy 7.3:** Limit the hours of construction and maintenance operations located adjacent to noise-sensitive land uses.
- **Policy 7.4:** Encourage limitations on the hours of operations and deliveries for commercial, mixed-use, and industrial uses abutting residential zones.

In addition to the maximum allowable noise level standards outlined in Tables 4.17.F and 4.17.G, the City has established the following increases in ambient noise levels for the analysis of noise impacts and determining appropriate mitigation under CEQA:

- Where the existing ambient noise level is less than 65 dBA, a project-related permanent increase in ambient noise levels of 5 dBA CNEL or greater.
- Where the existing ambient noise level is greater than 65 dBA, a project-related permanent increase in ambient noise levels of 3 dBA CNEL or greater.

City of Orange Municipal Code. Section 8.24.040 of the City's Municipal Code established exterior noise limits (shown in Table 4.17.G) that apply to residential property within the City.

Section 8.24.050(E) of the City's Municipal Code exempts noise sources associated with construction, repair, remodeling, or grading of any real property between the hours of 7:00 a.m. and 8:00 p.m., Monday through Saturday, or between the hours of 9:00 a.m. to 8:00 p.m. on Sundays and federal holidays.

Existing Setting

Surrounding Land Uses. Land uses surrounding the project site include the UCI Medical Center research hospital to the north, Orangewood Children's Home to the south, and the Lamoreaux Justice Center to the west, which are approximately 80 ft, 50 ft, and 5 ft, respectively from the project site boundary.

Existing Noise Environment. The primary existing noise sources in the area surrounding the project site are transportation facilities. Traffic on I-5 and other nearby roadways is a steady source of ambient noise

in the vicinity of the project site. UCI Medical Center operates a helipad, north of the hospital at the corner of Chapman Avenue and The City Drive, approximately 0.25 mile northwest of the project site.

Ambient Noise Level Measurements. Three long-term (24-hour) noise level measurements were conducted from October 15 to October 17, 2024, using Larson Davis Spark 706RC dosimeters to document the existing noise environment within the vicinity of the project site. Table 4.17.H summarizes the results of the long-term noise level measurements along with a description of the measurement locations and noise sources that occurred during the measurements. As shown in Table 4.17.H, daytime noise levels ranged from 56.5 to 66.8 dBA L_{eq} and nighttime noise levels ranged from 53.5 to 66.8 dBA L_{eq}. Also, the calculated CNEL levels at LT-1, LT 2, and LT-3 were 68.2, 67.5, and 66.6 dBA, respectively. The long-term noise level measurement survey sheets along with the hourly L_{eq} results are provided in Appendix J to this IS/MND. Figure 4.17-1 shows the long-term monitoring locations.

Table 4.17.H: Long-Term Ambient Noise Monitoring Results

Monitoring Location No.	Location Description	Noise Levels (dBA)			Noise Sources
		Daytime[1]	Nighttime[2]	CNEL	
		L_{eq}	L_{eq}		
LT-1	331 The City Drive S, on a light pole on the northern property fence. Approximately 450 ft from the I-5 centerline.	57.7-64.1 (62.0)[3]	59.3-66.8 (60.7)[4]	68.2	Traffic on I-5 and parking activity.
LT-2	333 The City Drive S, on the southeast corner of the fence west of the open yard. Approximately 640 ft from the I-5 centerline.	59.3-66.8 (61.9)[3]	56.2-64.7 (59.9)[4]	67.5	Traffic on I-5.
LT-3	401 The City Drive S, on a utility pole on the south side of Justice Center Way. Approximately 980 ft from the I-5 centerline.	56.5-63.7 (61.2)[3]	53.5-64.7 (58.4)[4]	66.6	Traffic on I-5.

Source: Compiled by LSA (2024).
[1] Daytime = Hours between 7:00 a.m. and 10:00 p.m.
[2] Nighttime = Hours between 10:00 p.m. and 7:00 a.m.
[3] Average daytime noise level.
[4] Average nighttime noise level.
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibel(s)
L_{eq} = equivalent continuous sound level

Question 4.17 a): Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Response to Question 4.17 a):

Less than Significant with Mitigation Incorporated.

Short-Term Construction Noise Impacts. Two types of short-term noise impacts would occur during construction of the proposed project. The first type would be from construction crew commutes and the transport of construction equipment and materials to the project site and would incrementally raise noise levels on roadways leading to the site. The pieces of construction equipment for construction activities would move on site, would remain for the duration of each construction phase, and would not add to the daily traffic volume in the vicinity of the project site. Although there would be a relatively high single-event noise exposure potential causing intermittent noise nuisance (passing trucks at 50 ft would generate up to a maximum of 84 dBA), the effect on longer-term (daily) ambient noise levels would be small

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LSA

LEGEND

Project Site Boundary

LT-1 Long-term Noise Monitoring Location

N

0 140 280

FEET

SOURCE: Google Earth 2024

I:\O\OCY2001.48\G\Noise_Locs.ai (11/11/2024)

FIGURE 4.17-1

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Noise Monitoring Locations

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because the hourly/daily construction-related vehicle trips would be small compared to the existing daily traffic volumes on I-5, SR-22, and The City Drive. When the grading and building construction phases occur simultaneously, the proposed project would generate the most trips out of all of the construction phases, at 144 trips per day based on the California Emissions Estimator Model (CalEEMod) (Version 2022.1) results contained in Appendix A, with the conservative assumption that construction of Phases 1 and 2 would occur simultaneously. Although the specific design of Phase 3 has not yet been determined, construction-related trips associated with Phase 3 were assumed to be lower than the combined construction associated with Phases 1 and 2 because only tenant improvements are proposed under this construction phase (no demolition or exterior construction are proposed). Roadways that would be used to access the project site would include The City Drive, SR-22, and I-5. Based on the 2024 Master Plan of Arterial Highways (MPAH) (Orange County Transportation Authority [OCTA] 2024), The City Drive, SR-22, and I-5 have an estimated existing average daily traffic (ADT) volume of 16,000, 196,000, and 284,000, respectively, near the project site. Based on the information above, construction-related traffic would increase noise levels by up to 0.04 dBA. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, short-term construction-related noise impacts associated with worker commute and equipment transport to the project site would be less than significant. No mitigation measures are required.

The second type of short-term noise impact is related to noise generated from construction activities. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. The proposed project anticipates demolition, site preparation, grading, building construction, paving, and architectural coating phases of construction. These various sequential phases change the character of the noise generated on a project site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 4.17.I lists the L_{max} recommended for noise impact assessments for typical construction equipment included in the FHWA Highway Construction Noise Handbook (2006), based on a distance of 50 ft between the equipment and a noise receptor.

Table 4.17.J lists the anticipated construction equipment for each construction phase based on the CalEEMod (Version 2022.1) results contained in Appendix A with the conservative assumption that construction of Phases 1 and 2 would occur simultaneously. As discussed above, no outdoor construction activities would occur under Phase 3. Table 4.17.J shows the combined noise level at 50 ft from all of the equipment in each phase and the L_{eq} noise level for each equipment at 50 ft based on the quantity, reference L_{max} noise level at 50 ft, and the acoustical usage factor. As shown in Table 4.17.J, construction noise levels would reach up to 89.2 dBA L_{eq} at a distance of 50 ft.

The Orangewood Children's Home to the south approximately 210 ft and UCI Medical Center to the north approximately 255 ft are the closest off-site noise-sensitive uses from the center of the project site for Phases 1 and 2 and would be exposed to noise levels that would reach up to 76.7 and 75.0 dBA L_{eq}, respectively. Although noise generated by project construction activities would be higher than the ambient noise levels and may result in a temporary increase in the ambient noise levels, construction noise would stop once project construction is completed. Also, construction-related noise levels would be below the FTA noise level standards of 80 dBA L_{eq} for residential uses. Construction activities shall be limited to between the hours of 7:00 a.m. and 8:00 p.m., Monday through Saturday and all day on Sunday pursuant to the County Municipal Code. The implementation of construction hour limits, as summarized in Regulatory Compliance Measure (RCM) N-1, would minimize disturbance to nearby land uses by limiting construction to daytime hours.

Table 4.17.I: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor[1] (%)	Maximum Noise Level (L_{max}) at 50 ft[2]
Backhoe	40	80
Compactor (ground)	20	80
Compressor	40	80
Crane	16	85
Dozer	40	85
Dump Truck	40	84
Excavator	40	85
Flatbed Truck	40	84
Man Lift (Forklift)	20	85
Front-End Loader	40	80
Generator	50	82
Generator (<25KVA, VMS signs)	50	70
Grader	40	85
Jackhammer	20	85
Pavement Scarifier	20	85
Paver	50	85
Pickup Truck	40	55
Pneumatic Tools	50	85
Pump	50	77
Rock Drill	20	85
Roller	20	85
Scraper	40	85
Tractor	40	84
Welder/Torch	40	73

Source: *FHWA Highway Construction Noise Handbook,* Table 9.1 (FHWA 2006).

Note: The noise levels reported in this table are rounded to the nearest whole number.

[1] Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power.

[2] Maximum noise levels were developed based on Specification 721.560 from the CA/T program to be consistent with the City of Boston, Massachusetts, Noise Code for the "Big Dig" project.

CA/T = Central Artery/Tunnel

FHWA = Federal Highway Administration

ft = foot/feet

L_{max} = maximum instantaneous noise level

Table 4.17.J: Summary of Construction Phase, Equipment, and Noise Levels

Construction Phase	Construction Equipment	Quantity	Reference Noise Level at 50 ft (dBA L_{max})	Acoustical Usage Factor1 (%)	Noise Level at 50 ft (dBA L_{eq})	Combined Noise Level at 50 ft (dBA L_{eq})
Demolition	Grader	1	85	40	81.0	88.8
	Excavator	3	85	40	85.8	
	Dozer	2	85	40	84.0	
Site Preparation	Dozer	3	85	40	85.8	87.3
	Front End Loader	4	80	40	82.0	
Grading	Excavator	2	85	40	84.0	89.2
	Grader	1	85	40	81.0	
	Dozer	1	85	40	81.0	
	Scraper	2	85	40	84.0	
	Front End Loader	2	80	40	79.0	
Building Construction	Crane	1	85	16	77.0	86.5
	Man Lift	3	85	20	82.8	
	Generator	1	82	50	79.0	
	Front End Loader	3	80	40	80.8	
	Welder / Torch	1	73	40	69.0	
Paving	Paver	2	85	50	85.0	87.6
	Pavement Scarafier	2	85	20	81.0	
	Roller	2	85	20	81.0	
Architectural Coating	Compressor (air)	1	80	40	76.0	76.0

Source: Compiled by LSA (2024).

[1] The acoustical usage factor is the percentage of time during a construction noise operation that a piece of construction equipment operates at full power.

dBA = A-weighted decibels
ft = foot/feet
L_{eq} = equivalent continuous sound level
L_{max} = maximum instantaneous noise level

Therefore, noise generated from project construction activities would be less than significant. No mitigation measures are required.

Long-Term Operational Noise Impacts. The project is estimated to generate a net new ADT volume of 130 based on the YTC Project Schedule and Trips provided in Appendix K. The existing ADT volumes of 16,000 along The City Drive, 196,000 along SR-22, and 284,000 along I-5 in the area surrounding the project site were obtained from the 2024 Master Plan of Arterial Highways (MPAH) (OCTA 2024). It takes a doubling of traffic to increase traffic noise levels by 3 dBA. Based on the information above, project-related traffic on The City Drive, SR-22, and I-5 would increase traffic noise levels by up to 0.03 dBA. A noise level increase of less than 3 dBA would not be perceptible to the human ear in an outdoor environment. Therefore, traffic noise impacts from project-related traffic on off-site sensitive receptors would be less than significant. No mitigation measures are required.

Long-Term Stationary Noise Impacts. The proposed project could add additional heating, ventilation, and air conditioning (HVAC) equipment along with reusing or replacing existing HVAC equipment. Although the details and specifications of the HVAC equipment is yet to be determined, HVAC equipment would be acoustically isolated from interior spaces and strategically placed to limit the visual impact to surrounding uses. Each rooftop HVAC unit is anticipated to generate a noise level of 62.4 dBA L_{eq} at a distance of 50 ft based on a Trane 12.5 to 25 ton packaged rooftop air conditioner. Table 4.17.H shows that the average nighttime L_{eq} noise level at LT-1 and LT-3 north and south of the project site is 60.7 dBA and 58.4 dBA, respectively. Since the average nighttime ambient noise levels are higher than the City's nighttime noise standard of 55 dBA L_{eq}, a project-related permanent increase in ambient noise levels of 3 dBA or greater

would be considered significant. Limiting HVAC noise levels to less than 60.7 and 58.4 dBA L_{eq} at LT-1 and LT-3, respectively, would avoid increasing ambient noise levels by 3 dBA. Mitigation Measure (MM) N-1 requires a qualified acoustical consultant to prepare a memorandum to demonstrate that noise from on-site HVAC equipment does not exceed existing ambient noise levels by 3 dBA at the closest off-site property to the north and south once the details and specifications of the on-site HVAC equipment are determined. Therefore, noise generated from HVAC equipment would be less than significant with the implementation of MM N-1.

Long-Term On-Site Noise Impacts. The proposed project would be exposed to traffic noise primarily from I-5, which is consistent with the observed noise sources at LT-1, LT-2, and LT-3 shown in Table 4.17.H. Measured noise levels at LT-1, LT-2, and LT-3 were 68.2, 67.5, and 66.5 dBA CNEL, respectively. The existing ADT volume on I-5 in the vicinity of the project site is 284,000 based on the 2024 Master Plan of Arterial Highways (MPAH) (OCTA 2024). The future Year 2045 ADT volume would be 430,450 assuming a conservative 2 percent traffic volume increase per year from the existing year 2024. The following equation where $V_{existing}$ is the existing volume, V_{future} is the future volume, $CNEL_{existing}$ is the existing noise level, and $CNEL_{future}$ is the future noise level, was used to calculate future noise levels:

$$CNEL_{future} = CNEL_{existing} + 10 \log_{10} [V_{future}/V_{existing}]$$

Using the equation above, the future Year 2045 traffic volume would result in a traffic noise increase of 1.8 dBA from the existing Year 2024 traffic volume. Future noise levels at LT-1, LT-2, and LT-3 would be 70.0, 69.3, and 68.3 dBA CNEL, respectively. An exterior-to-interior noise reduction of up to 25 dBA would be required to meet the City's interior noise standard of 45 dBA CNEL. Based on the ratings provided in Sound Control for Commercial and Residential Buildings (North American Innovation Manufacturers Association [NAIMA] 1997), standard building construction used in Southern California consisting of 7/8-inch stucco, 1-inch woven mesh and No. 15 felt paper, 2-inch x 4-inch studs, ½-inch gypsum board, and standard insulation batt provide a Sound Transmission Class (STC) rating of 46. It is expected that the construction of the proposed facility would provide a much higher reduction in sound with the façade enhancements typically associated with public facility use construction. In order to confirm that the necessary reduction is achieved and to comply with the City's interior noise standard of 45 dBA CNEL, a Final Acoustical Report shall be prepared based on final architectural plans and window specifications to document the expected interior noise level as required by RCM N-2. Also, mechanical ventilation, such as air conditioning, would be required to ensure that windows can remain closed for a prolonged period of time. With the implementation of RCM N-2 and N-3, the proposed project would comply with the City's interior noise standard of 45 dBA CNEL.

Regulatory Compliance Measures:

RCM N-1 **Construction Noise and Vibration.** The construction contractor shall limit construction activities to between the hours of 7:00 a.m. and 8:00 p.m., Monday through Saturday and between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a federal holiday. Construction is prohibited outside these hours.

RCM N-2 **Final Acoustical Report.** Prior to issuance of any certificates of building permits, the project Applicant shall submit a Final Acoustical Report, prepared by a qualified acoustical consultant, to be reviewed and approved by the City Building Official, or their respective designee. The City Building Official, or their respective designee, shall verify that the Final Acoustical Report demonstrates that all sensitive rooms with exterior façades comply with the City's interior noise standard.

RCM N-3 **Interior Noise.** Mechanical ventilation (e.g., an air-conditioning system) shall be provided to all noise-sensitive rooms to ensure that windows can remain closed for a prolonged period of time.

Mitigation Measure:

MM N-1 **Acoustical Memorandum.** Prior to the issuance of the final occupancy permit, a qualified acoustical consultant shall prepare a memorandum to demonstrate that noise from on-site HVAC equipment does not exceed existing ambient noise levels by 3 A-weighted decibels (dBA) at the closest off-site property to the north and south once the details and specifications of the on-site HVAC equipment are determined.

Question 4.17 b): Generation of excessive groundborne vibration or groundborne noise levels?

Response to Question 4.17 b):

Less Than Significant with Mitigation Incorporated.

Short-Term Construction Impacts. This construction vibration impact analysis discusses the level of human annoyance using vibration levels in RMS (VdB) and assesses the potential for building damage using vibration levels in PPV (in/sec). Vibration levels calculated in RMS velocity are best for characterizing human response to building vibration, whereas vibration levels in PPV are best for characterizing damage potential.

Table 4.17.K shows the reference vibration levels at a distance of 25 ft for each type of standard construction equipment from the *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018). Project construction is expected to require the use of large bulldozers, loaded trucks, and jackhammers, which would generate ground-borne vibration levels of up to 87 VdB (0.089 PPV [in/sec]), 86 VdB (0.076 PPV [in/sec]), and 79 VdB (0.035 PPV [in/sec]), respectively, when measured at 25 ft.

Table 4.17.K: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV/L_V at 25 ft	
	PPV (in/sec)	L_V (VdB)[1]
Pile Driver (Impact), Typical	0.644	104
Pile Driver (Sonic), Typical	0.170	93
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large Bulldozer[2]	**0.089**	**87**
Caisson Drilling	0.089	87
Loaded Trucks[2]	**0.076**	**86**
Jackhammer[2]	**0.035**	**79**
Small Bulldozer	0.003	58

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018).

[1] RMS vibration velocity in decibels (VdB) is 1 µin/sec.

[2] The equipment shown in **bold** is expected to be used on site.

µin/sec = microinches per second
ft = foot/feet
FTA = Federal Transit Administration
in/sec = inches per second
L_V = vibration velocity in decibels
PPV = peak particle velocity
RMS = root-mean-square
VdB = vibration velocity decibels

The greatest vibration levels are anticipated to occur during the demolition, site preparation, and grading phase. All other phases are expected to result in lower vibration levels. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project site boundary (assuming the construction equipment would be used at or near the project site boundary) because vibration impacts normally occur within the buildings.

The formula for vibration transmission is provided below:

$$L_vdB\ (D) = L_vdB\ (25\ ft) - 30\ Log\ (D/25)$$
$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

Table 4.17.L lists the projected vibration levels from various construction equipment expected to be used from the center of the project site under Phases 1 and 2 to the nearest buildings in the area surrounding the project site. Phase 2 is divided into two subphases 2a and 2b. Phase 2a represents the construction area at the two classroom buildings and Phase 2b represents the construction area at Building 16. As shown in Table 4.17.L, the closest building from the center of the construction area is approximately 45 ft and would experience a vibration level of up to 79 VdB. This vibration level would have the potential to result in community annoyance for either the existing or proposed on-site use because vibration levels would exceed the FTA community annoyance threshold of 78 VdB for daytime residences. Although vibration levels generated from project construction could result in community annoyance, construction vibration levels would stop once project construction is completed. Other buildings that surround the construction area under Phases 1 and 2 would experience lower vibration levels because they are farther away.

Similarly, Table 4.17.M lists the projected vibration levels from various construction equipment expected to be used at the project construction boundary under Phases 1 and 2 to the nearest buildings in the vicinity of the project site. As shown in Table 4.17.M, the closest building from the project construction boundary under Phases 1 and 2 would be approximately 5 ft and would experience a vibration level of up to 0.995 PPV (in/sec). This vibration level would have the potential to result in building damage because the surrounding buildings would be constructed equivalent to non-engineered timber and masonry and vibration levels would exceed the FTA vibration damage threshold of 0.20 PPV (in/sec). The implementation of MM N-2 would restrict heavy construction equipment (e.g., large bulldozers and loaded trucks) or require the use of light construction equipment (e.g., small bulldozers and trucks) within 15 ft from all buildings and would reduce construction vibration levels to 0.191 PPV (in/sec). Therefore, construction vibration impacts would be less than significant with the implementation of MM N-2.

Long-Term Operational Impacts. The proposed project would not generate vibration. In addition, vibration levels generated from project-related traffic on the adjacent roadways (The City Drive, SR-22, I-5, and other roadways in the vicinity of the project site) are unusual for on-road vehicles because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Therefore, vibration impacts from project-related operations would be less than significant. No mitigation measures are required.

Table 4.17.L: Potential Construction Vibration Annoyance

Construction Phase	Land Use	Direction	Equipment/ Activity	Reference Vibration Level (VdB) at 25 ft	Distance to Structure (ft)[1]	Vibration Level (VdB)
1	UCI Medical Center Research Hospital	North	Large bulldozers	87	255	57
			Loaded trucks	86	255	56
			Jackhammer	79	255	49
	YTC (Admin, Medical, Control, classrooms, and Housing Unit T)	South	Large bulldozers	87	200	60
			Loaded trucks	86	200	59
			Jackhammer	79	200	52
	Manchester Office Building	West	Large bulldozers	87	240	58
			Loaded trucks	86	240	57
			Jackhammer	79	240	50
2a[2]	YTC (Housing Unit A)	North	Large bulldozers	87	45	79
			Loaded trucks	86	45	78
			Jackhammer	79	45	71
	YTC (Housing Units Q and T)	East	Large bulldozers	87	160	63
			Loaded trucks	86	160	62
			Jackhammer	79	160	55
	YTC (Building 14)	South	Large bulldozers	87	60	76
			Loaded trucks	86	60	75
			Jackhammer	79	60	68
	YTC (Housing Unit B)	West	Large bulldozers	87	185	61
			Loaded trucks	86	185	60
			Jackhammer	79	185	53
2b[3]	YTC (Housing Unit Q)	Northwest	Large bulldozers	87	190	61
			Loaded trucks	86	190	60
			Jackhammer	79	190	53
	YTC (Food Service Building 4)	East	Large bulldozers	87	140	65
			Loaded trucks	86	140	64
			Jackhammer	79	140	57
	Orangewood Children's Home	Southwest	Large bulldozers	87	210	59
			Loaded trucks	86	210	58
			Jackhammer	79	210	51
	YTC (YLA 1)	West	Large bulldozers	87	165	62
			Loaded trucks	86	165	61
			Jackhammer	79	165	54

Source: Compiled by LSA (2024).

Note: The FTA community annoyance threshold is 78 VdB for daytime residences.

[1] Distance from the center of the construction area for the respective construction phase to the building structure.

[2] Construction phase 2a represents the construction area at the two classroom buildings.

[3] Construction phase 2b represents the construction area at Building 16.

ft = foot/feet

FTA = Federal Transit Administration

VdB = vibration velocity decibels

Table 4.17.M: Potential Construction Vibration Damage

Construction Phase	Land Use	Direction	Equipment/ Activity	Reference Vibration Level at 25 ft	Distance to Structure (ft)[1]	Vibration Level
				PPV (in/sec)		PPV (in/sec)
1	UCI Medical Center Research Hospital	North	Large bulldozers	0.089	80	0.016
			Loaded trucks	0.076	80	0.013
			Jackhammer	0.035	80	0.006
	YTC (Admin, Medical, Control, classrooms, and Housing Unit T)	South	Large bulldozers	0.089	5	0.995
			Loaded trucks	0.076	5	0.850
			Jackhammer	0.035	5	0.391
	Manchester Office Building	West	Large bulldozers	0.089	5	0.995
			Loaded trucks	0.076	5	0.850
			Jackhammer	0.035	5	0.391
2a[2]	YTC (Housing Unit A)	North	Large bulldozers	0.089	5	0.995
			Loaded trucks	0.076	5	0.850
			Jackhammer	0.035	5	0.391
	YTC (Housing Units Q and T)	East	Large bulldozers	0.089	10	0.352
			Loaded trucks	0.076	10	0.300
			Jackhammer	0.035	10	0.138
	YTC (Building 14)	South	Large bulldozers	0.089	5	0.995
			Loaded trucks	0.076	5	0.850
			Jackhammer	0.035	5	0.391
	YTC (Housing Unit B)	West	Large bulldozers	0.089	5	0.995
			Loaded trucks	0.076	5	0.850
			Jackhammer	0.035	5	0.391
2b[3]	YTC (Housing Unit Q)	Northwest	Large bulldozers	0.089	25	0.089
			Loaded trucks	0.076	25	0.076
			Jackhammer	0.035	25	0.035
	YTC (Food Service Building 4)	East	Large bulldozers	0.089	5	0.995
			Loaded trucks	0.076	5	0.850
			Jackhammer	0.035	5	0.391
	Orangewood Children's Home	Southwest	Large bulldozers	0.089	50	0.031
			Loaded trucks	0.076	50	0.027
			Jackhammer	0.035	50	0.012
	YTC (YLA 1)	West	Large bulldozers	0.089	25	0.089
			Loaded trucks	0.076	25	0.076
			Jackhammer	0.035	25	0.035

Source: Compiled by LSA (2024).
Note: The FTA-recommended building damage threshold is 0.20 PPV [in/sec]) at the receiving non-engineered timber and masonry building.
[1] Distance from the construction boundary for the respective construction phase to the building structure.
[2] Construction phase 2a represents the construction area at the two classroom buildings.
[3] Construction phase 2b represents the construction area at Building 16.
ft = foot/feet
FTA = Federal Transit Administration
in/sec = inches per second
PPV = peak particle velocity
VdB = vibration velocity decibels

Mitigation Measure:

MM N-2 The construction contractor shall restrict heavy construction equipment (e.g., large bulldozers and loaded trucks) or require the use of light construction equipment (e.g., small bulldozers and trucks) within 15 feet from all building structures.

Question 4.17 c): For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Response to Question 4.17 c):

No Impact. The closest airports to the project site are the John Wayne Airport and the Fullerton Municipal Airport, which are located approximately 7.1 miles south and 7.8 miles northwest of the project site, respectively. The project site is outside the 60 dBA CNEL noise contour of John Wayne Airport and Fullerton Municipal Airport based on the Airport Environs Land Use Plan for John Wayne Airport and Fullerton Municipal Airport, respectively. Therefore, the project would not expose people residing or working in the vicinity to aviation-related excessive noise levels, and no impact would occur.

4.18 *Population and Housing*

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

Question 4.18 a): Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Response to Question 4.18 a):

Less than Significant Impact. The proposed project includes the demolition and redevelopment of several existing Campus buildings, including housing, administrative, and educational buildings. The proposed project intends to demolish five occupied and five unoccupied housing units, retaining four existing occupied housing units and three buildings. In place of the proposed demolished housing units, four new housing units would be constructed. These include the YTC living units, transitional living units, long-term housing units, and independent living units. The total capacity of occupied existing housing units to be demolished accounts for approximately 90 beds. The total capacity of the proposed housing units is approximately 110 beds. As the proposed project intends to replace existing housing with new housing facilities providing only a minor increase in the number of beds, minimal population growth, if any, would occur on-site.

The existing facility operates with 224 staff, 130 of whom are deputized. Under the proposed project, an additional 66 staff would be working on site. While an increase in on-site staff would be necessary to accommodate the potential growth in the juvenile offender population, it is anticipated that new staff would be drawn from the existing local workforce and would not result in significant regional population shifts. The proposed project would also create temporary construction jobs that would also be expected to be filled by the local workforce in Orange County or surrounding areas. In addition, the three project phases are estimated to unfold over a period of several years, balancing the number of new employees over time.

The Growth Management Element of the City of Orange's 2010 General Plan accounts for 27.5 percent population growth between 2008 and 2030.[52] In 2010, the City of Orange had a population of approximately 136,416. According to the Growth Management Element, the City of Orange's population is projected to increase to approximately 174,000 residents by 2030. The City of Orange had a population of approximately 138,621 people in 2024.[53,54] Therefore, the City has the capacity to accommodate the potential minimal increase in population in and outside of the project site, making any population growth due to the proposed project negligible.

The proposed project does not include development of roads or other infrastructure off site that may lead to an indirect increase in population.

Ultimately, any population growth associated with the proposed project would be negligible, as the Campus and the City of Orange have significant remaining capacity and resources to accommodate them. The impact would be less than significant, and no mitigation would be required.

Question 4.18 b): Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Response to Question 4.18 b):

Less than Significant Impact. As previously mentioned, the proposed project includes the demolition of five occupied and five unoccupied housing units, and the redevelopment of four new housing units through two project phases. Throughout these phases of demolition and development, four existing housing units and three existing buildings would remain in the facility with minor improvements. Table 4.18.A below details existing and proposed housing units and their capacities for the proposed project. Refer to Figure 3-5, Phasing Plan, for the order in which these housing units would be demolished and constructed.

The total capacity of existing occupied housing units to be demolished is approximately 90 beds. Residents located in these buildings would be relocated to a camp facility for the duration of demolition and construction of new housing units. While the total existing capacity of the Campus is 380 beds, the maximum daily population from 2021–2022 within the facility was only 121 youth. Therefore, approximately 259 beds were still available within the facility, even at maximum occupancy. Because only 90 beds would be demolished, the facility would have abundant remaining capacity on site for relocation purposes.

Additionally, two separate phases of demolition and development would ensure that relocation is spaced out and remaining housing units have available capacity to accommodate relocated residents. Phase 1 of the proposed project would include the demolition of three unoccupied housing units (Units I, R, and S) and three occupied housing units (Units A, M, and O), which would total 58 residents in need of relocation

[52] City of Orange General Plan. Growth Management Element. Website: https://www.cityoforange.org/home/showpublisheddocument/202/637698172544070000 (accessed October 2024).

[53] California Department of Finance. 2024 Orange Population Estimates. Website: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fdof.ca.gov%2Fwp-content%2Fuploads%2Fsites%2F352%2FForecasting%2FDemographics%2FDocuments%2FE-4_2024_InternetVersion.xlsx&wdOrigin=BROWSELINK (accessed November 2024).

[54] 136,416 * 1.275 = 173,930.4

Table 4.18.A: Project Housing Summary

Units to Remain			
Housing Unit	**Occupancy Status**	**Project Phase**	**Total Capacity (Approximate)**
Housing Unit Q	Occupied	-	16 Beds
Housing Unit T	Occupied	-	30 Beds
Housing Unit Y	Occupied	-	30 Beds
Housing Unit Z	Occupied	-	30 Beds
Intake/Release Center (IRC)	Occupied	-	Unknown Intake Units
Unit B	Unoccupied	-	20 Beds
Unit C	Unoccupied	-	22 Beds
		Total Available Capacity (Approximate):	***148 Beds***
Housing Units to be Demolished			
Unit A	Occupied	Phase 1	16 Beds
Unit G	Occupied	Phase 2	16 Beds
Unit H	Occupied	Phase 2	16 Beds
Unit I	Unoccupied	Phase 1	16 Beds
Unit J	Unoccupied	Phase 2	16 Beds
Unit K	Unoccupied	Phase 2	16 Beds
Unit M	Occupied	Phase 1	20 Beds
Unit O	Occupied	Phase 1	22 Beds
Unit R	Unoccupied	Phase 1	16 Beds
Unit S	Unoccupied	Phase 1	16 Beds
			Total Phase 1 Occupied Capacity Demolished (Approximate): 58 beds
			Total Phase 2 Occupied Capacity Demolished (Approximate): 32 beds
			Total Occupied Capacity Demolished (Approximate): 90 beds
Proposed Housing Units			
YTC Living Units	-	Phase 1	60 Beds
Transitional Living Units	-	Phase 1	8 Beds
Long-Term Housing Units	-	Phase 2	22 Beds
Independent Living Units	-	Phase 2	20 Beds
			Total Phase 1 Proposed Additional Capacity: 68 beds
			Total Phase 2 Proposed Additional Capacity: 42 beds
			Total Proposed Additional Capacity: 110 beds

if each occupied unit were at maximum capacity. During this phase, six occupied housing units, two unoccupied housing units, two unoccupied buildings, and one occupied building would remain functional. The unoccupied housing units have an approximate maximum capacity of 32 beds, and the unoccupied buildings have an approximate capacity of 42 beds, totaling 74 available beds. Therefore, all relocation can be comfortably accommodated on site during Phase 1 of the proposed project.

Phase 2 of the proposed project would begin after all demolition and development of Phase 1 is complete, allowing residents to relocate to the new YTC Living Units and Transitional Housing Units, totaling 68 beds. Phase 2 of the proposed project would include the demolition of two occupied housing units (Units G and H) and two unoccupied housing units (Units J and K), which would total 18 residents in need of relocation if each occupied unit was at maximum capacity. During this phase, five occupied housing units and two unoccupied buildings would remain functional. The unoccupied buildings have an approximate capacity of 42 beds, and the likelihood of each occupied housing unit being at maximum capacity is extremely low.

Therefore, all relocation can be comfortably accommodated on site during Phase 2 of the proposed project.[55]

While the demolition of existing Campus housing units and redevelopment of new housing units would require relocation of existing residents, each phase of the project would continue operation of sufficient relocation housing units to accommodate all existing and potential residents on site. Therefore, any displacement caused by the proposed project would not necessitate the construction of replacement housing elsewhere. Additionally, no displacement of off-site housing would occur as no demolition or development would commence outside of the Campus. The project site is institutional in nature and the housing provided for youth law violators is not considered housing that could be utilized by residents outside of the facility. Therefore, the proposed project would result in a less than significant impact, and no mitigation would be required.

[55] Youth Transition Center Design Criteria Document. March 31, 2023.

4.19 *Public Services*

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a-i) Fire protection.	☐	☐	☐	☒
a-ii) Police protection.	☐	☐	☐	☒
a-iii) Schools.	☐	☐	☐	☒
a-iv) Parks.	☐	☐	☐	☒
a-v) Other public facilities.	☐	☐	☐	☒

Question 4.19 a): Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Question 4.19 a-*i*): Fire protection.

Response to Question 4.19 a-*i*):

Less than Significant Impact. Fire protection and emergency medical services for the project site are provided by Orange City Fire Department (OCFD). The OCFD is comprised of three divisions and provides fire protection, paramedic and ambulance services, fire prevention, public education, hazardous materials management, and fire investigation services to approximately 139,911 residents in the City of Orange.[56] The OCFD consists of eight stations with paramedic teams, three of which also include ambulance services with an average response time of approximately five minutes.[57] Primary fire, paramedic, and basic medical services would be provided by Station No 6, which is located at 345 The City Drive South in Orange, directly adjacent to the south parking structure southwest of the Campus. OCFD Station No 5, located at 1345 West Maple Avenue and approximately 1.1 miles northeast of the project site is the second-closest station, and would respond in the event Station No 6 could not.

The OCFD is the reviewing fire agency, as delegated by the State Fire Marshall, for the proposed project's design of fire safety and suppression implementation. The proposed project's fire suppression design

[56] Orange City Fire Department. Website: https://orangecityfire.org (accessed October 2024).

[57] City of Orange General Plan Safety Element. Website: https://www.cityoforange.org/home/showpublisheddocument/214/637698172567530000 (accessed October 2024).

includes plans to access the building along the east, south and west sides of the building, two additional fire hydrants along the south corners of the building, and the installation of an automatic wet fire suppression system and associated utility lines to serve the entire facility.[58]

Construction of the proposed project would allow vehicles access to the project site via Sidwell Way, and all construction equipment would be staged on the northeastern portion of Campus. Emergency Fire services would not be obstructed in their access to the site. The proposed project would redevelop the Campus and would include a negligible population increase. Therefore, it would be unlikely that service ratios or response times would be impacted, and no new facilities would be necessary to maintain existing ratios.

The proposed project would not result in any substantial adverse physical impacts associated with the provision of or need for physically altered fire protection facilities and would require no additional expansion or staffing to maintain acceptable service ratios and response times. Therefore, any impact would be less than significant, and no mitigation is required.

Question 4.19 a-*ii*): Police protection.

Response to Question 4.19 a-*ii*):

No Impact. Sherriff protection services for the proposed project are provided on-site by Deputy Juvenile Correctional Officers. Deputy Juvenile Correctional Officers provide individual and group counseling, supervise daily activities, and ensure the safety of youth and the security of the facility.[59] Deputy Juvenile Correctional officers are overseen by the Juvenile Operations Bureau of The Orange County Probation Department, which is responsible for providing community supervision, support, and guidance to individuals who have been convicted of a crime and sentenced to probation.

The existing facility is served by 130 deputized staff who are responsible for the supervision of approximately 120 youth across the facility and are required to escort individuals and groups through secure areas. Each Living Unit in the proposed project is designed to provide staff areas and resources for at least one deputy at all times, and many Living Units would also require staff stations for supervision of shared living spaces.[60] The proposed project includes the demolition of existing Living Spaces and the construction of four new Living Units, including the YTC Living Units, The Independent Living Units, The Transitional Living Units, and The Long-Term Housing Units. The establishment of more Living Units may require additional deputized staff, and the proposed project estimates approximately 38 additional deputy staff would be necessary. However, the proposed project would not require expansion or additional staffing of off-site Public Police Facilities as all necessary Police services are provided on-site. Therefore, the proposed project would have no impact on existing Public Police Services in the City of Orange, and no mitigation is required.

[58] Youth Transition Center Design Criteria Document. March 31, 2023.

[59] OC Probation. Juvenile Hall. Website: https://ocprobation.ocgov.com/bureaus/juvenile-operations/juvenile-facilities/juvenile-hall (accessed October 2024).

[60] Youth Transition Center Design Criteria Document. March 31, 2023.

Question 4.19 a-*iii*): Schools.

Response to Question 4.19 a-*iii*):

No Impact. The proposed project includes the demolition of existing educational buildings and redevelopment of new and improved educational, vocational, classroom, and library buildings. A new educational and vocational building would offer resident youth the opportunity to further their education with college classes, complete a high school curriculum, and participate in CTE programs.[61]

The proposed project provides space for necessary schooling and an expansion of educational services offered to resident youth. The expansion of educational resources and programs may require additional staff but remains contained within the secure Campus. Additionally, the proposed project would not require expansion or additional staffing of off-site schools or other public facilities because the necessary public schooling services are provided on-site for resident youth at the Campus. Therefore, the proposed project would have no impact on existing public or private schools. No impact would occur, and no mitigation is necessary.

Question 4.19 a-*iv*): Parks.

Response to Question 4.19 a-*iv*):

No Impact. The existing Campus provides indoor and outdoor recreation for resident youth, including an indoor gymnasium, fitness center, basketball/volleyball court, and outdoor recreational field. The proposed project intends to improve outdoor recreational facilities, including the implementation of a potential soccer and multi-purpose field, handball courts, a walking/jogging track, outdoor amphitheater courtyard, and an outdoor workout/calisthenics area on the northeast portion of the facility, at the site of the existing recreational field.[62]

The proposed project would not require or add demand for any off-site park infrastructure as resident youth's recreation is currently and would continue to be provided within the secure Campus. Additions to outdoor recreation would not increase public demand or usage of any existing public parks. Therefore, no impact would occur, and no mitigation is necessary.

Question 4.19 a-v): Other public facilities.

Response to Question 4.19 a-*v*):

No Impact. All proposed demolition and redevelopment activities proposed under the proposed project would be contained within the existing secure Campus. While the proposed project may result in an increased demand for police, schooling, and parks within the facility, no additional demand on off-site City or County public facilities in the project area is required. Therefore, no impact would occur, and no mitigation is necessary.

[61] Youth Transition Center Design Criteria Document. March 31, 2023.
[62] Ibid.

4.20 *Recreation*

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Question 4.20 a): Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Response to Question 4.20 a):

No Impact. The existing Campus includes an indoor Multi-Purpose Recreation Center and outdoor recreational fields. The proposed project involves demolition and construction of buildings and outdoor improvements on the Campus. The facility is contained within a secure perimeter, and all demolition and development would occur on-site. Proposed outdoor recreational improvements may include a soccer and multipurpose field, handball courts, a walking/jogging track, outdoor amphitheater courtyard, and outdoor workout/calisthenics area. These improvements would be contained within the secured perimeter of the Campus and would not be available for use to the public. Conversely, resident youth would not be able to access recreational facilities outside of the secured perimeter, with the exception of youth residing in independent living units.

Youth residents are prescribed a certain amount of recreation time pursuant to Titles 15 and 24 of the California Code of Regulations, and the Campus provides the necessary recreation facilities on site to satisfy all applicable requirements. As all proposed development would occur within the Campus, and population increase due to the project is negligible, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities. No impact would occur, and no mitigation is necessary.

Question 4.20 b): Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Response to Question 4.20 b):

Less than Significant Impact. The proposed project involves improvements to existing outdoor recreation areas, with many potential additions. The existing recreational fields include a baseball diamond that could be repurposed to create a multipurpose field for sports such as soccer or flag football, a green space amphitheater with concrete varying levels, and a landscaped courtyard or walking area. The proposed project would also require outdoor recreational areas for weight training and calisthenics.

All outdoor recreational improvements would be designed to blend into the landscape. Paved sidewalks would also be implemented to provide clear pathways for residents to utilize outdoor recreational amenities. The project site is already developed and the recreational facilities included in the proposed project area consistent with the existing development. All new recreational facilities would comply with local and State regulations. Therefore, the recreational improvements proposed by the project would result in a less than significant impact on the environment, and no mitigation would be necessary.

4.21 *Transportation*

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐

The following analysis is based upon data presented in the Project Schedule and Trip Generation table provided as Appendix K to this IS/MND, which were calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition.[63]

Question 4.21 a): Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Response to Question 4.21 a):

Less than Significant Impact. The proposed project involves the redevelopment of the Campus, an approximately 17-acre site currently housing both Juvenile Hall and the adjacent Youth Leadership Academy (YLA). The proposed project aims to incorporate services currently provided at the Youth Guidance Center (YGC) located directly east of the Campus across the Santa Ana River, onto the main Campus creating the improved Youth Transition Center (YTC).

The proposed project involves demolishing approximately 95,589 sf of existing facilities and constructing approximately 87,223 sf of new buildings, resulting in a slight reduction in total square footage but an expansion in programming and services. The proposed project would add educational and vocational

[63] Institute of Transportation Engineers (ITE). 2021. Trip Generation Manual, 11th Edition, September.

training, supportive housing, and medical and behavioral health services, requiring 61 additional staff and housing 8 new residents in the TAY program.

During the construction phases of the proposed project, facilities would be constructed in compliance with applicable City and County standards, and existing access intersections would be maintained to support continuity with the surrounding circulation system.

In order to assess the impact of the proposed project on the surrounding circulation system, trips generated during typical operations were calculated based on the projected occupancy levels of on-site uses and the specific operational schedules of staff and program participants. Trips to and from the project site by deputized correctional officers, deputized supervisors, deputized administrative staff, support staff, behavioral health staff, school staff, and TAY housing residents were modeled.

The trip generation summary provided in Appendix K of this IS/MND provides detailed project scheduling and anticipated inbound and outbound trips for staff and program participants by time of day. As shown in Appendix K, operation of the proposed project is anticipated to generate a net increase of 130 daily trips, including a net increase of 21 a.m. peak hour and 16 p.m. peak hour trips. With staggered activity schedules and employee shift times, project trips are distributed throughout the day, therefore reducing peak-hour trip concentration.

The distributed trip pattern, minimal peak-hour trips, and compliance with City and County standards for access points ensure minimal impact on the surrounding circulation system, aligning with current and future network use, and screen the project from requiring a full level of service (LOS) analysis. While there are no bike lanes currently present on the roadways directly surrounding the project site, Orange County Transportation Authority (OCTA) bus stops are provided along The City Drive South, with one stop just north of the intersection with Dawn Way and another just north of the intersection with Justice Center Way. Both stops are serviced by Route 47, which provides access from Fullerton to Newport Beach and Route 57, which provides access from Brea to Newport Beach. As such, the project site is served by existing public transit facilities, and it is reasonable to assume that employees, visitors, or youth living outside the security perimeter could utilize these facilities to come and go from the project site.

The proposed project would not make any changes to the public right-of way in the vicinity of the project site and would not conflict with existing or planned pedestrian, bicycle, or transit facilities. Therefore, project impacts associated with conflicts with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant, and no mitigation is required.

Question 4.21 b): Would the project conflict or be inconsistent with CEQA section 15064.3, subdivision (b)?

Response to Question 4.21 b):

Less than Significant Impact. On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law, which directed the Governor's Office of Planning and Research (OPR) to establish new CEQA guidance for jurisdictions that removes the level of service (LOS) method, which focuses on automobile vehicle delay and other similar measures of vehicular capacity or traffic congestion, from CEQA transportation analysis. Rather, vehicle miles traveled (VMT), or other measures that promote "the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a

diversity of land uses," are now used as the basis for determining significant transportation impacts in the State.

As part of a January 2018 update to the *State CEQA Guidelines*, Section 15064.3 codifies that project-related transportation impacts are typically best measured by evaluating the project's VMT. Specifically, subdivision (b) focuses on specific criteria related to transportation analysis. Subdivision (b)(2) addresses VMT associated with transportation projects and states that projects that reduce VMT, such as pedestrian, bicycle, and transit projects, should be presumed to have a less than significant impact. Subdivision (b)(4) stipulates that Lead Agencies have the discretion to formulate a methodology that would appropriately analyze a project's VMT.

The Orange County Board of Supervisors adopted the *Guidelines for Evaluating Vehicle Miles Traveled under CEQA* (County VMT Guidelines),[64] at its November 17, 2020, meeting pursuant to SB 743 to include VMT analysis methodology and thresholds.

Since the project site is located within the City of Orange, this analysis considers VMT in the context of both the City's adopted Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (City TIA Guidelines),[65] dated July 2020, in addition to the County VMT Guidelines. According to both the City and County TIA Guidelines, certain land uses have been identified as having the presumption of a less than significant impact. This criterion includes project types identified as Community Institutions per the City TIA Guidelines or Public Facilities per the County VMT Guidelines. As a public institution providing a broad range of rehabilitative treatment and programs for resident youth within a consolidated facility, the proposed project qualifies for project-type screening and is presumed to have a less than significant impact on VMT. As such, the proposed project would result in a less than significant transportation impact with respect to VMT. The proposed project would not be inconsistent with *State CEQA Guidelines* Section 15064.3, subdivision (b), and no mitigation is required.

Question 4.21 c): Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Response to Question 4.21 c):

Less than Significant Impact. With implementation of the proposed project, vehicle access to the facility would continue to be provided via The City Drive South, which runs in a north-south orientation and is classified as a Principal Arterial roadway in the City's General Plan Circulation and Mobility Element. The project site is bordered by Service Way South to the north and Justice Center Way to the south both of which run in an east-west direction. Justice Center Way's eastern edge transitions into Sidwell Way, which curves along the project site and marks its eastern boundary.

Given the secure nature of the existing facility, vehicular circulation within the project site is unavailable, which would not change under the proposed project. While the proposed project would modify surface parking lots, it would not change the overall circulation patterns of the project site from existing

[64] County of Orange. 2020. Guidelines for Evaluating Vehicle Miles Traveled Under CEQA, September. Website: https://ocds.ocpublicworks.com/sites/ocpwocds/files/2022-12/Oak%20Grove_App%20H%20OC%20VMT%20Guidelines.pdf (accessed November 14, 2024).

[65] City of Orange. 2020. Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment. July. Website: https://www.cityoforange.org/home/showpublisheddocument/2088/637708760828930000 (accessed November 14, 2024).

conditions. As such, the proposed project would not include any sharp curves or turns that would result in hazardous conditions.

As discussed in the Response to Question 4.21 a), above, the proposed project would contribute minimal peak-hour trips to surrounding roadways, and therefore would not substantially contribute to vehicle queuing that could exceed the capacity of turn lanes and create hazards to through traffic at intersections in the vicinity of the project site.

Lastly, the proposed project would redevelop the already developed Campus and would not introduce any new roadways or change the overall land uses within the project site. This proposed development would be consistent with surrounding land uses and available infrastructure and would not introduce any incompatible uses into the project site or the project vicinity. Therefore, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses. Project impacts would be less than significant, and no mitigation would be required.

Question 4.21 d): Result in inadequate emergency access?

Response to Question 4.21 d):

Less than Significant Impact. Emergency vehicle access to the project site would be provided either by an entry point along Sidwell Way or Service Way South. Service Way South, Justice Center Way, and Sidwell Way are all accessed either directly or indirectly via The City Drive South. This roadway has already been designed to support the weight of a fire apparatus (approximately 68,000 pounds) and the Orange City Fire Department has already verified that the roadway meets the minimum required turning radii in order to accommodate emergency vehicles.

The proposed project is not expected to result in substantial traffic impacts or queuing on nearby streets during construction, as all equipment will be staged within the project site. Additionally, there are no proposed changes to the existing circulation system surrounding the site during project operations, ensuring that emergency evacuation routes remain unaffected. Access to The City Drive South will remain unobstructed during both construction and operation. As discussed in the Response to Question 4.21 a) above, the proposed project would contribute minimal peak-hour trips to surrounding roadways, which would not result in substantial delays to the movement of emergency vehicles along these roadways.

The proposed project would comply with Chapter 5 of the California Fire Code (CFC) requirements pertaining to emergency apparatus roadways and water supply. Further, the proposed project would be reviewed and approved by the Fire Department and City staff as part of the City's Design Review process to ensure the proposed project is compliant with all applicable codes and ordinances for emergency vehicle access. Therefore, with Fire Department review of the project plans, project impacts related to emergency access would be less than significant, and no mitigation would be required.

4.22 *Tribal Cultural Resources*

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	☐	☒	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Question 4.22 a): Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).

Question 4.22 b): A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Response to Questions 4.22 a) and b):

Less than Significant With Mitigation Incorporated.

Effective July 1, 2015, Assembly Bill (AB) 52 requires meaningful consultation with California Native American Tribes on potential impacts to Tribal Cultural Resources, as defined in Public Resources Code

(PRC) Section 21074 as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resource. Per PRC Section 21080.3.1, a tribe must submit a written request to the relevant lead agency if it wishes to be notified of proposed projects in its traditionally and culturally affiliated area. The lead agency must provide written formal notification to the tribes that have requested it within 14 days of determining that a project application is complete or of deciding to undertake a project. The tribe must respond to the lead agency within 30 days of receipt of the notification if it wishes to engage in consultation on the project, and the lead agency must begin the consultation process within 30 days of receiving the request for consultation. Consultation concludes when either (1) the parties agree to mitigation measures to avoid a significant effect, if one exists, on a tribal cultural resource, or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. AB 52 also addresses confidentiality during tribal consultation per PRC Section 21082.3(c).

The Native American Heritage Commission (NAHC) is a State agency that maintains the Sacred Lands File (SLF), an official list of sites that are of cultural and religious importance to California Native American tribes. The NAHC was contacted on September 27, 2024, in order to request a SLF search for the project site. The NAHC responded on October 15, 2024, that the SLF search was negative for the project site.

In compliance with AB 52, letters have been distributed to local Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project and have previously requested to be notified of future projects proposed by the City. The letters, which were sent on October 14, 2024, via certified mail, provided each tribe with an opportunity to request consultation with the City regarding the proposed project. The purpose of this effort was to provide Native American tribes with the opportunity for meaningful participation and to identify known tribal cultural resources on or near the project site. The record of tribal consultation efforts is included as Appendix L to this IS/MND. The following tribes received letters pursuant to AB 52:

1. Gabrieleño Band of Mission Indians – Kizh Nation
2. Juaneño Band of Mission Indians
3. Gabrieleño Tongva San Gabriel Band of Mission Indians
4. Soboba Band of Luiseño Indians

In compliance with AB 52, tribes had 30 days from the date of receipt of notification to request consultation on the proposed project. Information provided through the AB 52 tribal consultation process typically informs the assessment as to whether tribal cultural resources are present within the project site and the significance of any potential impacts to such resources. The responses received during the open tribal consultation period were from a representative of the Gabrieleño Band of Mission Indians – Kizh Nation and the Gabrieleño Tongva San Gabriel Band of Mission Indians, which were received on October 30, 2024, and November 14, 2024, respectively. Both the Kizh Nation and Gabrieleño Tongva representatives requested to initiate the formal consultation process with the County, which is currently still ongoing. However, the County has established standard measures to address potential tribal concerns regarding the proposed project. As such, Standard Condition (SC) TCR-1 is applicable to the proposed project, as discussed below.

As discussed in Section 4.9, Cultural Resources, of this IS/MND, no known cultural resources have been documented within the project site boundaries or in the direct vicinity of the project site based on archival

research and field surveys. In addition, limited potential exists for the proposed project to impact tribal cultural resources due to significant prior disturbance from past grading and development activities on the project site and in the surrounding area. Regulatory Compliance Measure (RCM) CUL-1, identified in Section 4.9, Cultural Resources, sets forth procedures for handling inadvertent discoveries of human remains, including those determined to be Native American.

To date, no other responses from the Native American community have been received as part of the AB 52 tribal consultation effort. As a result of the County's consultation efforts, no known tribal cultural resources have been identified within the project site. As such, adherence to SC TCR-1 and RCM CUL-1 would ensure that impacts related to the inadvertent discovery of Native American resources would be less than significant.

Standard Condition:

SC TCR-1 **Unanticipated Discovery of Native American Resources.** If unanticipated archaeological resources or deposits are discovered during ground-disturbing activities, Orange County Public Works (OC Public Works) shall implement the following measures. All work shall halt within a 50-foot radius of the discovery. OC Public Works shall retain a qualified professional archaeologist with knowledge of Native American resources to assess the significance of the find. If the resources are Native American in origin, OC Public Works shall coordinate with the Tribe regarding evaluation, treatment, curation, and preservation of these resources. The archaeologist shall have the authority to modify the no-work radius as appropriate, using professional judgment in consultation with OC Public Works. Work shall not continue within the no work radius until the archaeologist conducts sufficient research and evidence and data collection to establish that the resource is either: (1) not cultural in origin; or (2) not potentially eligible for listing on the California Register of Historical Resources. If a potentially eligible resource is encountered, then the archaeologist and OC Public Works, as lead agency, in consultation with the Tribe, shall arrange for either: (1) avoidance of the resource, if possible; or (2) test excavations to evaluate eligibility, and if eligible, attempt to resolve adverse effects through implementation of appropriate mitigation, which may include, but shall not be limited to, salvage excavation, laboratory analysis and processing, research, curation, and preparation of a report summarizing the find. The assessment of eligibility shall be formally documented in writing as verification that the provisions in the California Environmental Quality Act for managing unanticipated discoveries and Public Resources Code Section 5024 have been met.

4.23 *Utilities and Service Systems*

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Question 4.23 a): Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Response to Question 4.23 a):

Less than Significant Impact.

Water. The project site is fully developed with the existing Campus, which generates water demand typical of an institution of its scale. Water demand within the project site, and much of north and central Orange County, is supplied by the Orange County Water District (OCWD). The OCWD water supply originates from the Orange County Groundwater Basin, which is managed and refilled by OCWD.[66]

The City of Orange Water Division provides domestic water service in the City of Orange and constructs and maintains the City's water supply system.[67] The City's primary source of water supply is groundwater supplied by the OCWD, as discussed above. In addition, the City's groundwater supply is supplemented by imported water and surface water purchased from the Metropolitan Water District of Southern California (MWDSC) through the Municipal Water District of Orange County (MWDOC). Specifically, according to the City's 2020 Urban Water Management Plan (UWMP), the City's water supply was approximately 77 percent groundwater, 18 percent purchased or imported water, and 5 percent surface water in the Fiscal Year 2019–2020.[68] It is projected that by the year 2045, the water supply mix would be approximately 85 percent groundwater, 11 percent purchased or imported water, and 4 percent surface water.

The project site contains existing water services in support of the existing Campus, but the proposed project would include additional connections to the existing water main along Justice Center Way to along the southern project site boundary in order to serve the reconfigured building and landscaped area layout. According to the California Emissions Estimator Model (CalEEMod) output for the proposed project (Appendix A), the proposed project is anticipated to generate a water demand of approximately 6,406,555 gallons annually (approximately 19.7 acre-feet [af]). At the time of the preparation of the 2020 UWMP, the total 2025 projected water demand in the City is approximately 27,233 af annually. In 2045, the total projected water demand is 28,077 af annually, with demand totals increasing between 2025 and 2045. As such, water demand generated by the proposed project would represent a negligible contribution to the overall water demand within the service region. Further, the proposed project is redeveloping a site that currently contains a use with similar water demands. As such, it is anticipated that the water demand for the proposed project can be met within the City's existing service capacity, and any potential increase in water demand could be adequately served by existing water supply infrastructure, with the exception of minor connections to facilities adjacent to the project site.

Further, the proposed project would be required to comply with the principles of the State Model Water Efficient Landscape Ordinance that requires improvements in the efficiency of water use in existing and new urban irrigated landscapes. The County adopted a Water Efficient Landscape Ordinance on March 14, 2016, in order to enforce the State mandate. The proposed project is subject to this ordinance and would be required to implement water-efficient landscaping design (i.e., drought-tolerant landscaping) within the project site. As discussed in Regulatory Compliance Measure (RCM) UTL-1, preparation of a project-specific Landscape Plan demonstrating compliance with all applicable elements of the Water Efficient Landscape Ordinance would be required. Adherence to RCM UTL-1 would further ensure that project-

[66] Orange County Water District (OCWD) How Water Works in Orange County. Website: https://www.ocwd.com/learning-center/how-water-works-in-oc/ (accessed October 22, 2024).

[67] City of Orange Water Division. Website: https://www.cityoforange.org/residents/water-division (accessed October 22, 2024).

[68] City of Orange. 2020. Urban Water Management Plan Final. November. Website: https://www.cityoforange.org/home/showpublisheddocument/1540/637873464981170000 (accessed October 22, 2024).

related water demand would not cause the existing water supply to be exceeded during operations of the proposed project. Impacts related to water facilities would be less than significant, and no mitigation is required.

Regulatory Compliance Measure:

RCM UTL-1 **Orange County Water Efficient Landscape Ordinance.** Prior to the issuance of any grading or building permit, the project Applicant shall prepare and submit a Landscape Plan to the Interim Director of the County of Orange (County) Public Works Department, or designee. The County of Orange Public Works Department, or designee, shall confirm that the Landscape Plan for the proposed project is consistent with all applicable provisions outlined in the County's Landscape Water Efficiency Ordinance, as codified in Ordinance No. 16-002.

Wastewater Treatment. As previously stated, the project site is currently developed with the existing Campus and associated facilities. Under existing conditions, wastewater generated within the project site is collected, treated, and disposed of by the Orange County Sanitation District (OCSD). This would continue to be the case under the proposed project. OCSD serves over 20 cities and across 479 square miles, with a service population of approximately 2.6 million people.[69]

Because wastewater is generated at the project site under existing conditions, the site is already served by wastewater infrastructure in the form of an existing 10-inch sewer main. The proposed project would require the installation of new 4-inch sewer laterals to connect existing infrastructure to each proposed structure. As with existing development, wastewater generated by the proposed project would be conveyed to OCSD facilities, ultimately reaching the OCSD Reclamation Plant No. 1, located approximately 7 miles southwest of the project site at 10844 Ellis Avenue in Fountain Valley. OCSD Reclamation Plant No. 1 has a primary treatment capacity of 208 million gallons per day (mgd) and a secondary treatment capacity of 182 mgd.[70] Between 2023 and 2024, the average daily influent to Reclamation Plant No. 1 was approximately 124 mgd.[71] As such, Reclamation Plant No. 1 is currently operating under capacity, and has the potential to process additional wastewater volume.

According the CalEEMod output for the proposed project (Appendix A), indoor water demand of the proposed project would amount to approximately 6,406,555 gallons annually, or approximately 17,552 gallons per day (gpd). In the absence of a project-specific wastewater generation estimate, wastewater generation for the project can be assumed to be 90 percent of the project's indoor water demand, to account for evaporation and absorption losses. As such, the proposed project's wastewater generation would be approximately 15,797 gpd.[72] This volume represents a negligible contribution to the primary and secondary treatment capacities of Reclamation Plant No. 1, approximately 0.0076 percent[73] and 0.0087 percent,[74] respectively. Furthermore, all of the proposed project's plumbing fixtures would comply with California Plumbing Code flow rates as well as CALGreen plumbing fixture requirements. Ultimately,

[69] Orange County Sanitation District (OCSD). n.d. Service Area of Orange County. Website: https://www.ocsan.gov/service-area/ (accessed October 22, 2024).

[70] Orange County Sanitation District (OCSD). 2024. Adopted Budget, Fiscal Years 2024-2025 and 2025-2026, June 26, 2024. Website: https://www.ocsan.gov/wp-content/uploads/2024/10/Adopted-Budget-FY-2024-25-and-2025-26.pdf?id=45626&year=all (accessed October 22, 2024).

[71] Ibid.

[72] 17,552 * 0.90 = 15,796.98, or approximately 15,797 gpd

[73] 15,797 / 208,000,000 = 0.0000759 * 100 = 0.0076 percent

[74] 15,797 / 182,000,000 = 0.0000868 * 100 = 0.0087 percent

the maximum anticipated 15,797 gpd of wastewater generated by the proposed project would only represent a small fraction of the primary daily treatment capacity of Reclamation Plant No. 1; therefore, the proposed project could be adequately served by existing wastewater infrastructure, with the exception of minor connections to each proposed building. As such, the proposed project would not necessitate the construction of new or expanded wastewater facilities that could cause a significant environmental impact. Impacts related to wastewater facilities would be less than significant, and no mitigation is required.

Stormwater Drainage. Refer to Section 4.14, Hydrology and Water Quality, of this IS/MND for further discussion related to the project site's drainage characteristics.

Project improvements would include the establishment of new storm drainage laterals to be extended as needed from the existing 42-inch mainline storm drain provided on the Campus. In addition to the existing series of 24-inch by 24-inch inlets in the courtyard areas around the existing Campus buildings, the proposed project would add a new low point with a relocated inlet to direct storm flows to a water quality treatment basin.

Implementation of the proposed project would decrease the impervious surface area on the project site by approximately 40 percent, which would be expected to decrease the volume stormwater runoff generated within the project site. As specified in RCM HYD-4, detailed in Section 4.14, Hydrology and Water Quality, a Final Hydrology Report would be approved by the County Department of Public Works and would demonstrate that on-site drainage facilities are designed and adequately sized to convey and reduce runoff such that on-site and off-site drainage capacity would not be exceeded in a design storm. RCM HYD-4 represents adherence to local and state regulations or laws that serve to reduce impacts related to hydrology. With implementation of RCM HYD-4, the proposed project would not exceed the capacity of downstream drainage facilities or cause the expansion of existing facilities, aside from the laterals and treatment basin within the Campus discussed above. As such, the proposed project would not require or result in the construction of new stormwater drainage facilities or the expansion of existing facilities beyond the improvements included as part of the proposed project. Therefore, impacts to stormwater drainage facilities would be less than significant with the incorporation of RCM HYD-4. No mitigation is required.

Electric Power. Electric power is provided to the project site by Southern California Edison (SCE). SCE services approximately 15 million people across its 50,000-square mile service area.[75] According to the California Energy Commission (CEC), total electricity consumption in the SCE service area in 2022 was approximately 85,870 gigawatt-hours (GWh).[76] Total electricity consumption in Orange County in 2022 was approximately 20,244 GWh.[77] Refer to Section 4.10, Energy, of this IS/MND for further discussion related to the project's impacts with respect to existing and projected supplies of electricity. As stated in Section 4.10, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment uses, and transportation, which would help reduce the electricity demand of the proposed project.

[75] Southern California Edison. About Us. Website: https://www.sce.com/about-us (accessed October 22, 2024).

[76] California Electricity Commission (CEC). 2022. Electricity Consumption by Entity. Website: http://www.ecdms.energy.ca.gov/elecbyutil.aspx (accessed October 22, 2024).

[77] California Electricity Commission (CEC). 2022. Electricity Consumption by County. Website: http://www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed October 22, 2024).

The project site is developed with the existing Campus and is served by existing electrical infrastructure. The proposed demolition of ten buildings within the project site would leave some electrical infrastructure available to connect to the new proposed structures. In some cases, underground electrical lines would need to be rerouted to serve a proposed building site. The proposed project would upgrade and relocate electrical facilities within the site to serve the new facility locations and needs. In addition, a new transformer would be established just outside the site's security perimeter in order to provide access to SCE employees. In addition, a main electrical room would be established within a central location of the project site in order to ensure the efficient distribution of electricity throughout the site. In addition, a new 100 kW diesel powered emergency generator would be installed, which would have the fuel capacity to allow the facility to operate for 72 hours in the event of a power outage, in a manner consistent with legal requirements that the facility remains secure and operational and does not create a potential public safety issue.

CalEEMod Version 2022.1.1.28 was used to calculate the approximate annual electricity demand of the proposed project. Based on the CalEEMod outputs, the estimated electricity demand associated with the operation of the proposed project is 870,183 kilowatt-hours (kWh) per year. This would represent approximately 0.0043 percent of the total electricity consumption in Orange County in 2022[78] and 0.0010 percent of the total electricity consumption in the SCE service area in 2022.[79] The proposed project's electricity demand would be minimal compared to overall regional and service area consumption.

The proposed project would comply with the California Green Building Standards Code (California Code of Regulations, Title 24). Additionally, the proposed project would be required to adhere to all federal, State, and local requirements for energy efficiency, which would substantially reduce electricity usage. Because the proposed project would replace existing development that generates energy demand, would represent a small fraction of electricity demand within the region and service area, and would meet Title 24 requirements, the proposed project would not necessitate the construction of new or expanded electric power facilities that could cause a significant environmental impact. Impacts would be less than significant, and no mitigation is required.

Natural Gas. The natural gas service provider for the project site is the Southern California Gas Company (SoCal Gas). SoCal Gas provides natural gas services to approximately 21.1 million consumers across 24,000 square miles.[80] According to the CEC, total natural gas consumption in the SoCal Gas service area in 2022 was approximately 5,027 million therms (MMBtu).[81] Total natural gas consumption in Orange County in 2022 was approximately 573 MMBtu.[82] Refer to Section 4.10, Energy, of this IS/MND for further discussion related to the project's impacts with respect to existing and projected supplies of natural gas.

The project site is already developed with the Campus and is therefore served by existing natural gas connections. However, these connections rerouted or replaced in order to serve the reconfigured layout of the project site under the proposed project. As such, the proposed project would upgrade and relocate natural gas facilities within the site to serve the new facility locations and needs. Natural gas would solely

[78] 870,183 / 20,243,721,856 = 0.000043 * 100 = 0.0043 percent

[79] 870,183 / 85,870,000,000 = 0.000010 * 100 = 0.0010 percent

[80] Southern California Gas Company (SoCal Gas). About Us. Website: https://www.socalgas.com/about-us (accessed October 22, 2024).

[81] California Electricity Commission (CEC). 2022b. Gas Consumption by Entity. Website: http://www.ecdms.energy.ca.gov/gasbyutil.aspx (accessed October 22, 2024).

[82] California Electricity Commission (CEC). 2022a. Gas Consumption by County. Website: http://www.ecdms.energy.ca.gov/gasbycounty.aspx (accessed October 22, 2024).

be used for cooking, including culinary training, within the proposed buildings. All heating and cooling equipment within the proposed facilities would be electric and would not utilize natural gas. As such, natural gas usage would be limited under the proposed project.

CalEEMod Version 2022.1.1.28 was used to calculate the approximate annual natural gas demand of the proposed project. Based on the CalEEMod outputs, the estimated potential natural gas demand associated with the operation of the proposed project is 5,116 thousand BTU (kBTU) per year. This would represent approximately 0.89 percent of the total natural gas consumption in Orange County in 2022[83] and 0.10 percent of the total natural gas consumption in the SCE service area in 2022.[84] As such, the proposed project's electricity demand would be insignificant in the context of the overall regional and service area context and would not necessitate the construction of new large-scale natural gas infrastructure.

Because the proposed project would limit natural gas usage to culinary purposes and would replace existing development that already utilizes natural gas, the proposed project would not necessitate the construction of new or expanded natural gas facilities that could cause a significant environmental impact. Impacts would be less than significant, and no mitigation is required.

Telecommunications. Cable, internet, and telephone services are provided to the City's residents by major third-party purveyors. Cellular service available in the City is provided by all major cellular networks, including the project site. The project site is currently served by telecommunications services. Given the secure nature of the project site, resident youth would have limited access to telecommunication services. Regulated access to landline telephones and video conferencing would be allowed, primarily for the purposes of visitation, education, and court proceedings. A majority of telecommunications activity at the project site is undertaken by staff and visitors, who have access to their personal telecommunication devices, However, usage of these devices may be restricted on parts of the Campus. The proposed project would replace existing uses on the project site, and would slightly increase the residency capacity within the Campus in order to accommodate TAY and youths living independently. However, this increase would not substantially increase demand for telecommunications services within the project site. Therefore, the proposed project would not necessitate the construction of new or expanded telecommunications facilities that could cause a significant environmental impact. Impacts would be less than significant, and no mitigation is required.

Summary. As the proposed project would replace existing uses on-site, the supply and distribution network of utilities and service systems would generally remain unchanged, with the exception of minor connections to existing infrastructure serving the site. The water, wastewater, stormwater drainage, natural gas, electricity, and telecommunications demands generated by the proposed project would not exceed existing supply or service capacities. Levels of service to users in the surrounding community would not be adversely affected. Effects related to utility improvements and connections proposed as part of the project would be less than significant with compliance to applicable regulations and standards, including landscape irrigation standards required under RCM UTL-1. No project-specific mitigation is required.

[83] 5,116,000 / 573,000,000 = 0.0089 * 100 = 0.89 percent
[84] 5,116,000 / 5,027,000,000 = 0.0010 * 100 = 0.10 percent

Question 4.23 b): Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Response to Question 4.23 b):

Less than Significant Impact. The project site is currently developed with the Campus, which generates water demand typical of an institution of its scale. Water is supplied to the project site by the City of Orange Water Division via groundwater supplies from OCWD or imported or surface water via MWDOC.

According to the City's 2020 UWMP, the City's projected water supply is able to meet projected water demands for the years 2025 through 2045 during normal years, single dry years, and multiple dry years. In 2020, the City's actual water supply was 26,993 af.[85] At the time of the preparation of the 2020 UWMP, the projected 2025 water supply is approximately 27,233 af. By 2045, the total projected water supply is approximately 28,077 af, marking an increase in supply between 2025 and 2045. Although projected water supplies increase incrementally, projected water demand also increases incrementally. In 2020, the actual water demand was 26,993 af. The total projected water demand in 2025 is approximately 27,233 af annually. In 2045, the total projected water demand is approximately 28,077 af annually, with demand totals increasing between 2025 and 2045.[86]

As discussed in the Response to Question 4.23 b), the proposed project would generate a water demand of approximately 17,552 gpd. This demand would be considered negligible compared to overall water supply and demand within the region and the City of Orange. Furthermore, the proposed project's design would incorporate low-flow water fixtures wherever possible in compliance with the CALGreen Code and would be compliant with the City's Water Efficient Landscape Ordinance pursuant to RCM UTL-1.

Based on the proposed project's relatively minor contribution to regional and service area water demand and the various water conservation measures to be incorporated into the project's design, water demand generated by the proposed project would be adequately served by the City's Water Division's current and projected water supplies during normal, dry, and multiple dry years. Impacts related to water supplies would be less than significant, and no mitigation is required.

Question 4.23 c): Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Response to Question 4.23 c):

Less than Significant Impact. As stated in Response to Question a), wastewater generated at the project site is collected, treated, and disposed of by OCSD. As the proposed project would replace existing uses on-site, a substantial increase in wastewater generation within the project site is not anticipated. Furthermore, other than the installation of new 4-inch sewer lateral connections between the proposed new buildings and the existing 10-inch mainline sewer system, the proposed project would not require, nor would it result in, the construction or relocation of new or expanded wastewater treatment or

[85] City of Orange. 2021. *2020 Urban Water Management Plan Final,* November 2021. Website: https://www.cityoforange.org/home/showpublisheddocument/1540/637873464981170000 (accessed October 22, 2024).

[86] City of Orange. 2021. *2020 Urban Water Management Plan Final,* November 2021. Website: https://www.cityoforange.org/home/showpublisheddocument/1540/637873464981170000 (accessed October 22, 2024).

collection facilities. It is anticipated that this existing mainline sewer system would be capable of conveying the flows generated by the proposed project.

Wastewater generated at the project site would be conveyed to OCSD Reclamation Plant No. 1 in Fountain Valley. As previously discussed, Reclamation Plant No. 1 currently operates below capacity and would therefore have the ability to process wastewater generated by the proposed project without exceeding wastewater treatment requirements. Therefore, the proposed project's impacts related to wastewater generation are less than significant, and no mitigation would be required.

Question 4.23 d): Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Response to Question 4.23 d):

Less than Significant Impact.

Construction. As previously stated, the proposed project would involve the demolition of approximately 95,589 sf of existing structures. This would result in the generation of demolition waste, largely consisting of the building materials comprising these materials. OCWR operates a Construction & Demolition (C&D) Program, which requires certain construction projects to divert 65 percent of construction and demolition waste away from landfills.[87] The proposed project would be subject to the C&D Program.

OCWR provides a list of agency-approved haulers and diversion facilities[88] available to transport and process materials waste from construction projects within the County. Pursuant to the C&D Program, demolition waste from the proposed project would be hauled and processed by the approved companies in order to achieve the mandatory 65 percent diversion rate. In addition, as part of the C&D Program, the project Applicant shall prepare a Compliance Work Plan, and a Final Compliance Report to be submitted to OCWR upon completion of the proposed project's construction. These documents would assist OCWR in confirming that the proposed project has satisfied the 65 percent construction and demolition waste diversion requirement. Upon satisfaction of this requirement, construction of the proposed project would not generate waste in excess of State or local standards, or in excess of the capacity of local infrastructure. Impacts would be less than significant, and no mitigation is required.

Operation. Solid waste disposal needs from operations of the existing Campus buildings are served by Waste Management (WM) of Orange County via daily pickups at the Manchester Complex, excluding Sundays. WM provides solid waste, green waste, and recyclable materials hauling services to the County. Waste collected from the project site by WM is ultimately disposed of at one of the three landfills within the OCWR system. These include the Frank R. Bowerman Landfill in the City of Irvine, which accepts commercial waste only; the Olinda Alpha Landfill in the City of Brea, which accepts both public and commercial waste; and the Prima Deshecha Landfill in the City of San Juan Capistrano, which also accepts both public and commercial waste. All three landfills are categorized as Class III landfills and only accept

[87] OC Waste & Recycling (OCWR). n.d. Construction & Demolition (C&D) Program. Website: https://www.oclandfills.com/CD (accessed November 11, 2024).

[88] OC Waste & Recycling (OCWR). 2024. C&D Debris Diversion Approved Facilities and Franchise Waste Haulers, September. Website: https://oclandfills.com/sites/ocwr/files/2024-10/Final%20C%26D%20Approved%20Facilities%20-%20revised%2009.2024.pdf (accessed November 11, 2024).

non-hazardous municipal solid waste.[89] In 2019, approximately 3,013,489 tons of solid waste were disposed of between the County's three landfills.[90]

Because the Frank R. Bowerman Landfill is dedicated solely to commercial waste, this landfill would not accept waste generated by the proposed project. Solid waste hauled from the project site would ultimately end up at either the Olinda Alpha Landfill or the Prima Deshecha Landfill. The Olinda Alpha Landfill has a maximum daily capacity of 8,000 tons per day (tpd), although the average disposal rate at this landfill is closer to 7,000 tpd. This facility is projected to operate sufficiently until the year 2035.[91] The Prima Deshecha Landfill has a maximum daily capacity of 4,000 tpd, though the site averages approximately 1,400 tpd. This facility is projected to operate through the year 2102.[92] As such, both landfills that could potentially serve the waste disposal needs of the proposed project are currently accepting waste at below-capacity levels. The County of Orange adopted an updated Countywide Integrated Waste Management Plan (CIWMP) in 2021,[93] which includes a Siting Element (SE). The SE demonstrates that the County has at least 15 years of landfill capacity to dispose of non-diverted waste and also sets forth procedures for selecting potential new landfill locations. As such, the County is consistently evaluating its landfills with respect to current and future capacity, and this evaluation has not identified any potential capacity issues that could be exacerbated by the proposed project.

According to the CalEEMod output for the proposed project (Appendix A), It is anticipated that the proposed project would generate 239.9 cubic yards of solid waste annually. The proposed project would replace existing waste-generating land uses and would not substantially increase solid waste generation within the project site beyond a volume that can be adequately processed by existing regional infrastructure. Based on the daily capacities and long-term operational projections of the landfills potentially serving the project site, solid waste generated during operations of the proposed project would represent a negligible contribution to the daily and long-term capacities of solid waste processed at these facilities. The proposed project would not generate solid waste in excess of State or local standards, or in excess of the capacity of local or regional infrastructure. Therefore, the project would result in a less than significant impact to solid waste and landfill facilities, and no mitigation would be required.

Question 4.23 e): Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Response to Question 4.23 e):

Less than Significant Impact. The California Integrated Waste Management Act of 1989 (AB 939) changed the focus of solid waste management from landfill to diversion strategies (e.g., source reduction, recycling, and composting). The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995 and 50 percent by 2000.

[89] County of Orange General Plan Public Services & Facilities Element. 2004. Website: https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/59953.pdf (accessed October 22, 2024).

[90] County of Orange Waste & Recycling (OCWR). 2021. Countywide Integrated Waste Management Plan. March. Website: https://oclandfills.com/sites/ocwr/files/2024-09/2021%20CIWMP%20Final.pdf (accessed October 22, 2024).

[91] Ibid.

[92] Ibid.

[93] County of Orange Waste & Recycling (OCWR). 2021. Countywide Integrated Waste Management Plan. March. Website: https://oclandfills.com/sites/ocwr/files/2024-09/2021%20CIWMP%20Final.pdf (accessed October 22, 2024).

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the State that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020 and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the State's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies to assist the State in reaching the 75 percent goal by 2020.

SB 1383 (2016) establishes methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants (SLCP) in various sectors of the State economy. SB 1383 establishes the following targets to reduce the 2014 statewide level of organic waste that is disposed of: divert and recycle at least 50 percent of all organic waste materials currently disposed at solid waste landfills by January 1, 2020, and at least 75 percent by January 1, 2025. CalRecycle has the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target, which is that no less than 20 percent of currently disposed edible food should be recovered for human consumption by 2025.

As discussed above in Response to Question d), the County of Orange adopted the CIWMP in 2021. In addition to the SE, the CIWMP also contains a Summary Plan (SP). The SP discusses procedures for each jurisdiction within the County to comply with applicable AB 939 mandates. Further, the proposed project would be consistent with all applicable goals and policies related to waste management included in the City of Orange General Plan Infrastructure Element[94] and the County of Orange General Plan Public Services & Facilities Element,[95] both of which account for the applicable federal, state, and local waste regulations in effect at the time each document was prepared (2015 and 2005, respectively). The waste generated by the proposed project would not substantially alter diversion rates and would be incorporated into the regional waste stream, which is diverted in accordance with relevant legislature.

The proposed project would comply with all applicable standards related to solid waste diversion, reduction, and recycling during project construction and operation. Therefore, the proposed project is anticipated to result in less than significant impacts related to potential conflicts with federal, State, and local management and reduction statutes and regulations pertaining to solid waste, and no mitigation would be required.

[94] City of Orange. 2015. General Plan Infrastructure Element. December. Website: https://www.cityoforange.org/home/showpublisheddocument/204/637698172548000000 (accessed October 21, 2024).

[95] County of Orange. 2004. General Plan Public Services & Facilities Element. Website: https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/59953.pdf (accessed October 22, 2024).

4.24 *Wildfire*

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Question 4.24 a): Substantially impair an adopted emergency response plan or emergency evacuation plan?

Response to Question 4.24 a):

Less than Significant Impact. The California Department of Forestry and Fire Protection (CAL FIRE) maps areas of significant fire hazards in the State through its Fire and Resources Assessment Program (FRAP). These maps place areas of California into different fire hazard severity zones (FHSZ), based on a complex hazard scoring system. CAL FIRE currently identifies the project site, and the City of Orange in its entirety, as a Local Responsibility Area (LRA), in which local fire protection agencies are responsible for wildfires that occur within the area.

According to CAL FIRE's Fire Hazard Severity Zones in State Responsibility Area Viewer,[96] the project site is not located within a Very High Fire Hazard Severity Zone (VHFHSZ) or a State Responsibility Area (SRA). There are no areas designated as VHFHSZ in the vicinity of the project site. The project site is located within an urbanized area where wildfire is not considered a likely risk to people or structures. In the event of a fire emergency, Orange City Fire Department Station #6 is located approximately 600 ft west of the project site at 345 The City Drive South, meaning the fire response time to the project site would be substantially shorter than average Orange City Fire Department response times.

Local access to the project site would be provided by The City Drive, which runs in a north-south orientation and is classified as a Principal Arterial roadway in the City's General Plan Circulation and Mobility Element, meaning it is an eight-lane divided roadway.[97] The project site is bound to the north by the existing Service Way South Roadway and to the south by the existing Justice Center Way roadway, both of which run in an east-west direction. The Justice Center Way roadway's eastern edge transitions into Sidwell Way, which curves along the project site and marks its eastern boundary. Fire access to the project site would be provided either by an entry point along Sidwell Way or along Service Way South. Service Way South, Justice Center Way, and Sidwell Way are all accessed either directly or indirectly via The City Drive. According to Figure PS-4, Generalized Evacuation Corridors, of the City's Public Safety Element,[98] The City Drive is designated as an evacuation corridor within the City. However, as noted by the City's Emergency Operations Plan, evacuation routes for emergency situations are contingent upon the scale and location of the emergency and would change depending on the direction of evacuation required by the situation.

Furthermore, the project site is separated from The City Drive by approximately 600 ft and several intervening structures parking structures, surface parking lots, and the Lamoreaux Justice Center. The project does not propose any improvements to The City Drive and would not result in any closures to The City Drive during the construction period. All equipment associated with construction of the proposed project would be staged within the project site itself and would not interfere with operations of The City Drive under normal or emergency circumstances.

The proposed project does not include any characteristics (e.g., permanent road closures or long-term blocking of road access) that would physically impair or otherwise conflict with an emergency response plan or emergency evacuation plan.

As discussed in Section 4.21, Transportation, of this IS/MND, the proposed project would not result in a substantial increase in vehicles traveling along The City Drive. Therefore, operations of the proposed project would not introduce congestion along a designated evacuation route, and would not interfere with an established emergency plan.

The City of Orange Fire Department is the reviewing fire agency for the proposed project, as delegated by the State Fire Marshall, for the fire safety design of the proposed structures and access roads. Therefore, the proposed project would be reviewed and approved by the Orange City Fire Department (Fire

[96] California Department of Forestry and Fire Protection (CAL FIRE). 2022. Fire Hazard Severity Zones in State Responsibility Area Viewer. Website: https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008 (accessed July October 17, 2024).

[97] City of Orange. 2015. City of Orange General Plan Circulation and Mobility Element. December. Website: https://www.cityoforange.org/home/showpublisheddocument/192/637698172525970000 (accessed October 17, 2024).

[98] City of Orange. 2015. City of Orange General Plan Public Safety Element. Website: https://www.cityoforange.org/home/showpublisheddocument/214/637698172567530000 (accessed October 17, 2024).

Department) as part of the design review process to ensure compliance with all applicable codes and ordinances for emergency vehicle access. Therefore, because the project site is not identified by CAL FIRE as facing wildfire risks and the Fire Department would review site access plans for the proposed project, impacts of the proposed project to emergency response and evacuation plans would be less than significant.

Question 4.24 b): Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Response to Question 4.24 b):

No Impact. As stated in the Response to Question 4.24 a) above, the project site is not within a VHFHSZ or a SRA as designated by CAL FIRE. The project site is fully developed with the existing Campus and is located in an urbanized portion of the City of Orange, surrounded by existing development. Therefore, the project site faces little to no wildfire risk. As discussed in Section 4.11, Geology and Soils, of this IS/MND, the project site is relatively flat and slopes gently from 0.5 percent to 2.0 percent to the southwest. The proposed project would not introduce any new features to the project site that would exacerbate wildfire risk. Accordingly, the proposed project would have no impact related to pollutants from wildfire or spread of wildfire.

Question c): Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Response to Question 4.24 c):

No Impact. As previously discussed, the project site is located within an urbanized area of the City of Orange and is not located in a VHFHSZ or an SRA as designated by CAL FIRE. Therefore, the project site faces minimal wildfire risks.

The project site is developed with the existing Campus, which includes various buildings, landscape, hardscape, and associated utility infrastructure. While the proposed project would include the establishment of new utility connections to serve the proposed structures, the proposed project would not result in any large-scale infrastructure installation or maintenance that would place the project site at greater risk of wildfire. Therefore, the proposed project would have no impact related to exacerbated wildfire risks.

Question 4.24 d): Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Response to Question 4.24 d):

No Impact. As previously discussed, the project site is located within an urbanized area of the City of Orange and is not located in a VHFHSZ or an SRA as designated by CAL FIRE. Therefore, the project site faces little to no wildfire risk, and post-fire conditions are not a concern for the project site. The proposed project does not propose any land use changes within the project site that would include any features that would increase the exposure of people or structures to post-fire risks. Accordingly, the proposed project would have no impact related to post-fire risk conditions.

4.25 *Mandatory Findings of Significance*

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Question 4.25 a): Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Response to Question 4.25 a):

Less Than Significant with Mitigation Incorporated. Based on the discussion in Section 4.8, Biological Resources, the proposed project is anticipated to result in less than significant impacts related to habitat, wildlife species, and/or plant and animal communities due to the developed nature of the project site. As such, with adherence to Regulatory Compliance Measures (RCM) BIO-1 through BIO-3, the proposed project would not threaten or eliminate a plant or animal community nor would it substantially reduce the number or restrict the range of a rare or endangered plant or animal.

As discussed in Section 4.9, Cultural Resources, Response to Question a), the project site does not contain any buildings or structures that meet any of the California Register of Historical Resources (California Register) criteria or qualify as "historical resources" as defined by CEQA. Further, the project site is not designated as a historical/archaeological landmark by the City of Orange or the County of Orange. Therefore, the proposed project would not cause a substantial adverse change in the significance of a historical resource.

As discussed in Section 4.22, Tribal Cultural Resources, the City requested a search of the Sacred Lands File by the Native American Heritage Commission (NAHC) for the project site. According to NAHC correspondence, no resources were noted in the database. The County did not receive any communication from the two of the four tribes that requested notification regarding the proposed project, pursuant to Assembly Bill (AB) 52. Standard condition measure(s) have been preemptively incorporated into the proposed project that are anticipated to adequately address the concerns of the two Tribes, Gabrieleño Band of Mission Indians – Kizh Nation and Gabrieleno Tongva San Gabriel Band of Mission Indians, regarding the proposed project. As such, Standard Condition (SC) TCR-1 and Regulatory Compliance Measure (RCM) CUL-1 are applicable to the proposed project, and would reduce potential impacts to tribal cultural resources to a less than significant level.

RCM CUL-1 requires cultural resources monitoring during excavation activities and establishes procedures in the event of the discovery of an unknown cultural resource. With implementation of RCM CUL-1, impacts to cultural resources would be less than significant. In addition, Mitigation Measure (MM) GEO-2 has been incorporated to address the discovery of paleontological resources should they be unearthed during construction. With the application of MM GEO-2 potential impacts to previously undiscovered paleontological resources would be less than significant.

For the reasons stated above, the proposed project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Impacts would be less than significant with implementation of the mitigation measures identified above.

Question 4.25 b): Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Response to Question 4.25 b):

Less than Significant With Mitigation Incorporated. A cumulative impact could occur if the proposed project would result in an incrementally considerable contribution to a significant cumulative impact in consideration of past, present and reasonably foreseeable future projects for each resource area discussed in this IS/MND. Because physical impacts of the proposed project are generally construction related, the cumulative study area is confined to the general vicinity of the proposed project, including locations that could reasonably utilize the same hauling routes for construction waste. Table 4.25.A below provides a summary of related projects in the vicinity of the project site, which are used in the cumulative impact analysis.

Table 4.25.A: Related Projects

Project	Location	Description	Status
County of Orange			
Adult Workforce Reentry Center	561 The City Drive South	Construction of an approximately 36,000 sf, two-story vocational/operations building, an approximately 16,000 sf, one-story retail/culinary building, and an approximately 26,000 sf, two-story housing building, and associated outdoor parking and improvements. The project is intended to provide a training warehouse, classrooms and offices, training and production kitchen, and on-site housing for approximately 50 individuals.	A pre-development agreement and ordinance to authorize contracts for the development and operation of a Workforce Reentry Center was approved on June 6, 2025. Construction of the project is anticipated to begin in late 2027 or early 2028.
City of Orange			
Watermarke Orange	625 The City Drive South	Demolition of an existing four-story office building and surface parking lot in order to construct a new multi-family apartment building containing a total of 401 units with shared amenities (21 units would be reserved for very low-income households). The new building would be five-stories tall and configured around a multi-level parking structure with 717 parking stalls.	In development of CEQA documentation and project design.
Marks Way Orange	164 S Marks Way	Demolition of existing buildings and construction of a new 50-unit affordable senior apartment building, surface parking, and related site improvements.	In development of CEQA documentation and project design.

Sources: OC Public Works, Development Services/Planning (2024); City of Orange, Community Development Department, Planning Division (2024).
sf = square foot/feet

As shown above in Table 4.25.A, there are several other projects planned within the regional vicinity of the project site in the County of Orange, and cities of Orange, Garden Grove, and Santa Ana. Some of these projects involve demolition activities that may overlap with the timeline of demolition activities under the proposed project. As previously stated, a cumulative impact could occur if multiple projects contribute haul truck trips to the same regional arterial roadways. However, hauling routes for each project listed in Table 4.25.A, as well as the proposed project, are not necessarily known at this time and may be subject to change based on transportation patterns within the City of Orange. While these projects

could utilize the same major corridors that provide connectivity across Orange, Garden Grove, and Santa Ana, these roadways are generally designed to accommodate a higher volume of vehicle traffic that could include haul truck trips. As such, the potential overlap between the construction period of the proposed project and that of the various projects listed in Table 4.25.A is not anticipated to result in cumulatively considerable impacts.

The project site is located in an urbanized area that is predominantly built-out with various commercial and residential uses. Further, the proposed project would replace existing facilities within the project site with similar yet improved facilities. The proposed project would rely on and can be accommodated by the existing road system, public services, and large-scale utility infrastructure. Based on the Project Description and the conclusions reached throughout Chapter 4 of this IS/MND regarding each individual environmental factor, impacts related to the proposed project are less than significant or can be reduced to less than significant levels with the incorporation of mitigation measures. Because all potentially significant impacts can be mitigated to a less than significant level, such impacts would not be cumulatively significant. The proposed project's contribution to any significant cumulative impacts would therefore be less than cumulatively considerable with incorporation of the various mitigation measures prescribed within the IS/MND.

Question 4.25 c): Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Response to Question 4.25 c):

Less than Significant With Mitigation Incorporated. Previous sections of this IS/MND reviewed the proposed project's potential impacts, and regulatory compliance/mitigation measures related to Biological Resources (MMs BIO-1 through BIO-3 and RCM BIO-3), Cultural Resources (MMs CUL-1 and CUL-2 and RCM CUL-1), Geology and Soils (MMs GEO-1 and GEO-2), Hazards and Hazardous Materials (MM HAZ-1), Hydrology and Water Quality (RCMs HYD-1 through HYD-4), Noise (MM N-1 and RCMs N-1 through N-3), Tribal Cultural Resources (SC TCR-1), and Utilities and Service Systems (RCM UTL-1). As concluded in these previous discussions, the proposed project would result in less than significant environmental impacts with adherence to the Regulatory Compliance Measures and implementation of the recommended Mitigation Measures. Therefore, the proposed project would not result in environmental impacts that would cause substantial adverse effects on human beings.

Chapter 5: Mitigation Measures, Regulatory Compliance Measures, and Standard Conditions

5.1 Biological Resources

RCM BIO-1 **Migratory Bird Treaty Act.** In order to avoid potential impacts to nesting birds that are protected under the Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code, vegetation clearing or construction activities that impact or encroach upon existing vegetation shall be conducted outside the general bird nesting season (February 15 through August 31). If construction occurs during the nesting season, a preconstruction nesting bird survey shall be conducted by a qualified biologist within 3 days prior to vegetation removal or at the beginning of construction activities. If a nest with eggs or young of any species covered under the MBTA or the California Fish and Game Code is found, work shall not be permitted within a buffer distance to be determined by the qualified biologist involved. Commencing project construction activities, including vegetation clearing, outside of the primary nesting season for birds reduces the need for preconstruction nesting bird surveys.

RCM BIO-2 **Roosting Bat Protection Measures.** In the event that any of the trees identified as containing potential roosting habitat within the Biological Resources Assessment (November 2024) prepared for the proposed project are removed during project construction activities, the construction contractor shall ensure that the trees are removed in two phases. During the first phase, the tree limbs shall be removed leaving the main trunk of the tree. This action will create disturbance resulting in the bats leaving the tree that evening and not returning. The following day, the remainder of the tree can be removed.

RCM BIO-3 **Tree Preservation Permit.** Consistent with Section 7-9-69.4 of the County of Orange Municipal Code, a Tree Preservation Permit application shall be required and submitted to the Deputy Director of Orange County Development Services, or designee, prior to removal of the singular California sycamore tree that was observed in the northern-central portion of the project site, or obtained prior to any encroachment into the Tree Protection Zone. The application, as a whole, shall be reviewed and approved by the County of Orange Director of Public Works, or designee. The project Applicant shall adhere to any instructions provided by the Deputy Director of Orange County Development Services, or designee, regarding Replacement Trees.

5.2 Cultural Resources

MM CUL-1 **Cultural Resources Sensitivity Training**. Prior to ground disturbing activities, a qualified archaeologist shall conduct a pre-grading meeting with contractors and construction personnel to provide cultural resources sensitivity training for all construction personnel. The training shall describe the type of resources that may be identified, procedures to be followed during ground disturbance, and protocols that apply in the event that unanticipated resources are discovered. The crew shall be cautioned not to collect artifacts and directed to inform a construction supervisor and the on-site archaeological monitor in the event that cultural remains are discovered during the course of construction, including if a cultural resources monitor is not present. A qualified

archaeologist is someone who either meets the Secretary of the Interior's Professional Qualification Standards for archaeology (48 Federal Register 44738) and is a Registered Professional Archaeologist or has a Bachelor of Arts in archaeology or a closely related field and is a Registered Archaeologist.

MM CUL-2 **Inadvertent Archaeological Discoveries.** In the event that any cultural resources are encountered during earthmoving activities, all work within 50 feet of the find shall be halted until a qualified archaeologist can evaluate the findings and make recommendations. The archaeologist may evaluate the find in accordance with federal, State, and local guidelines, including those set forth in the California Public Resources Code Section 21083.2, to assess the significance of the find and identify avoidance or other measures as appropriate. If suspected prehistoric or historical archaeological deposits are discovered during construction, all work within the immediate area of the discovery shall be redirected and the find must be evaluated for significance by a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983).

RCM CUL-1 **Human Remains.** In the event that human remains are encountered on the project site, work within 50 feet of the discovery shall be redirected and the County of Orange (County) Coroner notified immediately consistent with the requirements of California Code of Regulations (CCR) Section 15064.5(e). State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code (PRC) Section 5097.98. If the remains are determined to be Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC), which shall determine and notify a Most Likely Descendant (MLD). With the permission of the property owner, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and non-destructive analysis of human remains and items associated with Native American burials. Consistent with CCR Section 15064.5(d), if the remains are determined to be Native American and an MLD is notified, the County shall consult with the MLD as identified by the NAHC to develop an agreement for treatment and disposition of the remains. Prior to the issuance of grading permits, the County of Orange (County) Public Works Department, or designee, shall verify that all grading plans specify the requirements of CCR Section 15064.5(e), State Health and Safety Code Section 7050.5, and PRC Section 5097.98, as stated above.

5.3 Geology and Soils

MM GEO-1 **Compliance with the Recommendations in the Geotechnical Investigation.** Prior to the issuance of demolition or grading permits, the County of Orange (County) Public Works Department shall verify that requirements and recommendations in the Geotechnical Investigation have been appropriately incorporated into the project plans. All grading operations and construction shall be conducted in conformance with all of the recommendations included in the Geotechnical Investigation, which was prepared by Geocon West, Inc., titled *Geotechnical Investigation Orange County Youth Transition Center Project (OC YTC)* (Geotechnical Investigation) (March 15, 2024) as well as any subsequent Geotechnical Reports prepared for the project. All recommendations found

in the Geotechnical Investigation shall be incorporated into project design and shall include, but not be limited to:

- Seismic design recommendations
- Foundation design recommendations
- Lateral design recommendations
- Preliminary pavement recommendations
- Grading recommendations
- Construction considerations

Additional site construction plans, including grading plans, shall be reviewed by the project Geotechnical Consultant prior to construction to check for conformance with all of the recommendations of the Geotechnical Investigation. Design, grading, and construction shall be performed in accordance with the requirements of the applicable seismic standards identified in the Geotechnical Investigation, as well as the recommendations of the project Geotechnical Consultant as summarized in the Geotechnical Investigation subject to review by the Orange County Public Works, prior to the start of grading activities.

MM GEO-2 **Paleontological Resources.** Prior to the commencement of ground-disturbing activities, a qualified, professional paleontologist who meets the standards set by the Society of Vertebrate Paleontology (SVP) shall be retained to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall be consistent with the guidelines of the SVP and shall include the methods that will be used to protect paleontological resources that may exist within the project limits, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of ground disturbance.

If ground-disturbing activities occur in deposits with high paleontological sensitivity (i.e., Young Alluvial Fan Deposits below a depth of 10 feet), those activities shall be monitored by a qualified paleontological monitor following the PRIMP. If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find in order to assess its significance. Once soils have been monitored during the excavation stage and determined to lack the presence of paleontological resources, monitoring of these soils would no longer be necessary for the remainder of grading activities. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.

Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.

5.4 Hazards and Hazardous Materials

MM HAZ-1 **Compliance with the Recommendations in the Asbestos Survey Reports.** Prior to and during demolition, a State of California Licensed Abatement Contractor shall perform removal of all asbestos containing materials. Removal of Asbestos Containing Materials shall be conducted in accordance with U.S. Environmental Protection Agency (USEPA) and Occupational Safety and Health Administration (OSHA) requirements and federal, State, and local rules and regulations to reduce airborne fiber concentrations. In addition, personal protective equipment and decontaminant methods shall be used by all workers on the project site.

5.5 Hydrology and Water Quality

RCM HYD-1 **Construction General Permit.** Prior to issuance of a grading permit, the project Applicant shall obtain coverage under the State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) *General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities,* Order No. 2022-0057-DWQ, NPDES No. CAS000002 (Construction General Permit). This shall include submission of Permit Registration Documents (PRDs), including a Notice of Intent for coverage under the permit to the State Water Resources Control Board (SWRCB) via the Stormwater Multiple Application and Report Tracking System (SMARTs). The project Applicant shall provide the Waste Discharge Identification Number (WDID) to the Director of the County of Orange (County) Public Works Department, or designee, to demonstrate proof of coverage under the Construction General Permit. Project construction shall not be initiated until a WDID is received from the SWRCB and is provided to the Director of the County Public Works Department, or designee. A Stormwater Pollution Prevention Plan (SWPPP) shall be prepared and implemented for the proposed project in compliance with the requirements of the Construction General Permit. The SWPPP shall identify construction best management practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is minimized and to control the discharge of pollutants in stormwater runoff as a result of construction activities. Upon completion of construction and stabilization of the site, a Notice of Termination shall be submitted via SMARTs.

RCM HYD-2 **Groundwater Discharge Permit.** If groundwater dewatering is required during construction of the proposed project, the project Applicant shall submit a Notice of Intent (NOI) for coverage under the permit to the Santa Ana RWQCB at least 60 days prior to the start of excavation activities and anticipated discharge of dewatered groundwater to surface waters in order to obtain coverage under the Waste Discharge Requirements (WDR) Permit for Discharges to Surface Waters That Pose an Insignificant (De Minimis) Threat to Water Quality (Groundwater Discharge Permit) (Order No. R8-2020-0006, NPDES No. CAG998001). Groundwater dewatering activities shall comply with all applicable provisions in the Groundwater Discharge Permit, including water sampling, analysis, treatment (if required), and reporting of dewatering-related discharges. Upon completion of groundwater dewatering activities, a Notice of Termination shall be submitted to the Santa Ana RWQCB.

RCM HYD-3 **MS4 Permit.** Prior to the issuance of grading or building permits, the project Applicant shall submit a Final Water Quality Management Plan (WQMP) to the County of Orange

(County) Public Works Department, or designee, for review and approval in compliance with the requirements of the NPDES *Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the Orange County Region,* Order No. R8-2009-0030, NPDES No. CAS618030 as amended by Order No. R8-2010-0062 (MS4 Permit). The Final WQMP shall be prepared consistent with the requirements of the North Orange County Technical Guidance Document for Water Quality Management Plans (TGD) and the North Orange County Water Quality Management Plan template, or subsequent guidance manuals. The Final WQMP shall specify the BMPs to be incorporated into the project design to target pollutants of concern in runoff from the project area. The County of Orange (County) Public Works Department, or designee, shall ensure that the BMPs specified in the Final WQMP are incorporated into the final project design, and shall implement, maintain and operate all such BMPs in a timely and reasonably diligent manner.

RCM HYD-4 **Final Hydrology Report.** Prior to issuance of a grading permit, the Applicant shall prepare a Final Hydrology Report to demonstrate that the post-construction runoff from the project site does not exceed existing conditions. The project Applicant shall provide the Final Hydrology Report to the County of Orange (County) for review and approval.

5.6 Noise

RCM N-1 **Construction Noise and Vibration.** The construction contractor shall limit construction activities to between the hours of 7:00 a.m. and 8:00 p.m., Monday through Saturday and between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a federal holiday. Construction is prohibited outside these hours.

RCM N-2 **Final Acoustical Report.** Prior to issuance of any certificates of building permits, the project Applicant shall submit a Final Acoustical Report, prepared by a qualified acoustical consultant, to be reviewed and approved by the City Building Official, or their respective designee. The City Building Official, or their respective designee, shall verify that the Final Acoustical Report demonstrates that all sensitive rooms with exterior façades comply with the City's interior noise standard.

RCM N-3 **Interior Noise.** Provide mechanical ventilation (e.g., an air-conditioning system) to all noise-sensitive rooms to ensure that windows can remain closed for a prolonged period of time.

MM N-1 **Acoustical Memorandum.** Prior to the issuance of the final occupancy permit, a qualified acoustical consultant shall prepare a memorandum to demonstrate that noise from on-site HVAC equipment does not exceed existing ambient noise levels by 3 A-weighted decibels (dBA) at the closest off-site property to the north and south once the details and specifications of the on-site HVAC equipment are determined.

5.7 Tribal Cultural Resources

SC TCR-1 **Unanticipated Discovery of Native American Resources.** If unanticipated archaeological resources or deposits are discovered during ground-disturbing activities, Orange County Public Works (OC Public Works) shall implement the following measures. All work shall halt within a 50-foot radius of the discovery. OC Public Works shall retain a qualified

professional archaeologist with knowledge of Native American resources to assess the significance of the find. If the resources are Native American in origin, OC Public Works shall coordinate with the Tribe regarding evaluation, treatment, curation, and preservation of these resources. The archaeologist shall have the authority to modify the no-work radius as appropriate, using professional judgment in consultation with OC Public Works. Work shall not continue within the no work radius until the archaeologist conducts sufficient research and evidence and data collection to establish that the resource is either: (1) not cultural in origin; or (2) not potentially eligible for listing on the California Register of Historical Resources. If a potentially eligible resource is encountered, then the archaeologist and OC Public Works, as lead agency, in consultation with the Tribe, shall arrange for either: (1) avoidance of the resource, if possible; or (2) test excavations to evaluate eligibility, and if eligible, attempt to resolve adverse effects through implementation of appropriate mitigation, which may include, but shall not be limited to, salvage excavation, laboratory analysis and processing, research, curation, and preparation of a report summarizing the find. The assessment of eligibility shall be formally documented in writing as verification that the provisions in the California Environmental Quality Act for managing unanticipated discoveries and Public Resources Code Section 5024 have been met.

5.8 Utilities and Service Systems

RCM UTL-1 **Orange County Water Efficient Landscape Ordinance.** Prior to the issuance of any grading or building permit, the project Applicant shall prepare and submit a Landscape Plan to the Interim Director of the County of Orange (County) Public Works Department, or designee. The County of Orange (County) Public Works Department, or designee, shall confirm that the Landscape Plan for the proposed project is consistent with all applicable provisions outlined in the County's Landscape Water Efficiency Ordinance, as codified in Ordinance No. 16-002.

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APPENDIX A

CALEEMOD OUTPUT SHEETS

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OC Youth Transition Center Juvenile Hall Replacement Custom Report

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3.7. Building Construction (2025) - Unmitigated

3.8. Building Construction (2025) - Mitigated

3.9. Building Construction (2026) - Unmitigated

3.10. Building Construction (2026) - Mitigated

3.11. Building Construction (2027) - Unmitigated

3.12. Building Construction (2027) - Mitigated

3.13. Paving (2027) - Unmitigated

3.14. Paving (2027) - Mitigated

3.15. Architectural Coating (2027) - Unmitigated

3.16. Architectural Coating (2027) - Mitigated

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.1.2. Mitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.2. Electricity Emissions By Land Use - Mitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.2.4. Natural Gas Emissions By Land Use - Mitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.3.2. Mitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.4.2. Mitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.5.2. Mitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.6.2. Mitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.7.2. Mitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.8.2. Mitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.9.2. Mitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.2.2. Mitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.3.2. Mitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.9.2. Mitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.10.4. Landscape Equipment - Mitigated

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.11.2. Mitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

5.12.2. Mitigated

5.13. Operational Waste Generation

5.13.1. Unmitigated

5.13.2. Mitigated

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

5.14.2. Mitigated

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.1.2. Mitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

5.18.2.2. Mitigated

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	OC Youth Transition Center Juvenile Hall Replacement
Construction Start Date	2/3/2025
Operational Year	2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50
Precipitation (days)	18.2
Location	331 The City Dr S, Orange, CA 92868, USA
County	Orange
City	Orange
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5894
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	35.0	Dwelling Unit	13.3	73,836	0.00	—	104	—

Library	14.4	1000sqft	0.33	14,360	0.00	—	—	—
General Office Building	12.7	1000sqft	0.29	12,678	0.00	—	—	—
Medical Office Building	12.6	1000sqft	0.29	12,587	0.00	—	—	—
High Turnover (Sit Down Restaurant)	4.44	1000sqft	0.10	4,444	0.00	—	—	—
City Park	2.00	Acre	2.00	0.00	0.00	0.00	—	—
Other Asphalt Surfaces	62.0	1000sqft	1.42	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Transportation	T-14*	Provide Electric Vehicle Charging Infrastructure
Water	W-4	Require Low-Flow Water Fixtures
Water	W-5	Design Water-Efficient Landscapes

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.3	68.3	53.3	0.09	2.05	4.48	6.53	1.88	1.64	3.51	—	10,158	10,158	0.39	0.15	10,217
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.18	68.3	52.8	0.09	2.05	8.97	10.9	1.88	4.19	5.93	—	10,119	10,119	0.41	0.18	10,174

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.30	29.7	22.4	0.04	0.88	2.32	3.20	0.80	0.90	1.70	—	4,467	4,467	0.18	0.08	4,497
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.42	5.41	4.09	0.01	0.16	0.42	0.58	0.15	0.16	0.31	—	739	739	0.03	0.01	745

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.18	68.3	53.3	0.09	2.05	4.48	6.53	1.88	1.64	3.51	—	10,158	10,158	0.39	0.15	10,217
2026	0.77	19.3	16.6	0.03	0.69	0.63	1.32	0.64	0.15	0.80	—	3,277	3,277	0.12	0.09	3,309
2027	17.3	32.7	27.8	0.04	1.27	0.83	2.10	1.19	0.20	1.39	—	4,965	4,965	0.18	0.10	5,004
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.18	68.3	52.8	0.09	2.05	8.97	10.9	1.88	4.19	5.93	—	10,119	10,119	0.41	0.18	10,174
2026	0.77	19.4	16.4	0.03	0.69	0.63	1.32	0.64	0.15	0.80	—	3,252	3,252	0.12	0.09	3,281
2027	0.74	19.3	16.2	0.03	0.69	0.63	1.32	0.64	0.15	0.80	—	3,237	3,237	0.12	0.09	3,265
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.91	29.7	22.4	0.04	0.88	2.32	3.20	0.80	0.90	1.70	—	4,467	4,467	0.18	0.08	4,497
2026	0.55	13.8	11.7	0.02	0.49	0.45	0.94	0.46	0.11	0.57	—	2,328	2,328	0.09	0.06	2,349
2027	2.30	11.1	9.41	0.01	0.41	0.33	0.75	0.39	0.08	0.47	—	1,788	1,788	0.07	0.04	1,803
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.17	5.41	4.09	0.01	0.16	0.42	0.58	0.15	0.16	0.31	—	739	739	0.03	0.01	745
2026	0.10	2.53	2.14	< 0.005	0.09	0.08	0.17	0.08	0.02	0.10	—	385	385	0.01	0.01	389

2027	0.42	2.03	1.72	< 0.005	0.08	0.06	0.14	0.07	0.01	0.09	—	296	296	0.01	0.01	299

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.18	68.3	53.3	0.09	2.05	4.48	6.53	1.88	1.64	3.51	—	10,158	10,158	0.39	0.15	10,217
2026	0.77	19.3	16.6	0.03	0.69	0.63	1.32	0.64	0.15	0.80	—	3,277	3,277	0.12	0.09	3,309
2027	17.3	32.7	27.8	0.04	1.27	0.83	2.10	1.19	0.20	1.39	—	4,965	4,965	0.18	0.10	5,004
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	2.18	68.3	52.8	0.09	2.05	8.97	10.9	1.88	4.19	5.93	—	10,119	10,119	0.41	0.18	10,174
2026	0.77	19.4	16.4	0.03	0.69	0.63	1.32	0.64	0.15	0.80	—	3,252	3,252	0.12	0.09	3,281
2027	0.74	19.3	16.2	0.03	0.69	0.63	1.32	0.64	0.15	0.80	—	3,237	3,237	0.12	0.09	3,265
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.91	29.7	22.4	0.04	0.88	2.32	3.20	0.80	0.90	1.70	—	4,467	4,467	0.18	0.08	4,497
2026	0.55	13.8	11.7	0.02	0.49	0.45	0.94	0.46	0.11	0.57	—	2,328	2,328	0.09	0.06	2,349
2027	2.30	11.1	9.41	0.01	0.41	0.33	0.75	0.39	0.08	0.47	—	1,788	1,788	0.07	0.04	1,803
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2025	0.17	5.41	4.09	0.01	0.16	0.42	0.58	0.15	0.16	0.31	—	739	739	0.03	0.01	745
2026	0.10	2.53	2.14	< 0.005	0.09	0.08	0.17	0.08	0.02	0.10	—	385	385	0.01	0.01	389
2027	0.42	2.03	1.72	< 0.005	0.08	0.06	0.14	0.07	0.01	0.09	—	296	296	0.01	0.01	299

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.75	0.87	7.91	0.01	0.04	0.92	0.96	0.04	0.23	0.27	143	2,556	2,698	14.4	0.08	3,094
Mit.	3.75	0.87	7.91	0.01	0.04	0.92	0.96	0.04	0.23	0.27	142	2,551	2,692	14.3	0.08	3,084
% Reduced	—	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	3%	< 0.5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.26	0.86	3.75	0.01	0.04	0.92	0.95	0.04	0.23	0.27	143	2,505	2,648	14.4	0.08	3,041
Mit.	3.26	0.86	3.75	0.01	0.04	0.92	0.95	0.04	0.23	0.27	142	2,500	2,642	14.3	0.08	3,031
% Reduced	—	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	3%	< 0.5%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.59	0.88	6.49	0.01	0.04	0.91	0.95	0.04	0.23	0.27	143	2,523	2,665	14.4	0.08	3,059
Mit.	3.59	0.88	6.49	0.01	0.04	0.91	0.95	0.04	0.23	0.27	142	2,518	2,659	14.3	0.08	3,050
% Reduced	—	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	3%	< 0.5%
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.66	0.16	1.19	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	23.6	418	441	2.39	0.01	507
Mit.	0.66	0.16	1.19	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	23.4	417	440	2.37	0.01	505
% Reduced	—	—	—	—	—	—	—	—	—	—	1%	< 0.5%	< 0.5%	1%	3%	< 0.5%

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	0.30	3.53	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	969	969	0.04	0.04	984
Area	3.20	0.04	3.90	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.2	13.2	< 0.005	< 0.005	13.2
Energy	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,432	1,432	0.09	0.01	1,438
Water	—	—	—	—	—	—	—	—	—	—	13.3	68.9	82.2	1.37	0.03	126
Waste	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Stationary	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Total	3.75	0.87	7.91	0.01	0.04	0.92	0.96	0.04	0.23	0.27	143	2,556	2,698	14.4	0.08	3,094
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	0.32	3.27	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	932	932	0.04	0.04	944
Area	2.71	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,432	1,432	0.09	0.01	1,438
Water	—	—	—	—	—	—	—	—	—	—	13.3	68.9	82.2	1.37	0.03	126
Waste	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Stationary	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Total	3.26	0.86	3.75	0.01	0.04	0.92	0.95	0.04	0.23	0.27	143	2,505	2,648	14.4	0.08	3,041
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.39	0.33	3.35	0.01	0.01	0.91	0.91	0.01	0.23	0.24	—	942	942	0.04	0.04	955
Area	3.05	0.02	2.67	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	9.03	9.03	< 0.005	< 0.005	9.07
Energy	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,432	1,432	0.09	0.01	1,438
Water	—	—	—	—	—	—	—	—	—	—	13.3	68.9	82.2	1.37	0.03	126
Waste	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452

Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Stationary	0.14	0.39	0.35	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	71.0	71.0	< 0.005	< 0.005	71.2
Total	3.59	0.88	6.49	0.01	0.04	0.91	0.95	0.04	0.23	0.27	143	2,523	2,665	14.4	0.08	3,059
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	0.06	0.61	< 0.005	< 0.005	0.17	0.17	< 0.005	0.04	0.04	—	156	156	0.01	0.01	158
Area	0.56	< 0.005	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.50	1.50	< 0.005	< 0.005	1.50
Energy	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	237	237	0.02	< 0.005	238
Water	—	—	—	—	—	—	—	—	—	—	2.20	11.4	13.6	0.23	0.01	20.9
Waste	—	—	—	—	—	—	—	—	—	—	21.4	0.00	21.4	2.14	0.00	74.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.31
Stationary	0.03	0.07	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	11.8
Total	0.66	0.16	1.19	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	23.6	418	441	2.39	0.01	507

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	0.30	3.53	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	969	969	0.04	0.04	984
Area	3.20	0.04	3.90	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.2	13.2	< 0.005	< 0.005	13.2
Energy	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,432	1,432	0.09	0.01	1,438
Water	—	—	—	—	—	—	—	—	—	—	12.3	63.6	75.8	1.26	0.03	116
Waste	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Stationary	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Total	3.75	0.87	7.91	0.01	0.04	0.92	0.96	0.04	0.23	0.27	142	2,551	2,692	14.3	0.08	3,084

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.40	0.32	3.27	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	932	932	0.04	0.04	944
Area	2.71	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,432	1,432	0.09	0.01	1,438
Water	—	—	—	—	—	—	—	—	—	—	12.3	63.6	75.8	1.26	0.03	116
Waste	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Stationary	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Total	3.26	0.86	3.75	0.01	0.04	0.92	0.95	0.04	0.23	0.27	142	2,500	2,642	14.3	0.08	3,031
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.39	0.33	3.35	0.01	0.01	0.91	0.91	0.01	0.23	0.24	—	942	942	0.04	0.04	955
Area	3.05	0.02	2.67	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	9.03	9.03	< 0.005	< 0.005	9.07
Energy	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	1,432	1,432	0.09	0.01	1,438
Water	—	—	—	—	—	—	—	—	—	—	12.3	63.6	75.8	1.26	0.03	116
Waste	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Stationary	0.14	0.39	0.35	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	71.0	71.0	< 0.005	< 0.005	71.2
Total	3.59	0.88	6.49	0.01	0.04	0.91	0.95	0.04	0.23	0.27	142	2,518	2,659	14.3	0.08	3,050
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07	0.06	0.61	< 0.005	< 0.005	0.17	0.17	< 0.005	0.04	0.04	—	156	156	0.01	0.01	158
Area	0.56	< 0.005	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.50	1.50	< 0.005	< 0.005	1.50
Energy	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	237	237	0.02	< 0.005	238
Water	—	—	—	—	—	—	—	—	—	—	2.03	10.5	12.6	0.21	0.01	19.3
Waste	—	—	—	—	—	—	—	—	—	—	21.4	0.00	21.4	2.14	0.00	74.9
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.31

Stationar	0.03	0.07	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	11.8
Total	0.66	0.16	1.19	< 0.005	0.01	0.17	0.17	0.01	0.04	0.05	23.4	417	440	2.37	0.01	505

3. Construction Emissions Details

3.1. Demolition (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	24.9	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	3,437
Demolition	—	—	—	—	—	0.73	0.73	—	0.11	0.11	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	24.9	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	3,437
Demolition	—	—	—	—	—	0.73	0.73	—	0.11	0.11	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	8.88	6.47	0.01	0.28	—	0.28	0.25	—	0.25	—	1,220	1,220	0.05	0.01	1,224
Demolition	—	—	—	—	—	0.26	0.26	—	0.04	0.04	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.62	1.18	< 0.005	0.05	—	0.05	0.05	—	0.05	—	202	202	0.01	< 0.005	203
Demolition	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.84	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	199	199	< 0.005	0.01	202
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.72	0.32	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	590	590	0.05	0.10	621
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.73	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	189	189	< 0.005	0.01	192
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.74	0.32	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	590	590	0.05	0.10	620
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.27	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	68.4	68.4	< 0.005	< 0.005	69.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.27	0.11	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	210	210	0.02	0.03	221
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	11.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.8	34.8	< 0.005	0.01	36.6

3.2. Demolition (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	24.9	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	3,437
Demolition	—	—	—	—	—	0.73	0.73	—	0.11	0.11	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.72	24.9	18.2	0.03	0.79	—	0.79	0.71	—	0.71	—	3,425	3,425	0.14	0.03	3,437
Demolition	—	—	—	—	—	0.73	0.73	—	0.11	0.11	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26	8.88	6.47	0.01	0.28	—	0.28	0.25	—	0.25	—	1,220	1,220	0.05	0.01	1,224
Demolition	—	—	—	—	—	0.26	0.26	—	0.04	0.04	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.62	1.18	< 0.005	0.05	—	0.05	0.05	—	0.05	—	202	202	0.01	< 0.005	203

Demolitio	—	—	—	—	—	0.05	0.05	—	0.01	0.01	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.84	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	199	199	< 0.005	0.01	202
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.72	0.32	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	590	590	0.05	0.10	621
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.06	0.73	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	189	189	< 0.005	0.01	192
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.74	0.32	< 0.005	0.01	0.15	0.16	0.01	0.04	0.05	—	590	590	0.05	0.10	620
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.27	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	68.4	68.4	< 0.005	< 0.005	69.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.27	0.11	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	—	210	210	0.02	0.03	221
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.3	11.3	< 0.005	< 0.005	11.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.8	34.8	< 0.005	0.01	36.6

3.3. Site Preparation (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	39.9	28.3	0.05	1.12	—	1.12	1.02	—	1.02	—	5,295	5,295	0.21	0.04	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	4.15	2.95	0.01	0.12	—	0.12	0.11	—	0.11	—	551	551	0.02	< 0.005	553
Dust From Material Movement	—	—	—	—	—	0.80	0.80	—	0.41	0.41	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.76	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	91.3	91.3	< 0.005	< 0.005	91.6
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.85	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	221	221	< 0.005	0.01	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	23.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.86	3.86	< 0.005	< 0.005	3.91
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.07	39.9	28.3	0.05	1.12	—	1.12	1.02	—	1.02	—	5,295	5,295	0.21	0.04	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	4.15	2.95	0.01	0.12	—	0.12	0.11	—	0.11	—	551	551	0.02	< 0.005	553
Dust From Material Movement	—	—	—	—	—	0.80	0.80	—	0.41	0.41	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.76	0.54	< 0.005	0.02	—	0.02	0.02	—	0.02	—	91.3	91.3	< 0.005	< 0.005	91.6
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.85	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	221	221	< 0.005	0.01	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.09	0.00	0.00	0.02	0.02	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	23.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.86	3.86	< 0.005	< 0.005	3.91
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	48.8	35.3	0.06	1.36	—	1.36	1.23	—	1.23	—	6,599	6,599	0.27	0.05	6,622
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	48.8	35.3	0.06	1.36	—	1.36	1.23	—	1.23	—	6,599	6,599	0.27	0.05	6,622
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.34	12.6	9.10	0.02	0.35	—	0.35	0.32	—	0.32	—	1,699	1,699	0.07	0.01	1,705
Dust From Material Movement	—	—	—	—	—	0.92	0.92	—	0.37	0.37	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	2.30	1.66	< 0.005	0.06	—	0.06	0.06	—	0.06	—	281	281	0.01	< 0.005	282
Dust From Material Movement	—	—	—	—	—	0.17	0.17	—	0.07	0.07	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.12	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	265	265	< 0.005	0.01	269
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.08	0.97	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	253	253	< 0.005	0.01	256
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.0	66.0	< 0.005	< 0.005	66.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.9	10.9	< 0.005	< 0.005	11.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.6. Grading (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	48.8	35.3	0.06	1.36	—	1.36	1.23	—	1.23	—	6,599	6,599	0.27	0.05	6,622
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	48.8	35.3	0.06	1.36	—	1.36	1.23	—	1.23	—	6,599	6,599	0.27	0.05	6,622
Dust From Material Movement	—	—	—	—	—	3.59	3.59	—	1.42	1.42	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.34	12.6	9.10	0.02	0.35	—	0.35	0.32	—	0.32	—	1,699	1,699	0.07	0.01	1,705
Dust From Material Movement	—	—	—	—	—	0.92	0.92	—	0.37	0.37	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	2.30	1.66	< 0.005	0.06	—	0.06	0.06	—	0.06	—	281	281	0.01	< 0.005	282
Dust From Material Movement	—	—	—	—	—	0.17	0.17	—	0.07	0.07	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	1.12	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	265	265	< 0.005	0.01	269
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.08	0.97	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	253	253	< 0.005	0.01	256
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	66.0	66.0	< 0.005	< 0.005	66.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.9	10.9	< 0.005	< 0.005	11.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,398	2,398	0.10	0.02	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,398	2,398	0.10	0.02	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	3.62	2.74	< 0.005	0.13	—	0.13	0.12	—	0.12	—	460	460	0.02	< 0.005	461
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.02	0.66	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	76.1	76.1	< 0.005	< 0.005	76.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	2.31	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	547	547	0.01	0.02	555
Vendor	0.01	0.36	0.18	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	350	350	0.02	0.05	365
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.16	1.99	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	520	520	0.01	0.02	526
Vendor	0.01	0.38	0.19	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	350	350	0.02	0.05	365
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.40	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	101	101	< 0.005	< 0.005	102
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	67.1	67.1	< 0.005	0.01	70.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	17.0
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	11.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,398	2,398	0.10	0.02	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,398	2,398	0.10	0.02	2,406
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	3.62	2.74	< 0.005	0.13	—	0.13	0.12	—	0.12	—	460	460	0.02	< 0.005	461
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.66	0.50	< 0.005	0.02	—	0.02	0.02	—	0.02	—	76.1	76.1	< 0.005	< 0.005	76.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.15	0.14	2.31	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	547	547	0.01	0.02	555
Vendor	0.01	0.36	0.18	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	350	350	0.02	0.05	365
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.15	0.16	1.99	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	520	520	0.01	0.02	526
Vendor	0.01	0.38	0.19	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	350	350	0.02	0.05	365
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.40	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	101	101	< 0.005	< 0.005	102
Vendor	< 0.005	0.07	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	67.1	67.1	< 0.005	0.01	70.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.07	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	16.7	16.7	< 0.005	< 0.005	17.0
Vendor	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	11.1	11.1	< 0.005	< 0.005	11.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	13.5	10.2	0.02	0.49	—	0.49	0.46	—	0.46	—	1,712	1,712	0.07	0.01	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	2.46	1.86	< 0.005	0.09	—	0.09	0.08	—	0.08	—	283	283	0.01	< 0.005	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	2.17	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	536	536	0.01	0.02	544
Vendor	0.01	0.35	0.18	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	344	344	0.02	0.05	360
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.14	1.87	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	510	510	0.01	0.02	516
Vendor	0.01	0.36	0.18	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	344	344	0.02	0.05	359
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.39	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	370	370	0.01	0.01	374
Vendor	0.01	0.26	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	257
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	61.2	61.2	< 0.005	< 0.005	62.0
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.7	40.7	< 0.005	0.01	42.5

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.10. Building Construction (2026) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	13.5	10.2	0.02	0.49	—	0.49	0.46	—	0.46	—	1,712	1,712	0.07	0.01	1,718
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	2.46	1.86	< 0.005	0.09	—	0.09	0.08	—	0.08	—	283	283	0.01	< 0.005	284
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	2.17	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	536	536	0.01	0.02	544
Vendor	0.01	0.35	0.18	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	344	344	0.02	0.05	360
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.14	1.87	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	510	510	0.01	0.02	516
Vendor	0.01	0.36	0.18	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	344	344	0.02	0.05	359
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.10	1.39	0.00	0.00	0.38	0.38	0.00	0.09	0.09	—	370	370	0.01	0.01	374
Vendor	0.01	0.26	0.13	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02	—	246	246	0.01	0.03	257
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.25	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	61.2	61.2	< 0.005	< 0.005	62.0
Vendor	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	40.7	40.7	< 0.005	0.01	42.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	8.79	6.66	0.01	0.32	—	0.32	0.30	—	0.30	—	1,116	1,116	0.05	0.01	1,120
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.60	1.22	< 0.005	0.06	—	0.06	0.05	—	0.05	—	185	185	0.01	< 0.005	185
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	2.04	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	527	527	0.01	0.02	535
Vendor	0.01	0.34	0.17	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	338	338	0.02	0.05	353
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.13	1.75	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	502	502	0.01	0.02	508
Vendor	0.01	0.35	0.17	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	338	338	0.02	0.05	352
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.07	0.85	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	237	237	< 0.005	0.01	240
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	157	157	0.01	0.02	164
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	39.2	39.2	< 0.005	< 0.005	39.7
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	27.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.12. Building Construction (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	18.9	14.3	0.02	0.69	—	0.69	0.64	—	0.64	—	2,397	2,397	0.10	0.02	2,405
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	8.79	6.66	0.01	0.32	—	0.32	0.30	—	0.30	—	1,116	1,116	0.05	0.01	1,120

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.60	1.22	< 0.005	0.06	—	0.06	0.05	—	0.05	—	185	185	0.01	< 0.005	185
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.12	2.04	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	527	527	0.01	0.02	535
Vendor	0.01	0.34	0.17	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	338	338	0.02	0.05	353
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.13	1.75	0.00	0.00	0.54	0.54	0.00	0.13	0.13	—	502	502	0.01	0.02	508
Vendor	0.01	0.35	0.17	< 0.005	< 0.005	0.09	0.10	< 0.005	0.03	0.03	—	338	338	0.02	0.05	352
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.07	0.85	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	237	237	< 0.005	0.01	240
Vendor	< 0.005	0.16	0.08	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	157	157	0.01	0.02	164
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	39.2	39.2	< 0.005	< 0.005	39.7
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	26.0	26.0	< 0.005	< 0.005	27.2
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.13. Paving (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	13.3	10.6	0.01	0.58	—	0.58	0.54	—	0.54	—	1,511	1,511	0.06	0.01	1,516
Paving	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	1.97	1.57	< 0.005	0.09	—	0.09	0.08	—	0.08	—	224	224	0.01	< 0.005	224
Paving	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.36	0.29	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.0	37.0	< 0.005	< 0.005	37.1
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.74	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	192	192	< 0.005	0.01	195
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.4	27.4	< 0.005	< 0.005	27.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.54	4.54	< 0.005	< 0.005	4.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.14. Paving (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	13.3	10.6	0.01	0.58	—	0.58	0.54	—	0.54	—	1,511	1,511	0.06	0.01	1,516
Paving	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.07	1.97	1.57	< 0.005	0.09	—	0.09	0.08	—	0.08	—	224	224	0.01	< 0.005	224
Paving	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.36	0.29	< 0.005	0.02	—	0.02	0.01	—	0.01	—	37.0	37.0	< 0.005	< 0.005	37.1
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.74	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	192	192	< 0.005	0.01	195
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.4	27.4	< 0.005	< 0.005	27.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.54	4.54	< 0.005	< 0.005	4.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	134
Architectural Coatings	16.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	15.0	15.0	< 0.005	< 0.005	15.0
Architectural Coatings	1.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.48	2.48	< 0.005	< 0.005	2.49
Architectural Coatings	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.41	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	105	105	< 0.005	< 0.005	107
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.4	11.4	< 0.005	< 0.005	11.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.89	1.89	< 0.005	< 0.005	1.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

3.16. Architectural Coating (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.09	0.96	< 0.005	0.07	—	0.07	0.06	—	0.06	—	134	134	0.01	< 0.005	134
Architectural Coatings	16.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	15.0	15.0	< 0.005	< 0.005	15.0
Architectural Coatings	1.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.48	2.48	< 0.005	< 0.005	2.49
Architectural Coatings	0.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.41	0.00	0.00	0.11	0.11	0.00	0.03	0.03	—	105	105	< 0.005	< 0.005	107
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.4	11.4	< 0.005	< 0.005	11.6

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.89	1.89	< 0.005	< 0.005	1.92
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.40	0.30	3.53	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	969	969	0.04	0.04	984
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.40	0.30	3.53	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	969	969	0.04	0.04	984
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.40	0.32	3.27	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	932	932	0.04	0.04	944
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.40	0.32	3.27	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	932	932	0.04	0.04	944
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.07	0.06	0.61	< 0.005	< 0.005	0.17	0.17	< 0.005	0.04	0.04	—	156	156	0.01	0.01	158
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Medical Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.07	0.06	0.61	< 0.005	< 0.005	0.17	0.17	< 0.005	0.04	0.04	—	156	156	0.01	0.01	158

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.40	0.30	3.53	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	969	969	0.04	0.04	984
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.40	0.30	3.53	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	969	969	0.04	0.04	984
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.40	0.32	3.27	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	932	932	0.04	0.04	944
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.40	0.32	3.27	0.01	0.01	0.92	0.92	0.01	0.23	0.24	—	932	932	0.04	0.04	944
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.07	0.06	0.61	< 0.005	< 0.005	0.17	0.17	< 0.005	0.04	0.04	—	156	156	0.01	0.01	158
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00

Medical Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.07	0.06	0.61	< 0.005	< 0.005	0.17	0.17	< 0.005	0.04	0.04	—	156	156	0.01	0.01	158

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	187	187	0.01	< 0.005	188
Library	—	—	—	—	—	—	—	—	—	—	—	201	201	0.01	< 0.005	202
General Office Building	—	—	—	—	—	—	—	—	—	—	—	329	329	0.02	< 0.005	331
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	327	327	0.02	< 0.005	328
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	224	224	0.01	< 0.005	225

City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1,268	1,268	0.08	0.01	1,273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	187	187	0.01	< 0.005	188
Library	—	—	—	—	—	—	—	—	—	—	—	201	201	0.01	< 0.005	202
General Office Building	—	—	—	—	—	—	—	—	—	—	—	329	329	0.02	< 0.005	331
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	327	327	0.02	< 0.005	328
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	224	224	0.01	< 0.005	225
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1,268	1,268	0.08	0.01	1,273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	31.0	31.0	< 0.005	< 0.005	31.1
Library	—	—	—	—	—	—	—	—	—	—	—	33.2	33.2	< 0.005	< 0.005	33.4
General Office Building	—	—	—	—	—	—	—	—	—	—	—	54.5	54.5	< 0.005	< 0.005	54.7

Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	54.1	54.1	< 0.005	< 0.005	54.3
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	37.3
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	210	210	0.01	< 0.005	211

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	187	187	0.01	< 0.005	188
Library	—	—	—	—	—	—	—	—	—	—	—	201	201	0.01	< 0.005	202
General Office Building	—	—	—	—	—	—	—	—	—	—	—	329	329	0.02	< 0.005	331
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	327	327	0.02	< 0.005	328
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	224	224	0.01	< 0.005	225
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1,268	1,268	0.08	0.01	1,273
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	187	187	0.01	< 0.005	188
Library	—	—	—	—	—	—	—	—	—	—	—	201	201	0.01	< 0.005	202
General Office Building	—	—	—	—	—	—	—	—	—	—	—	329	329	0.02	< 0.005	331
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	327	327	0.02	< 0.005	328
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	224	224	0.01	< 0.005	225
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	1,268	1,268	0.08	0.01	1,273
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	31.0	31.0	< 0.005	< 0.005	31.1
Library	—	—	—	—	—	—	—	—	—	—	—	33.2	33.2	< 0.005	< 0.005	33.4
General Office Building	—	—	—	—	—	—	—	—	—	—	—	54.5	54.5	< 0.005	< 0.005	54.7

Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	54.1	54.1	< 0.005	< 0.005	54.3
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	37.1	37.1	< 0.005	< 0.005	37.3
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	210	210	0.01	< 0.005	211

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	164	164	0.01	< 0.005	164
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	164	164	0.01	< 0.005	164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	164	164	0.01	< 0.005	164
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	164	164	0.01	< 0.005	164
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00

Medical Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.1	27.1	< 0.005	< 0.005	27.2
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.1	27.1	< 0.005	< 0.005	27.2

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	164	164	0.01	< 0.005	164
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00

Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	164	164	0.01	< 0.005	164
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	164	164	0.01	< 0.005	164
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.14	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	—	164	164	0.01	< 0.005	164
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Library	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00

Medical Office Building	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.1	27.1	< 0.005	< 0.005	27.2
City Park	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	0.03	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.1	27.1	< 0.005	< 0.005	27.2

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	2.53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.49	0.04	3.90	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.2	13.2	< 0.005	< 0.005	13.2
Total	3.20	0.04	3.90	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.2	13.2	< 0.005	< 0.005	13.2

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	2.53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2.71	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	< 0.005	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.50	1.50	< 0.005	< 0.005	1.50
Total	0.56	< 0.005	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.50	1.50	< 0.005	< 0.005	1.50

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Consumer Products	2.53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.49	0.04	3.90	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.2	13.2	< 0.005	< 0.005	13.2
Total	3.20	0.04	3.90	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	13.2	13.2	< 0.005	< 0.005	13.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	2.53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2.71	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	< 0.005	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.50	1.50	< 0.005	< 0.005	1.50
Total	0.56	< 0.005	0.49	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.00	1.50	1.50	< 0.005	< 0.005	1.50

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	2.52	13.0	15.5	0.26	0.01	23.9
Library	—	—	—	—	—	—	—	—	—	—	0.86	4.46	5.32	0.09	< 0.005	8.17
General Office Building	—	—	—	—	—	—	—	—	—	—	4.32	22.4	26.7	0.44	0.01	41.0
Medical Office Building	—	—	—	—	—	—	—	—	—	—	3.03	15.7	18.7	0.31	0.01	28.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	2.58	13.4	16.0	0.27	0.01	24.5
City Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	13.3	68.9	82.2	1.37	0.03	126
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	2.52	13.0	15.5	0.26	0.01	23.9
Library	—	—	—	—	—	—	—	—	—	—	0.86	4.46	5.32	0.09	< 0.005	8.17

General Office Building	—	—	—	—	—	—	—	—	—	—	4.32	22.4	26.7	0.44	0.01	41.0
Medical Office Building	—	—	—	—	—	—	—	—	—	—	3.03	15.7	18.7	0.31	0.01	28.7
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	2.58	13.4	16.0	0.27	0.01	24.5
City Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	13.3	68.9	82.2	1.37	0.03	126
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	0.42	2.16	2.57	0.04	< 0.005	3.95
Library	—	—	—	—	—	—	—	—	—	—	0.14	0.74	0.88	0.01	< 0.005	1.35
General Office Building	—	—	—	—	—	—	—	—	—	—	0.71	3.70	4.42	0.07	< 0.005	6.78
Medical Office Building	—	—	—	—	—	—	—	—	—	—	0.50	2.59	3.10	0.05	< 0.005	4.75
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	0.43	2.22	2.64	0.04	< 0.005	4.06
City Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.20	11.4	13.6	0.23	0.01	20.9

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	2.52	13.0	15.5	0.26	0.01	23.9
Library	—	—	—	—	—	—	—	—	—	—	0.78	4.01	4.79	0.08	< 0.005	7.35
General Office Building	—	—	—	—	—	—	—	—	—	—	3.91	20.2	24.2	0.40	0.01	37.1
Medical Office Building	—	—	—	—	—	—	—	—	—	—	2.74	14.2	16.9	0.28	0.01	26.0
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	2.33	12.1	14.4	0.24	0.01	22.1
City Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.3	63.6	75.8	1.26	0.03	116
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	2.52	13.0	15.5	0.26	0.01	23.9
Library	—	—	—	—	—	—	—	—	—	—	0.78	4.01	4.79	0.08	< 0.005	7.35
General Office Building	—	—	—	—	—	—	—	—	—	—	3.91	20.2	24.2	0.40	0.01	37.1

Medical Office Building	—	—	—	—	—	—	—	—	—	—	2.74	14.2	16.9	0.28	0.01	26.0
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	2.33	12.1	14.4	0.24	0.01	22.1
City Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.3	63.6	75.8	1.26	0.03	116
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	0.42	2.16	2.57	0.04	< 0.005	3.95
Library	—	—	—	—	—	—	—	—	—	—	0.13	0.66	0.79	0.01	< 0.005	1.22
General Office Building	—	—	—	—	—	—	—	—	—	—	0.65	3.35	4.00	0.07	< 0.005	6.14
Medical Office Building	—	—	—	—	—	—	—	—	—	—	0.45	2.35	2.80	0.05	< 0.005	4.30
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	0.39	2.00	2.39	0.04	< 0.005	3.67
City Park	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.03	10.5	12.6	0.21	0.01	19.3

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	13.9	0.00	13.9	1.39	0.00	48.7
Library	—	—	—	—	—	—	—	—	—	—	7.13	0.00	7.13	0.71	0.00	24.9
General Office Building	—	—	—	—	—	—	—	—	—	—	6.35	0.00	6.35	0.64	0.00	22.2
Medical Office Building	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.32	0.00	256
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	28.5	0.00	28.5	2.85	0.00	99.7
City Park	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	0.32
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	13.9	0.00	13.9	1.39	0.00	48.7
Library	—	—	—	—	—	—	—	—	—	—	7.13	0.00	7.13	0.71	0.00	24.9
General Office Building	—	—	—	—	—	—	—	—	—	—	6.35	0.00	6.35	0.64	0.00	22.2

Medical Office Building	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.32	0.00	256
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	28.5	0.00	28.5	2.85	0.00	99.7
City Park	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	0.32
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	2.30	0.00	2.30	0.23	0.00	8.06
Library	—	—	—	—	—	—	—	—	—	—	1.18	0.00	1.18	0.12	0.00	4.13
General Office Building	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	3.68
Medical Office Building	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	42.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	4.72	0.00	4.72	0.47	0.00	16.5
City Park	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	0.05
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	21.4	0.00	21.4	2.14	0.00	74.9

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	13.9	0.00	13.9	1.39	0.00	48.7
Library	—	—	—	—	—	—	—	—	—	—	7.13	0.00	7.13	0.71	0.00	24.9
General Office Building	—	—	—	—	—	—	—	—	—	—	6.35	0.00	6.35	0.64	0.00	22.2
Medical Office Building	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.32	0.00	256
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	28.5	0.00	28.5	2.85	0.00	99.7
City Park	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	0.32
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	13.9	0.00	13.9	1.39	0.00	48.7
Library	—	—	—	—	—	—	—	—	—	—	7.13	0.00	7.13	0.71	0.00	24.9
General Office Building	—	—	—	—	—	—	—	—	—	—	6.35	0.00	6.35	0.64	0.00	22.2
Medical Office Building	—	—	—	—	—	—	—	—	—	—	73.3	0.00	73.3	7.32	0.00	256

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	28.5	0.00	28.5	2.85	0.00	99.7
City Park	—	—	—	—	—	—	—	—	—	—	0.09	0.00	0.09	0.01	0.00	0.32
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	129	0.00	129	12.9	0.00	452
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	2.30	0.00	2.30	0.23	0.00	8.06
Library	—	—	—	—	—	—	—	—	—	—	1.18	0.00	1.18	0.12	0.00	4.13
General Office Building	—	—	—	—	—	—	—	—	—	—	1.05	0.00	1.05	0.11	0.00	3.68
Medical Office Building	—	—	—	—	—	—	—	—	—	—	12.1	0.00	12.1	1.21	0.00	42.4
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	4.72	0.00	4.72	0.47	0.00	16.5
City Park	—	—	—	—	—	—	—	—	—	—	0.02	0.00	0.02	< 0.005	0.00	0.05
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	—	—	—	—	—	—	—	—	—	—	21.4	0.00	21.4	2.14	0.00	74.9

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.32
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.95
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.32

High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.95
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.15
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.31

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.32
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.95
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.06
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.03
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.32
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.95
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.88
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09
Library	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01
Medical Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.05
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.15
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.31

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Total	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8

Total	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.03	0.07	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	11.8
Total	0.03	0.07	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	11.8

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Total	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Total	0.14	0.40	0.36	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	0.00	72.5	72.5	< 0.005	< 0.005	72.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.03	0.07	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	11.8
Total	0.03	0.07	0.06	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	0.00	11.7	11.7	< 0.005	< 0.005	11.8

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequeste	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	2/3/2025	8/1/2025	5.00	130	—
Site Preparation	Site Preparation	2/4/2025	3/27/2025	5.00	38.0	—
Grading	Grading	8/4/2025	12/11/2025	5.00	94.0	—
Building Construction	Building Construction	9/25/2025	8/26/2027	5.00	501	—
Paving	Paving	6/14/2027	8/26/2027	5.00	54.0	—
Architectural Coating	Architectural Coating	4/16/2027	6/11/2027	5.00	41.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 2	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Tier 2	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Tier 2	2.00	8.00	367	0.40

Site Preparation	Rubber Tired Dozers	Diesel	Tier 2	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 2	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Tier 2	2.00	8.00	36.0	0.38
Grading	Graders	Diesel	Tier 2	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 2	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Tier 2	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 2	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 2	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 2	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 2	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 2	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 2	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 2	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 2	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 2	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 2	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 2	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Tier 2	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Tier 2	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Tier 2	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 2	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Tier 2	2.00	8.00	36.0	0.38

Grading	Graders	Diesel	Tier 2	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Tier 2	1.00	8.00	367	0.40
Grading	Scrapers	Diesel	Tier 2	2.00	8.00	423	0.48
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 2	2.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Tier 2	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 2	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Tier 2	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 2	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 2	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Tier 2	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 2	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 2	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Tier 2	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	8.46	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT

Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	41.2	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	11.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	8.24	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	8.46	20.0	HHDT

Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	20.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	41.2	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	11.0	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	8.24	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	149,518	49,839	66,104	22,035	3,720

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	95,589	—
Site Preparation	0.00	0.00	57.0	0.00	—
Grading	0.00	0.00	282	0.00	—
Paving	0.00	0.00	0.00	0.00	1.42

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%

Library	0.00	0%
General Office Building	0.00	0%
Medical Office Building	0.00	0%
High Turnover (Sit Down Restaurant)	0.00	0%
City Park	0.00	0%
Other Asphalt Surfaces	1.42	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	532	0.03	< 0.005
2026	0.00	532	0.03	< 0.005
2027	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	130	130	130	47,446	1,297	1,297	1,297	473,320
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	130	130	130	47,446	1,297	1,297	1,297	473,320
Library	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Medical Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City Park	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0

Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	0
Conventional Wood Stoves	0
Catalytic Wood Stoves	0
Non-Catalytic Wood Stoves	0
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
149517.9	49,839	66,104	22,035	3,720

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	128,304	532	0.0330	0.0040	0.00
Library	137,752	532	0.0330	0.0040	0.00
General Office Building	225,926	532	0.0330	0.0040	0.00
Medical Office Building	224,304	532	0.0330	0.0040	0.00
High Turnover (Sit Down Restaurant)	153,897	532	0.0330	0.0040	511,645
City Park	0.00	532	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	532	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	128,304	532	0.0330	0.0040	0.00
Library	137,752	532	0.0330	0.0040	0.00
General Office Building	225,926	532	0.0330	0.0040	0.00
Medical Office Building	224,304	532	0.0330	0.0040	0.00
High Turnover (Sit Down Restaurant)	153,897	532	0.0330	0.0040	511,645
City Park	0.00	532	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	532	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	1,313,398	0.00
Library	449,309	0.00
General Office Building	2,253,308	0.00
Medical Office Building	1,579,424	0.00
High Turnover (Sit Down Restaurant)	1,348,904	0.00
City Park	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	1,313,398	0.00
Library	404,558	0.00
General Office Building	2,040,371	0.00
Medical Office Building	1,430,168	0.00
High Turnover (Sit Down Restaurant)	1,218,060	0.00
City Park	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	25.8	—

Library	13.2	—
General Office Building	11.8	—
Medical Office Building	136	—
High Turnover (Sit Down Restaurant)	52.9	—
City Park	0.17	—
Other Asphalt Surfaces	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	25.8	—
Library	13.2	—
General Office Building	11.8	—
Medical Office Building	136	—
High Turnover (Sit Down Restaurant)	52.9	—
City Park	0.17	—
Other Asphalt Surfaces	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00

Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Medical Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.45	0.60	0.00	1.00
Medical Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0

Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00
Library	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
Library	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Library	Stand-alone retail refrigerators and freezers	R-134a	1,430	< 0.005	1.00	0.00	1.00
Library	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Medical Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.45	0.60	0.00	1.00
Medical Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430	0.00	0.60	0.00	1.00
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088	1.80	4.00	4.00	18.0
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0
City Park	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.00	0.14	50.0	617	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

8. User Changes to Default Data

Screen	Justification
Land Use	Project would include an admin/medical health building (12,587 sf), culinary kitchen (4,444 sf), educational buildings (represented by general office building land use and totaling 12,678 sf), library building/classrooms (14,360 sf), living units, transitional housing, long term housing, and independent living (~35 total units and 73,836 sf) on a 17.7-acre project site. The proposed project would also include approximately 62,000 sf of paved area and 88,000 of landscape area, represented by "other asphalt uses" and "city park".

Construction: Construction Phases	Based on schedule provided by the applicant. Construction is expected to occur in 3 phases; however, information for phase 2 and 3 is not yet available. Thus, this analysis assumes buildout at phase 1, which is expected to start in February 2025 and end in August 2027
Construction: Off-Road Equipment	default construction equipment with tier 2
Construction: Architectural Coatings	Project would comply with SCAQMD Rule 1113
Operations: Vehicle Data	Based on staff trips, which would total approximately 130 trips
Operations: Hearths	assuming no wood burning hearths
Operations: Architectural Coatings	project would comply with SCAQMD Rule 1113
Operations: Energy Use	Proposed buildings would be all-electric with the exception of the culinary kitchen, where natural gas would be used for cooking.

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APPENDIX B

BIOLOGICAL RESOURCES ASSESSMENT

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BIOLOGICAL RESOURCES ASSESSMENT

ORANGE COUNTY YOUTH TRANSITION CENTER JUVENILE HALL REPLACEMENT PROJECT

CITY OF ORANGE

ORANGE COUNTY, CALIFORNIA

LSA

November 2024

BIOLOGICAL RESOURCES ASSESSMENT

ORANGE COUNTY YOUTH TRANSITION CENTER JUVENILE HALL REPLACEMENT PROJECT

CITY OF ORANGE

ORANGE COUNTY, CALIFORNIA

Submitted to:

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Project No. OCY2001.48

November 2024

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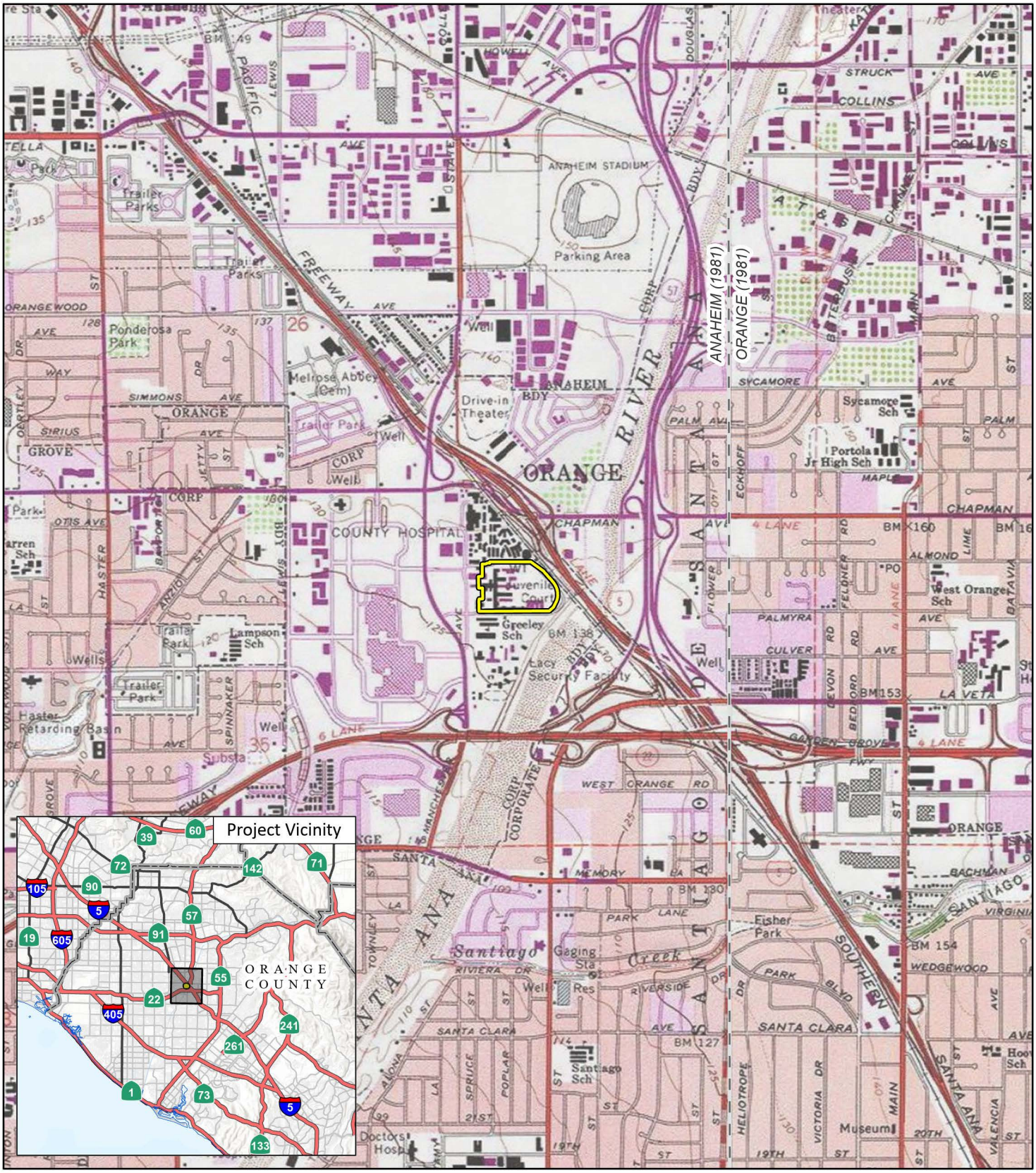
INTRODUCTION

LSA was retained by the County of Orange (County) to prepare a Biological Resources Assessment. This report evaluates the approximately 17-acre Orange County Youth Transition Center Juvenile Hall Replacement Project (project) located at 331 The City Drive South (project site) in the city of Orange, Orange County, California. Specifically, the project site is depicted on the United States Geological Survey (USGS) *Anaheim, California* 7.5-minute topographic quadrangles in Sections 36, Township 4 South, Range 10 West (see Figure 1).

PROJECT DESCRIPTION

The proposed project consists of demolition of portions of the current Juvenile Hall Campus for development of ten new buildings under the various phases of the project. Phase 1 would primarily consist of development of the new Youth Transition Center (YTC) including associated landscaping, hardscaping, accessibility, and utility improvements. Phase 2 would consist of new long-term housing, a classroom-library building, and Independent Housing. Phase 3 is currently being designed and is tentatively anticipated to consist of tenant improvements to buildings and units set to remain on the southwest and southeast areas of the campus, including an administrative/medical building, a control building, and a laundry warehouse and food service building adjacent to the existing independent living units. No demolition or construction is currently proposed under Phase 3. As needed, Phases 1 and 2 would include associated accessibility, open space, and landscaping and hardscaping improvements. The new state-of-the-art facilities would be designed to provide a non-institutional, home-like environment and incorporate effective and therapeutic programs to ensure successful outcomes for residents and reduce recidivism.



LSA

FIGURE 1

Orange County Youth Transition Center Juvenile Hall Replacement Project

Project Location and Vicinity

SOURCE: USGS 7.5' Quandrangles: *Anaheim, CA* (1981) and *Orange, CA* (1981).

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METHODS

LITERATURE REVIEW AND RECORDS SEARCH

LSA Senior Biologist Jeremy Rosenthal conducted a literature review and record search on October 31, 2024, to identify the existence and potential for occurrence of sensitive or special-status plant and animal species[1] in the vicinity of the project site. Mr. Rosenthal also examined federal and State lists of sensitive species. Current electronic database records reviewed included the following:

- **California Natural Diversity Database information (CNDDB – RareFind 5)**, which is administered by the California Department of Fish and Wildlife (CDFW). This database covers sensitive plant and animal species as well as sensitive natural communities that occur in California. Records from two USGS quadrangles within 1 mile of the project site (*Anaheim and Orange*) were obtained from this database to assist with the field survey.

- **Information for Planning and Consultation (IPaC)** is a project planning tool that streamlines the United States Fish and Wildlife Service (USFWS) environmental review process. The information is generated directly from USFWS field offices. This database covers sensitive plant and animal species as well as sensitive natural communities and critical habitats that occur in California.

- **The USFWS National Wetlands Inventory** was reviewed to determine whether any wetlands or surface waters of the United States have been previously identified in the study area.[2]

In addition to the databases listed above, the review included historic and current aerial imagery, existing environmental reports for developments in the vicinity of the project site, and regional habitat conservation plans and local land use policies related to biological resources.

FIELD SURVEYS

LSA Senior Biologist Jeremy Rosenthal conducted a general biological survey of the project site on November 1, 2024, from 10:00 a.m. to 11:15 a.m. Weather conditions were cool with 0 percent cloud cover, winds from 0 to 2 miles per hour (mph), and a temperature of 64 to 68 degrees Fahrenheit (˚F). The entire project site was surveyed on foot. Notes were taken on general site conditions, vegetation, and suitability of habitat for various special-interest elements.

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1 For the purposes of this report, the term "special-status species" refers to those species that are listed or proposed for listing under the California and Federal Endangered Species Acts (CESA and/or FESA, respectively); California Fully Protected Species; plants with a California Rare Plant Rank of 1, 2, or 3; California Species of Special Concern; and California Special Animals. It should be noted that "Species of Special Concern" and "California Special Animal" are administrative designations made by the CDFW and carry no formal legal protection status. However, Section 15380 of the *State CEQA Guidelines* indicates that these species should be included in an analysis of project impacts if they can be shown to meet the criteria of sensitivity outlined therein.

2 United States Fish and Wildlife Service (USFWS). 2022. USFWS National Wetlands Inventory (NWI), Online Mapper Tool. Website: https://www.fws.gov/wetlands/data/mapper.html (accessed October 2024).

LSA Senior Biologist and bat specialist Jill Carpenter performed a focused bat roosting habitat assessment of the project site on November 8, 2024, from 12:15 p.m. to 1:30 p.m. The habitat assessment consisted of visiting each structure within the site on foot and looking for features such as crevices or recessed spaces that may be suitable for use as day- and/or night-roosting habitat. All of the trees on site were examined for exfoliating bark, cracks, splits, or hollows that could be used by bats for roosting. Between 4:15 p.m. and 6:00 p.m. on November 13, 2024, Ms. Carpenter and LSA Senior Biologist Sara Louwsma conducted a follow-up nighttime acoustic and emergence survey to determine whether bats are roosting within any of the trees identified as containing suitable roosting habitat. Weather conditions during the nighttime survey were cool with 0 percent cloud cover, no measurable wind, and a temperature of 64 to 60˚F. Each biologist used night vision goggles (military grade PVS-7, Generation 3) augmented with infrared lights to watch the trees for bats exiting or entering during the survey period. Anabat Swift full-spectrum (Titley Scientific) ultrasound detectors were used to collect echolocation call data to identify bat species present within the project site, and these acoustic data were manually analyzed using Anabat Insight analysis software.

All plant and animal species observed or otherwise detected during this field survey were noted and are listed in Appendix A. Appendix B summarizes the special-interest plant and animal species potentially present within the study area.

RESULTS

EXISTING SITE CONDITIONS

The study area is currently developed with the Orange County Juvenile Hall Campus, with scattered ornamental landscaped areas throughout. The project site is surrounded by institutional and commercial development. Additionally, the Santa Ana River is located approximately 220 feet to the east of the project site.

Topography and Soils

The study area is situated on relatively flat land within elevations ranging from approximately 129 feet to 132 feet above mean sea level.

Soil present within the limits of the study area, as mapped by the Soil Conservation Service, consists of Metz loamy sand (Figure 2).[3] Soil observed throughout the site appears to be consistent with this designation. This soil series is considered hydric and has a somewhat excessively drained drainage class (see Table A).

Table A: Mapped Soils Classifications

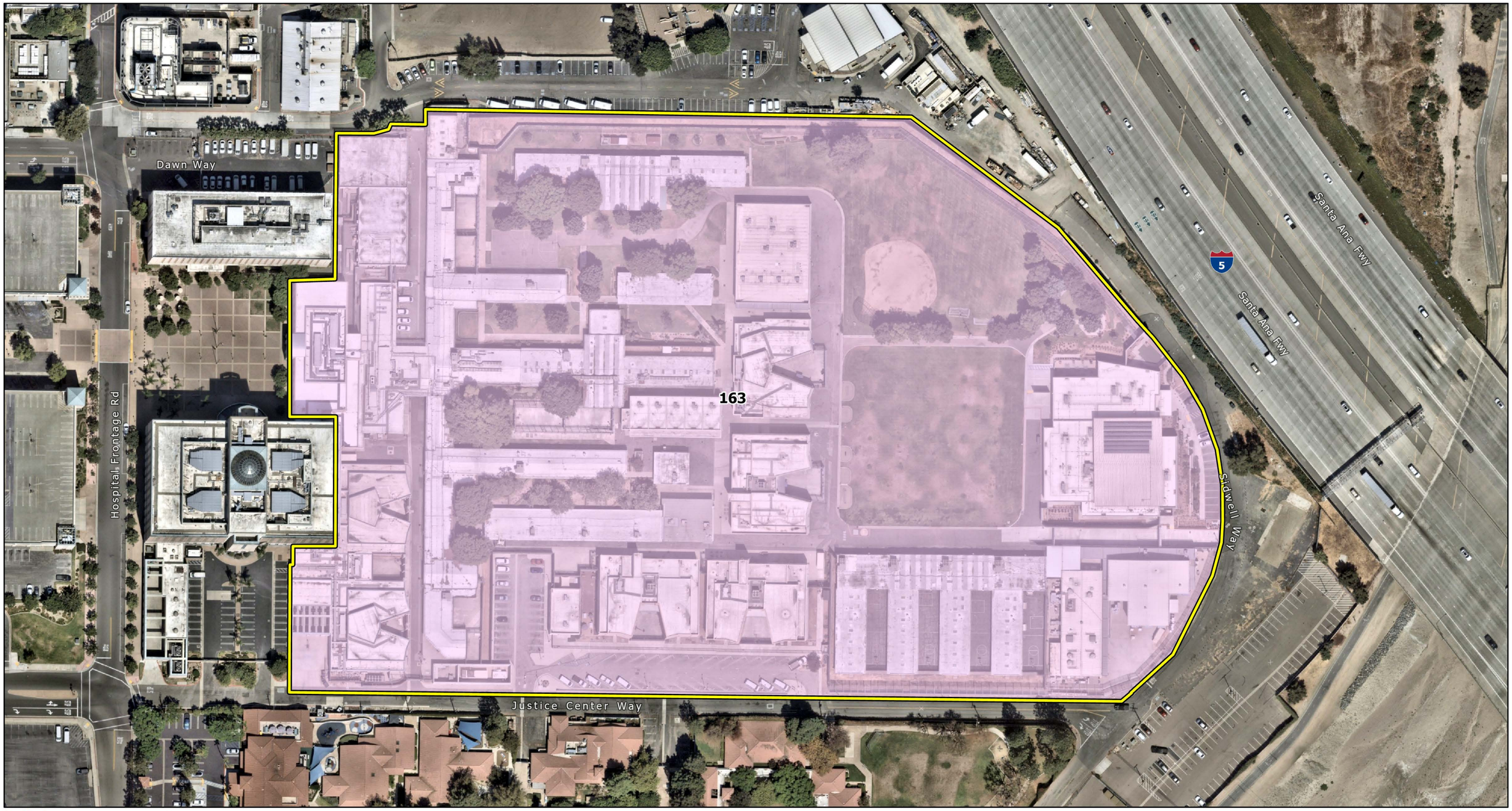
Soil	Drainage Class	Frequency of Flooding	Frequency of Ponding	Hydric Soil Rating
Metz Loamy Sand	Somewhat excessively drained	None	None	Yes

Source: United States Department of Agriculture (2019).

Vegetation and Landcover Types

Vegetation and landcover types within the project site consist of Urban and Developed and Ornamental Landscaping. The dominant species observed includes Bermuda grass *(Cynodon dactylon*). Tree species found within the study area include Norfolk Island pine (*Araucaria heterphylla*), fern pine (*Afrocarpus gracilio*), southern magnolia (*Magnolia grandiflora*), Peruvian peppertree (*Schinus mole*), Brazilian peppertree (*Schinus terebinthifolius*), gold medallion tree (*Cassia leptophylla*), Brisbane box (*Lophostemon confertus*), crape myrtle (*Lagerstroemia indica*), Chinese flame tree (*Koelreuteria bipinnata*), Canary Island date palm (*Phoenix canariensis*), Mexican fan palm (*Washingtonia robusta*), and London planetree (*Platanus x hispanica*). Ongoing soil disturbance and competitive exclusion by grasses limit the potential for native flora to occur within the study area. Appendix A provides a complete list of plant species identified within the project site.

[3] Natural Resources Conservation Service, United States Department of Agriculture. 2024. Web Soil Survey. Website: http://websoilsurvey.nrcs.usda./ (accessed October 2024).



LSA

Project Location

Soils

163 - Metz loamy sand

N

0 60 120
FEET

FIGURE 2

Orange County Youth Transition Center Juvenile Hall Replacement Project

Soils

SOURCE: Nearmap (August 26, 2024)

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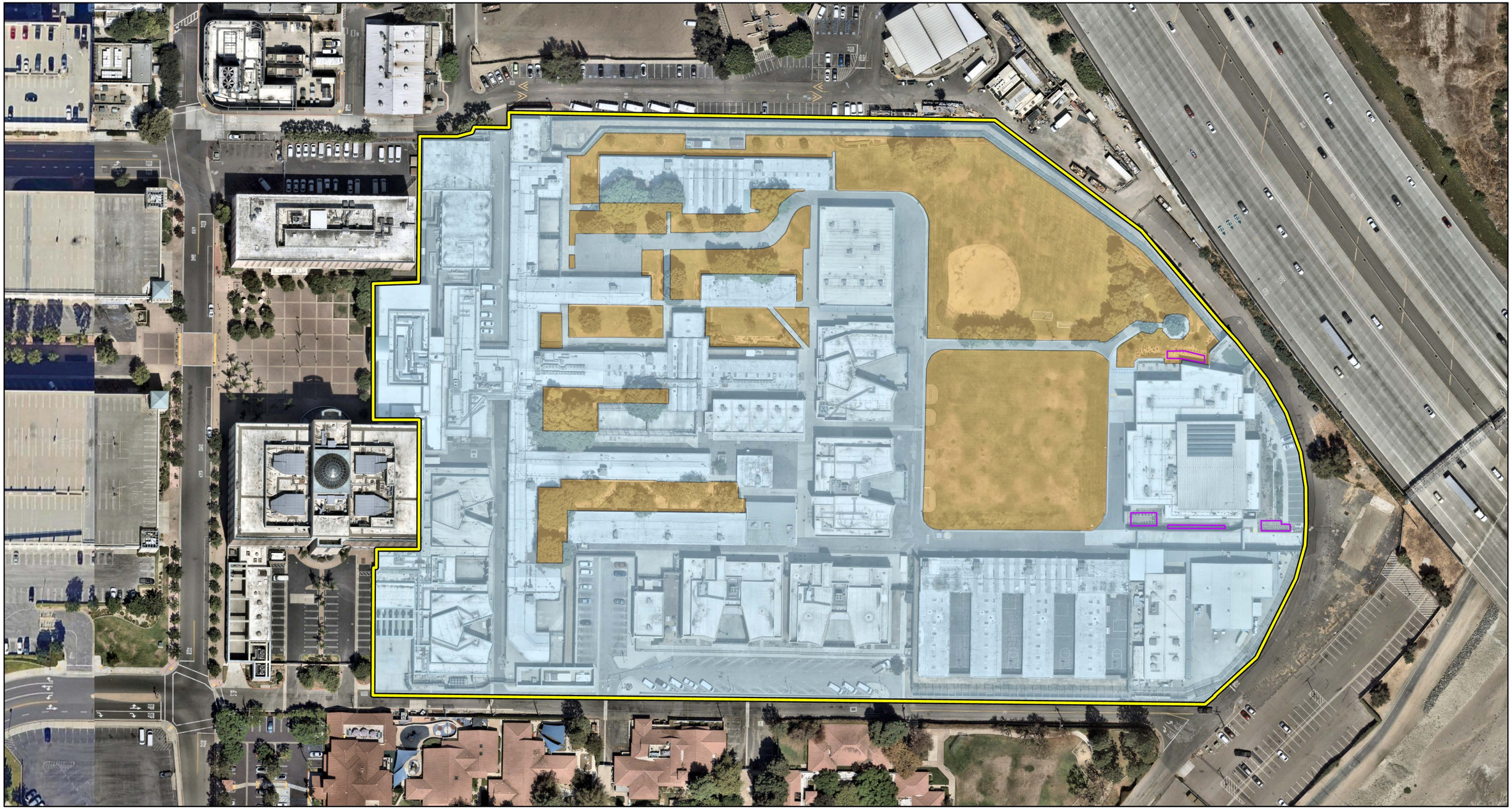
Wildlife

Common wildlife species observed within the project site during the field survey include turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), Anna's hummingbird (*Calypte anna*), black phoebe (*Sayornis nigricans*), European starling (*Sturnus vulagaris*), house finch (*Haemorhous mexicanus*), California towhee (*Melozone crissalis*), dark-eyed junco (*Junco hyemalis*), common yellowthroat (*Geothlypis trichas*), and yellow-rumped warbler (*Setophaga coronata*). Wildlife species observed or detected within the project site during the nighttime bat survey include killdeer (*Charadrius vociferus*), striped skunk (*Mephitis mephitis*), Mexican free-tailed bat (*Tadarida brasiliensis mexicana*), and hoary bat (*Lasiurus cinereus*). The observed bats were not seen emerging from any of the trees and are not presumed to be roosting within the project site.

Figure 3 shows vegetation and land cover on the project site. Figure 4 provides site photographs taken during the field surveys completed on November 1 and 8, 2024. Figure 5 shows the locations of the six trees containing potentially suitable bat roosting habitat.



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Project Location

Stormwater Control Features

Vegetation/Land Cover Type

Ornamental Landscaping

Urban and Developed

0 60 120

FEET

SOURCE: Google Maps (2024)

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FIGURE 3

Orange County Youth Transition Center Juvenile Hall Replacement Project

Vegetation and Land Cover

Photo 1: View looking northeast from the eastern portion of the project site at typical ornamental landscaped areas. Photo date November 1, 2024.

Photo 2: View looking east from the northeastern portion of the project site at typical ornamental landscaped areas. Photo date November 1, 2024.

LSA

FIGURE 4

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Site Photographs

Photo 3: View looking northeast from the western portion of the project site at typical courtyards seen throughout the Juvenile Hall facility and ornamental landscaped areas. Photo date November 1, 2024.

Photo 4: View looking east from the southwestern portion of the project site at typical courtyard areas seen throughout the Juvenile Hall facility and ornamental landscaped areas. Photo date November 1, 2024.

LSA

FIGURE 4

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Site Photographs

Photo 5: View looking west at the artificially constructed stormwater run-off control feature located on the northeastern end of the project site. This feature is vegetated with non-native ornamental landscaping. Photo date November 1, 2024.

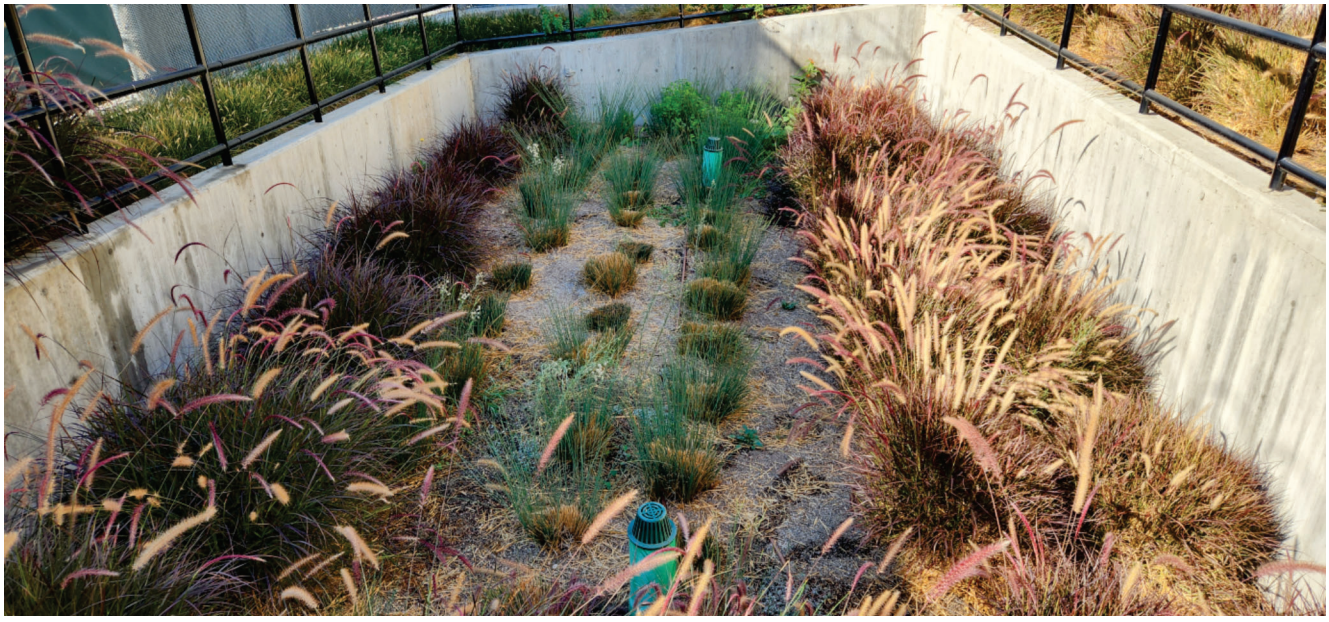

Photo 6: View looking west at the artificially constructed stormwater run-off control feature located on the southeastern end of the project site. This feature is vegetated with non-native ornamental landscaping. Photo date November 1, 2024.

LSA

FIGURE 4

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Site Photographs

Photo 7: View looking northwest at one of the three Brisbane box (*Lophostemon confertus*) trees in the northeastern corner of the project site that contain exfoliating bark crevices that could provide roosting habitat for bat species. Photo date November 8, 2024.

Photo 8: Closer, representative view of crevice habitat suitable for use by roosting bats on the Brisbane box trees in the northeastern corner of the project site. Photo date November 8, 2024.

LSA

FIGURE 4

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Site Photographs

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Photo 9: Representative view of other crevices suitable for use by roosting bats on one of the other ornamental trees within the project site. Photo date November 8, 2024.

Photo 10: Representative view of other crevices suitable for use by roosting bats on one of the other ornamental trees within the project site. Photo date November 8, 2024.

LSA

FIGURE 4

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Site Photographs

LSA

Project Location

Potential Roosting Habitat

FIGURE 5

N

0 100 200

FEET

Orange County Youth Transition Center Juvenile Hall Replacement Project

Trees with Potential Bat Roosting Habitat

SOURCE: Nearmap Imagery (August 26, 2024)

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SPECIAL-STATUS SPECIES

This section discusses special-status species observed or potentially occurring within the limits of the study area. Legal protection for special-interest species varies widely, from the comprehensive protection extended to listed threatened/endangered species, to no legal interest at present. The CDFW, USFWS, local agencies, and special-interest groups such as the California Native Plant Society (CNPS) publish watch lists of declining species. Species on watch lists can be included as part of the special-interest species assessment. Species that are candidates for State and/or Federal listing and species on watch lists are included in the special-interest species list. Inclusion of species described in the special-interest species analysis is based on the following criteria:

- Direct observation of the species or its sign in the study area or immediate vicinity during previous biological studies;
- Sighting by other qualified observers;
- Record reported by the CNDDB, published by the CDFW;
- Presence or location information for specific species provided by private groups (e.g., CNPS); and/or
- Study area lies within known distribution of a given species and contains appropriate habitat.

The special-status species analysis revealed 38 special-interest species with the potential to occur within the limits of the study area. Appendix B lists these species with a data summary and determination of the likelihood of each species occurring within the study area.

THREATENED/ENDANGERED SPECIES

Due to the absence of suitable habitat, none of the 13 federally/State-listed species identified (Appendix B) in the project vicinity have a potential to occur within the project site.

NON-LISTED SPECIAL-STATUS SPECIES

Of the 25 other non-listed special-status species identified and discussed in Appendix B, 22 species are considered absent based on lack of suitable habitat. The remaining three species, Cooper's hawk (*Accipiter cooperii*), peregrine falcon (*Falco peregrinus anatum*), and Yuma myotis (*Myotis yumanensis*) have a low probability to occur.

Nesting bird species, including special-interest species identified in Appendix B, with potential to occur (i.e., burrowing owl and black-tailed gnatcatcher) are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] 703–711). These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey.

Various regulations afford protections to bats, which are classified as indigenous nongame mammal species, regardless of their status under the California or Federal Endangered Species Acts. These

regulations include Title 14, Section 251.1 of the California Code of Regulations, which prohibits harassment (defined in that section as an intentional act that disrupts an animal's normal behavior patterns, including breeding, feeding, or sheltering) of nongame mammals (e.g., bats), and California Fish and Game Code Section 4150, which prohibits "take"[4] or possession of all nongame mammals or parts thereof. Any activities resulting in bat mortality (e.g., the destruction of an occupied bat roost that results in the death of bats), disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), or various modes of nonlethal pursuit or capture may be considered "take" as defined in Section 86 of the California Fish and Game Code. In addition, impacts to bat maternity colonies, which are considered native wildlife nursery sites, could be considered potentially significant under CEQA.

SPECIAL-STATUS NATURAL COMMUNITIES

No special-status natural communities are present within the study area.

[4] Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

LOCAL AND REGIONAL POLICIES AND ORDINANCES PROTECTING BIOLOGICAL RESOURCES

City and County general plans and development ordinances may include regulations or policies governing biological resources. For example, policies may require tree preservation or designate local species survey areas, species of interest, or significant ecological areas.

Although the project site is located in the city of Orange, the Juvenile Hall Campus is on County owned land. Accordingly, the County's Tree Preservation Ordinance preempts the City's Tree Preservation Ordinance and therefore, it is not applicable to the proposed project.

County of Orange Zoning Code Sec. 7-9- 69 – Tree Preservation Ordinance

The County's Tree Preservation Ordinance applies to all Protected Trees within the unincorporated area of the County. While the project site is in the City of Orange, an incorporated area, the County typically applies its own regulations on County owned land; therefore, the County's Tree Preservation Ordinance would apply to the project. Under the County of Orange Zoning Code (Section 7-9-69.4), a Tree Removal Permit application would be required and submitted to Orange County Development Services prior to removal of any Protected Tree within County owned land or obtained prior to any encroachment into the Tree Protection Zone. Section 7-9-69.2 identifies the species of trees included as Protected Trees required trunk diameter. Protected Trees include Native Oak Trees and Oak Tree Hybrids (*Quercus* spp.); California Scrub Oak, Nuttall's Scrub Oak and Scrub Oak hybrids; Southern California Black Walnut (*Juglans californica var. californica*); California Sycamore, Western Sycamore (*Platanus racemosa*); and Tecate Cypress (*Hesperocyparis forbesii*). One Protected Tree, a California sycamore (*Platanus racemosa*) with a diameter at breast height (DBH) greater than 12 inches, was identified on the northern central portion of the project site. County staff indicated Protected Tree removal would be mitigated with tree replacement at a ratio of 2:1 (2 Replacement Trees per 1 Protected Tree removed). Replacement Trees are those trees installed either on-site or offsite as part of the required replacement for removal of a Protected Tree.

Should this tree be left in place during project implementation, a Tree Removal Permit will not be necessary if construction operations do not encroach within the Tree Protection Zone. Section 7-9-69.3 of the County of Orange Zoning Code defines the Tree Protection Zone as that area within the drip line of a Protected Tree and Extending to a point five (5) feet outside the greatest extent of the drip line, or fifteen (15) feet from the trunk of the tree, whichever distance is greater. Encroachment shall mean any intrusion into the Tree Protection Zone of a Protected Tree including, but not limited to, grading, excavation, trenching, parking of vehicles, storage of materials and equipment, or the construction of structures or other improvements.

CRITICAL HABITAT

The study area does not lie within federally designated critical habitat.

JURISDICTIONAL WATERS

While there are two artificially constructed stormwater run-off control features on the eastern end of the project site, these features are used to quickly remove stormwater runoff from the Juvenile Hall Campus. They do not consist of ordinary high water marks (OHWM) and do not contain relatively permanent water. In addition, they do not feature any defined bed-and-banks due to their vertical concrete walls and are vegetated with ornamental landscaped plant species. Therefore, no potential jurisdictional waters regulated pursuant to the Clean Water Act (CWA) by the United States Army Corps of Engineers (USACE) or the Regional Water Quality Control Board (RWQCB), and no lake, rivers, or streambeds regulated pursuant to the California Fish and Game Code by the CDFW are present within the limits of the proposed project.

IMPACTS AND RECOMMENDATIONS

Following is a discussion of potential disturbances and recommendations for avoidance, minimization, and mitigation measures per applicable local, State, and Federal policy.

THREATENED AND ENDANGERED SPECIES

No State or federally listed threatened and endangered species have been identified in Appendix B as having an occurrence within the project site. Due to the highly developed nature of the project site and surrounding development, impacts from the project are anticipated to have a less than significant effect on threatened and endangered species.

NON-LISTED SPECIAL-INTEREST SPECIES

No non-listed special-interest species have been identified in Appendix B as having an occurrence within the project site. Due to the highly developed nature of the project site and surrounding development, impacts from the project are anticipated to have a less than significant effect on non-listed special-interest species.

In addition, to ensure compliance with the California Fish and Game Code and to avoid potential impacts to nesting birds, it is recommended that vegetation removal activities be conducted outside the general bird nesting season (February 15 through August 31). If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal.

For compliance with the California Fish and Game Code and to avoid potential mortality of bats roosting in trees, it is recommended that, if any of the trees identified as containing potential roosting habitat on Figure 5 are removed for the project, they be removed in two phases. During the first phase, the tree limbs shall be removed leaving the main trunk of the tree. This action will create disturbance resulting in the bats leaving the tree that evening and not returning. The following day, the remainder of the tree can be removed.

CRITICAL HABITAT

No federally designated critical habitat is present within the study area; thus, there will be no project-related effects to critical habitat.

JURISDICTIONAL WATERS

No potential jurisdictional waters of the United States regulated by the USACE or RWQCB, or CDFW jurisdictional lakes, rivers, or streams are present on the project site. Thus, there will be no project-related effects to jurisdictional waters.

HABITAT FRAGMENTATION AND WILDLIFE MOVEMENT

Wildlife movement and habitat fragmentation are important issues in assessing effects to wildlife. Habitat fragmentation occurs when a proposed action results in a single, unified habitat area being

divided into two or more areas such that the division isolates the two new areas from each other. Isolation of habitat occurs when wildlife cannot move freely from one portion of the habitat to another or from one habitat type to another. An example is the fragmentation of habitats within and around "checkerboard" residential development. Habitat fragmentation can also occur when a portion of one or more habitats is converted into another habitat, as when scrub habitats are converted into annual grassland habitat because of frequent burning.

Because the study area does not lie within a designated wildlife corridor and the study area is adjacent to University of California Irvine Medical facilities to the north, to the east by the Interstate-5 Freeway and the Santa Ana River, to the south by institutional uses, and to the west by County operated office buildings , the proposed project is not anticipated to have significant impacts related to habitat fragmentation and regional wildlife movement associated with the adjacent open space to the south.

CONSISTENCY WITH REGIONAL AND LOCAL POLICIES

Under the County of Orange Zoning Code (Section 7-9-69.4), a Tree Removal Permit application would be required and submitted to Orange County Development Services prior to removal of any Protected Tree within County owned land or obtained prior to any encroachment into the Tree Protection Zone.

Mitigation Measure

One tree identified as a Protected Tree, a California sycamore (*Platanus racemosa*) with a diameter at breast height (DBH) greater than 12 inches, was identified on the northern central portion of the project site. Should this tree be removed during project implementation, County staff indicated a mitigation ratio of 2:1 (2 Replacement Trees per 1 Protected Tree removed). Replacement Trees are those trees installed either on-site or offsite as part of the required replacement for removal of a Protected Tree.

Avoidance and Minimization Measure

Should the Protected Tree be left in place during project implementation, a Tree Removal Permit will not be necessary if construction operations do not encroach within the Tree Protection Zone. The Tree Protection Zone is defined as that area within the drip line of a Protected Tree and Extending to a point five (5) feet outside the greatest extent of the drip line, or fifteen (15) feet from the trunk of the tree, whichever distance is greater. Encroachment shall mean any intrusion into the Tree Protection Zone of a Protected Tree including, but not limited to, grading, excavation, trenching, parking of vehicles, storage of materials and equipment, or the construction of structures or other improvements.

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CUMULATIVE IMPACTS

According to Section 15130 of the *State CEQA Guidelines*, "cumulative impacts" refers to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. Due to the highly developed nature of the project site, and the fact that the project site has been developed since the 1950s, impacts are not considered to be cumulatively significant.

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APPENDIX A

PLANT SPECIES OBSERVED

PLANT SPECIES OBSERVED

* Species not native to the study area

The following plant species were observed within the project site boundary:

CONIFERS	
Araucariaceae	**Araucaria family**
*Araucaria heterophylla**	Norfolk Island pine
Podocarpaceae	**Podocarp family**
*Afrocarpus (Podocarpus) gracilior**	fern pine
Magnoliaceae	**Magnolia family**
*Magnolia grandiflora**	southern magnolia
EUDICOT FLOWERING PLANTS	
Aizoaceae	**Carpet weed family**
*Carpobrotus edulis**	iceplant
Anacardiaceae	**Sumac family**
*Schinus molle**	Peruvian peppertree
*Schinus terebinthifolius**	Brazilian peppertree
Apiaceae	**Carrot family**
*Apium graveolens**	common celery
Araliaceae	**Ginseng family**
*Hedera helix**	English ivy
Asteraceae	**Sunflower family**
*Erigeron bonariensis**	flax-leaved horseweed
Erigeron canadensis	Canadian horseweed
*Gazania linearis**	treasureflower
*Gazania rigens**	trailing treasureflower
*Lactuca serriola**	prickly lettuce
*Pulicaria paludosa**	Spanish false fleabane
*Sonchus asper**	prickly sow thistle
*Taraxacum officinale**	common dandelion
Berberidaceae	**Barberry family**
*Nandina domestica**	heavenly bamboo
Bignoniaceae	**Bignonia family**
*Jacaranda mimosifolia**	Jacaranda
Capparaceae	**Caper family**
*Capparis zoharyi**	Egyptian caper
Caprifoliaceae	**Honeysuckle family**
*Linnaea x grandiflora**	glossy abelia

Chenopodiaceae	**Saltbush family**
*Euryops pectinatus**	grey-leaved euryops
*Salsola tragus**	Russian thistle
Crassulaceae	**Stonecrop family**
*Crassula arborescens**	silver dollar plant
Euphorbiaceae	**Spurge family**
*Euphorbia maculata**	spotted spurge
*Euphorbia peplus**	petty spurge
*Ricinus communis**	castor bean
Fabaceae	**Pea family**
*Bauhinia variegata**	purple orchid
*Cassia leptophylla**	gold medallion Tree
*Medicago polymorpha**	California bur-clover
*Melilotus indicus**	annual yellow sweetclover
*Parkinsonia aculeata**	Mexican palo verde
*Trifolium repens**	white clover
Garryaceae	**Silk Tassel Family**
*Aucuba japonica**	Japanese aucuba
Geraniaceae	**Geranium family**
*Geranium dissectum**	cut-leaved geranium
Haemodoraceae	**Bloodwort family**
Anigozanthos sp.*	kangaroo paws
Lamiaceae	**Mint family**
*Lavandula angustifolia**	lavender
*Salvia greggii**	autumn sage
Salvia leucophylla	purple sage
Lythraceae	**Loosestrife family**
*Lagerstroemia indica**	crape myrtle
Malvaceae	**Mallow family**
*Malva parviflora**	cheeseweed mallow
Moraceae	**Mulberry family**
*Ficus benjamina**	weeping fig
Myrtaceae	**Myrtle family**
*Lophostemon confertus**	Brisbane box
Oleaceae	**Olive family**
*Ligustrum japonicum**	Japanese privet
*Ligustrum lucidum**	glossy privet
Platanaceae	**Sycamore family**
Platanus racemosa	California sycamore
Plumbaginaceae	**Leadwort family**
Limonium sp.*	sea lavender
Primulaceace	**Primrose family**
*Ardisia crenata**	Christmas berry

Rosaceae	**Rose family**
*Eriobotrya japonica**	loquat
*Rhaphiolepis indica**	Indian hawthorne
*Rosa sp.**	rose
Rutaceae	**Citrus family**
*Citrus limon**	lemon
Sapindaceae	**Soapberry family**
*Koelreuteria bipinnata**	Chinese flame tree
Saxifragaceae	**Saxifrage family**
*Bergenia crassifolia**	elephant's ears
Solanaceae	**Nightshade family**
Solanum douglasii	greenspot nightshade
MONOCOTS FLOWERING PLANTS	
Agavaceae	**Agave family**
*Agave americana**	American century plant
*Agave attenuate**	swan-neck plant
Araceae	**Arum family**
*Philodendron bipinnatifidum**	tree philodendron
Arecaceae	**Palm family**
*Phoenix canariensis**	Canary Island date palm
*Washingtonia robusta**	Mexican fan palm
Asparagaceae	**Asparagus family**
*Asparagus asparagoides**	African asparagus fern
*Chlorophytum comosum**	spider plant
Asphodelaceae	**Aloe family**
*Hemerocallis lilioasphodelus**	yellow daylily
*Phormium tenax**	New Zealand flax
Cyperaceae	**Sedge family**
Eleocharis sp.	spikerush
Iridaceae	**Iris family**
*Dietes iridioides**	small fortnite lily
Poaceae	**Grass family**
*Cenchrus setaceus**	crimson fountaingrass
*Cynodon dactylon**	bermuda grass
*Echinochloa crus-galli**	barnyard grass
Muhlenbergia rigens	deergrass
Strelitziaceae	**Bird-of-paradise family**
*Strelitzia reginae**	bird of paradise

ANIMAL SPECIES OBSERVED

* Species not native to the study area

BIRDS	
Charadriidae	**Plovers and Lapwings**
Charadrius vociferus	Killdeer
Cathartidae	**American Vultures**
Cathartes aura	turkey vulture
Accipitridae	**Kites, Hawks, and Eagles**
Buteo jamaicensis	red-tailed hawk
Tyrannidae	**Tyrant Flycatchers**
Sayornis nigricans	black phoebe
Sturnidae	**Starlings**
*Sturnus vulgaris**	European starling
Fringillidae	**Finches**
Haemorhous mexicanus	house finch
Passerellidae	**New World Sparrows**
Melozone crissalis	California towhee
Junco hyemalis	dark-eyed junco
Parulidae	**Wood Warblers**
Geothlypis trichas	common yellowthroat
Setophaga coronata	yellow-rumped warbler
MAMMALS	
Sciuridae	**Squirrels**
Spermophilus beecheyi	California ground squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher
Leporidae	**Rabbits and Hares**
Lepus californicus deserticola	Black-tailed jackrabbit
Sylvilagus audubonii	Desert cottontail
Vespertilionidae	**Evening Bats**
Lasiurus cinereus	Hoary bat
Molossidae	**Free-tailed bats**
Tadarida brasiliensis	Mexican free-tailed bat
Mephitidae	**Skunks**
Mephitis mephitis	Striped skunk

APPENDIX B

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

Species	Status	Habitat and Distribution	Activity Period	Sample Occurrence Probability
Plants				
Abronia villosa var. *aurita* **Chaparral sand-verbena**	US: – CA: 1B.1	Sandy areas (generally flats and benches along washes) in chaparral and coastal sage scrub, and improbably in desert dunes or other sandy areas, below 1,600 meters (5,300 feet) elevation. In California, reported from Riverside, San Diego, Imperial, Los Angeles, and Ventura Counties. Believed extirpated from Orange County. Also reported from Arizona and Mexico (Baja California). Plants reported from desert communities are likely misidentified.	Blooms mostly March through August (annual or perennial herb)	**Absent.** Suitable habitat is not present within the project site.
Astragalus hornii var. *hornii* **Horn's milk-vetch**	US: – CA: 1B.1	Alkaline playas and lake margins from 60 to 850 meters (200 to 2,800 feet) elevation. In California, known only from Inyo and Kern Counties. Believed extirpated from San Bernardino County. Also occurs in Nevada.	Blooms May through October	**Absent.** Suitable habitat is not present within the project site.
Atriplex parishii **Parish's brittlescale**	US: – CA: 1B.1	Alkali soils in meadows, vernal pools, chenopod scrub, and playas. Usually on drying alkali flats with fine soils. In California, known from Riverside and San Diego Counties. Also occurs in Mexico. Believed extirpated from Los Angeles, Orange, and San Bernardino Counties.	Blooms June through October (annual herb)	**Absent.** Suitable habitat is not present within the project site.
Calochortus weedii var. *intermedius* **Intermediate mariposa-lily**	US: – CA: 1B.2	Dry, open rocky slopes and rock outcrops in chaparral, coastal sage scrub, and grassland, at 105 to 855 meters (340 to 2,800 feet) elevation. Known only from Los Angeles, Orange, Riverside, and San Bernardino Counties, California. In the western Riverside County area, this species is known from the hills and valleys west of Lake Skinner and Vail Lake (*The Vascular Plants of Western Riverside County, California*. F.M. Roberts et al., 2004). Appears to intergrade with *Calochortus plummerae*, which is mostly east and north of Santa Ana Mountains.	Blooms May through July (perennial herb)	**Absent.** Suitable habitat is not present within the project site.
Centromadia parryi ssp. *australis* **Southern tarplant**	US: – CA: 1B.1	In vernally wet areas such as edges of marshes and vernal pools, at edges of roads and trails, and in other areas of compacted, poorly drained, or alkaline soils where competition from other plants is limited, often due to disturbance, below 425 meters (1,400 feet) elevation. In California, known only from Santa Barbara, Ventura, Los Angeles, Orange and San Diego Counties. Also occurs in Mexico.	Blooms May through November (annual herb)	**Absent.** Suitable habitat is not present within the project site.
Dudleya multicaulis **Many-stemmed dudleya**	US: – CA: 1B.2	Heavy, often clay soils or around granitic outcrops in chaparral, coastal sage scrub, and grassland below 790 meters (2,600 feet) elevation. Known only from Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties.	Blooms April through July (perennial herb)	**Absent.** Suitable habitat is not present within the project site.

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

Species	Status	Habitat and Distribution	Activity Period	Sample Occurrence Probability
Eriastrum densifolium ssp. *sanctorum* **Santa Ana River woollystar**	US: FE CA: CE/1B.1	Riversidean alluvial fan sage scrub and chaparral in sandy or gravelly soils of floodplains and terraced fluvial deposits of the Santa Ana River and larger tributaries (Lytle and Cajon Creeks, lower portions of City and Mill Creeks) at 90 to 625 meters (300 to 2,100 feet) elevation in San Bernardino and Riverside Counties.	Blooms May through September	**Absent.** Suitable habitat is not present within the project site.
Nasturtium (Rorippa) gambelii **Gambel's watercress**	US: FE CA: CT/1B.1	Marshes from 5 to 330 meters (20 to 1,100 feet) elevation. Currently believed to occur in California only in Santa Barbara and San Luis Obispo Counties. There are historical records from Los Angeles, Orange, and San Bernardino Counties. A historical report from San Diego County likely constitutes a misidentification. Also occurs in Baja California.	Blooms April through September	**Absent.** Suitable habitat is not present within the project site.
Sidalcea neomexicana **Salt Spring checkerbloom**	US: – CA: 2B.2	Alkaline springs and brackish marshes below 1,530 meters (5,000 feet) elevation. In California, known only from Kern, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. Believed extirpated from Los Angeles County. Also known from Arizona, New Mexico, Nevada, Utah, and Mexico.	Blooms March through June (perennial herb)	**Absent.** Suitable habitat is not present within the project site.
Symphyotrichum defoliatum **San Bernardino aster**	US: – CA: 1B.2	Vernally wet sites (such as ditches, streams, and springs) in many plant communities below 2,040 meters (6,700 feet) elevation. In California, known from Ventura, Kern, San Bernardino, Los Angeles, Orange, Riverside, and San Diego Counties. May also occur in San Luis Obispo County. In the western Riverside County area, this species is scarce and documented only from Temescal and San Timoteo Canyons (*The Vascular Plants of Western Riverside County, California*. F.M. Roberts et al., 2004).	Blooms July through November (perennial herb)	**Absent.** Suitable habitat is not present within the project site.
Invertebrates				
Bombus crotchii **Crotch bumble bee**	US: – CA: CE BLM: –	Nectars on Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum in coastal California east to the Sierra-Cascade crest and south into Mexico.	Spring and summer	**Absent.** Suitable habitat is not present within the project site.
Bombus pensylvanicus **American bumble bee**	US: – CA: -	Historically, this species was among the broadest ranging bumblebees in North America. This bumble bee was widespread in the eastern temperate forest and Great Plains regions throughout the eastern and central United States and southern Canada, and also in the desert west and adjacent areas of California and Oregon. However, numerous studies indicate that this species has declined, both locally and regionally, especially in the northeastern parts of its range (Bartomeus et al. 2013, Hatfield et al. 2015). Habitat is grassland, farmland, and other open areas. Prefers pollen from the Fabaceae family.	Spring and summer	**Absent.** Suitable habitat is not present within the project site.

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

Species	Status	Habitat and Distribution	Activity Period	Sample Occurrence Probability
Euphydryas editha quino **Quino checkerspot butterfly**	US: FE CA: SA	Meadows or openings within coastal sage scrub or chaparral below about 5,000 feet where food plants (*Plantago erecta* and/or *Orthocarpus purpurascens*) are present. Historically known from Santa Monica Mountains to northwest Baja California; currently known only from southwestern Riverside County, southern San Diego County, and northern Baja California.	January through late April	**Absent.** Suitable habitat is not present within the project site.
Fish				
Catostomus santaanae **Santa Ana sucker**	US: FT CA: SSC	The Santa Ana sucker's historical range includes the Los Angeles, San Gabriel, and Santa Ana River drainage systems located in Southern California. An introduced population also occurs in the Santa Clara River drainage system in southern California. Found in shallow, cool, running water.	Year-round	**Absent.** Suitable habitat is not present within the project site.
Oncorhynchus mykiss irideus pop. 10 **Southern steelhead - Southern California DPS**	US: FE CA: SA/CE	Federal listing refers to runs in coastal basins from the Santa Maria River, south to the southern extent of the range (presently considered to be Malibu Creek. Proposed rulemaking 12/19/2000 to extend southern portion of the range to San Mateo.	Year-round	**Absent.** Suitable habitat is not present within the project site.
Spea hammondii **Western spadefoot**	US: – CA: SSC	Grasslands and occasionally hardwood woodlands; largely terrestrial but requires rain pools or other ponded water persisting at least three weeks for breeding; burrows in loose soils during dry season. Occurs in the Central Valley and adjacent foothills, the non-desert areas of southern California, and Baja California.	October through April (following onset of winter rains)	**Absent.** Suitable habitat is not present within the project site.
Reptiles				
Anniella stebbinsi **Southern California legless lizard**	US: – CA: SSC	Inhabits sandy or loose loamy soils with high moisture content under sparse vegetation in Southern California.	Nearly year round, at least in southern areas	**Absent.** Suitable habitat is not present within the project site.
Aspidoscelis hyperythra **Orangethroat whiptail**	US: – CA: SA	Prefers washes and other sandy areas with patches of brush and rocks, in chaparral, coastal sage scrub, juniper woodland, and oak woodland from sea level to 915 meters (3,000 feet) elevation. Perennial plants required. Occurs in Riverside, Orange, San Diego Counties west of the crest of the Peninsular Ranges, in extreme southern San Bernardino County near Colton, and in Baja California.	March through July with reduced activity August through October	**Absent.** Suitable habitat is not present within the project site.

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

Species	Status	Habitat and Distribution	Activity Period	Sample Occurrence Probability
Phrynosoma blainvillii (coronatum) **Coast horned lizard**	US: – CA: SSC	Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs west of the deserts from northern Baja California north to Shasta County below 2,400 meters (8,000 feet) elevation.	April through July with reduced activity August through October	**Absent.** Suitable habitat is not present within the project site.
Birds				
Accipiter cooperii (nesting) **Cooper's hawk**	US: – CA: SA	Forages in a wide range of habitats, but primarily in forests and woodlands. These include natural areas as well as human-created habitats such as plantations and ornamental trees in urban landscapes. Usually nests in tall trees (20 to 60 feet) in extensive forested areas (generally woodlots of 4 to 8 hectares with canopy closure of greater than 60 percent). Occasionally nests in isolated trees in more open areas.	Year-round	**Low.** While there is marginally suitable nesting habitat in the way of non-native trees within the project site, no remnant nests were observed during the November 1, 2024, field survey and no records have been recorded within 2 miles of the project site (CNDDB 2024).
Agelaius tricolor (nesting colony) **Tricolored blackbird**	US: – CA: CT/SSC (breeding)	Open country. Forages in grassland and cropland habitats. Nests in large groups near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, or tall herbs. Seeks cover for roosting in emergent wetland vegetation, especially cattails and tules, and also in trees and shrubs. Occurs in western Oregon, California, and northwestern Baja California.	Year-round	**Absent.** Suitable habitat is not present within the project site.

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

Species	Status	Habitat and Distribution	Activity Period	Sample Occurrence Probability
Aimophila ruficeps canescens **Southern California rufous-crowned sparrow**	US: – CA: SA	Steep, rocky coastal sage scrub and open chaparral habitats, particularly scrubby areas mixed with grasslands. From Santa Barbara County to northwestern Baja California.	Year-round, diurnal activity	**Absent.** Suitable habitat is not present within the project site.
Ardea herodias (nesting colony) **Great blue heron**	US: – CA: SA	Usually nests in trees, but also on large bushes, poles, reedbeds, and even on the ground. Frequents a wide range of wetland habitats at other times of year.	February to July at nesting sites; year round elsewhere	**Absent.** Suitable habitat is not present within the project site.
Buteo swainsoni (nesting) **Swainson's hawk**	US: – CA: CT	Open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Breeds and nests in western North America; winters in South America. Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen County, and Mojave Desert. Very limited breeding reported from Lanfair Valley, Owens Valley, Fish Lake Valley, and Antelope Valley. In Southern California, now mostly limited to spring and fall transient. Formerly abundant in California with wider breeding range.	Spring and fall (in migration)	**Absent.** Suitable habitat is not present within the project site.
Campylorhynchus brunneicapillus sandiegensis **Coastal cactus wren**	US: – CA: SSC (year round)	Inhabits coastal sage scrub, nesting almost exclusively in thickets of cholla (Opuntia prolifera) and prickly pear (Opuntia littoralis and Opuntia oricola), typically below 150 meters (500 feet) elevation. Found in coastal areas of Orange County and San Diego Counties, and extreme northwestern Baja California, Mexico.	Year-round (non-migratory)	**Absent.** Suitable habitat is not present within the project site.
Coccyzus americanus occidentalis (nesting) **Western yellow-billed cuckoo**	US: FT CA: CE	Breeds and nests in extensive stands of dense cottonwood/willow riparian forest along broad, lower flood bottoms of larger river systems at scattered locales in western North America; winters in South America.	June through September	**Absent.** Suitable habitat is not present within the project site.

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

Species	Status	Habitat and Distribution	Activity Period	Sample Occurrence Probability
Elanus leucurus (nesting) **White-tailed kite**	US: – CA: CFP	Typically nests in riparian trees such as oaks, willows, and cottonwoods at low elevations. Forages in open country. Found in South America and in southern areas and along the western coast of North America.	Year-round	**Absent.** Suitable habitat is not present within the project site.
Falco peregrinus anatum (nesting) **American peregrine falcon**	US: – CA: CFP	Widespread, but scarce and local throughout North America. Wetlands near high cliffs; few known to nest in urban settings on tall buildings.	Year-round	**Low.** While there is marginally suitable nesting habitat in the way of non-native trees within the project area, no remnant nests were observed during the November 1, 2024, field survey and no occurrences have been recorded within 2 miles of the project site (CNDDB 2024).
Icteria virens (nesting) **Yellow-breasted chat**	US: – CA: SSC (breeding)	Riparian thickets of willow, brushy tangles near watercourses. Nests in riparian woodland throughout much of western North America. Winters in Central America.	April through September	**Absent.** Suitable habitat is not present within the project site.
Laterallus jamaicensis coturniculus **California black rail**	US: – CA: CT/CFP	Requires shallow water in salt marshes, freshwater marshes, wet meadows, or flooded grassy vegetation. Prefers areas of moist soil vegetated by fine-stemmed emergent plants, rushes, grasses, or sedges, with scattered small pools. Known from coastal California, northwestern Baja California, the lower Imperial Valley, and the lower Colorado River of Arizona and California. Now extirpated from virtually all of coastal Southern California.	Year-round	**Absent.** Suitable habitat is not present within the project site.

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

Species	Status	Habitat and Distribution	Activity Period	Sample Occurrence Probability
Polioptila californica californica **Coastal California gnatcatcher**	US: FT CA: SSC	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 meters (1,640 feet) elevation in cismontane southwestern California and Baja California.	Year-round	**Absent.** Suitable habitat is not present within the project site.
Setophagia petechia (nesting) **Yellow warbler**	US: – CA: SSC (breeding)	Riparian woodland while nesting in the western U.S. and northwestern Baja California; more widespread in brushy areas and woodlands during migration. Occurs from western Mexico to northern South America in winter. Migrants are widespread and common. Three subspecies breed in California: *morcomi, brewsteri,* and *sonorana.* (Sonoran yellow warbler nests along the Colorado River.)	Summer, winter, or year-round, depending on locale	**Absent.** Suitable habitat is not present within the project site.
Sternula antillarum browni (nesting colony) **California least tern**	US: FE CA: CE/CFP	Nests along the coast from San Francisco Bay south to northern Baja California. Forages in shallow water. Colonial breeder on bare or sparsely vegetated, flat substrates, sand beaches, alkali flats, landfills, or paved areas.	April through October	**Absent.** Suitable habitat is not present within the project site.
Vireo bellii pusillus **Least Bell's vireo**	US: FE CA: CE	Riparian forests and willow thickets. The most critical structural component of Least Bell's Vireo habitat in California is a dense shrub layer 2 to 10 feet (0.6–3.0 meter) above ground. Willows usually dominant. Nests from central California to northern Baja California. Winters in southern Baja California.	April through September	**Absent.** Suitable habitat is not present within the project site.
Mammals				
Choeronycteris mexicana **Mexican long-tongued bat**	US: - CA: SSC	Occasionally found in San Diego County, which is on the periphery of their range, and very rarely seen in Orange County. Last known Orange County observation was in 1995. Feeds on nectar and pollen of night-blooming succulents and has been observed drinking from hummingbird feeders in suburban and rural settings. Roosts in relatively well-lit caves, and in and around buildings.	Year-round; nocturnal	**Absent.** Suitable habitat is not present within the project site.
Eumops perotis californicus **Western mastiff bat**	US: – CA: SSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.; roosts in crevices in vertical cliff faces, high buildings, and tunnels, and travels widely when foraging.	Year-round; nocturnal	**Absent.** Suitable habitat is not present within the project site.

SPECIAL-STATUS SPECIES OCCURRENCE PROBABILITY

Species	Status	Habitat and Distribution	Activity Period	Sample Occurrence Probability
Myotis yumanensis **Yuma myotis**	US: – CA: SA	Common and widespread in California, ranging generally from sea level to 2,440 meters (8,000 feet). Generally urban-adapted. Roosts in crevices within bridges, buildings, culverts, cliff crevices, caves, mines, and trees, typically near a perennial water source. Also documented roosting in swallow nests.	Year-round; nocturnal	**Low.** May roost in the crevices behind the exfoliating bark of several trees within the project site.

US: Federal Classifications
FE = Listed as Endangered.
FT = Listed as Threatened.

CA: State Classifications
CE = Listed as Endangered.
CT = Listed as Threatened.
CFP = California Fully Protected.
SA = Special Animal. Refers to any other animal monitored by the Natural Diversity Data Base, regardless of its legal or rarity status.
SSC = Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.

CNPS Designations:
1A = Plants presumed extinct in California and rare/extinct elsewhere.
1B.1 = Rare, threatened, or endangered in California and elsewhere.
1B.2 = Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California.
2B.2 = Plants rare, threatened, or endangered in California but more common elsewhere; fairly threatened in California.

CA = California
CNPS = California Native Plant Society
US = United States

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APPENDIX C

HISTORIC RESOURCES EVALUATION

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LSA

CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: November 26, 2024

TO: Richard De Jong, Senior Project Manager, OC Public Works

FROM: Eugene Heck, M.A., Cultural Resources Manager/Architectural Historian

SUBJECT: Historic Resources Evaluation for Orange County Juvenile Hall in the City of Orange, Orange County, California (LSA Project Number OCY2100.48)

LSA Associates, Inc. (LSA) completed a historical evaluation of the property at 331 The City Drive South (a portion of Assessor's Identification Number 231-271-10) in the City of Orange (Attachment A, Figure 1, Project Location and Vicinity). The County of Orange proposes to demolish several buildings or portions of buildings within the Juvenile Hall facility. Because some of these buildings are 50 years of age or older, in compliance with the California Environmental Quality Act (CEQA), they are required to be evaluated for historical significance as part of the environmental review and permitting processes. Since this is an integrated facility that operates in conjunction with the adjacent court and probation department, the Historical Resources Survey Area (approximately seventeen acres) included the Manchester Office Building (MOB/probation department) and the Betty Lou Lamoreaux Juvenile Justice Center (LJC) in addition to the Juvenile Hall campus, which is also developed with the Youth Leadership Academy (YLA) (Attachment A, Figure 2, Historical Resources Survey Area). The Juvenile Hall was constructed in 1959 and the most recent building on the campus, the Multipurpose Recreation Center (MRC), was built in 2022 (Attachment A, Figure 3, Building Identification Map).

In support of the historical evaluation effort, LSA conducted research and an intensive-level field survey. The property was documented on California Department of Parks and Recreation (DPR) 523A (Primary Record) and 523D (District Record) forms and identified on a DPR Location Map (Attachment B, DPR Forms). It was evaluated using the criteria for listing in the California Register of Historical Resources (California Register) and the City of Orange (City) criteria for historic districts. The total count of all buildings surveyed is twenty-seven, eight of which have achieved age fifty.

As a result of LSA's evaluation of these buildings, it was determined that only seven of the twenty-seven buildings, about 26 percent, were built during the period of significance (1959–1979), retain integrity, and contribute to a well-defined and visually distinct geographic and historical entity (historic district.) None of them are individually historically significant for an association with any historical events or trends, patterns of development, or people important to history. Although the buildings embody elements of the Modern style and the Contemporary style, they do not individually or as a group rise to a level beyond the ordinary or possess high artistic values, and none are the work of a master designer or builder. Better examples of government buildings exist locally, both individually and as contributors to historic districts.

For these reasons, the buildings within the Historical Resources Survey Area at 331 The City Drive South do not qualify as a "historical resource" as defined by CEQA either individually or collectively. For purposes of this project, the Lead Agency may make a finding of "no impact" regarding built environment historical resources within the Historical Resources Survey Area.

Attachments: A: Figures
B: DPR Forms

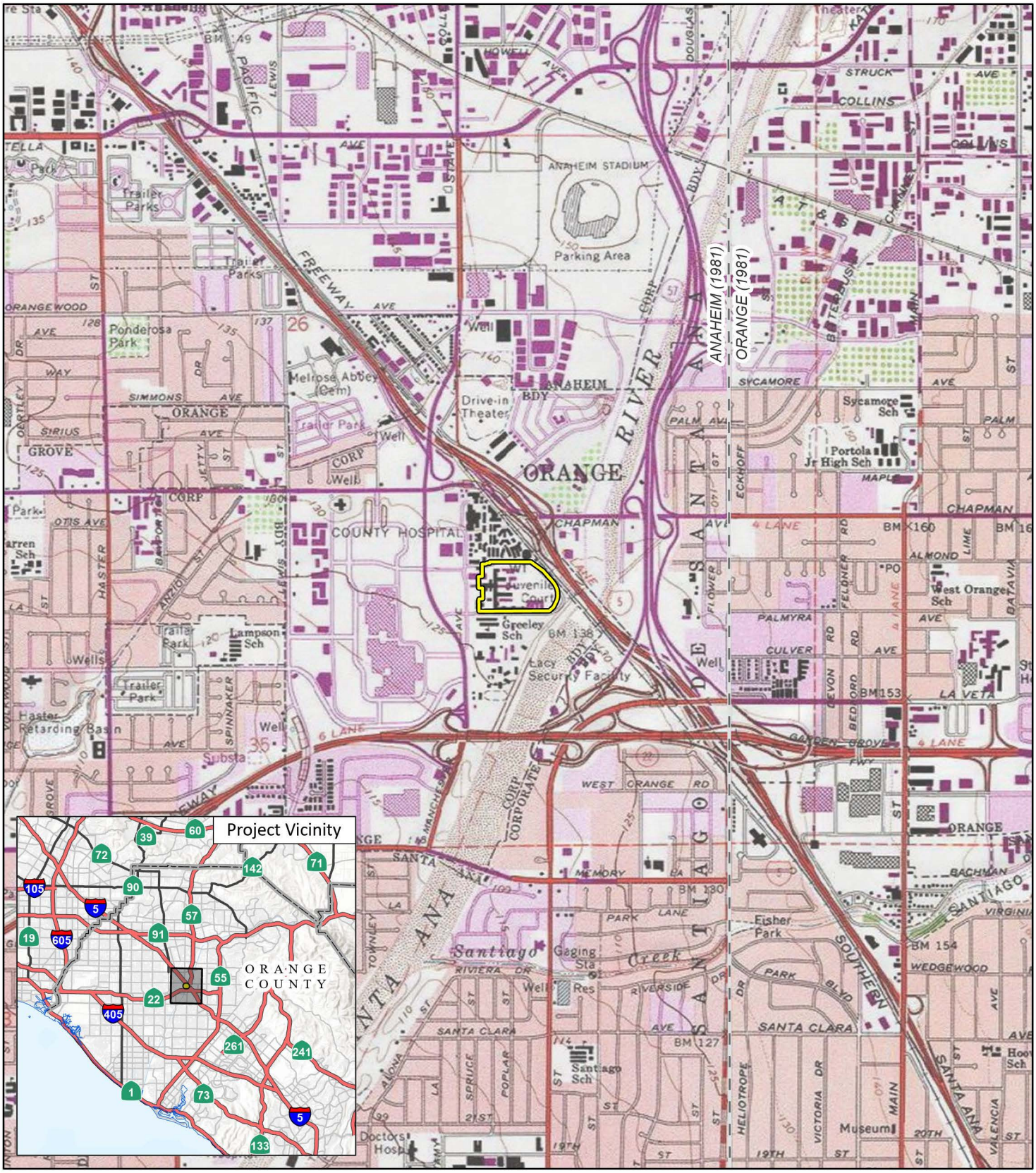
ATTACHMENT A

FIGURES

Figure 1: Project Location and Vicinity

Figure 2: Historical Resources Survey Area

Figure 3: Building Identification Map



LSA

FIGURE 1

Orange County Youth Transition Center Juvenile Hall Replacement Project

Project Location and Vicinity

SOURCE: USGS 7.5' Quandrangles: *Anaheim, CA* (1981) and *Orange, CA* (1981).

I:\O\OCY2001.48\GIS\Pro\Orange County Youth Transition Center Juvenile Hall Replacement Project\Orange County Youth Transition Center Juvenile Hall Replacement Project.aprx (10/21/2024)

LSA

Historical Resources Survey Area

FIGURE 2

N

0 60 120
FEET

SOURCE: Google Maps (2024)

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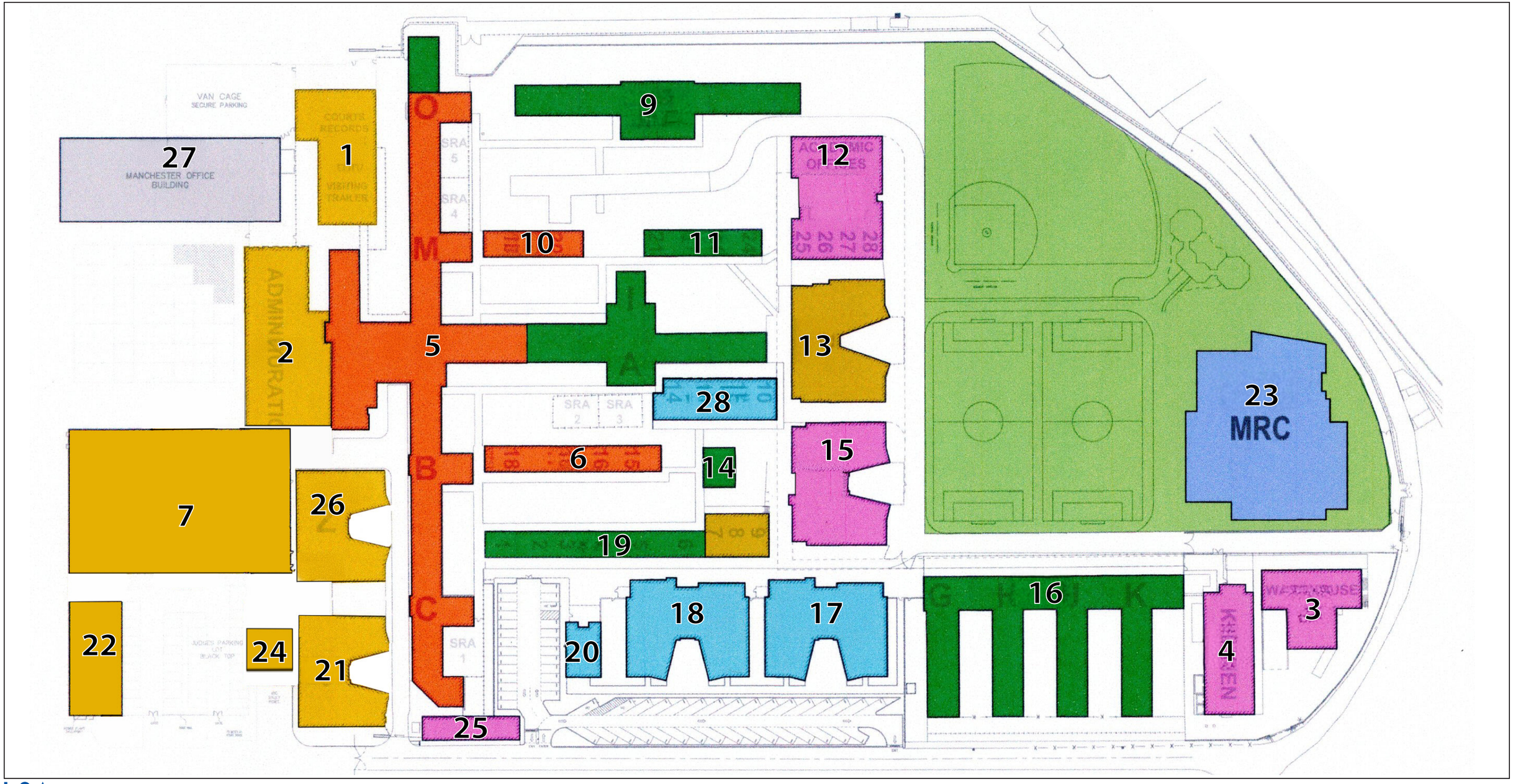
Orange County Youth Transition Center Juvenile Hall Replacement Project

Hisotrical Resources Survey Area



LSA

Major Construction			
	Year	Plan Description	Plan Set
	1957	Juvenile Hall Original Construction	20306-44
	1965	MOB Original Construction	20304-237
	1968	Juvenile Hall Expansion	20306-303
	1993	LJC Original Construction	20335-1717
	1996	30 Bed Expansion	20306-2043
	2000	Renovate / Irrigate Athletic Fields	20306-03130
	2005	60 Bed Expansion	20324-03289
	2007	Youth Leadership Academy	20307-03344
	2022	MRC Original Construction	A0272-03805

NOTES:

1) Building #8 is intentionally left blank. Field survey verification established that it is not a building; it is an addition to the existing Building #19.

2) The year of construction for each building is assumed to be the year of major construction on the Plan Set, unless otherwise noted on the associated DPR 523a, attached.

FIGURE 3

NOT TO SCALE

SOURCE: OC Public Works

I:\O\OCY2001.48\G\Building_Map.ai (11/13/24)

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Building Identification Map

ATTACHMENT B

DPR FORMS

DISTRICT RECORD

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): OC Juvenile Hall

D1. Historic Name: Manchester Complex **D2. Common Name:** Juvenile Hall

***D3. Detailed Description:** (Discuss overall coherence of the district, its setting, visual characteristics, and minor features. List all elements of district.): The district covers approximately seventeen (17) acres in an urban area south of Interstate 5 and west of the Santa Ana River. Table 1 lists all elements of the district: twenty-seven (27) government buildings. Minor features include Secure Recreation Areas (SRAs), athletic fields, courtyards, and parking. The overall visual continuity is poor. The buildings were constructed during three different time periods (1959-1960s, 1990s, and 21st century), and the original buildings contrast sharply with the two later periods. However, care was taken to make the Lamoreaux Justice Center (LJC) compatible with the Manchester Office Building (MOB), and the expansions of existing buildings were done with sensitivity. Two styles of architecture are present: Modern and Contemporary. Character-defining features of the Modern style were seen, such as the use of glass block, low-pitch front gables, slender metal canopy supports, and pebble stone wall cladding. An emphasis on horizontality and the use of red brick was a frequent choice in c. 1960 K-12 public schools, but the prevalence of chain-link fencing and coiled razor wire distinguish this campus visually from more typical suburban K-12 campuses. A variety of building types were identified, including classrooms, a library, office buildings, a courthouse, prefabricated buildings, housing units, a kitchen, and a laundry. Of the twenty-seven buildings inventoried, only nine were constructed during the historic period (1959-1979) and only seven of those retain sufficient integrity with respect to materials, workmanship and design to convey their association with the historic period. Building #5, historically known as "Juvenile Hall" and by far the largest building dating to the historic period, has been substantially altered. Many other historic-period buildings seen on historic aerial photos and As-Built plans are no longer extant. *(See Continuation Sheet)*

***D4. Boundary Description** (Describe limits of district and attach map showing boundary and district elements): **North:** Dawn Rd., **East:** Sidwell Way, **South:** Justice Center Way, **West:** Hospital Frontage Rd. *(See Continuation Sheet)*

***D5. Boundary Justification:** The buildings within the survey area are all civic buildings owned by the County of Orange, California and used by the Orange County (OC) Probation Department or the Juvenile Court. The boundary corresponds to the "Juvenile Hall Complex Grounds," as drawn by the Building Services Department, County of Orange, on a map dated 9/23/1971.The Plot Map from the original construction plan set for OC Juvenile Hall depicts roads in 1957. Only Dawn Road was extant, on a different alignment from today's Dawn Road. *(See Continuation Sheet)*

***D6. Significance: Theme:** _____ **Area:** _____
Period of Significance: _____ **Applicable Criteria:** None
(*Discuss district's importance in terms of its historical context as defined by theme, period of significance, and geographic scope. Also address the integrity of the district as a whole.*)
Only seven out of twenty-seven buildings in the study area retain sufficient integrity to contribute to a potential historic district. None of these buildings meet the criteria for listing in the California Register of Historical Resources (CRHR), either individually or as contributors to a historic district. No historical resources were identified for the purposes of the California Environmental Quality Act (CEQA) *(See Continuation Sheet)*

***D7. References** (*Give full citations including the names and addresses of any informants, where possible.*):

AIA Historical Directory of American Architects
Var. Accessed online in October and November 2024 at: https://aiahistoricaldirectory.atlassian.net/wiki/spaces/AHDAA/overview?homepageId=20644018

Anaheim Bulletin
1959a Supervisors Support Boy's Ranch Program. Apr 9, page 9.
1959b County Probation Service Has Humble Beginning. Jul 20, page 20.
1965 Manchester Complex Report to be Updated. Mar 4, page 8.

Ancestry.com
Var. Accessed online in October and November 2024 at www.ancestry.com

Architectural Record
1971 "Correctional Architecture: The Symptoms of Neglect, The Signs of Hope". Volume 150 Issue 2, Aug 1971, pages 109-124. Accessed online in October and November 2024 at www.architecturalrecord.com

(See Continuation Sheet)

***D8. Evaluator:** Eugene Heck, M.A. **Date:** November 2024
Affiliation and Address: LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507

*D3. **Description** (continued from page 1)

Table 1. Annotated Inventory

Building No.	Scheduled for Demo?	Date Constructed	Style/Form	Class
1	No (N)	1993	Prefabricated Bldg.	Noncontributor (NC)
2	N	1993	Contemporary	NC
3	N	2005	Contemporary	NC
4	N	2005	Contemporary	NC
5	Partial demolition	1959	Modern	NC (substantially altered)
6	Yes	1959	Modern	Contributor (C)
7	N	1993	Contemporary	NC
9	Yes	1968	Modern	C
10	Yes	1959	Modern	C
11	Yes	1968	Modern	C
12	Yes	2005	Contemporary	NC
13	N	1993	Contemporary	NC
14	N	1968	Modern	C
15	N	2005	Contemporary	NC
16	Yes	1968	“Comb”	C
17	N	2007	Contemporary	NC
18	N	2007	Contemporary	NC
19	N	1968; 1996	“Ell”	NC (altered)
20	N	2007	Contemporary	NC
21	N	1993	Contemporary	NC
22	N	1993	Contemporary	NC
24	N	1993	Contemporary	NC
25	N	2005	Contemporary	NC
26	N	1993	Contemporary	NC
27	N	1967	Modern	C
28	Yes	2007	Contemporary	NC

Summary: Seven of twenty-seven (or about 26 percent) of the buildings are contributors to a potential historic district. The threshold is half (50 percent).

URBAN SETTING (This discussion is adapted from Chapter II. BACKGROUND FOR PLANNING – OC Public Works, 2002.)

In 1810, the first land grant in what is now Orange County was established east and south of the Santa Ana River. Like much of coastal Southern California, the area remained sparsely populated and dominated by large ranches dedicated to raising cattle for many decades. By 1850, the future Orange County comprised the southern tip of Los Angeles County. The population of the area totaled 500. Gradually, the frontier community began to change, particularly with the development of Anaheim in 1857, which was founded by German immigrants interested in establishing a wine-producing colony. As early as 1870, Orange County residents sought to separate themselves from Los Angeles County. By the late 1800s, Orange County residents had mobilized enough political support to pass the secession measure, despite opposition by Los Angeles County, in the State legislature. Orange County was given jurisdictional autonomy on March 11, 1889. The 1890 census documents the Orange County population as 13,589.

Until the 1940s, Orange County’s economy was based largely on agriculture, especially citrus. With the rapid southward expansion of Los Angeles’s population and industrial development, Orange County’s economy began to change, particularly in the northern parts of the county. In 1940, twice as many workers were employed in agriculture as in manufacturing. Orange County's demographic explosion began with the onset of the military buildup for the Second World War and continued with the post war expansion of California. Between 1940 and 1960, Orange County's population grew from 130,000 to more than 700,000, transforming the county into a major suburban outpost for an ever-expanding Los Angeles. Today, the setting for the proposed project is urban, with few signs of citrus heritage other than place names. *(See Continuation Sheet)*

***D3. Detailed Description** (continued from page 2)

DRONE PHOTOGRAPHY of October 5, 2023. Courtesy of OC Public Works.

View northeast. Building #16 (1968) has a “Comb”-shaped plan. Four large air-conditioning (AC) units are seen on the flat roof. It is scheduled to be demolished during Phase II of the proposed project. The adjacent athletic field is used for soccer. Note the security fence with its curved poles. It is designed to prevent a person from climbing over it, when approached from the concave side. Refer to the Building Map on Continuation Sheet 23.

(See Continuation Sheet)

***D3. Detailed Description** (continued from page 3)

DRONE PHOTOGRAPHY October 5, 2023. Courtesy of OC Public Works.

View northwest. Building #20 (the small rectangular one in the upper left) and the two large buildings to the right of it (#18 and #17) comprise the Youth Leadership Academy (YLA). The long building behind Building #20 and #18 is Building #19 (1968). During the 30 Bed Expansion (1996), Building #19 was altered by the addition of housing at its east end. A change of the roof cladding is visible. This addition to Building #19 was assigned as Building #8 based on preliminary research, but the field survey confirmed it is merely an addition to an existing building, so Building #8 has been dropped from the building count.

The tiny building behind Building #19 and its addition is Building #14 (1968), which has not been altered since the historic period. Refer to the Building Map on Continuation Sheet 23.

(See Continuation Sheet)

***D3. Detailed Description** (continued from page 4)

DRONE PHOTOGRAPHY dated October 5, 2023. Courtesy of OC Public Works.

View northwest. Barely visible in the upper left corner of this photo is the “Central Plant” of the Lamoreaux Justice Center (LJC), The brick building in the center of the photo, with the grey roof, is the southern end of Building #5. To the left of it, enclosed by high concrete walls, is Building #25, the Emergency Generator. The basketball court adjacent to the southern end of Building #5 is SRA 1. Refer to the Building Map on Continuation Sheet 23.

(See Continuation Sheet)

***D3. Detailed Description** (continued from page 5)

DRONE PHOTOGRAPHY of October 5, 2023. Courtesy of OC Public Works.

View northeast. At the top of the photo, left of center, is the library and office, Building #12. At the lower left is Building #11 (1968) and beneath that is the addition to Building #5, with SRA 2 and SRA 3 adjacent to it and Building #28. Refer to the Building Map on Continuation Sheet 23.

(See Continuation Sheet)

***D3. Detailed Description** (continued from page 6)

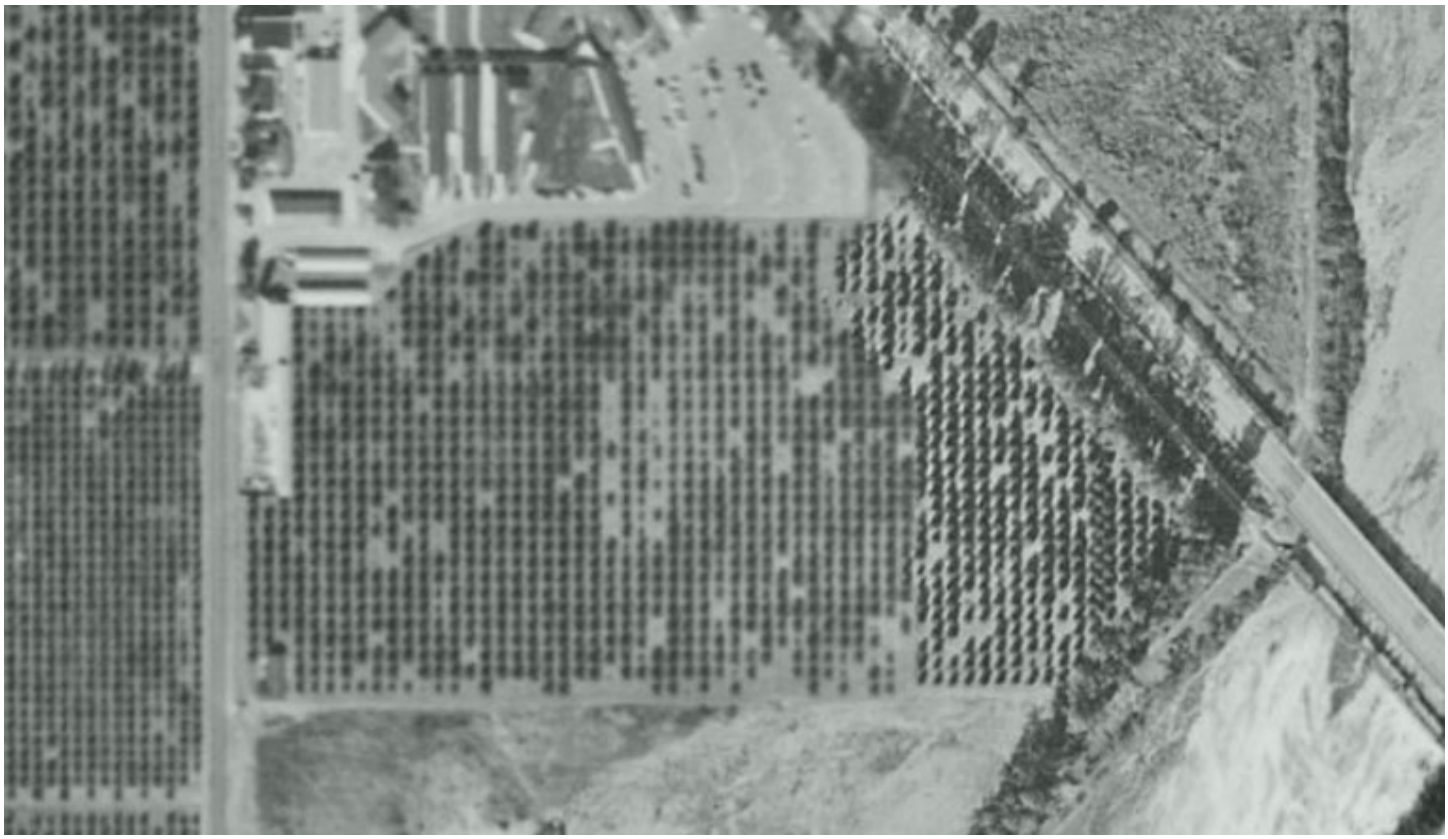
DRONE PHOTOGRAPHY of October 5, 2023. Courtesy of OC Public Works

View east-northeast. All the buildings seen here are scheduled for Phase I demolition: two wings of Building #5, and Buildings #9, #10, #11, and #12. Refer to the Building Map on Continuation Sheet 23.

(See Continuation Sheet)

***D3. Detailed Description** (continued from page 7)

Historic aerial photographs (Orange County GIS var.)



Survey area in 1953

A four-lane divided highway runs parallel to the Southern Pacific Railroad right-of-way (ROW) and tracks. A double row of Eucalyptus trees has been planted as a windbreak (dark areas of the photo.) The buildings are part of the County Hospital and Poor Farm, as are the orange groves that dominate the setting.

(See Continuation Sheet)

***D3. Detailed Description** (continued from page 8)

Historic aerial photographs (Orange County GIS var.)

Survey area in 1960.

Orange groves continue to dominate the setting during the first year of operations at Juvenile Hall. The separate building west of Juvenile Hall is the Albert Sitton Home for Children. The two white buildings south of the Sitton Home and Juvenile Hall are the J.P. Greeley Grammar School.

The entire eastern half of the Juvenile Hall campus remains orange groves. The Eucalyptus windbreak along the eastern boundary of the Juvenile Hall campus remains part of the setting, but the highway has been replaced by Interstate 5.

North of Juvenile Hall, the County Hospital has added many new buildings.

(See Continuation Sheet)

***D3. Detailed Description** (continued from page 9)

Historic aerial photographs (Orange County GIS var.)

Survey area in 1970.

Athletic fields and Building #16 have replaced the orange groves on the east side of the Juvenile Hall campus. There are a few signs of agriculture west of the survey area; the Eucalyptus windbreak is still seen, as is heavy vegetation along the Santa Ana River flood control channel (lower right corner of the photo.)

The setting has suffered a marked loss of integrity by 1970, and the next photo shows a completely urban setting in 1980.

(See Continuation Sheet)

D3. Detailed Description (continued from page 10)

Historic aerial photographs (Orange County GIS var.)

Survey area in 1980.

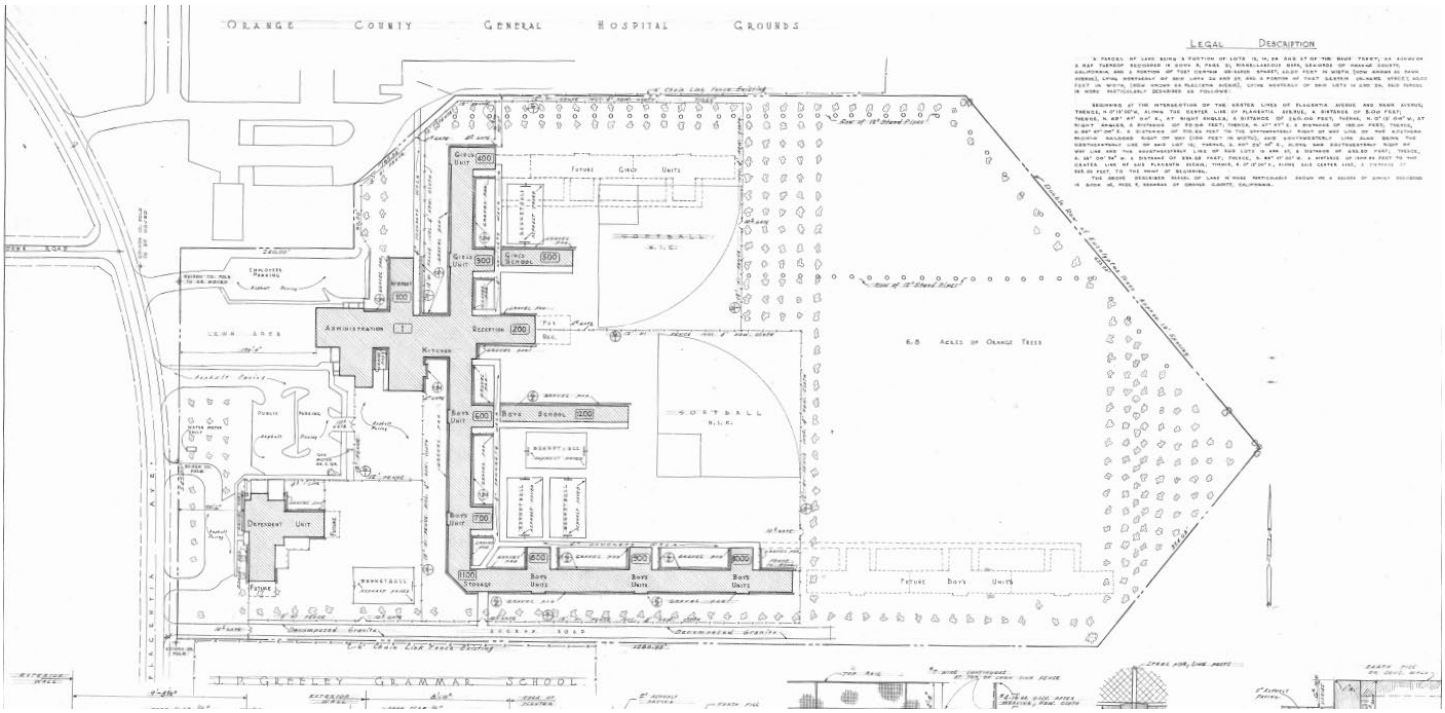
The setting is urban.

***D4. Boundary Description** (continued from page 1)

The Youth Guidance Center (YGC) is located about 700 feet southeast of the Historical Survey Area seen on the DPR Location Map attached to this DPR 523D; the YGC is outside the city limits and across the Santa Ana River within the city of Santa Ana. Like the Youth Leadership Academy (YLA), it is part of the juvenile detention facility run by the Probation Department. However, the YGC is outside the boundaries of the Historical Survey Area because no component of the proposed project has the potential to affect the YGC.

(See Continuation Sheet)

***D5. Boundary Justification** (continued from page 11)



Plot Plan from the Original Construction Plan Set for OC Juvenile Hall (Sheet 3).

Note:

- Roads differ from today. Northern boundary: no road, just an existing chain link fence. Dawn Road has a different alignment. Eastern boundary: no road, just a double row of eucalyptus trees spaced ten feet apart. Southern boundary: a service road surfaced with deteriorated granite (DG) partially runs the length of the southern boundary. Western boundary: Placentia Avenue on a different alignment from today's Hospital Frontage Road.

- The original setting is described on this Plot Plan: 6.8 acres of orange trees, County General Hospital, J.P. Greeley Grammar School.

- All the elements of Juvenile Hall are identified: Unit A (Administration/Reception/Kitchen/Infirmary), the Girls School and the Boys School; the Girls Living Unit and the Boys Living Units. Future Units (unbuilt) are indicated.

- The "Dependent Unit," also known as the "Albert Sitton Home," is west of Juvenile Hall and north of the service road. In 1976, the Albert Sitton Home transferred from the Probation Department to the Orange County Social Services Agency and eventually came to occupy the J.P. Greeley Grammar School site as the Orangewood facility (OC Probation n.d.). The Dependent Unit was demolished as part of the project to build the Lamoreaux Justice Center (1993).

- A Legal Description is provided in the upper right corner of this Plot Plan.

(See Continuation Sheet)

***D6. Significance** (Historic Context continued from page 12)
The theme of Juvenile Justice was researched, specifically, the history of the Orange County Probation Department. From this research emerged two historic trends relevant to an understanding of the OC Juvenile Hall. First, during the historic period (1959-1979), the funding and construction of juvenile detention facilities were not commensurate with either the demographic growth of Orange County or the growth of the juvenile detention/incarceration rate. Second, a historical trend known as the Reform School Movement, which began in the 19th century and ended in the 20th century with the passage of the Juvenile Justice and Delinquency Prevention Act of 1974.

HISTORIC CONTEXT (The following is adapted from the Legislative Analyst's report of January 15, 1997, "California's Jails and Juvenile Detention Facilities".)

Changes in California's population, increasing numbers of persons arrested for crimes, and changes in law have had significant impacts on local correctional facilities for adult and juvenile offenders. Even before California's passage of the "Three Strikes" law in 1994, many of those arrested for crimes were never booked into jail and thousands of offenders were released after serving only a fraction of their jail sentence because of a lack of space (LAO 1997). While the State's juvenile detention facilities remained virtually unchanged over the period 1967-1997, the types of juvenile offenders became more violent, and the number of offenders increased.

California's 58 counties are responsible for detaining, in secure facilities, both juveniles and adults who (1) have been arrested for a crime and are awaiting trials or court decisions, or (2) are serving time for committing a crime (Ibid). Adult offenders are housed in county jail facilities. Jail facilities are generally the responsibility of the County Sheriff. Juveniles are housed in juvenile halls or other county detention facilities, such as ranches and camps. County juvenile detention facilities are generally the responsibility of the county's Chief Probation Officer. The adult and juvenile local detention facilities are literally the "front door" of the State's criminal justice system.

Juvenile offenders in counties are subject to a continuum of care where services are provided by the county probation departments and other county and private agencies for prevention, intervention, supervision, and detention (Ibid). Statewide there were more than 50,000 juvenile offenders under the supervision of probation departments. The offenders are supervised in their homes or in other placements, such as group homes or foster care homes, or detained in juvenile halls, ranches, or camps. Juvenile halls, ranches, and camps, serve the same detention function for juveniles as jails do for adults. In 1993-1994 (the most recent data available when the Legislative Analyst's Office [LAO] authored this report), statewide probation costs for adults and juveniles were $811,000,000, with most of these costs being born by the county.

Juvenile Halls

Juvenile offenders, after being arrested, are detained in local juvenile halls, usually for short stays. While in the hall, juvenile offenders go to school and participate in various recreational and other programs. Juveniles placed in juvenile halls usually are awaiting court action. Many of these youths are being detained for very serious or violent offences. In 1997, there were 47 juvenile halls operated by 43 counties. Juvenile halls housed more than 6,400 juvenile offenders. Juvenile offenders held for violent offences accounted for half of the juvenile hall population. Ranches and camps in 25 counties housed more than 4,000 juvenile offenders (Ibid). Juvenile offenders held for violent offenses accounted for 35 percent of the population in ranches and camps. Almost all the halls reported overcrowding. The overcrowding was due primarily to the growth in the number of juvenile offenders. Juveniles who were awaiting trial as adults, were also detained in juvenile halls. Because of federal law, juveniles under most circumstances cannot be held in adult jail. The federal law requires that juvenile offenders cannot come in "sight or sound" contact with an adult criminal offender. Consequently, only a very small number of jails can house juveniles, ten counties with only 138 beds in 1995.

Juvenile offenders awaiting trial in adult court could stay in a juvenile hall for months and sometimes years. In contrast, the average juvenile offender awaiting a hearing before the juvenile court was detained for less than a month. At the main juvenile hall in Los Angeles, an average of up to 200 juveniles out of a total of 750 were offenders awaiting trial in adult court for murder or other serious or violent crimes (Ibid). *(See Continuation Sheet)*

***D6. Significance** (Historic Context continued from page 13)
Some smaller counties reported that most of their beds at any time are occupied by these types of offenders. Because of overcrowding, many counties reported that their juvenile halls would not accept many juveniles who had been arrested. Police agencies, when they must arrest the juvenile, bring the offender to the juvenile hall. However, the probation department makes the decision to book and detain the juvenile offender. If the hall is full of violent offenders or with those awaiting trial in adult court, the arrested juvenile is not booked because no space is available. When the juvenile offender is not booked, he or she is released to the custody of parents and returned to the community. In some counties, a juvenile might be arrested several times for property offenses, such as burglary or car theft, before he or she is booked into juvenile hall.

The Reform School Movement (The following is adapted from "Delinquent Children: The Juvenile Reform School" by Steven Schlossman.)

The New York House of Refuge, which opened on January 1, 1825, is acknowledged to be the first of the early reform schools (Schlossman: 327). The principal legal justification for reform schools in the United States in the 1820s was the doctrine of *parens patriae.* A medieval English doctrine of nebulous origin and meaning, *parens patriae* originally sanctioned the right of the crown to intervene in natural family relations whenever a child's welfare was threatened. As part of its legal inheritance from England, every American state in the 19th century affirmed its right to stand as guardian, or super parent, of all minors (Schlossman: 328). The landmark decision that established the legal foundations of the reform school, by incorporating *parens patriae* into American juvenile law, was *Ex parte Crouse,* delivered by the Pennsylvania Supreme Court in 1838 (Ibid).

A true Reform School Movement did not emerge in the United States or Western Europe until after the mid-19th century. Outside of a few major industrial cities such as Boston, Philadelphia, Bristol, Hamburg, and Paris, reform schools did not initially carry wide appeal (Schlossman: 329). In Europe, the sponsorship of reform schools was overwhelmingly private rather than public. In the United States, the issue of reform schools lacked the degree of consensus that had helped build widespread support for public schools, prisons, and mental asylums in the 1830s and 1840s (Ibid). From the start, the Reform School Movement was divided by internal discord over disciplinary methods, strategies for the rehabilitation of juvenile delinquents (whether religious or educational), and proper architectural design.

The fight about architecture was one of the more heated debates in juvenile corrections during the second half of the 19th century. There are basically two ways to design a reform school: by a *congregate* system or by a *cottage* system (Schlossman: 332). Advocates of the cottage system confidently claimed that reform schools based on congregate organization could never aspire to be more than junior prisons. They shouted that cottage reform schools could *rehabilitate* their charges, provided the surrogate parents (staff) were chosen with great care. The defenders of congregate institutions rejected this contention. As insistently as the advocates of the cottage system, they invoked family metaphors to describe their intent and their actual programs. This debate is difficult to appreciate in the 21st century, when it seems obvious that it is possible to discipline a youth regardless of whether they sleep and work in cottages of 30 or in dormitories and workplaces of several hundred. The key factor then, as now, is the staff's sentiment, rather than the architecture (Ibid).

Of the experimental reform schools, the Whittier State Reform School in Los Angeles County was influential not just regionally and nationally, but internationally. In 1912, the progressive Governor Hiram Johnson appointed an L.A. businessman, Fred C. Nelles, superintendent of Whittier (Schlossman: 340.) The reform school had been built earlier on the congregate design and was reputed to be nothing more than a scaled down prison for juveniles. Nelles was determined to push California to the vanguard of correctional practice. Over the next fifteen years, he cultivated personal support from state legislators so successfully that he was able to fundamentally overhaul the structure and operations of the institution. Nelles got the psychology departments at UCLA and Stanford actively engaged in clinical evaluations of his wards (Ibid). The centerpiece of his treatment plan was the clinical diagnosis of inmates' behavioral problems. He allowed the boys to wear their own clothes rather than uniforms, abolished corporal punishment, and rebuilt the facility according to the cottage, rather than the congregate, design. *(See Continuation Sheet)*

***D6. Significance** (Historic Context continued from page 14)
Strict separation of boys and girls was the rule at all reform schools. In America, many reform schools for girls resembled traditional prisons and regularly employed disciplinary measures such as flogging, solitary confinement, cold water baths, nausea inducing drugs, severely restricted diets, and head shaving, but a few institutions—such as Sleighton Farms in Pennsylvania, the State School for Girls in Connecticut, and El Retiro in Los Angeles—earned reputations for educational innovation that equaled or surpassed those attained at the Whittier State Reform School (Schlossman: 342). The best-known advocates for the new approaches to female juvenile corrections were Martha Falconer, the Superintendent of Sleighton Farms, and Miriam van Waters, the Superintendent of El Retiro in Los Angeles County. As described by them, the modern reform school for girls shared the characteristics of a psychological clinic, a sanitorium, a country day school, a working farm, a home economics department, and a pastoral college campus.

Notwithstanding the innovative approaches of a few experimental reform schools, girls continued to be branded delinquent and incarcerated primarily for out-of-wedlock sexual activity (Schlossman: 343). Illicit sex by female youth was presented as both a medical and a biological threat to society. On the one hand, the "sex delinquent" was alleged to be a key carrier of venereal disease (Ibid). On the other, the "sex delinquent," by giving birth to children alleged to be mentally or biologically inferior, was identified as a major threat to the genetic purity of the population. Indeed, female "sex delinquents" were a prime object of the eugenicists' most prominent policy instrument, sterilization. Girls' reform schools played a key role in identifying inmates for the sexual surgery (e.g., tubal ligation), usually by discharging them from the reform school and having them placed at a special state hospital for "feebleminded" and/or recalcitrant "sex delinquents."

Post War Period

Several major changes in the characteristics of American reform schools and their inmates emerged after World War II. First, the total number of juveniles in reform schools increased substantially. Between 1950 and 1970, the population under confinement jumped by over 75 percent, from 35,000 to 62,000 inmates (Schlossman: 344). The rate of juvenile incarceration increased as well from 127 to 156 per 100,000 juveniles. Second, the number of publicly operated reform schools grew to nearly 200, and this figure excluded several hundred more camps, group homes, and private institutions that might fairly be regarded as *mini*-reform schools. Third, the share of reform school inmates who were female declined from its high of approximately 33 percent to approximately 20 percent, the same as in the late 19th century. Fourth, while the share of immigrant youth in reform schools declined dramatically, the share of African American youth grew rapidly, reaching 40 percent by 1970. Finally, although the average age at commitment remained steady at 16, the average length of stay continued its century-long decline, so that by 1970, it was under one year.

The early 1970s were an especially discordant time in the history of American juvenile corrections. As a result, two of the trends just outlined were reversed: both the number of youths incarcerated, and the rate of juvenile incarceration declined during this decade. However, there is good reason for skepticism about these statistics. It may be that many juveniles who once would have been incarcerated in reform schools were sent to smaller group homes and private custodial institutions instead. In any event, the rate of juvenile incarceration was soon on the rise again and by the mid-1980s reached an all-time high of over 200 per 100,000 juveniles. By the early 1980s, the total reform school population was also expanding, fueled by the growing share of African American youth, who now composed more than 50 percent of the inmates.

The early 20th century search for new strategies in juvenile corrections came to a resounding halt in the third quarter of the 20th century. Most professionals in child welfare and law enforcement had already lost faith in the reform school as a desirable placement for delinquent youth. But the new commitment to deinstitutionalization or the emerging Community Treatment Movement of the 1960s and 1970s was built on different presumptions. These movements represented a transformation of earlier discouragement and skepticism into total despair. They embraced the utter denial of the traditional claims that reform schools could function more like schools than prisons. The rehabilitative ideal was virtually denied, for children as well as adults, as a legitimate or feasible purpose of Corrections.

(See Continuation Sheet)

***D6. Significance** (Historic Context continued from page 15)

California Youth Authority (CYA)

The last gasp of the Reform School Movement was the creation of the California Youth Authority (CYA) in 1941 (Schlossman: 345). CYA was given administrative responsibility for the State's reform schools in 1942. To remain in good standing, a county Juvenile Hall had to pass CYA inspection and be certified by the CYA. By essentially updating and expanding the 1920s individual treatment philosophy of the Whittier State Reform School, the CYA began to "call the shots". It particularly emphasized the role to be played by "diagnostic centers." All delinquent youths would be sent to diagnostic centers before placement in a particular institution. The diagnostic center would identify the distinctive problems and needs of each youth, with the expectation that an appropriate treatment already existed (or could be devised) to solve his or her individual problems.

Throughout the 1950s, the CYA used its considerable political clout to gain legislative support for a monumental building program to expand and diversify the State's reform schools (Schlossman: 345). The confidence of many local corrections leaders in the State grew. Increasingly sophisticated diagnostic technologies were developed under CYA auspices, culminating in the invention of the Interpersonal Maturity Level, or "I-Level," a standardized screening device (psychological instrument) used to define inmate personality types for purposes of classification and assignment to specific treatment programs (Ibid).

In addition to building several large reform schools, often organized internally by cottages, the CYA popularized a new model of what might be termed *a mini-reform school* (Ibid). This type of correctional camp was introduced in the 1930s by the Juvenile Probation staff in Los Angeles County, as a way for providing depression-era transient youth with a means of earning train or bus fare to return home. The CYA-sponsored camps usually housed between 50 and 70 boys who had been carefully screened for admission. They usually kept the boys incarcerated for not more than six months, after which time the boys were returned to the community on probation or parole. In addition to intensive individual counseling, other CYA-sponsored programs centered on public works projects like park development, conservation, and road construction (Schlossman: 346).

The California model of a mini-reform school became popular in the 1950s in states such as Michigan, Wisconsin, Ohio, Minnesota, Illinois, and Washington. The publications of the CYA were even widely read in Europe (Ibid). But the handwriting was on the wall; all the momentum was in favor of transitioning youth from reform schools to community treatment programs. The credibility of all components of the juvenile justice system was being questioned, but especially that of reform schools, which came under withering review by the courts, legislatures, and a growing army of academicians (Schlossman: 347). An anti-institutional shift took place in American juvenile correctional philosophy, as radical as that which had led to the initial creation of the Reform School Movement in the early 19th century. For many vocal critics in the 1970s, the State had ***a moral obligation*** not to subject the innocence of youth to the cruelty of the reform school (Ibid). Policies were inaugurated in most states to protect juveniles from placement in reform schools unless they had committed persistently serious criminal offenses. Less serious offenders were diverted to small, community-based facilities or did not encounter any part of the juvenile justice system at all (Ibid). In 1976, the California State Legislature passed Assembly Bill (AB) 3121, which prohibited the incarceration of juvenile status offenders (W&I Code 601) (OC Probation n.d.).

OC Probation Department

Early Years

Orange County's earliest government buildings, including the Courthouse and Jail, were built in Santa Ana, the County Seat, on land purchased from W.H. Spurgeon for the sum of $8,000 in the 1890s (Armor 1921; PCAD*).*
(See Continuation Sheet)

***D6. Significance** (Historic Context continued from page 16)
Probation services began in Orange County when Judge Z.B. West, the only Superior Court Judge in the county, appointed a seven-man Probation Committee, one of whom was Albert H. Sitton (Armor 1921; The Register 1959d). The committee was charged with hiring a full-time probation officer and a superintendent for a (then non-existent) Juvenile Hall (Anaheim Bulletin 1959b; Armor 1921; The Register 1959b). The committee appointed J.H. Scott, a Baptist Minister, as the first probation officer in Orange County (Anaheim Bulletin 1959b). It then acquired the old Grand Avenue School in Santa Ana, a four-room, two-story structure, as the first juvenile detention facility (Ibid).

The first few years of operation saw relatively few grants of probation by the courts, but by 1914, a total of 30 children were placed on probation (Ibid). Adult probation services began in 1918, when thirteen adults were placed on probation. Nine of these entered the armed services that year. The department had the first collection of money from adult probationers that year, raising a grand total of $2,354.13 for the support of their dependent minor children (Ibid).

Increased use of probation by the courts led to the construction of a larger facility for the detention of children awaiting court action (Anaheim Bulletin 1959b). It was at 1207 Fruit Street in Santa Ana, and it went into operation in 1924 (Ibid).

By 1951, the Fruit Street Juvenile Hall was overcrowded and needed to be expanded. A Legal Notice indicates the Board of Supervisors rescinded an order authorizing David McMillan, Probation Officer, to submit plans and specifications for a proposed Juvenile Hall to the Youth Authority for approval, and for the architect Gates W. Burrows to submit same to the Santa Ana Building Inspector, the Santa Ana Fire Marshall and N.P.A. for approval. Instead, the plans and specifications for proposed additions and alterations to Juvenile Hall, as presented by Gates W. Burrows were accepted and approved and preliminary costs were revised. Gates W. Burrows, architect, was instructed to furnish written approval of plans and specifications of Juvenile Hall from the City Building Inspector and Fire Marshall and David McMillan Probation Officer, and also to secure approval from the Youth Authority (The Register 1951).

In 1956, Joplin High School was established on land donated to Orange County for a boys' ranch, and in 1959, the Albert Sitton Home, (now Orangewood facility) became the county home for neglected and abused children (OC Probation n.d.; The Register 1957a).

The Board of Supervisors concluded in 1956 that, "The present 32-year-old institution on Fruit Street is not large enough" and so ordered architect William Faulkner to conduct a preliminary study of the site and put out a request for proposals to build a new Juvenile Hall on property adjacent to the Orange County General Hospital, land that had been used for the county Poor Farm (Chris Jepsen, email; Los Angeles Times 1957; The Register 1956a).

Faulkner's estimate was $1,500,000 to build a 181-bed facility; the Board of Supervisors chose to finance the project by borrowing the money from the retirement funds of the county employees (The Register 1956b; 1956c). The OC Grand Jury reported to the Supervisors that children taken into protective custody were in dire need of housing and Chief Probation Officer David McMillan could only find one private home in the county that met the State's requirements, so a decision was made to modify the plans for Juvenile Hall by adding a "Guardian Wing" to the building (The Register 1957). William D. Greschner's low bid of $1,385,000 was accepted (LAT 1958; The Register 1958a). The Board decided to include an Infirmary, Supervisor Cye Featherly signed the papers authorizing the start of construction, and groundbreaking was held on March 18, 1958 (The Register 1958a; 1958b; 1958c; 1958d).

"Manchester Complex" was the name given to five county facilities under construction along Placentia in 1959. They included the County General Hospital, the County Communications Center, the Branch Jail, the dog pound, and Juvenile Hall (The Register 1959c).

The official opening of the new OC Juvenile Hall took place on November 21, 1959 (The Register 1959d). Three months later, the facility was housing a daily average of 204 inmates, more than its capacity.

(See Continuation Sheet)

***D6. Significance** (Historic Context continued from page 17)
David McMillan appeared before the Grand Jury and persuaded them of the need to renovate the vacant facility on Fruit Street to be used as a "Juvenile Home" for inmates serving out a lengthy sentence. The Supervisors approved a $50,000 project to renovate the former Juvenile Hall, and when completed, it was named The David R. McMillan School (OC Probation n.d.; The Register 1960).

PEOPLE ASSOCIATED WITH OC JUVENILE HALL

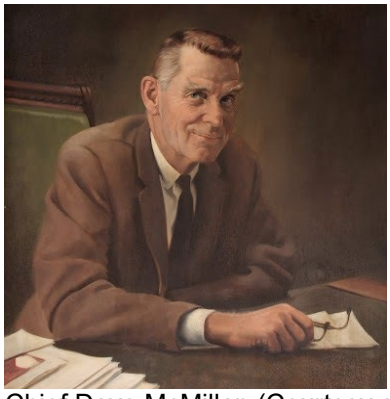
By the department's Fiftieth Anniversary, David R. McMillan, Orange County's sixth Chief Probation Officer, (1939 to 1967) had a staff of more than sixty Deputy Probation Officers, Counselors, and other office employees (The Register 1959b). He told a reporter that the Probation Department's primary goal was, "Rehabilitation for parolees" (Ibid).

Chief McMillan saw the need for an organization that would have political clout. Prior to 1962, the Chief Probation Officers were a loose-knit group, meeting annually upon call of the Director of the California Youth Authority (CYA) pursuant to Section 1752.95 W&I. These were generally 3-day conferences held at Asilomar Conference Center in Pacific Grove. Chief Probation Officers of California (CPOC), as an organization, created their first set of by-laws at the 1960 California Probation and Parole Association conference held at the Hotel Whitcomb in San Francisco (CPOC). The first draft of the by-laws was written on a table napkin by Chief Dave McMillian, Orange County, Stuart Smith, San Bernardino County, Warren Thornton, Sacramento County, and Bert Van Horn, Riverside County (Ibid).

Chief McMillian was the first recognized president of the Chief Probation Officers of California association (1961-62) (Ibid). The Association remained tied to the CYA until the late 1960s when they began planning and funding their own meetings and establishing relationships with other criminal justice associations (Ibid). The Association President selected a conference committee to put together the annual program. Meetings were held twice annually, usually at the conference held by the California Probation, Parole and Correctional Association in the spring and at Asilomar in the fall (Ibid).

Operations at the Manchester Office Building began in June 1967, about five months after Chief McMillan died of a heart attack at the age of 63 near his office (Independent; Register 1967). It appears McMillan's office was in the Courthouse Annex, 620, N. Broadway, Santa Ana. That building was the old St. Ann's Inn (across the street from the Old Courthouse), which the County purchased in the teens or twenties to provide additional county office space; the building is no longer extant (Jepson, personal communication). Chief McMillan never worked in the MOB.

When the Probation Department commemorated its Centennial, a portrait of Chief McMillan was donated to the OC Archives, along with other items (Jepson, Blog). The portrait below is probably the same one that was unveiled at the official ceremony to open the Manchester Office Building in June 1967.


Chief Dave McMillan (Courtesy of OC Archives)

(See Continuation Sheet)

***D6. Significance** (continued from page 18)

Significance Evaluation. This property is being evaluated in compliance with the California Environmental Quality Act (CEQA) under the California Register of Historic Resources (California Register) criteria and the City of Orange criteria for historic districts (Orange Municipal Code Title 17 Chapter 17.050 Criteria for Establishment). Several of the City's criteria are very similar to the California Register criteria; therefore, they have been grouped together where appropriate to avoid redundancy.

California Register Criterion 1. *Is associated with events that have made a significant contribution to the broad patterns California's history and cultural heritage.*
City Criterion A. *The resource exemplifies or reflects special elements of the City's cultural, social, economic, political, aesthetic, engineering, architectural or natural history and possesses an integrity of location, design, setting, materials, workmanship, feeling and association; and*

3. *It reflects significant geographical patterns, including those associated with different eras of settlement and growth, particular transportation modes, or distinctive examples of park or community planning.*

Orange County Juvenile Hall is associated with the growth of the number of youths incarcerated in Orange County during the post-World War II period (1945-1973) and the Reform School Movement (c.1860-1974). It was constructed in 1959 to relieve overcrowding at the old Juvenile Hall (1924) on Fruit Street in Santa Ana. It is an example of the cottage system of reform school, promoted by the California Youth Authority (CYA) in the 1950s. However, the buildings surveyed were constructed during three distinctly different time periods and, considered as a group, they lack visual continuity and fall below the threshold required to form a historic district. OC Juvenile Hall has lost integrity with respect to setting, materials, workmanship, and design. It does not convey an association with important historical events or trends. It is not eligible for listing in the California Register under Criterion 1. The resource has lost integrity of design, materials, workmanship, and setting. It is not eligible for designation under City Criterion A. The resource does not reflect significant geographical patterns and is not an example of park or community planning. Not eligible for designation under City Criterion A3.

California Register Criterion 2. *Is associated with the lives of people important in our past.*
City Criterion C*. It is identified with persons or events significant in local, state or national history.*

David R. McMillan (1903-1967) is important within this context. McMillan is Orange County's longest serving Chief Probation Officer, 1939-67, except for a short interim when Carl S. Warner substituted for McMillan while he served in the Marine Corps during WW II (OC Probation). McMillan was Chief during Orange County's twenty-year period of explosive post-war growth (1945-65). He was the founder of CPOC and the first president of the association. The building associated with Chief McMillan's most important achievement, the founding of CPOC, is the Hotel Whitcomb in San Francisco. Chief McMillan's other historic achievement, managing the Probation Department through the immediate postwar years, a difficult period of rapid growth and insufficient funding, while adhering to the core value of the Reform School Movement (Rehabilitation), appears to be associated with a building that is no longer extant. Research has documented that Chief McMillan did not have an office in the MOB and none of the other buildings surveyed appear to be associated with a person important to the past. They are not eligible for listing in the California Register under Criterion 2 or for designation under the City's Criterion C.

California Register Criterion 3. *Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual or possesses high artistic values.*
City Criterion A. *The resource exemplifies or reflects special elements of the City's cultural, social, economic, political, aesthetic, engineering, architectural or natural history and possesses an integrity of location, design, setting, materials, workmanship, feeling and association; and*

1. *It embodies distinctive characteristics of a style, type, period or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship; or (See Continuation Sheet)*

***D6. Significance** (continued from page 19)

4. *It embodies elements of architectural design, detail, materials, or craftsmanship that represent a significant structural or architectural achievement or innovation.*

City Criterion D. *It is representative of the work of a notable builder, designer or architect.*

These buildings do not embody the ideals of a style or represent the work of a master or display high artistic values. With only seven exceptions, they were either built after 1979 or they have lost integrity with respect to materials, workmanship, and design. None of the architects or builders are particularly noteworthy. As a group, these buildings lack the temporal and visual continuity required for listing in the California Register as a historic district. Contributors such as Building #10, the Girls' School, or Building #9, the Boys' Unit (a housing unit constructed as part of the first Juvenile Hall expansion), are historically significant to the mission of this juvenile detention facility, but individually they do not rise to a level above the ordinary as examples of the Modern style, nor do any of the other buildings surveyed. Better examples of government buildings exist locally, both individually and as contributors to historic districts (Architectural Record; PCAD). It is not eligible for listing in the California Register under Criterion 3. The resource does not exemplify or reflect special elements of the City's cultural, social, economic, political, aesthetic, engineering, architectural, or natural history. It has lost integrity of design, setting, materials, and workmanship. It is not eligible for designation under City Criterion A1 or A4. Not eligible for designation under City Criterion D.

California Register Criterion 4. *Has yielded, or may be likely to yield important info in prehistory or history.*

These buildings were constructed in the second half of the 20th century or the first quarter of the 21st century using common building materials and construction methods. They do not have the potential to yield information important to history or prehistory. They are not eligible for listing in the California Register under Criterion 4.

The following addresses the remaining City criteria.

City Criterion A*. The resource exemplifies or reflects special elements of the City's cultural, social, economic, political, aesthetic, engineering, architectural or natural history and possesses an integrity of location, design, setting, materials, workmanship, feeling and association; and*

2. *It contributes to the significance of an historic area, being a geographically definable area possessing a concentration of historic or scenic properties or thematically related grouping of properties which contribute to each other and are unified aesthetically, by plan or physical development.*

The resource does not contribute to the significance of an historic area and it does not form or constitute an historic area. It is not eligible for designation under City Criterion A2.

City Criterion A (see above) 5. *It has a unique location or singular physical characteristic or is a view or vista representing an established and familiar visual feature of a neighborhood, community or the City of Orange.*

The resource does not have a unique location or singular physical characteristic, nor is it a view or vista representing an established and familiar visual feature of a neighborhood, community, or the City of Orange. It is not eligible for designation under City Criterion A5.

City Criterion B. *It is one of the few remaining examples in the City, region, state, or nation possessing distinguishing characteristics of an architectural or historical type, or specimen.*

The resource is not one of the few remaining examples in the City, region, state, or nation possessing distinguishing characteristics of an architectural or historical type, or specimen. It is not eligible for designation under City Criterion B.
(See Continuation Sheet)

***D7. References** (continued from page 20)

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1967 Probation Official David McMillan Collapses, Dies. Jan 24, page 2.

Jepson, Chris
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2024 Personal communication via email with Chris Jepson, Staff Assistant, Office of Hugh Nguyen, OC Clerk-Recorder, Orange County Archives, 211 W. Santa Ana Blvd., Ste 108, Santa Ana, CA 92701 Office: (714) 834-4771, Email: chris.jepsen@rec.ocgov.com

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1951 Legal Notice. Minutes of The Board of Supervisors. June 27, page 23.
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1956b County Plans Debt For New Construction. Apr 30, page 17.
1959c County Rushes Plans For New Juvenile Hall. Jul 26, page 31.
1957 Guardian' Wing Proposed. Feb 7, page 25.
1958a Juvenile Hall Work Awarded. Feb 21, page 27.
1958b This Groundbreaking Has Economy-Size Shovel. Mar 18, page 14.

(See Continuation Sheet)

***D7. References** (continued from page 21)

1959a Help Wanted Ad: Group Counselors. May 15, page 24.

1959b Primary Goal Of 50-Year-Old County Probation Department Called Rehabilitation For Parolees. Jul 8, page 31.

1959c Expansion Continues. Nov 9, page 19.

1959d Opening Of Juvenile Hall. Nov 17, page 21.

1960 $50,000 Rebuilding Of Juvenile Hall Set. Mar 24, page 31.

1961 New Guild Will Be Organized. Nov 27, page 16.

1967 New Juvenile Court Building Dedicated: Youth Crime Rate Termed 'Frightful'—SCOUT KEELS OVER. Jun 18, page 48.

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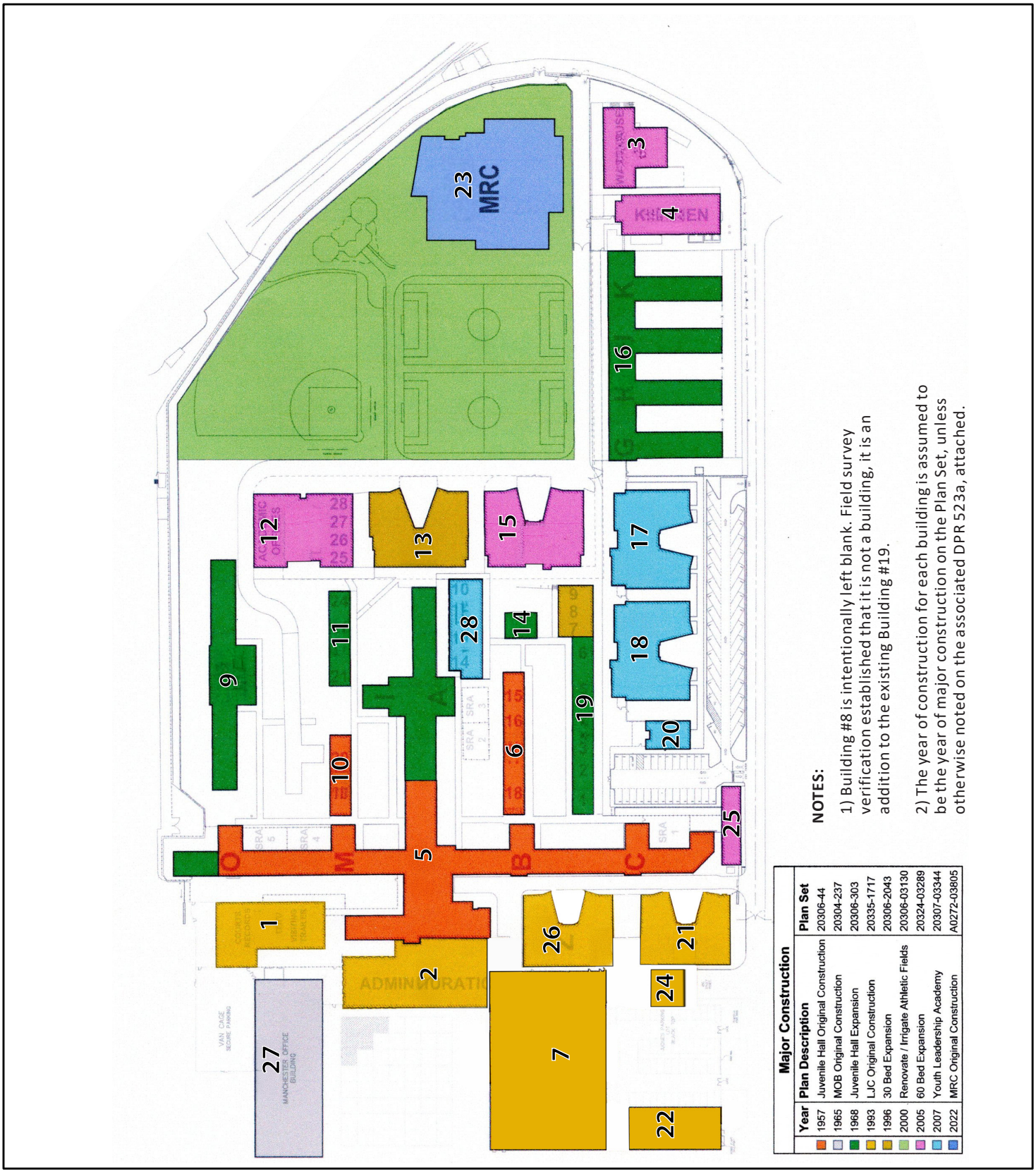

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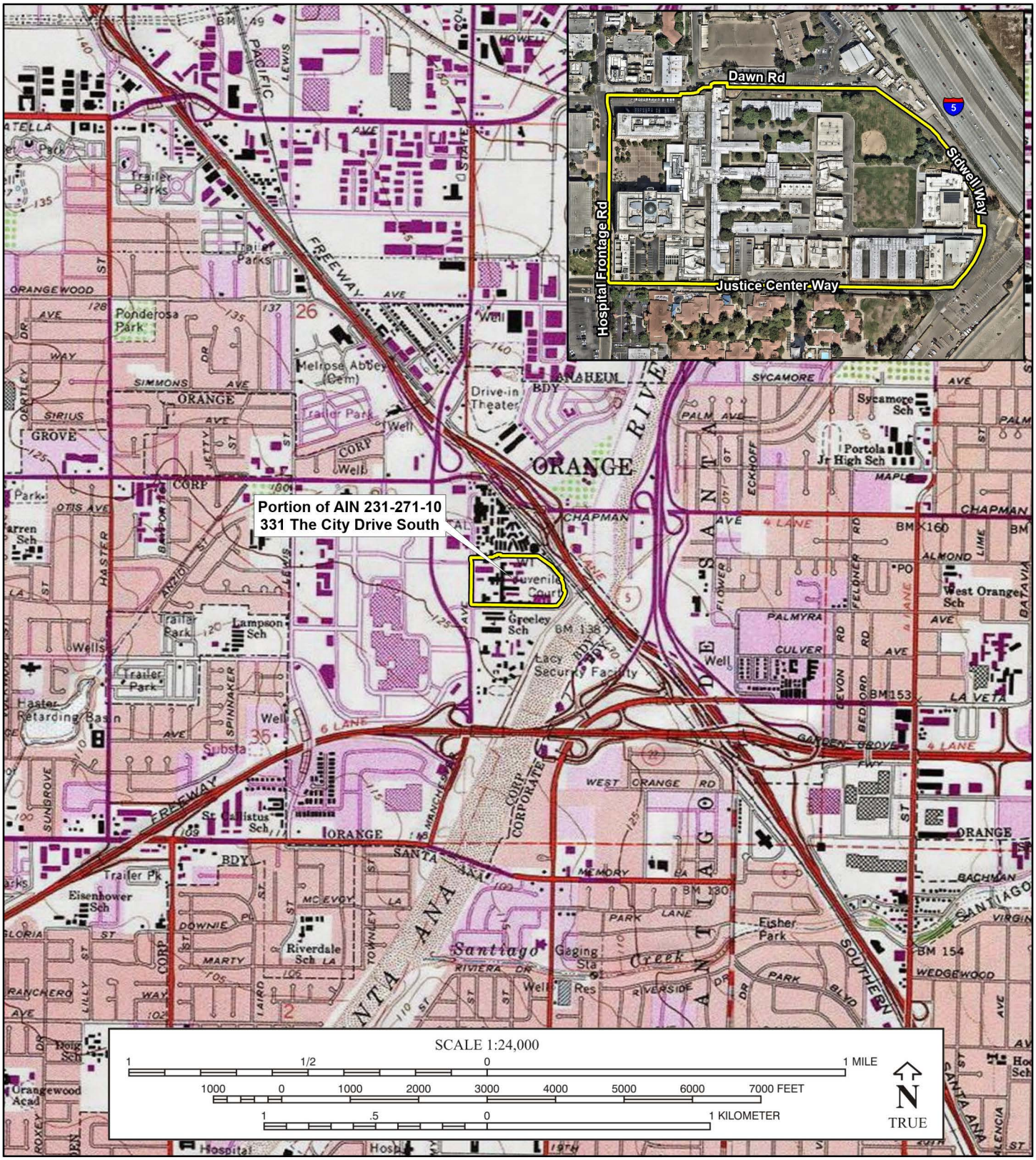
State of California - Resource Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary # _____
HRI # _____
Trinomial _____

*Resource Name or _____

*Map Name: USGS 7.5' Quad, Anaheim, Orange; Nearmap *Scale: 1:24000 *Date of Map: 1981; 2024



I:\O\OCY2001.48\GIS\Pro\Orange County Youth Transition Center Juvenile Hall Replacement Project\Orange County Youth Transition Center Juvenile Hall Replacement Project.aprx (11/15/2024)

*Required Information

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 25 of 62 **Resource Name or #:** Building #1

P1. Other Identifier: Orange County Juvenile Hall Visitors' Center
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; mE/ mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) APN: _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This one-story building is rectangular in plan, a combination of several prefabricated modular units. Exterior walls are clad with T-11 siding. It has a shed roof with parapet and sits on a raised foundation. There is an Americans with Disabilities Act (ADA) compliant ramp on the east elevation leading to the main entrance. It is currently used to store court records. It is set in a parking lot surrounded by asphalt concrete pavement.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) South, 10/21/2024, Photo #9162

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1993 per OC Public Works

***P7. Owner and Address:**
OC Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:** October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 26 of 62 Resource Name or #: Building #2

P1. Other Identifier: Orange County Juvenile Hall Administration Building
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This one-story, administration building faces the plaza and is between the Manchester Office Building (#27) and the courthouse (#7). This building, which is accessible to the public, is essentially a 1993 addition to Building #5, which is within the secure juvenile facility It is in the Contemporary style. It is in good condition, has not been altered, and is within the Lamoreaux Justice Center complex.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View east; 10/21/24; Photo #9167

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1993, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe):
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 27 of 62 Resource Name or #: Building #3

P1. Other Identifier: Orange County Juvenile Hall

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; mE/ mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This two-story metal building has a Tee-shaped plan. It is cross-gabled and there are solar panels over the four windows on its south-facing, symmetrical façade. It is used as a laundry and is in the southeast corner of the survey area. This Contemporary building has not been altered and is in good condition.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View north; 10/21/24; Photo# 9063

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2005, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 28 of 62 **Resource Name or #:** Building #4

P1. Other Identifier: Orange County Juvenile Hall Kitchen

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This Contemporary, two-story metal building has a flat roof. It is roughly rectangular in plan, has not been altered, and is located in the southeast corner of the survey area. It is used as a kitchen.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View west; 10/21/24; Photo #9065

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2005, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 29 of 62 Resource Name or #: Building #5

P1. Other Identifier: Orange County Juvenile Hall

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36**;** S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This one-story brick and concrete building has an irregular plan with many long wings/corridors and is by far the largest building in the complex. A Room Numbering System scale drawing of the Juvenile Hall Complex dated 6/5/1973 notes that "Units B, C, D, E, F have identical room layouts and numbers". Unit A was different, as were Units L, M, and O. The Administration Section, Mental Health, and Kitchen are no longer extant; they were where several Lamoreaux Justice Center buildings now stand. Unit A has a flat roof and concrete walls scored to look like 6-inch tiles. The entry door is metal and plexiglass. The east elevations of Units B and C are masonry, red brick in a running bond. The metal framed windows have a fixed upper pane and a smaller, narrow bottom pane that opens in. Unit B has a flat roof. Unit C has a very low-pitched front gable roof. The west elevation of Building #5, south of Building #2, is brick and features glass blocks in the low-pitched front-gable sections. The west elevation of Building #5, east of Building #1, is brick with a low-pitched gable wing. Metal plates have been placed over the glass blocks. Refer to DPR 523D for a detailed discussion.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

See Continuation Sheet

P5b. Description of Photo: (View, date, accession #) View west; 10/21/24; Photo #9107

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1959, The Register 1959d

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

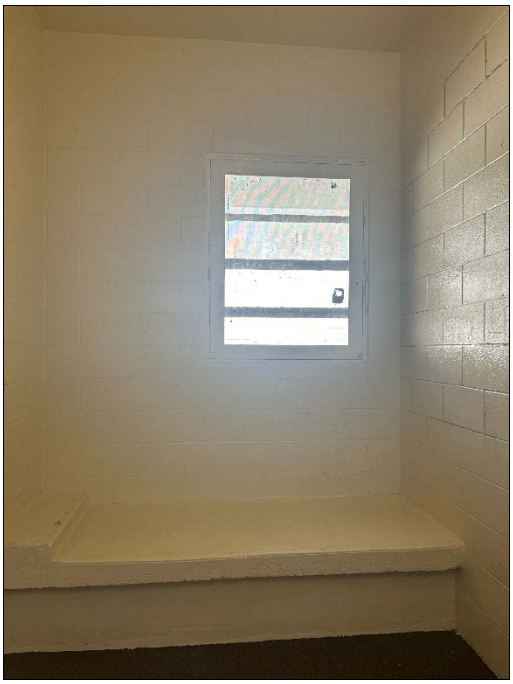
***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

P5a. Photo (continued from page 29)

Building #5, Unit I, photo #9103, view west (10/21/24).

Building #5, Unit I, photo #9104, view south (10/21/24).



Building #5, interior of typical one-bed cell with built-in furniture and a locking metal grill instead of bars on the window (10/21/24).

Building #5, character-defining materials: chain link fence, coiled razor wire at the junction of the cast-in-place concrete roof and exterior brick wall (10/21/24).

P5. Photo (continued from page 30)

Building #5, west elevation south of Building #2. The brick wall features glass blocks in the low-pitched, front-gable sections. Metal plates have been placed over glass blocks in other locations (10/21/24).

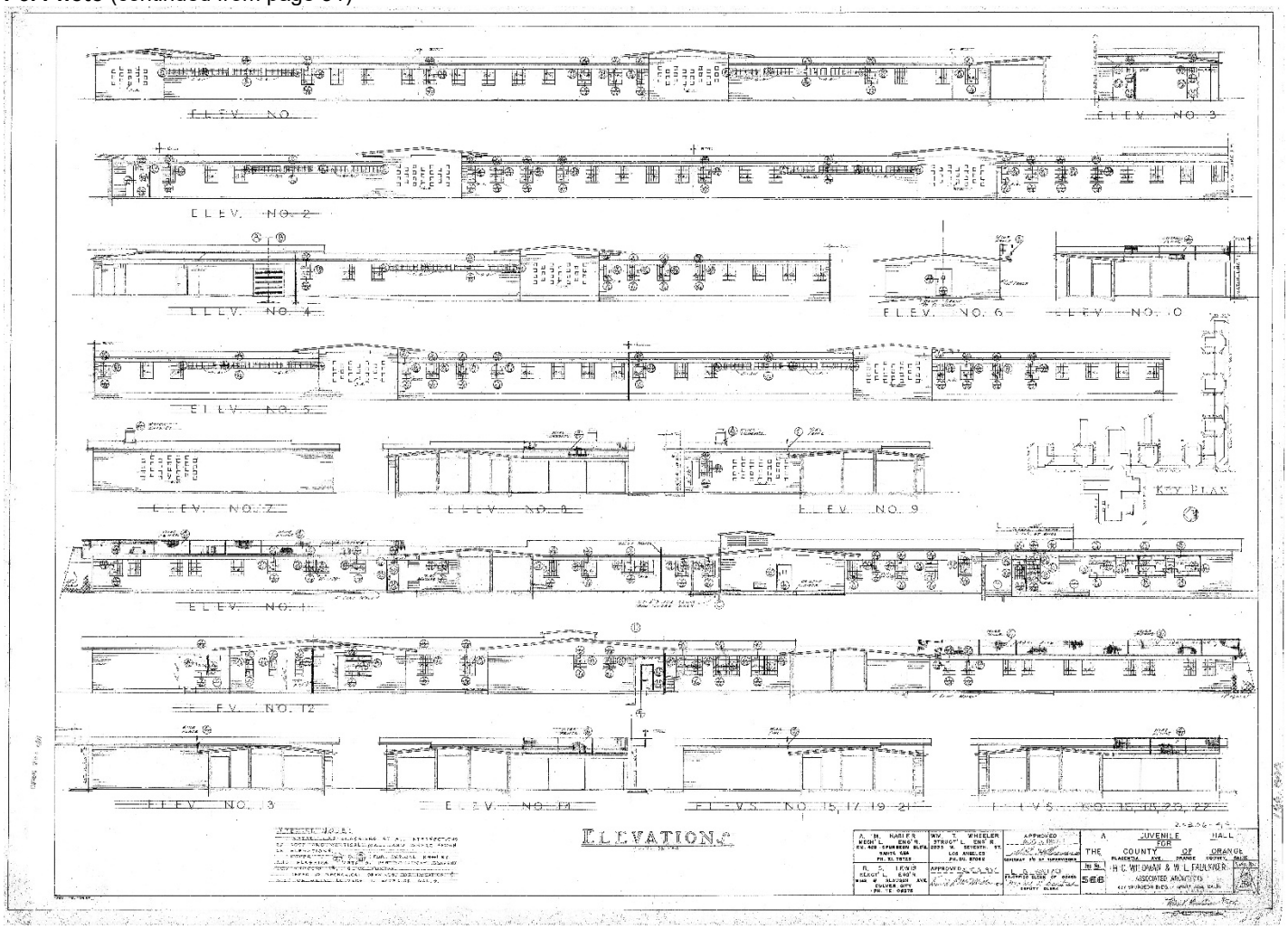
This is a character-defining feature of the Juvenile Hall. Originally, there were seven (7) of these low-pitched front gable glass block walls, all of them with identical patterns, and two more glass block walls in this pattern that were on elevation number 7 and elevation number 9 of the girls' school and living units, known historically as the Otto Fisher Girls School (Plan Set 20306-44, Elevations, Sheets 9 and 10). *See continuation sheet*

Out of the nine, only this glass block wall was seen to be intact during the architectural field survey of 10/21/2024; the rest were either covered up or nonextant. The rhythmic repetition of these low walls and narrow ribbon windows near the eaves gave the Juvenile Hall its "look" and architectural value.

The Juvenile Hall (1959) has lost its integrity with respect to materials, workmanship, and design. It has also suffered loss of integrity with respect to the physical setting, although that is not apparent in this photo.

(See Continuation Sheet)

P5. Photo (continued from page 31)



Plan Set 20306-44, Elevations, Sheet A9 (Courtesy of OC Public Works)

Wildman & Faulkner were working in the Modern Style when they prepared the plans for OC Juvenile Hall. Glass block in a symmetrical pattern set in red brick, repeatedly, created a soothing rhythm.

This is a character-defining feature of the Juvenile Hall. Originally, there were seven (7) of these low-pitched front gable glass block walls, all of them with identical patterns, and two more glass block walls in this pattern that were on elevation number 7 and elevation number 9 of the girls' school and living units, known historically as the Otto Fisher Girls School.

The Juvenile Hall (1959) has lost its integrity with respect to materials, workmanship and design. It has also suffered loss of integrity with respect to the physical setting.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 33 of 62 Resource Name or #: Building #6

P1. Other Identifier: Orange County Juvenile Hall

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36**;** S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This historic-period building is rectangular in plan. It has brick walls and a flat roof. Fenestration consists of ribbons of metal-framed, multi-paned hoppers and a few smaller windows in the north elevation. The south elevation (façade) has nine doors and ribbons of metal-framed, multi-paned windows along the top of the wall. This building is attached to Building #5 by a breezeway. It has not been substantially altered. This building was part of the girls' school.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

(See Continuation Sheet)

P5b. Description of Photo: (View, date, accession #) View southwest; 10/21/24; Photo #9122

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1959, The Register 1959d

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE
☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record
☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

CONTINUATION SHEET

Primary # _____
HRI # _____
Trinomial _____

Page 34 of 62 *Resource Name or #: (Assigned by recorder) Building #6
*Recorded by LSA Associates, Inc. *Date: November 2024 X Continuation _____ Update

P5a. Photo (continued from page 33)

View northeast. Building #6, Classrooms connected to Building #5 by a breezeway. This is the south elevation (façade) with nine doors and industrial sash.

Known historically as the Otto Fisher Girls School, it was named for the first principal of the school.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 35 of 62 Resource Name or #: Building #7

P1. Other Identifier: Orange County Juvenile Hall

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This Contemporary, multi-story courthouse building has stucco, marble, and glass on the north elevation facing the plaza. One of its character-defining-features is a Contemporary-style glass dome on the roof. In the photograph below, the Administration Building (#2) is seen to the left of the courthouse.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View south; 10/21/24; Photo #9163

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1993, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 36 of 62 Resource Name or #: Building #9

P1. Other Identifier: Orange County Juvenile Hall

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36**;** S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): Section 36 (NW ¼)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This historic period building is T-shaped in plan and has a flat concrete roof with a series of small, front gables across a portion of the façade (south elevation.) It has wide, thick eaves. The southwest elevation has a walkway covered by a corrugated metal canopy supported by slender metal posts and beams. The concrete walls are scored to look like 6-inch square tiles and clad with pebblestone accent panels. The windows are primarily metal-framed casement windows. The main entry faces east and the door is metal and plexiglass. Living Units R and S are mirror images of each other. The building is vacant, allowing photos to be taken of the interior. The entry opens into a dayroom where meals were eaten. Board forms are evident on the concrete ceiling, suggesting the thick concrete roof was cast-in-place. Window openings in the day room are large, measuring 1.33 meters by 66 centimeters. Each cell window has three hoppers at the bottom and a fixed pane on top. Unit S has a three-bed cell off the day room with a pair of sash windows. No bars are on the windows; they have locking metal grills. Interior partitions are concrete block with a cement finish. Floors are concrete. All the other cells are one-bed with a single window as previously described. The cells are lined up on either side of long wide corridors that allow staff to observe the youths (prisoners). The building is generally well ventilated and bathed in natural light.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View north; 10/21/24; Photo #9080

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1968, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

P5. Photo (continued from page 36)

View east. 10/21/2024; Photo #9090. Building #9, Living Unit S (1968).

View south. 10/21/2024; Photo #9089. Building #9, Living Unit S (1968).

View West. 10/21/2024; Photo #9077. Building #9, Living Unit S (1968).

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 38 of 62 **Resource Name or #:** Building #10

P1. Other Identifier: Orange County Juvenile Hall

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This historic period classroom building is connected to Building #5 by a breezeway over a wide, concrete foot path. Exterior walls are brick, running bond. The various windows have metal surrounds. There are five of these classrooms, accessed by metal doors. Outside is a basketball court with the letter "w" painted on asphalt concrete pavement, which is cracked and in poor condition.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View northeast ; 10/21/24; Photo #9111

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1959, The Register 1959d

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 39 of 62 **Resource Name or #:** Building #11

P1. Other Identifier: Orange County Juvenile Hall Classroom Building
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This historic-period classroom building is rectangular in plan. It has concrete walls with pebblestone accent panels and a flat roof with wide eaves. Fenestration is metal-framed, multi-paned hopper windows. The south elevation has five doors, windows along the top of the wall, and wide eaves.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View northwest; 10/21/24; Photo #9098

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1968, OC Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 40 of 62 **Resource Name or #:** Building #12

P1. Other Identifier: Orange County Juvenile Hall Library and Offices
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This Contemporary building is rectangular in plan and has a flat roof with a metal canopy. It is used as a library and administrative office. It is in good condition.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) Top: Façade, view east bottom: view northeast; 10/21/24; Photos #9075, #9076

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2005, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 41 of 62 **Resource Name or #:** Building #13

P1. Other Identifier: Orange County Juvenile Hall Housing

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This multi-story, Contemporary building is constructed of either scored concrete or small concrete blocks. It is one of six nearly identical buildings (#13, #15, #17, #18, #21 and #26) that feature an outdoor secured recreation area (SRA) between a pair of angled wings. It is used for housing.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View W; 10/21/24, Photo #9074

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1996, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 42 of 62 Resource Name or #: Building #14

P1. Other Identifier: Orange County Juvenile Hall Administrative Building

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36**;** S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This building was constructed during the 1968 Juvenile Hall expansion. A Map of the Juvenile Hall Complex prepared by the Building Administration Department and dated June 5, 1973, shows that this building was being used as the School Administration Building for the Otto Fisher Girls School (Building #10 and Building #11) and the Otto Fisher Boys' School (Building #6.) This small office building is constructed of concrete scored to resemble 6-inch tiles (or perhaps concrete block) and is roughly square in plan. The west elevation (façade) has pebblestone accent panels, very wide eaves, a ribbon of three windows, a door with a transom, and another ribbon of three windows. The building is in good condition, and there are no signs of alteration since the historical period.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

See Continuation Sheet

P5b. Description of Photo: (View, date, accession #) View east 10/21/24; Photo #9118

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1968, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

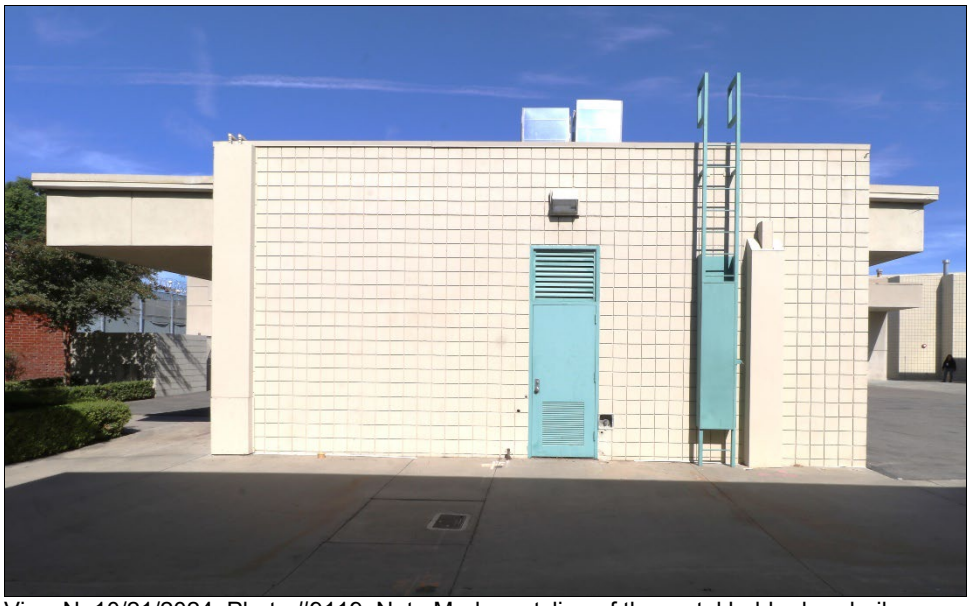
***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

P5. **Photo** (Continued from page 42)



View N, 10/21/2024. Photo #9119. Note Modern styling of the metal ladder handrails.

View W, 10/21/2024. Photo #9120. Rear of Building #14.

(See Continuation Sheet)

P5. (Continued from page 43.)

View S, 10/21/2024. Photo #9121. North elevation.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 45 of 62 **Resource Name or #:** Building #15

P1. Other Identifier: Orange County Juvenile Hall Housing
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This Contemporary style housing building is one of the 60-bed expansion buildings built in 2005. It is constructed of either scored concrete or small concrete blocks and has a flat roof. The modified C-shape configuration features a secured, outdoor recreation area between the building wings. This building is nearly identical to six other buildings within the campus.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) Top: view west; bottom: view southeast; 10/21/24; Photo #9147

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2005, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 46 of 62 **Resource Name or #:** Building #16

P1. Other Identifier: Orange County Juvenile Hall Housing
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This historic period building is comb-shaped in plan. The "teeth" of the comb are Living Units G, H, J, and K. Four small courtyards are east of each living unit. Secured recreation area (SRA) hoops are at the southernmost end of the courtyard between Units G and H. Metal and plexiglass doors open out from the day rooms onto each of the SRAs. The day rooms have twelve windows, and each has a fixed pane plus three hoppers beneath it, measuring 1.14 meters high and 89 centimeters wide. Building #16 has a flat roof and concrete walls with pebblestone accent panels. The windows are metal framed hoppers. The doors are metal. There is a series of small, front gables accenting the north elevation. The condition of the building is good, and there are no signs of alterations or additions.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

(See Continuation Sheet)

P5b. Description of Photo: (View, date, accession #) Top: façade, view south; bottom: Unit G, view south; 10/21/24; Photos #9066, #9067

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1968, OC Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe) Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

P5a. Photos (continued from page 46.)

View south, 10/21/2024. Photo #9068.

View south, 10/21/2024. Photo #9069.

View south, 10/21/2024. From inside Unit G's Day Room, looking out at SRA courtyard between Units G and H.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 48 of 62 **Resource Name or #:** Building #17

P1. Other Identifier: Orange County Juvenile Hall Housing
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This is the Youth Leadership Academy (YLA) building, Living Unit 1. The north elevation (shown below) has a central tower element, stuccoed walls and a flat roof. The modified C-shape design is nearly identical to six other buildings within the campus: #13, #15, #17, #18, #21, and #26. The south elevation has a secured recreation area between the building wings.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View southeast; 10/21/24; Photo #9149

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2007, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Resource Name or #: Building #18

P1. Other Identifier: Orange County Juvenile Hall Housing

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36**;** S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

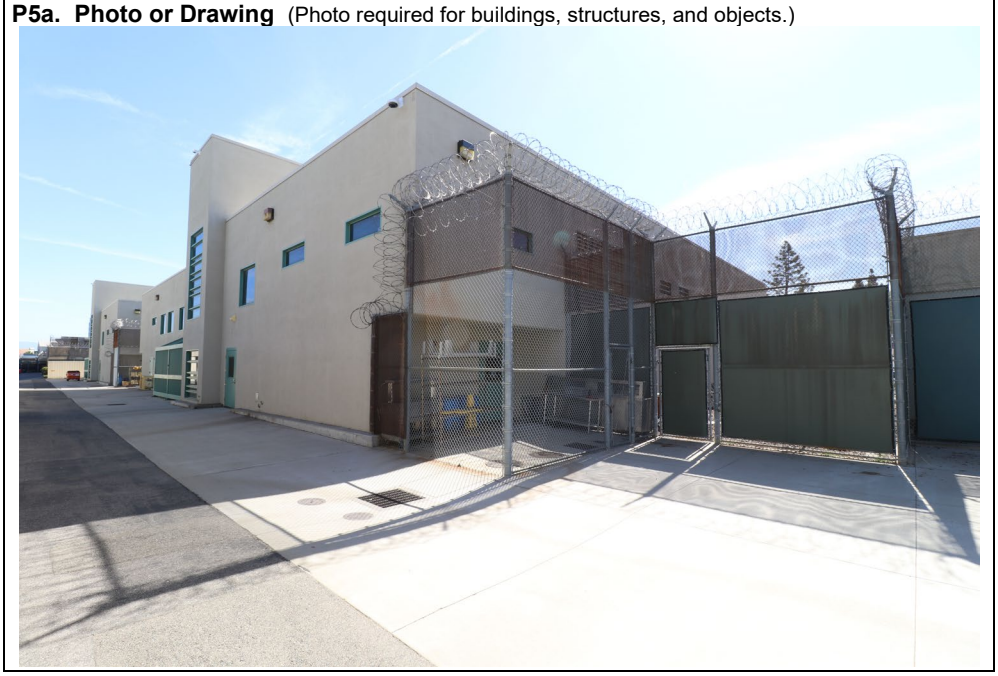
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
According to facility staff, Living Unit 2 of the Youth Leadership Academy (YLA) is identical to Living Unit 1 of the YLA.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #) View southeast; 10/21/24; Photo #9152

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2007, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 50 of 62 **Resource Name or #:** Building #19

P1. Other Identifier: Orange County Juvenile Hall Classroom Building
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This classroom building was constructed during the historic period, but it has been substantially altered by a 1996 addition at the east end of the building, which changed its footprint from rectangular to L-shaped. The north elevation (façade) has pebblestone accent panels, ribbons of windows, wide eaves, and either scored concrete or small concrete block walls at the eastern end. The south elevation has stucco plastered walls, doors, and narrow windows along the top of the wall.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

(See Continuation Sheet)

P5b. Description of Photo: (View, date, accession #) View southeast; 10/21/24; Photo #9140

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1968, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

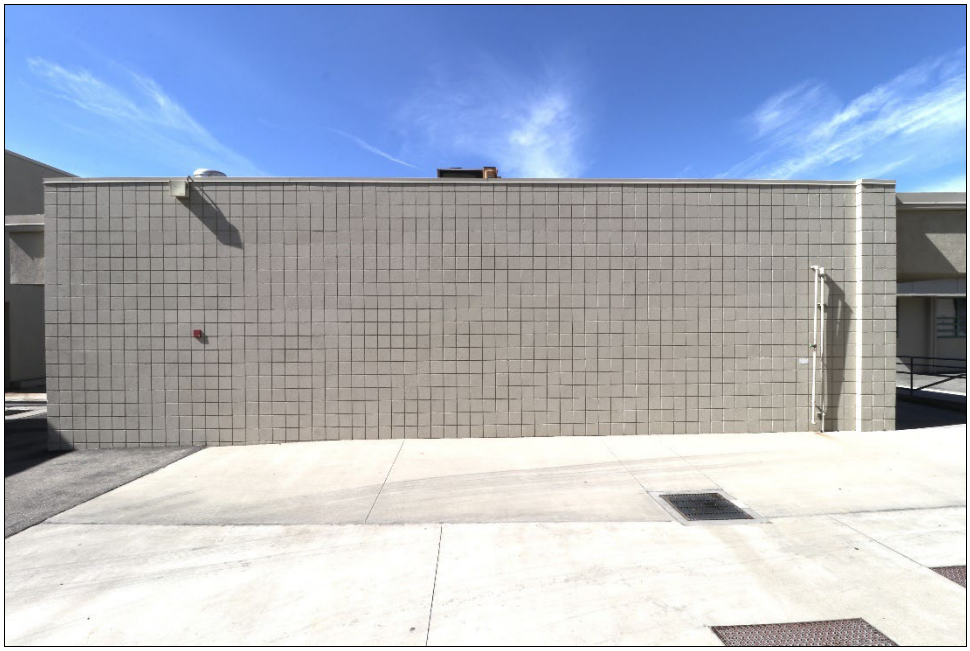
CONTINUATION SHEET

Primary # _____
HRI # _____
Trinomial _____

Page 51 of 62 *Resource Name or #: (Assigned by recorder) Building #19
*Recorded by LSA Associates, Inc. *Date: November 2024 X Continuation _____ Update

P5a. Photo (continued from page 50)

View southwest, 10/21/2024. Photo #9141.



View west, 10/21/2024. Photo #9144.

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

CONTINUATION SHEET

Primary # _____
HRI # _____
Trinomial _____

Page 52 of 62 *Resource Name or #: (Assigned by recorder) Building #19
*Recorded by LSA Associates, Inc. *Date: November 2024 X Continuation _____ Update

P5a. Photo (continued from page 51)

View northwest, 10/21/2024. Photo #9145.

View northeast, 10/21/2024. Photo #9146. The addition is at the far right of the photo.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 53 of 62 **Resource Name or #:** Building #20

P1. Other Identifier: Orange County Juvenile Hall Youth Leadership Academy
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This small building is rectangular in plan and has a flat roof. The walls are either scored concrete or small concrete blocks with some stucco. The south-facing facade has a pair of doors under a canopy. The doors are flanked by fixed windows.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View northeast; 10/21/24; Photo #9174

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2007, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 54 of 62 **Resource Name or #:** Building #21

P1. Other Identifier: Orange County Juvenile Hall Housing
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This building is Unit Y of the Lamoreaux Juvenile Justice Center (LJC). It is identical to the building on its right, Unit Z of the LJC. They are west of Building #5 with the gray roof and east of the courthouse. This building is one of six buildings with a modified C-shape that includes a secured recreational area between the building wings. Building #25 is seen at the lower left of the photo; it houses an emergency generator.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View from drone; 10/5/2023

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1993, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 55 of 62 Resource Name or #: Building #22

P1. Other Identifier: Orange County Juvenile Hall

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36**;** S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This one-story building houses the Central Plant for the Lamoreaux Juvenile Justice Center (LJC). It has concrete walls similar to the courthouse, 12 window openings along the west elevation, and a bay door in the south elevation. Based on aerial views, the building has an open roof adjacent to Hospital Frontage Road/The City Drive and a flat roof adjacent to the parking lot behind the building.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) Google Street View northwest; January 2024

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1993, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Resource Name or #: Building #23

P1. Other Identifier: Multipurpose Recreational Center

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36**;** S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate):_____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This Contemporary building is irregular in plan and oriented to the east. It is constructed of what may be scored concrete and/or concrete block. The roof is complex, with shed, flat and soaring elements. To the left of the canopy sheltering the main entrance, the wall is clad in corrugated metal. Elsewhere the wall cladding is tile or rusticated concrete block; the palette is a subdued white and grey.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View northwest; 10/21/24; Photo #9061

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2022, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 57 of 62 **Resource Name or #:** Building #24

P1. Other Identifier: Intake Release Center

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36**;** S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

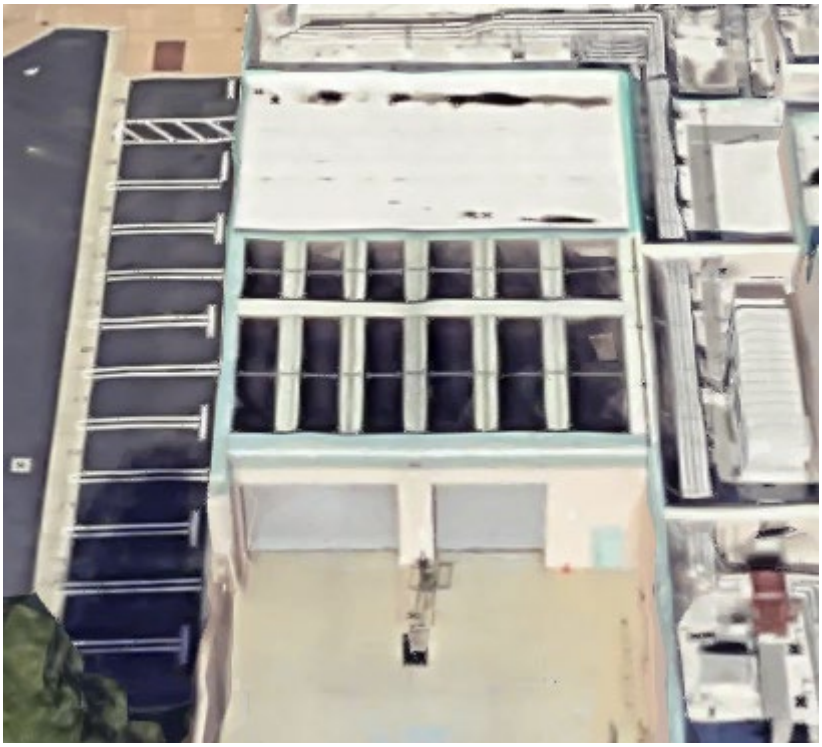
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This small Contemporary building has a rectangular plan and is southeast of the main entrance to the courthouse (Building #7) and west of Building #21. The building has concrete walls similar to the courthouse, nine window openings on the west elevation, and a double bay left of a single bay on the south elevation. The southern half of the roof appears open. Like Building #22, it appears to be a power plant.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #) Google oblique aerial view north 2024.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1993, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Resource Name or #: Building #25

P1. Other Identifier: Orange County Juvenile Hall Emergency Generator

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This building has high walls and houses an emergency generator. It is in the lower left corner of the photo, south of the grey roofed Building #5.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View from drone; 10/5/23.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2005, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 59 of 62 **Resource Name or #:** Building #26

P1. Other Identifier: Orange County Juvenile Hall Housing
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T**4S; **R** 10W; NW ¼ of **Section** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This multi-story, Contemporary building is constructed of either scored concrete or small metal blocks. It is one of six nearly identical buildings (#13, #15, #17, #18, #21, and #26) that feature an outdoor secure recreation area (SRA) between a pair of angled wings. It is used for housing.

***P3b. Resource Attributes:** (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View from SW; 10/21/2024, Photo #9157

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1993, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 60 of 62 Resource Name or #: Building #27

P1. Other Identifier: Manchester Office Building (MOB)

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**

c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868

d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This five-story building is rectangular in plan. The walls are finished in stucco. It features vertical articulation with modern windows in the recessed sections. There are storefront-style entrances on the ground level, facing the courthouse plaza. An east-west axis of symmetry extends between the two parking structures across the street, centered on the entrance to Building #2 and extending to what remains of Juvenile Hall (Building #5). (Refer to the DPR 523 Location Map aerial insert.) The MOB is north of the axis and the courthouse is south of it. The building retains good integrity with respect to design and workmanship; the windows are a minor issue with respect to original fabric. There have not been any major alterations to this building. The size and scale of the MOB are monumental and contrast with the low, horizontality of the original Juvenile Hall, which was more suburban in character. The Lamoreaux Juvenile Justice Center (LJC) (Building #7) is even larger and more monumental than the MOB.

***P3b. Resource Attributes:** (Original uses) HP14-Government building

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

See Continuation Sheet

P5b. Description of Photo: (View, date, accession #) View north; Photo #9168; 10/21/24

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
1967, The Register 1967

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☒Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

P5. Photo (continued from page 60)

Building 27, Manchester Office Building (MOB original construction plan set 20304-237, 1965, courtesy of OC Public Works)

Building 27, view northeast (10/21/24)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 62 of 62 **Resource Name or #:** Building #28

P1. Other Identifier: Orange County Juvenile Hall Classrooms
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Orange **and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** *Anaheim, CA* **Date:** 1981 **T** 4S; **R** 10W; NW ¼ **of Sec** 36; S.B.**B.M.**
c. Address: 331 The City Drive South **City:** Orange **Zip:** 92868
d. UTM: Zone: 11; _____mE/ _____mN (G.P.S.)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): _____

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This Contemporary classroom building is rectangular in plan and has a flat roof with a wide eave overhang. The windows are recessed. There are five doors, each flanked by a pair of windows.

Attributes: (Original uses) HP14-Government building
***P4. Resources Present:** ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) View northwest; 10/21/24; Photo #9116.

***P6. Date Constructed/Age and Sources:** ☒Historic ☐Prehistoric ☐Both
2007, Orange County Public Works

***P7. Owner and Address:**
Orange County Public Works

***P8. Recorded by:**
Eugene Heck, M.A.
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

***P9. Date Recorded:**
October 21, 2024

***P10. Survey Type:** (Describe)
Intensive-level CEQA compliance

***P11. Report Citation:** None

***Attachments:** ☐NONE ☐Location Map ☐Sketch Map ☐Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☒District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

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APPENDIX D

ARCHAEOLOGICAL RESOURCE MEMORANDUM

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CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: November 26, 2024

TO: Olivia Mattair, Environmental Planner

FROM: Ivan Strudwick, Archaeologist

SUBJECT: Archaeological Resource Memorandum for the OC Juvenile Hall Youth Transition Center Project (OCY2001.48)

INTRODUCTION

The memorandum describes the results of two information searches and an archaeological field survey conducted for the Orange County Juvenile Hall Youth Transition Center (YTC) Project (project), which is a 17-acre project area located at 331 The City Drive South in the City of Orange. The project area is a developed area bound by Interstate 5 (I-5) and the Santa Ana River on the east, Service Way on the north, Justice Center Way on the south, and Hospital Frontage Road on the west. The project area is depicted on the *Anaheim, California* 7.5-minute United States Geological Survey (USGS 1981) quadrangle map in Township 4 South, Range 10 West in Section 36 (Attachment A: Figure 1). The parcel lies in the northwestern portion of the *Rancho Santiago de Santa Ana* Mexican Period Land Grant.

The proposed project includes the demolition and replacement of 10 existing buildings and associated infrastructure within the existing Orange County Juvenile Hall Campus occupying the project area in order to construct a new Youth Transition Center (YTC) with new Independent Living Units, new Long-Term Housing, a new Education and Library building, and associated landscaping, hardscaping, accessibility, and utility improvements.

The two information searches that were conducted for this project are:

(1) An archaeological record search for prior studies and recorded resources at the California Historical Resource Information System's (CHRIS) South Central Coastal Information Center (SCCIC) located at California State University, Fullerton (CSUF).

(2) A search of the Sacred Lands File (SLF) by the Native American Heritage Commission (NAHC) for Tribal Cultural Resources (TCRs) and/or sacred/ceremonial sites in or near the project area.

The results of these information searches and the archaeological field survey are described below.

RESULTS OF INFORMATION SEARCHES AND FIELD SURVEY

Results of the South Central Coastal Information Center (SCCIC) Information Search

On November 19, 2024, a cultural resource record search for the project area and a 0.5-mile radius was conducted at the SCCIC by archaeologist Nick Shepetuk. The results of the record search show that two prior cultural resource studies occurred within the project area but that no recorded resources exist within the project area. A total of 21 other cultural resource studies were conducted outside but within 0.5-mile of the project area. The results of the SCCIC record search are provided (Attachment B).

The two studies that occurred within the project area include a survey and a monitoring project both conducted for the Juvenile Hall Expansion Project. The survey (Padon 2002) identified no archaeological resources, while the monitoring report (Padon 2004) found only two post-1953 bottles during monitoring.

The remaining 21 studies were conducted outside but within 0.5-mile of the project area. These studies were survey (10), literature search (4), monitoring (3), historic evaluation (2), Environmental Impact Report (1), and Finding of Effects (1) projects.

Results of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) Search

On October 25, 2024, the NAHC conducted a search of the SLF with negative results. The results indicate that the SLF has no record of Tribal Cultural Resources (TCRs) in or adjacent to the project area. The results of the NAHC SLF search are provided (Attachment C)

Field Survey

On October 21, 2024, a pedestrian field survey of the project area was conducted by LSA archaeologist Cassidy Sharp, M.A., RPA. The survey showed that nearly all of the project area was built environment, consisting of concrete and buildings. Less than approximately 5 percent of the project area was composed of landscaped areas that were entirely grass with a few trees. Sediment in the landscaped areas was completely obscured by the grass. Organic soil identified adjacent to the trees cannot definitively be identified as native sediment. No cultural material was found during the survey.

SUMMARY AND RECOMMENDATIONS

The current archaeological SCCIC and SLF information searches and archaeological survey of the project area did not identify any resources. The SCCIC search shows that the project area was surveyed in 2002 with negative results and that archaeological monitoring of prior expansion of the Juvenile Hall Facility on the project area in 2004 also failed to identify anything more than two bottles.

For this reason, no additional archaeological work is recommended. If buried resources are found during ground-disturbing construction activities, it is recommended that a qualified professional archaeologist assess the resource to determine its extent and potential significance.

REFERENCED CITED

Padon, Beth

2002 Archaeological, Archival, and Field Review of the Juvenile Hall Project, Anaheim USGS 7.5' Quadrangle, Orange County, California. Discovery Works, Inc. On file, South Central Coastal Information Center, California State University, Fullerton. Information Center Accession No. OR-2614.

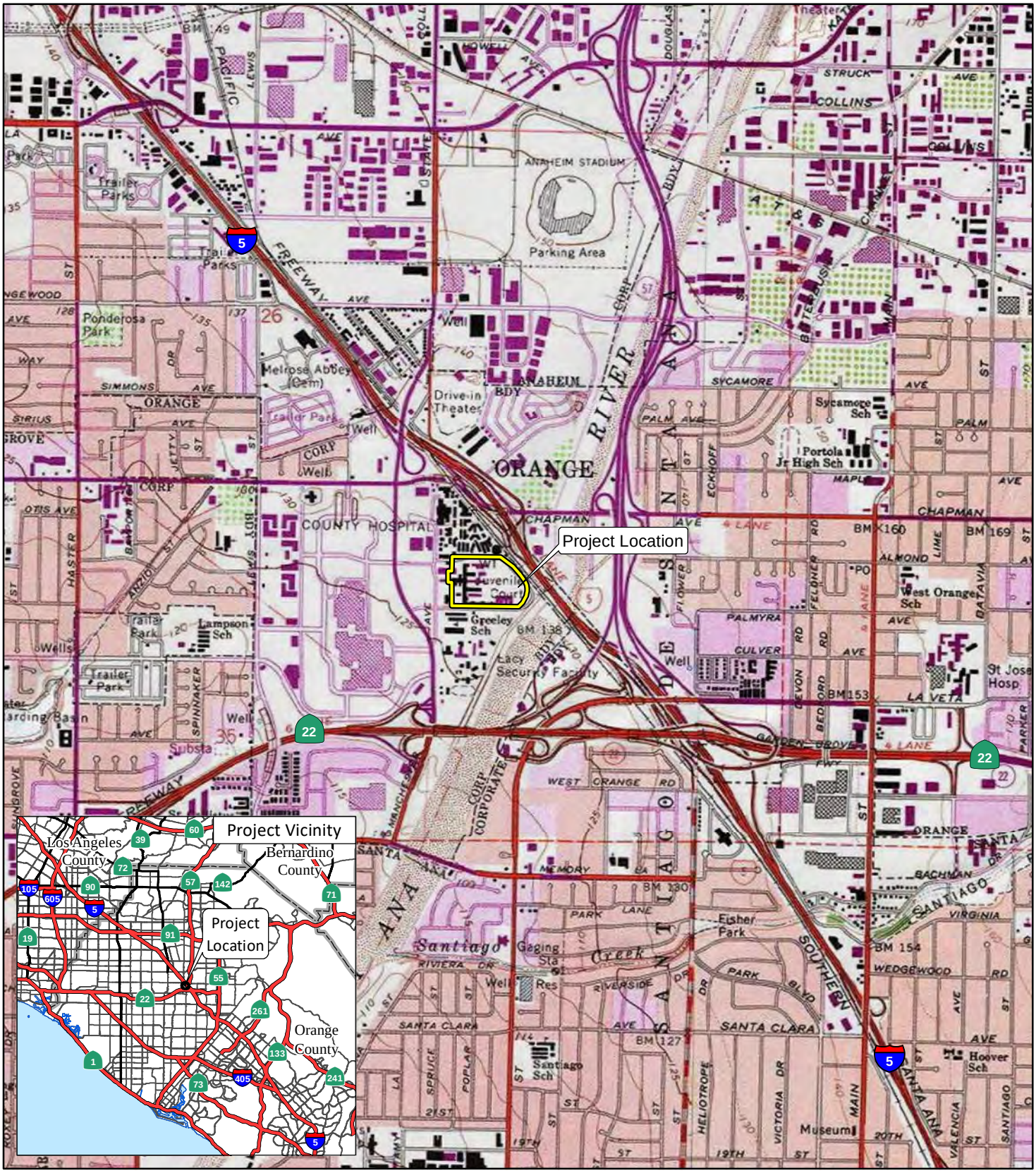
2004 Letter Report: Archaeological Monitoring for the Probation/Juvenile Hall 60-Bed Expansion, Orange County, California. Discovery Works, Inc. On file, South Central Coastal Information Center, California State University, Fullerton. Information Center Accession No. OR-2853.

ATTACHMENTS

Attachment A: Figure 1: Project Location and Vicinity
B: Results of SCCIC Record Search
C: Results of NAHC SLF Search

ATTACHMENT A

FIGURE 1: PROJECT LOCATION AND VICINITY



LSA

LEGEND

Project Location

FIGURE 1

N

0 1000 2000

FEET

SOURCE: USGS 7.5' Quad - Anaheim (1981), CA

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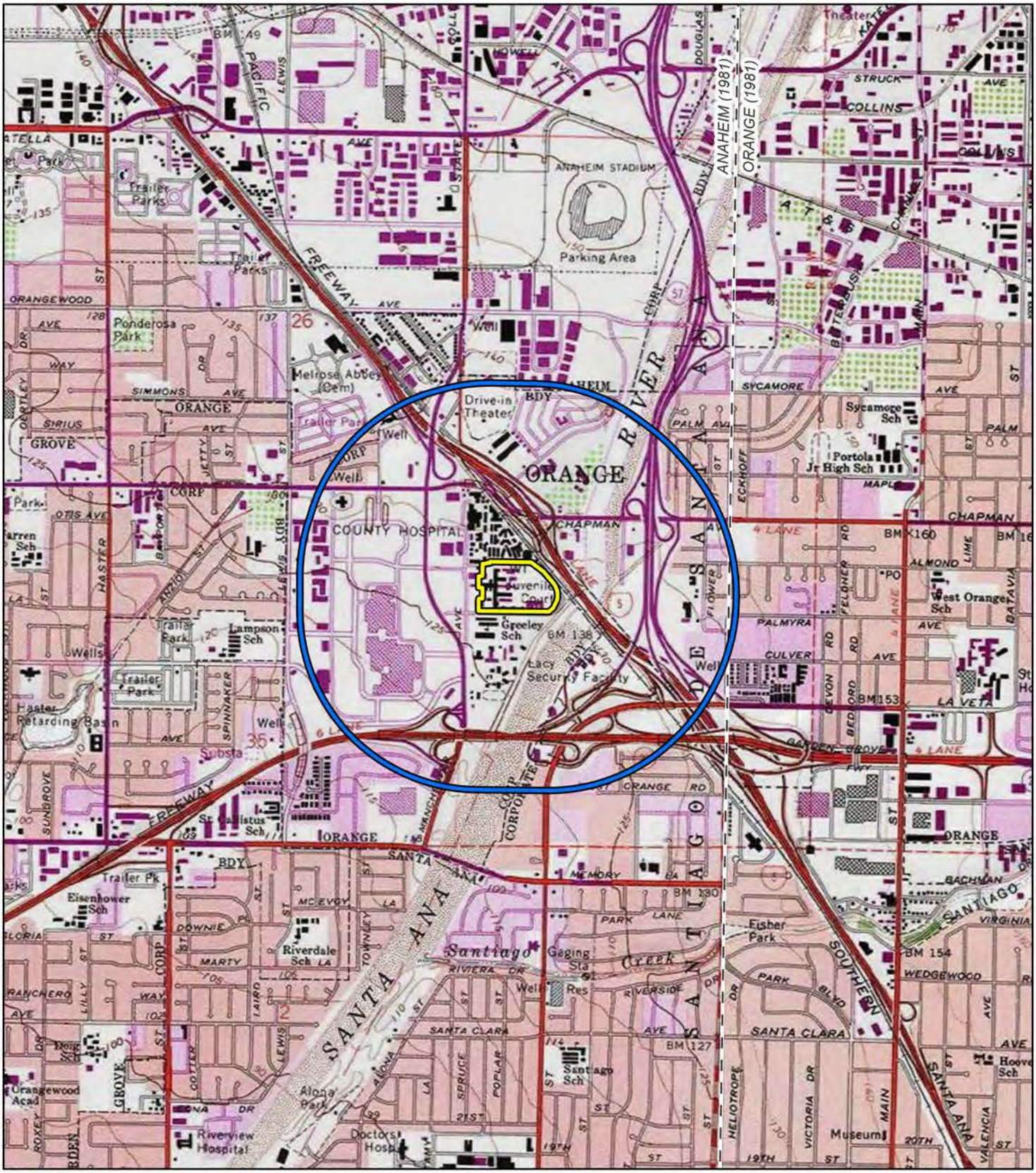
OC Juvenile Hall YTC Project

Project Location and Vicinity

ATTACHMENT B

RESULTS OF THE SCCIC RECORD SEARCH



LSA

Project Area

Half-Mile Radius of Project Area

USGS Quad Boundary

N

0 1000 2000

FEET

Orange County Youth Transition Center Juvenile Hall Replacement Project

Record Search Map

SOURCE: USGS 7.5' Quad - *Orange (1981)* and *Anaheim (1981)*, CA

I:\O\OCY2001.48\GIS\Pro\Orange County Youth Transition Center Juvenile Hall Replacement Project\Orange County Youth Transition Center Juvenile Hall Replacement Project.aprx (10/11/2024)

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-00270		1975	Leonard, Nelson N. III and Mathew C. Hall	Description and Evaluation of Cultural Resources Within the US Army Corps of Engineers' Santa Ana River Project	Archaeological Research Unit, UC Riverside	30-000277
OR-00801		1985	Langenwalter, Paul E. and James Brock	Phase Ii Archaeological Studies Prado Basin and the Lower Santa Ana River		30-000089, 30-000817
OR-00814		1982	Romani, John F.	ARCHAEOLOGICAL SURVEY REPORT for the Route I-5 Santa Ana Transportation Corridor, Route 405 in Orange County to Route 605 in Los Angeles County Pm 21.30/44.38; 0.00/6.85	Caltrans	
OR-00894		1988	McKenna, Jeanette A. and Hatheway, Roger G.	An Archaeological Survey of the Orange Drive-in Thester Property Orange, California		
OR-01836		1998	Padon, Beth	Cultural Resource Review for Groundwater Replenishment System Program EIR/Tier I/EIS, Orange County Water District and County Sanitation Districts of Orange County	Discovery Works, Inc.	
OR-01898		1990	Anonymous	Finding of Effect Widening of Interstate 5 and Reconstruction of Interchanges Between State Routes 22/57 and 91 in the Cities of Santa Ana, Orange, Anaheim, Fullerton and Buena Park	Caltrans	30-161815, 30-161816
OR-01900		1987	Hatheway, Roger G.	Historical and Architectural Evaluation of Four Railroad Bridges, Lower Santa Ana River and Santiago Creek Orange County, California		30-161847
OR-02519		2001	Houghtby, Michael A.	DOJ010427A, Theo Lacy Branch Jail Build Out, Orange County, CA	State of California Board of Corrections	
OR-02614		2002	Padon, Beth	Archaeological Archival and Field Review of the Juvenile Hall Project Anaheim USGS 7.5' Quadrangle, Orange County, California	Discovery Works, Inc.	
OR-02765		2002	McKenna, Jeanette A.	The Pinnacle at Uptown Orange	McKenna et al.	
OR-02853		2004	Padon, Beth	Archaeological Monitoring for the Probation/Juvenile Hall 60-Bed Expansion, Orange County, California	Discovery Works, Inc.	
OR-02899		2003	McKenna, Jeanette A.	Block at Orange Expansion Project	McKenn et al.	

Report List

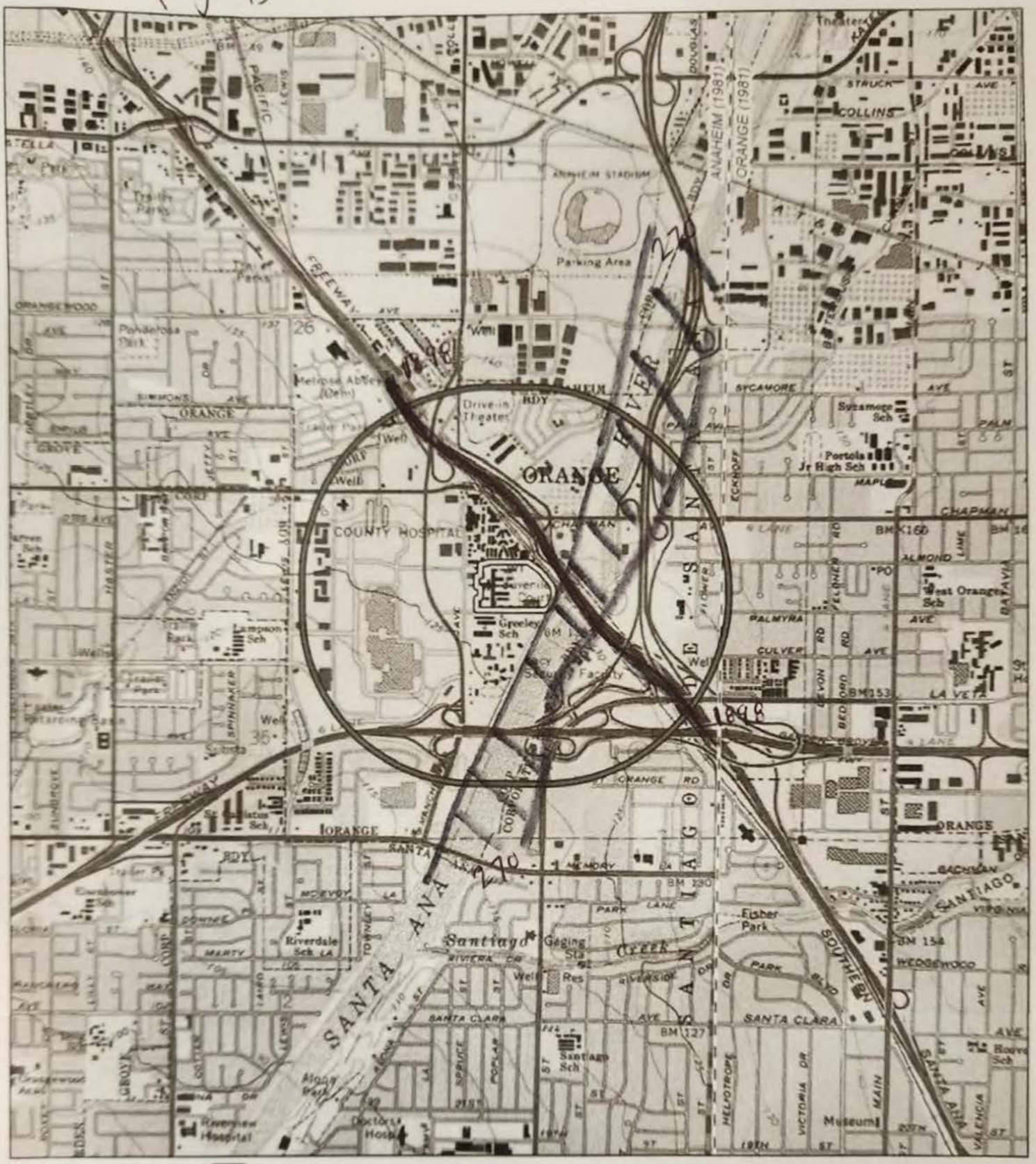
Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-02917		2005	Bonner, Wayne H.	Cultural Resource Records Search and Site Visit Results for Cingular Telecommunications Facility Candidate CM-023-01 (OC-003-01) O.C. Medical, 300 South Flower Street, Orange, Orange County, California	Michael Brandman Associates	
OR-03371		2000	Ritchie, Michael G.	Determination of Effect State Route 22/West Orange County Connnection	Caltrans District 12	19-000392, 19-001352
OR-03373		2006	Arrington, Cindy and Nancy Sikes	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project State of California: Volumes I and Ii	SWCA Environmental Consultants, Inc.	
OR-03726	Paleo -	2008	Padon, Beth	Cultural Resources Monitoring for the Clinical Laboratory Replacement Bulding - UCI Medical Center, University of California, Irvine	Discovery Works, Inc	30-000392
OR-03890		2000	Slauson, Dana	Historic Property Survey Report and Historic Property Survey Report - Reduced Build Alternative Addendum	Greenwood and Associates; Parsons Brinckerhoff Quade & Douglas, Inc.	30-157430, 30-161847, 30-177022, 30-177023, 30-177024, 30-177025, 30-177026, 30-177027, 30-177028, 30-177029, 30-177030, 30-177031, 30-177032, 30-177033, 30-177034
OR-03890A		2000	Schmidt, James J.	Negative Archaeological Survey Report; State Route 22/West Orange County Connection Environmental Impact Report/Environment Impact Statement	Greenwood and Associates; Parsons Brinckerhoff Quade & Douglas, Inc.	
OR-03890B		2000	Slawson, Dana N.	Historic Architectural Survey Report and Historic Property Survey Report Reduced Build Alternative Addendum	Greenwood and Associates; Parsons Brinckerhoff Quade & Douglas, Inc.	
OR-03896		2010	Wlodarski, Robert J.	AT&T Wireless Telecommunications Site OC 0159 (Crown Castle Colo), 595 The City Drive, Orange, Orange County, California 92868	Cellular, Archaeological, Research, Evaluation	
OR-04087	Paleo -	1998	Salenius, Sylvia	Program EIR/Tier 1 EIS, for the Groundwater Replenishment System	P&D Consultants, Inc.	
OR-04121		2010	Laroque, Mark	879005 So. Santa Ana, 595 The City Drive So., Orange, Orange Co.	Practical Environmental Solutions	
OR-04259		2007	Becker, Kenneth, Goodman, John, Sewell, Kristin, and Van Galder, Sarah	Cultural Resources Monitoring Report, Orange County Water District Groundwater Replenishment System, Orange County, California	SRI	30-001670, 30-001671, 30-100402

Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
OR-04266		2000	Bissell, Ronald M.	Cultural Resources Reconnaissance for the Groundwater Replenishment System, Orange County, California	RMW Paleo Associates	30-000058, 30-000076, 30-000145, 30-000163, 30-000283, 30-000302, 30-000356, 30-000428, 30-000429, 30-000430, 30-000506, 30-000516, 30-000517, 30-001524
OR-04292		2012	Meiser, M.K., Wallace, James, and Deitler, Sara	Historic Property Survey Report, improvements to Interstate 5 (I-5) between State Route 55 and State Route 57	AECOM	30-001598, 30-160811, 30-160814, 30-160816, 30-160817, 30-160818, 30-160819, 30-160824, 30-160830, 30-160836, 30-160838, 30-160842, 30-160843, 30-160845, 30-160847, 30-160851, 30-160852, 30-160916, 30-160930, 30-160931, 30-160934, 30-160949, 30-161037, 30-161827, 30-176576, 30-176577, 30-176578, 30-176579, 30-176580, 30-176581, 30-176582, 30-176583, 30-176584, 30-176585, 30-176587, 30-176588, 30-176589, 30-176663, 30-176664, 30-176802, 30-176809, 30-177013, 30-177014, 30-177015, 30-177016, 30-177017, 30-177018, 30-177019, 30-177020, 30-177036, 30-177749

projects / reports

projects



LSA

Project Area

Half-Mile Radius of Project Area

USGS Quad Boundary

0 1000 2000
FEET

Orange County Youth Transition Center Juvenile Hall Replacement Project

Record Search Map

SOURCE: USGS 7.5' Quad - *Orange (1981) and Anaheim (1981), CA*

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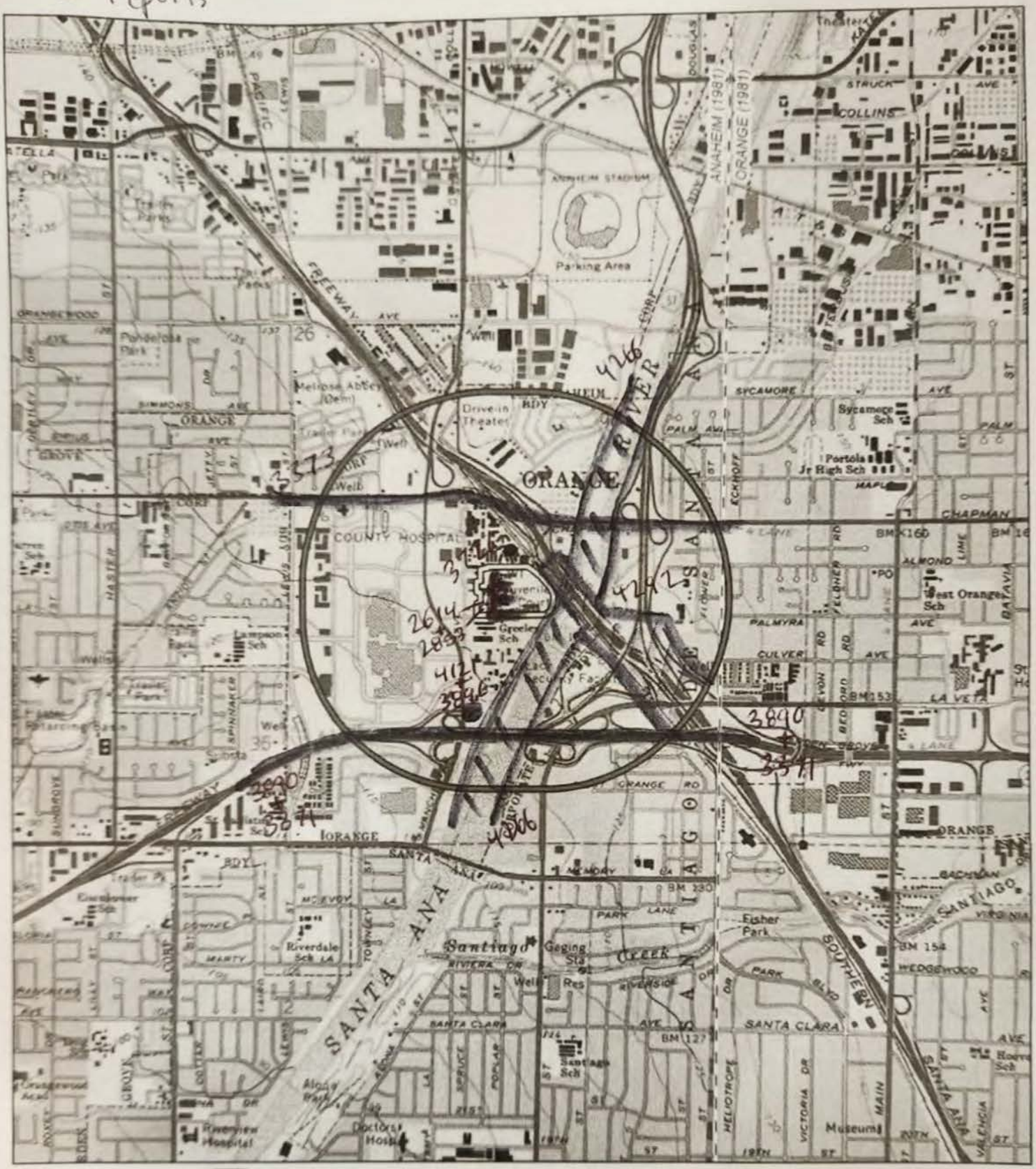
Reports



LSA

Project Area

Half-Mile Radius of Project Area

USGS Quad Boundary

0 1000 2000

FEET

Orange County Youth Transition Center Juvenile Hall Replacement Project

Record Search Map

SOURCE: USGS 7.5' Quad - *Orange (1981) and Anaheim (1981), CA*

I:\O\OCY2001.48\GIS\Pro\Orange County Youth Transition Center Juvenile Hall Replacement Project\Orange County Youth Transition Center Juvenile Hall Replacement Project.aprx (10/11/2024)

reports

Orange County Youth Transition Center Juvenile Hall Replacement Project

Record Search Map

SOURCE: USGS 7.5' Quad - *Orange (1981)* and *Anaheim (1981)*, CA

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OR-02614

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Sites: 0 Sites
OHP
Dev: (11) Govt. Pub. Works

Archaeological Archival and Field Review of the Juvenile Hall Project *Anaheim* USGS 7.5' Quadrangle Orange County, California

Prepared for:

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P & DConsultants, Inc.
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Prepared by:

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January 2002

Key Words: Archaeological field review, USGS *Anaheim* 7.5, 23 acre parcel

883

OR2853
OR-02853

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Long Beach, CA 90802
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Cultural Resources Management Outreach

Da: July 5, 2004

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Project Manager
Ag: PFRD A/E Construction
1152 E. Fruit Street, Building 1
Santa Ana, CA 92701

Au: Beth Padon
Pg: 10
Tg: (11) Monitoring
AC: 1.82
Sites: 0 0HB
Dev: (17) Other - Expansion of Probation/ Juvenile Hall
Quad: ANAHEIM 883

Dear Mr. Breslin,

Subject: Archaeological Monitoring for the Probation/Juvenile Hall 60-Bed Expansion, Orange County, California.

Discovery Works, Inc. provided the archaeological monitoring for excavations at the County of Orange Juvenile Hall Expansion Project, located in the City of Orange, California. The County of Orange Probation Department is the project proponent and serves as the Lead Agency. This letter report complies with the cultural resources requirements of the County of Orange, Section 106 of the National Historic Preservation Act, and the California Environmental Quality Act.

The project is located within the City of Orange, near the Santa Ana Freeway (I-5) and Chapman Avenue. This project also is part of the existing secured County of Orange Juvenile Detention Complex. Specifically, the project area covers an unsectioned portion of Township 4 South, Range 10 West on the 7.5' USGS *Anaheim* Quadrangle (Fig. 1).

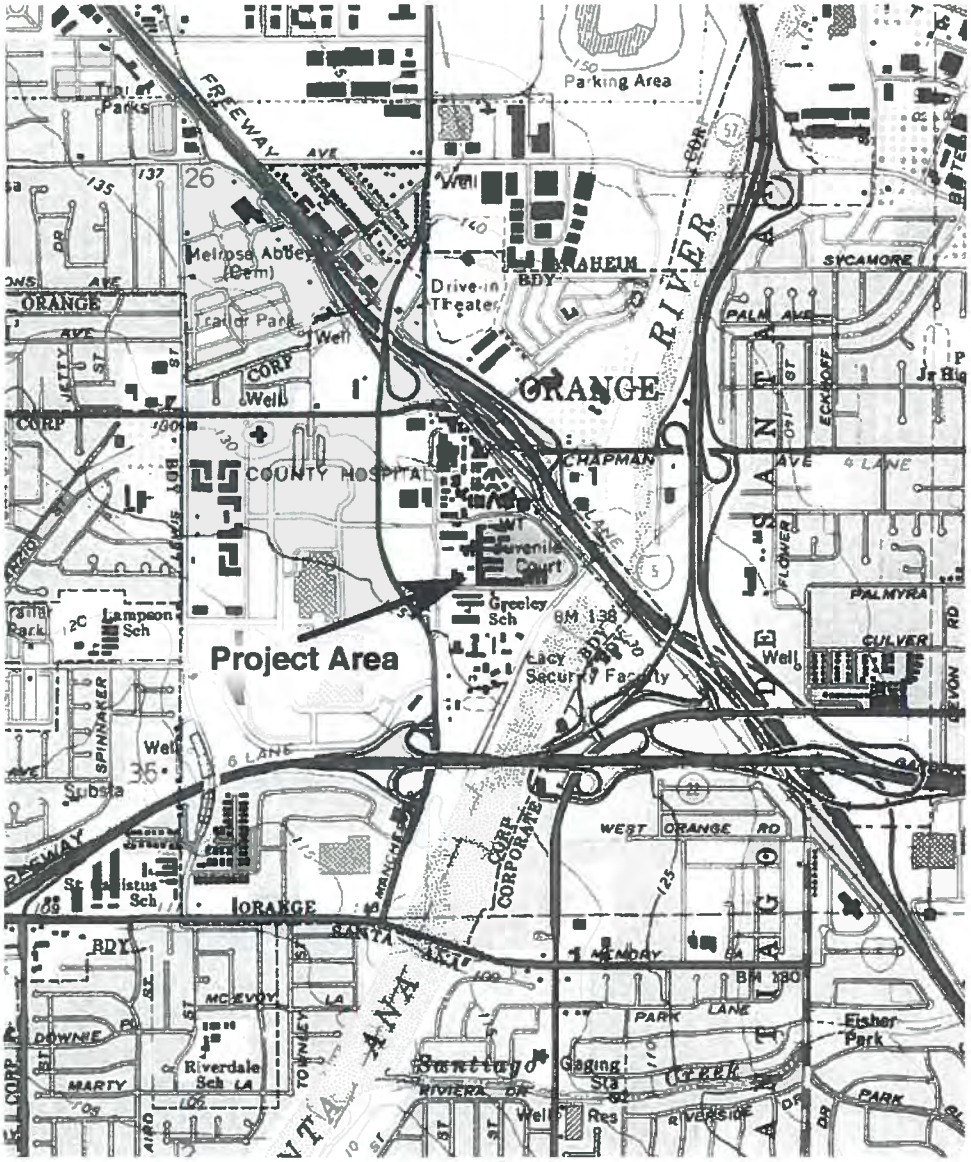
Pete Koehnke, Superintendent of Tovey/Shultz Construction initially directed the construction, followed by Tim Carrick in August, 2003, who completed the project. Kevin Fairchild of Fairchild Plumbing and Mechanical, Inc. directed the grading for the utility lines on the project. Terry Greene of Al MacIntosh directed the soil excavations. Beth Padon, Orange County Certified Archaeologist, served as project manager for Discovery Works, and directed the archaeological monitoring. Ves Snelson, Chris Padon, and Beth Padon served as project monitors. We summarize our monitoring results below.

Project Description

The proposed Juvenile Hall Expansion Project involves renovating existing structures and constructing additional facilities within the current complex (Fig. 2). Specifically, the proposed project includes expanding the existing Juvenile Hall facility with the addition of a new building to house 60 more juveniles. The project also includes constructing, within the grounds of the complex, additional classrooms, new administration school housing, expansion of the laundry facilities and warehouse space, and replacement of the existing emergency generator. Plans also show the excavation of a truck well for the laundry facility.

Project Background and Setting

Topographically, the project occupies 1.82 acres within the total facility, and varies slightly in elevation from 125 to 130 feet above sea level, from southwest to northeast. The project



taken from *Anaheim* and Orange USGS 7 5 topographic maps

Fig. 1. Project location for Juvenile Hall Facility.

also lies within the Santa Ana River floodplain. The Santa Ana River passes approximately 350 feet to the southeast of the Juvenile Hall complex. The 23-acre facility is located in a civic area known as the "Manchester Complex" which is the site of the Theo Lacy Branch Jail, Orange County Sheriff Research and Development Offices, Lamoreaux Justice Center (Probate and Family Superior Court and Juvenile Hall detention facility and program administration), Orangewood Children's Home, Orange County Animal Shelter, Social Services Court Services and the University of California, Irvine (UCI) Medical Center.

Geologically, the site contains approximately two to three feet of fill soils above the alluvium deposits (Alvappillai et. al 2001). The fill soils generally consist of interbedded layers of grayish-brown to medium brown, dry to slightly moist, sandy silt to silty sandy materials. The alluvium deposits consist of interbedded layers of grayish-brown silty sand, sandy silt and silty clay to clayey silt soils (Alvappillai et. al 2001).

ATTACHMENT C

RESULTS OF THE NAHC SLF SEARCH

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
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Pauma-Yuima Band of Luiseño Indians

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Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
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West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 25, 2024

Ivan Strudwick
LSA

Via Email to: Ivan.Strudwick@lsa.net

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, OC-YTC Juvenile Hall Project, Orange County

To Whom It May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

      All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of the Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Orange County
10/25/2024

Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Cahuilla Band of Indians	F	BobbyRay Esparza, Cultural Director	52701 CA Highway 371 Anza, CA, 92539	(951) 763-5549		besparza@cahuilla-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	6/28/2023
Cahuilla Band of Indians	F	Anthony Madrigal, Tribal Historic Preservation Officer	52701 CA Highway 371 Anza, CA, 92539	(951) 763-5549		anthonymad2002@gmail.com	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	6/28/2023
Cahuilla Band of Indians	F	Erica Schenk, Chairperson	52701 CA Highway 371 Anza, CA, 92539	(951) 590-0942	(951) 763-2808	chair@cahuilla-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	2/1/2024
Gabrieleno Band of Mission Indians - Kizh Nation	N	Andrew Salas, Chairperson	P.O. Box 393 Covina, CA, 91723	(844) 390-0787		admin@gabrielenoindians.org	Gabrieleno	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	8/18/2023
Gabrieleno Band of Mission Indians - Kizh Nation	N	Christina Swindall Martinez, Secretary	P.O. Box 393 Covina, CA, 91723	(844) 390-0787		admin@gabrielenoindians.org	Gabrieleno	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	8/18/2023
Gabrieleno/Tongva San Gabriel Band of Mission Indians	N	Anthony Morales, Chairperson	P.O. Box 693 San Gabriel, CA, 91778	(626) 483-3564	(626) 286-1262	GTTribalcouncil@aol.com	Gabrieleno	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	12/4/2023
Gabrielino Tongva Indians of California Tribal Council	N	Christina Conley, Cultural Resource Administrator	P.O. Box 941078 Simi Valley, CA, 93094	(626) 407-8761		christina.marsden@alumni.usc.edu	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	3/16/2023
Gabrielino Tongva Indians of California Tribal Council	N	Robert Dorame, Chairperson	P.O. Box 490 Bellflower, CA, 90707	(562) 761-6417	(562) 761-6417	gtongva@gmail.com	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	3/16/2023
Gabrielino/Tongva Nation	N	Sandonne Goad, Chairperson	106 1/2 Judge John Aiso St., #231 Los Angeles, CA, 90012	(951) 807-0479		sgoad@gabrielino-tongva.com	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	3/28/2023
Gabrielino-Tongva Tribe	N	Sam Dunlap, Cultural Resource Director	P.O. Box 3919 Seal Beach, CA, 90740	(909) 262-9351		tongvatcr@gmail.com	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	5/30/2023
Gabrielino-Tongva Tribe	N	Charles Alvarez, Chairperson	23454 Vanowen Street West Hills, CA, 91307	(310) 403-6048		Chavez1956metro@gmail.com	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	5/30/2023
Juaneno Band of Mission Indians Acjachemen Nation - Belardes	N	Joyce Perry, Cultural Resource Director	4955 Paseo Segovia Irvine, CA, 92603	(949) 293-8522		kaamalam@gmail.com	Juaneno	Los Angeles,Orange,Riverside,San Bernardino,San Diego	3/17/2023
Juaneno Band of Mission Indians Acjachemen Nation 84A	N	Heidi Lucero, Chairperson, THPO	31411-A La Matanza Street San Juan Capistrano, CA, 92675	(562) 879-2884		jbmian.chairwoman@gmail.com	Juaneno	Los Angeles,Orange,Riverside,San Bernardino,San Diego	3/28/2023
Pala Band of Mission Indians	F	Alexis Wallick, Assistant THPO	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3537		awallick@palatribe.com	Cupeno Luiseno	Orange,Riverside,San Bernardino,San Diego	11/27/2023
Pala Band of Mission Indians	F	Christopher Nejo, Legal Analyst/Researcher	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3564		cnejo@palatribe.com	Cupeno Luiseno	Orange,Riverside,San Bernardino,San Diego	11/27/2023
Pala Band of Mission Indians	F	Shasta Gaughen, Tribal Historic Preservation Officer	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3515		sgaughen@palatribe.com	Cupeno Luiseno	Orange,Riverside,San Bernardino,San Diego	11/27/2023
Santa Rosa Band of Cahuilla Indians	F	Vanessa Minott, Tribal Administrator	P.O. Box 391820 Anza, CA, 92539	(951) 659-2700	(951) 659-2228	vminott@santarosa-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	4/8/2024
Santa Rosa Band of Cahuilla Indians	F	Steven Estrada, Tribal Chairman	P.O. Box 391820 Anza, CA, 92539	(951) 659-2700	(951) 659-2228	sestrada@santarosa-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	4/8/2024
Soboba Band of Luiseno Indians	F	Joseph Ontiveros, Tribal Historic Preservation Officer	P.O. Box 487 San Jacinto, CA, 92581	(951) 663-5279	(951) 654-4198	jontiveros@soboba-nsn.gov	Cahuilla Luiseno	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	7/14/2023
Soboba Band of Luiseno Indians	F	Jessica Valdez, Cultural Resource Specialist	P.O. Box 487 San Jacinto, CA, 92581	(951) 663-6261	(951) 654-4198	jvaldez@soboba-nsn.gov	Cahuilla Luiseno	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	7/14/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed OC-YTC Juvenile Hall Project, Orange County.

Record: PROJ-2024-005556
Report Type: AB52 GIS
Counties: Orange
NAHC Group: All

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APPENDIX E

GEOTECHNICAL INVESTIGATION

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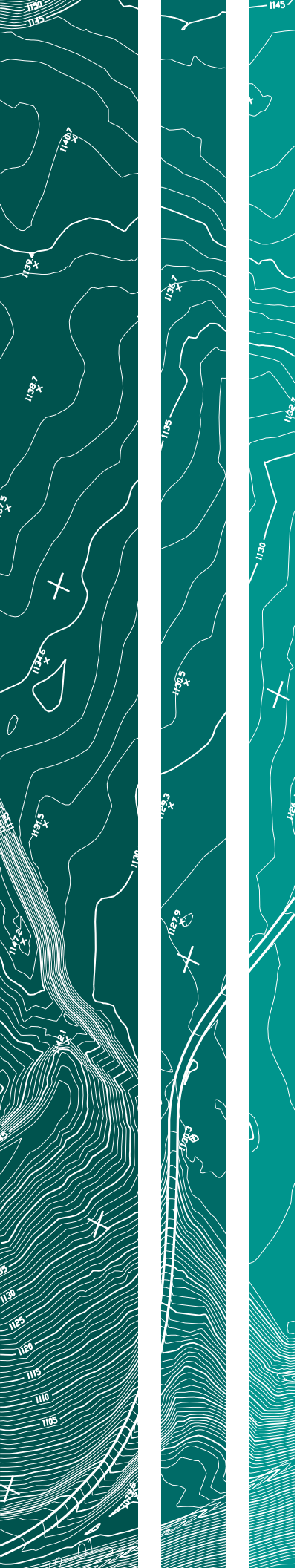


GEOCON

GEOTECHNICAL INVESTIGATION

ORANGE COUNTY YOUTH TRANSITION CENTER
PROJECT (OC YTC)
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MARCH 15, 2024
PROJECT NO. W1857-88-01

PREPARED FOR:
Balfour Beatty Construction
San Diego, California

Project No. W1857-88-01
March 15, 2024

Balfour Beatty Construction, LLC
13530 Evening Creek Drive North, Suite 270
San Diego, CA 92128

Subject: GEOTECHNICAL INVESTIGATION
ORANGE COUNTY YOUTH TRANSITION CENTER PROJECT (OC YTC)
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

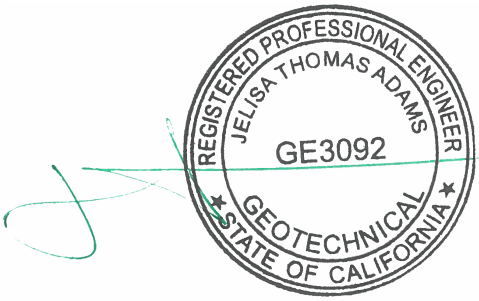
Ladies and Gentlemen:

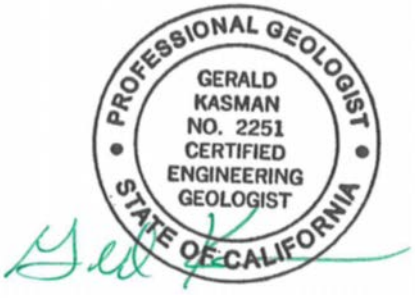
In accordance with your authorization of our proposal dated November 17, 2023, we have performed a geotechnical investigation for the proposed Orange County Youth Transition Center project (OC YTC) located at 331 The City Drive South in the City of Orange, California. The accompanying report presents the findings of our study and our conclusions and recommendations pertaining to the geotechnical aspects of proposed design and construction. Based on the results of our investigation, it is our opinion that the project can be developed as proposed, provided the recommendations of this report are followed and implemented during design and construction.

If you have any questions regarding this report, or if we may be of further service, please contact the undersigned.

Very truly yours,

GEOCON WEST, INC.





Andrew Sover
PE 92879

Jelisa Thoms Adams
GE 3092

Gerald A. Kasman
CEG 2251

(email) Addressee

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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a geotechnical investigation for the proposed Orange County Youth Transition Center (YTC) project located at 331 The City Drive South, in the City of Orange, California (see Vicinity Map, Figure 1). The purpose of the investigation was to evaluate subsurface soil and geologic conditions underlying the site and, based on conditions encountered, to provide conclusions and recommendations pertaining to the geotechnical aspects of proposed design and construction.

The scope of this investigation included a site reconnaissance, field exploration, laboratory testing, engineering analysis, and the preparation of this report. The site was explored between February 7 and 13, 2024, by excavating eight 8-inch-diameter borings using a truck-mounted hollow-stem auger drilling machine and a limited access drilling machine to depths between 5 and 63.5 feet beneath the ground surface. Additionally, five borings were excavated using 3-inch hand augers to depths between 15 and 16½ feet beneath the ground surface. Percolation testing was performed in two borings to determine the infiltration rate of site soils. Three Cone Penetrometer Tests (CPTs) were advanced on February 12, 2024, to approximate depths of 63 to 100 feet below the ground surface using a truck-mounted 30-ton CPT rig. The approximate locations of the exploratory borings and CPT soundings are depicted on the Site Plan (see Figure 2). A detailed discussion of the field investigation, including boring logs and CPT soundings, are presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to determine pertinent physical and chemical soil properties. Appendix B presents a summary of the laboratory test results.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. References reviewed to prepare this report are provided in the *List of References* section.

If project details vary significantly from those described herein, Geocon should be contacted to determine the necessity for review and possible revision of this report.

2. SITE AND PROJECT DESCRIPTION

The subject site is located at 331 The City Drive South in the City of Orange, California. The site is occupied by a youth detention center comprised of one- to two-story dormitories and classrooms, a multipurpose rehabilitation center, and grass fields. The approximate boundary of the area of proposed construction is shown on the Site Plan (see Figure 2). The site is bounded by Service Way South to the north, by Sidwell Way to the east, Justice Center Way to the south, and by the Lamoreaux Justice Center to the west. The site is relatively level and surface water drainage at the site appears to flow to the site drains.

Based on the information provided by the Client, it is our understanding that the proposed project consists of approximately 88,000 gross square feet of new building area and includes site access, new parking areas, outdoor recreation and landscape development and connections to existing Juvenile Hall systems and infrastructure. To create a clear area for construction of new facilities, the project includes demolition of several occupied and unoccupied buildings, perimeter security fencing, site amenities and landscaping. The proposed structures are anticipated to be one- to two-story and constructed at or near present grade. It is anticipated that both masonry and wood framed construction will be used. The existing site conditions are depicted on the Site Plan (see Figure 2). Plans for the proposed project are still being developed and were not available for inclusion in this report.

Based on the preliminary nature of the design at this time, wall and column loads were not available. It is anticipated that column loads for the proposed structures will be up to 20 kips, and wall loads will be up to 2 kips per linear foot.

Once the design phase and foundation loading configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

3. GEOLOGIC SETTING

The subject site is located on the south-central portion of the Orange County Coastal Plain, a relatively flat-lying alluviated surface with an average slope of less than 20 feet per mile. The lowland surface is bounded by hills and mountains on the north and east, and by the Pacific Ocean to the south and southwest. Prominent structural features within the Orange County Coastal Plain include the central lowland plain, the northwest trending line of low hills and mesas underlain by the Newport-Inglewood Fault Zone along the coast (Newport Mesa, Huntington Beach Mesa, Bolsa Chica Mesa, and Landing Hill), and the San Joaquin Hills to the southeast.

4. SOIL AND GEOLOGIC CONDITIONS

Based on published geologic maps of the area, the site is underlain by artificial fill and Holocene age young alluvial fan deposits that consist of sand and silt, with lesser amounts of clay (California Geological Survey, 2012). Detailed stratigraphic profiles of the materials encountered at the site are provided on the boring logs and CPT soundings in Appendix A.

4.1 Artificial Fill

Artificial fill was encountered in our explorations to a maximum depth of 3½ feet below existing ground surface. The artificial fill generally consists of dark brown silty sand and sandy silt that can be characterized as moist and loose to medium dense or firm. The fill is likely the result of past grading or construction activities at the site. Deeper fill may exist between excavations and in other portions of the site that were not directly explored.

4.2 Young Alluvium

Holocene age alluvial fan deposits were encountered beneath the fill. The alluvium generally consists of brown to yellowish brown, or grayish brown silty sand and poorly graded sand with minor interbeds of sandy silt and sandy clay and various amounts of fine- to coarse-gravel. The alluvial soils are characterized as poorly- to well-graded sand, slightly moist to wet and soft to firm or loose to dense.

5. GROUNDWATER

Review of the Seismic Hazard Zone Report for the Anaheim Quadrangle (California Division of Mines and Geology [CDMG], 1998, revised 2001) indicates that the historically highest groundwater level in the area is between 30 and 40 feet beneath the existing ground surface. Groundwater information presented in this document is generated from data collected in the early 1900's to the late 1990s.

Groundwater was encountered in our borings at a depth of approximately 54 feet below the existing ground surface. The groundwater measurements were performed in a manner that is typical of geotechnical exploration and should not be interpreted as representing a fully equalized water level.

Based the reported historic high groundwater levels in the immediate area (CDMG, 2001), and the depth of proposed construction, static groundwater is neither expected to be encountered during construction, nor have a detrimental effect on the project. However, it is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed (especially in impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall), groundwater seepage levels encountered during construction may be actually higher than those encountered during our investigation. In addition, recent requirements for storm water infiltration could result in shallower seepage conditions in the region. Proper surface drainage of irrigation and precipitation will be critical for future performance of the project. Recommendations for drainage are provided in the Surface Drainage section of this report (see Section 7.16).

6. GEOLOGIC HAZARDS

6.1 Surface Fault Rupture

The numerous faults in Southern California include Holocene-active, pre-Holocene, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS, formerly known as CDMG) for the Alquist-Priolo Earthquake Fault Zone Program (CGS, 2018). By definition, a Holocene-active fault is one that has had surface displacement within Holocene time (about the last 11,700 years). A pre-Holocene fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a state-designated Alquist-Priolo Earthquake Fault Zone (CGS, 2024a; 2024b) for surface fault rupture hazards. No Holocene-active or pre-Holocene faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low. However, the site is located in the seismically active Southern California region, and could be subjected to moderate to strong ground shaking in the event of an earthquake on one of the many active Southern California faults. The faults in the vicinity of the site are shown in Figure 3, Regional Fault Map.

The closest surface trace of a Holocene-active fault to the site is the Newport-Inglewood Fault Zone located approximately 9.7 miles to the southwest. Other nearby active faults are the Whittier Fault, the Chino Fault, the Elsinore Fault, and the Palos Verdes Fault Zone (offshore segment) located approximately 10 miles to the north-northeast, 15 miles to the northeast, 16 miles to the northeast, and 19 miles to the southwest, respectively (USGS, 2006; Ziony and Jones, 1989). The active San Andreas Fault Zone is located approximately 41 miles northeast of the site (USGS, 2006; Ziony and Jones, 1989).

Several buried thrust faults, commonly referred to as blind thrusts, underlie the Southern California area at depth. These faults are not exposed at the ground surface and are typically identified at depths greater than 3.0 kilometers. The October 1, 1987 M_w 5.9 Whittier Narrows earthquake and the January 17, 1994 M_w 6.7 Northridge earthquake were a result of movement on the Puente Hills Blind Thrust and the Northridge Thrust, respectively. The Puente Hills Blind Thrust underlies the site at depth. These thrust faults and others in the Los Angeles area are not exposed at the surface and do not present a potential surface fault rupture hazard at the site; however, these deep thrust faults are considered active features capable of generating future earthquakes that could result in moderate to significant ground shaking at the site.

6.2 Seismicity

As with all of Southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. The epicenters of recorded earthquakes with magnitudes equal to or greater than 5.0 in the site vicinity are depicted on Figure 4, Regional Seismicity Map. A partial list of moderate to major magnitude earthquakes that have occurred in the Southern California area within the last 100 years is included in the table on the following page.

LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
Long Beach	March 10, 1933	6.4	12	SSW
Tehachapi	July 21, 1952	7.5	106	NW
San Fernando	February 9, 1971	6.6	52	NW
Whittier Narrows	October 1, 1987	5.9	22	NW
Sierra Madre	June 28, 1991	5.8	34	NNW
Landers	June 28, 1992	7.3	88	ENE
Big Bear	June 28, 1992	6.4	67	ENE
Northridge	January 17, 1994	6.7	47	NW
Hector Mine	October 16, 1999	7.1	108	ENE

The site could be subjected to strong ground shaking in the event of an earthquake. However, this hazard is common in Southern California and the effects of ground shaking can be minimized if the proposed structures are designed and constructed in conformance with current building codes and engineering practices.

6.3 Seismic Design Criteria

The following table summarizes the site-specific design criteria obtained from the 2022 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application U.S. Seismic Design Maps, provided by the Structural Engineers Association of California (SEAOC). The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2022 CBC and Table 20.3-1 of ASCE 7-16. The values presented on the following page are for the risk-targeted maximum considered earthquake (MCE_R).

Although there are liquefiable soils underlying the site, we expect the proposed structures will possesses fundamental periods of less than 0.5 seconds; therefore, use of Site Class F is not considered necessary and a site response analysis is not anticipated to be required in accordance with ASCE 7-16, Section 20.3.1.

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2022 CBC Reference
Site Class	D	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.363g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.484g	Figure 1613.2.1(2)
Site Coefficient, F_A	1	Table 1613.2.3(1)
Site Coefficient, F_V	1.816	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.363g	Section 1613.2.3 (Eqn 16-20)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.879g*	Section 1613.2.3 (Eqn 16-21)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.909g	Section 1613.2.4 (Eqn 16-22)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.586*	Section 1613.2.4 (Eqn 16-23)

*Per Supplement 3 of ASCE7-16, a ground motion hazard analysis (GMHA) shall be performed for projects on Site Class "D" sites with 1-second spectral acceleration (S_1) greater than or equal to 0.2g, which is true for this site. However, Supplement 3 of ASCE 7-16 provides an exception stating that that the GMHA may be waived provided that the parameter S_{M1} is increased by 50% for all applications of S_{M1}. The values for parameters S_{M1} and S_{D1} presented above have been increased in accordance with Supplement 3 of ASCE 7-16.

The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCEG Peak Ground Acceleration, PGA	0.575g	Figure 22-9
Site Coefficient, FPGA	1.1	Table 11.8-1
Site Class Modified MCEG Peak Ground Acceleration, PGAM	0.633g	Section 11.8.3 (Eqn 11.8-1)

Deaggregation of the MCE peak ground acceleration was performed using the USGS online Unified Hazard Tool, 2014 Conterminous U.S. Dynamic edition (v4.2.0). The result of the deaggregation analysis indicates that the mean earthquake contributing to the MCE peak ground acceleration is characterized as a 6.65 magnitude event occurring at a hypocentral distance of 13.63 kilometers from the site.

Deaggregation was also performed for the Design Earthquake (DE) peak ground acceleration, and the result of the analysis indicates that the modal earthquake contributing to the DE peak ground acceleration is characterized as a 6.12 magnitude occurring at a hypocentral distance of 10.68 kilometers from the site.

Conformance to the criteria in the above tables for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

6.4 Liquefaction Potential

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Liquefaction is typified by a loss of shear strength in the liquefied layers due to rapid increases in pore water pressure generated by earthquake accelerations.

The current standard of practice, as outlined in the “Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California” and “Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California” requires liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine- to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

The State of California Seismic Hazard Zone Map for the Anaheim Quadrangle (CDMG, 1998) indicates that the site is located within an area identified as a zone of required investigation for liquefaction. The historic high groundwater level in the vicinity of the site is reported to be approximately 30 to 40 feet beneath the ground surface (CDMG, 1997, revised 2001). Groundwater was encountered in the current field explorations at a depth of approximately 54 feet below the existing ground surface.

Liquefaction analyses of the CPT soundings were performed using the program CLiq (Version 3.5.2.17). This program utilizes the 2001 NCEER method of analysis. This semi-empirical method is based on correlations with the data collected from the CPT soundings.

Prior to analysis, the Standard Penetration Test (SPT) blow counts from borings E, F, and I were compared with the blow counts estimated from CPTs 1, 2, and 3 based on the proximity of these explorations. SPTs were performed in the borings at intervals of approximately 5 feet. In order to supplement the SPT blow count data, the California Modified Sampler blow count data were converted to equivalent SPT blow counts based on a correlation factor of 0.55 (Rogers, 2006). The field collected blow counts were corrected for hammer efficiency to N60 blow count values. The boring N60 values were compared with the N60 values generated by the program CPet-IT (Version 3.9.1.3). The comparisons are shown as Figures 5 through 7. It is our opinion that the boring and CPT N60 values show a reasonable correlation and that analysis of the liquefaction potential may be based on the CPT data.

The liquefaction analysis was performed for a Design Earthquake level by using a historic high groundwater table of 30 feet below the ground surface, a magnitude 6.12 earthquake, and a peak horizontal acceleration of 0.422g (⅔PGAM). The enclosed liquefaction analyses, included herein for CPTs 1 through 3, indicate that the alluvial soils below the historic high groundwater could be prone to up to 1.1 inches of liquefaction induced settlement during Design Earthquake ground motion. A summary of the anticipated liquefaction induced settlements is provided as Figure 8; calculations and output from CLiq are provided as Appendix C.

It is our understanding that the intent of the Building Code is to maintain “Life Safety” during Maximum Considered Earthquake level events. Therefore, additional analysis was performed to evaluate the potential for liquefaction during a MCE event. The structural engineer should evaluate the proposed structure for the anticipated MCE liquefaction induced settlements and verify that anticipated deformations would not cause the foundation system to lose the ability to support the gravity loads and/or cause collapse of the structure.

The liquefaction analysis was also performed for the Maximum Considered Earthquake level by using a historic high groundwater table of 30 feet below the ground surface, a magnitude 6.65 earthquake, and a peak horizontal acceleration of 0.633g (PGAM). The enclosed liquefaction analyses, included herein for CPTs 1 through 3, indicate that the alluvial soils below the historic high groundwater could be prone to up to 2.5 inches of liquefaction induced settlement during Maximum Considered Earthquake ground motion. A summary of the anticipated liquefaction induced settlements is provided as Figure 9; calculations and output from CLiq are provided as Appendix C.

6.5 Seismically-Induced Settlement

Dynamic compaction of dry and loose sands may occur during a major earthquake. Typically, settlements occur in thick beds of such soils. Analysis of dry seismic induced settlements were performed using the program CLiq (Version 3.0.3.2). This program utilizes the Robertson and Shao, 2010, method of analysis.

The results of the seismically induced dry settlement calculations for CPTs 1 through 3 indicate that the soil above the historic high groundwater level of 30 feet could be prone to less than ½ inch of settlement as a result of the Design Earthquake peak ground acceleration (⅔PGAM). A summary of the estimated dry seismic settlements during a Design Level Earthquake is provided as Figure 10.

The results of the seismically induced dry settlement calculations for CPTs 1 through 3 indicate that the soil above the historic high groundwater level of 30 feet could be prone up to ⅔ inch of settlement as a result of the Design Earthquake peak ground acceleration (⅔PGAM). A summary of the estimated dry seismic settlements during a Design Level Earthquake is provided as Figure 11.

Calculations and output from CLiq are provided as Appendix C.

6.6 Slope Stability

The site and adjacent sites are relatively flat to sloping gently to the southwest. Based on a review of the City of Orange General Plan (2010) and the Orange County Safety Element (2004), the site is not located within an area identified as having a potential for slope stability hazards. Also, the site is not within an area identified as having a potential for seismic slope instability (CDMG, 1998). There are no known landslides near the site, nor is the site in the path of any known or potential landslides (USGS, 20223a). Therefore, the potential for slope stability hazards to adversely affect the proposed development is considered low.

6.7 Earthquake-Induced Flooding

Earthquake-induced flooding is inundation caused by failure of dams or other water-retaining structures due to earthquakes. The Orange County Safety Element (2004) indicates that the site is located within the Prado Dam and Santiago Reservoir inundation area. However, these reservoirs, as well as others in California, are continually monitored by various governmental agencies (such as the State of California Division of Safety of Dams and the U.S. Army Corps of Engineers) to guard against the threat of dam failure. Current design, construction practices, and ongoing programs of review, modification, or total reconstruction of existing dams are intended to ensure that all dams are capable of withstanding the maximum considered earthquake (MCE) for the site. Therefore, the potential for inundation at the site as a result of an earthquake-induced dam failure is considered low.

6.8 Tsunamis, Seiches, and Flooding

The site is not located within a coastal area. Therefore, tsunamis are not considered a significant hazard at the site.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Therefore, flooding resulting from a seismically induced seiche is considered unlikely.

According to the City of Orange General Plan (2010) and the Orange County Safety Element (2004), the site is not within a 100-year or 500-year flood zone. No base flood elevation was indicted by FEMA (2021).

6.9 Oil Fields & Methane Potential

Based on a review of the California Geologic Energy Management Division (CalGEM) Well Finder Website, the site is not located within an oil field and oil or gas wells are not documented within ½-mile of the site (CalGEM, 2024). However, due to the voluntary nature of record reporting by the oil well drilling companies, wells may be improperly located or not shown on the location map and undocumented wells could be encountered during construction. Any wells encountered during construction will need to be properly abandoned in accordance with the current requirements of the CalGEM.

Since the site is not located within the boundaries of a known oil field, the potential for the presence of methane or other volatile gases at the site is considered low. However, should it be determined that a methane study is required for the proposed development it is recommended that a qualified methane consultant be retained to perform the study and provide mitigation measures as necessary.

6.10 Subsidence

Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. The site is located within an area of known ground subsidence (USGS, 2024). Subsidence related to groundwater pumping commonly occurs in such small magnitudes and over such large areas that it is generally imperceptible at an individual locality. Accordingly, it affects only regionally extensive structures sensitive to slight elevation changes, such as canals and pipelines. The rate of elevation change is usually uniform over a large enough area that it does not result in differential settlements that would cause damage to individual buildings. Therefore, the potential for subsidence to adversely impact the proposed project is considered low.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 It is our opinion that neither soil nor geologic conditions were encountered during the investigation that would preclude the construction of the proposed project provided the recommendations presented herein are followed and implemented during design and construction.

7.1.2 Up to 3½ feet of existing artificial fill was encountered during the site investigation. The existing fill encountered is believed to be the result of past grading and construction activities at the site. Deeper fill may exist in other areas of the site that were not directly explored. Future demolition of the existing structures which occupy the site will likely disturb the upper few feet of soil below those existing improvements. It is our opinion that the existing fill, in its present condition, is not suitable for direct support of proposed foundations or slabs. If needed, the existing fill and site soils are suitable for re-use as engineered fill provided the recommendations in the *Grading* section of this report are followed (see Section 7.4).

7.1.3 The enclosed liquefaction analysis indicates that the site soils could be susceptible to approximately 1¼ inches of total settlement as a result of the Design Earthquake peak ground acceleration (⅔PGA_M), and up to 3 inches of total settlement as a result of the MCE peak ground acceleration (PGA_M). These values exceed the allowable limits of differential settlement for conventional shallow foundations set forth in Chapter 12 of ASCE 7-16. The grading and foundation design recommendations presented herein are intended to reduce the effects of settlement on proposed improvements.

7.1.4 Based on these considerations, the foundation system for the proposed structures must be able to provide sufficient support and minimize the effects of differential settlement resulting from a liquefaction event. One design option is to support proposed buildings on a reinforced mat foundation system. A mat foundation system is more capable of minimizing the effects of differential settlement and has sufficient rigidity to allow the structure to behave more uniformly. Recommendations for the design of a mat foundation system are provided in Section 7.7.

7.1.5 Alternatively, proposed structures may be supported on a conventional foundation system with interconnecting foundation ties. The foundation system should be underlain by a blanket of newly placed engineered fill. Recommendations for the design of a conventional foundation system are provided in Section 7.8.

7.1.6 As a minimum, it is recommended that existing earth materials in the building footprint areas be excavated and properly compacted to a depth of at least 5 feet below the existing ground surface. This depth is based on the existing grades at the time of our site exploration. Deeper excavations should be conducted as necessary to remove existing artificial fill or soft alluvial soil at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed building foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. It is recommended that the grading contractor verify the depth of all building foundations prior to commencement of site grading activities in order to correctly determine the required grading overexcavations for foundations. Where feasible, the excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or for a distance equal to the depth of fill below the foundation, whichever is greater. The limits of existing fill and/or soft alluvial soil removal will be verified by the Geocon representative during site grading activities. Recommendations for earthwork are provided in the *Grading* section of this report (see Section 7.4).

7.1.7 It should be noted that implementation of the recommendations presented herein is not intended to completely prevent damage to the structure during the occurrence of strong ground shaking as a result of nearby earthquakes. It is intended that the structure be designed in such a way that the amount of damage incurred as a result of strong ground shaking be reduced. Re-leveling of the foundation system and repair of utilities could be necessary following a strong seismic event that triggers liquefaction.

7.1.8 Improvements which are not supported on soil modification, such as walkways, paving, and utilities, may still be subject to seismic and/or static settlement. The client should consider the flexibility of the products and pavements being installed. It is recommended that all utilities traversing through existing site soils utilize flexible connections in order to reduce the damage to underground installations caused by potential soil movements.

7.1.9 Based on our observations during site exploration, areas of loose or soft and overly moist soils may be encountered during grading operations. These conditions may change seasonally. If the soils are more than 3 percent above the optimum moisture content at the time of construction the soils will likely require some spreading and drying activities in order to achieve proper compaction.

7.1.10 If loose or soft and overly moist soils are exposed in excavation bottoms, these soils could be subject to excessive pumping. Operation of rubber tire equipment on the subgrade soils may cause excessive disturbance of the soils. Excavation activities to establish the finished subgrade elevation must be conducted carefully and methodically to avoid excessive disturbance to the subgrade. Stabilization of areas of the excavation bottom may be required in order to provide a firm working surface upon which heavy equipment can operate. Recommendations for bottom stabilization and earthwork are provided in the *Grading* section of this report (see Section 7.4).

7.1.11 It is anticipated that stable excavations for the recommended grading associated with the proposed structure can be achieved with sloping measures. However, if excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures may be necessary in order to maintain lateral support of offsite improvements. Excavation recommendations are provided in the *Temporary Excavations* section of this report (Section 7.13).

7.1.12 Where new paving is to be placed, it is recommended that all existing fill and soft alluvium be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing fill and soft alluvium in the area of new paving is not required, however, paving constructed over existing uncertified fill or unsuitable soils may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper twelve inches of soil should be scarified and properly compacted for paving support. Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report (see Section 7.12).

7.1.13 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied-in to the proposed structure, may be supported on conventional foundations bearing on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and proper compaction cannot be performed, foundations may derive support directly in the undisturbed alluvial soils and should be deepened as necessary to maintain a minimum of 12-inch embedment into recommended bearing materials. The depth to competent alluvium should be field verified at each location. If the soils exposed in the excavation bottom are soft or loose, compaction of the soft soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved in writing by a Geocon representative.

7.1.14 Based on the results of percolation testing performed at the site, a stormwater infiltration system is considered feasible for this project. Recommendations for infiltration are provided in the Stormwater Infiltration section of this report (see Section 7.15).

7.1.15 Once the design and foundation loading configuration for the proposed structures proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Based on the final foundation loading configurations, the potential for settlement should be re-evaluated by this office.

7.1.16 Any changes in the design, location or elevation, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

7.1.17 The most recent ASTM standards apply to this project and must be utilized, even if older ASTM standards are indicated in this report.

7.2 Soil and Excavation Characteristics

7.2.1 The in-situ soils can be excavated with moderate effort using conventional excavation equipment. Caving should be anticipated in unshored excavations, especially where granular soils are present.

7.2.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable OSHA rules and regulations to maintain safety and maintain the stability of existing adjacent improvements.

7.2.3 All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load. Penetrations below this 1:1 projection will require special excavation measures such as sloping or shoring. Excavation recommendations are provided in the *Temporary Excavations* section of this report (see Section 7.13).

7.2.4 The upper five feet of existing site soils encountered during the investigation are considered to have a "very low" expansive potential (EI = 0 to 2) and are classified as "non-expansive" in accordance with the 2022 California Building Code (CBC) Section 1803.5.3. The recommendations presented herein assume that foundations and slabs will derive support in these materials.

7.3 Minimum Resistivity, pH, and Water-Soluble Sulfate

7.3.1 Potential of Hydrogen (pH) and resistivity testing as well as chloride content testing were performed on representative samples of soil to generally evaluate the corrosion potential to surface utilities. The tests were performed in accordance with California Test Method Nos. 643 and 422 and indicate that the soils are considered "moderately corrosive" with respect to corrosion of buried ferrous metals on site. The results are presented in Appendix B (Figure B30) and should be considered for design of underground structures.

7.3.2 Laboratory tests were performed on representative samples of the on-site soil to measure the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate tests are presented in Appendix B (Figure B30) and indicate that the on-site soil possess a sulfate exposure class of "S0" to concrete structures as defined by 2022 CBC Section 1904 and ACI 318 Chapter 19.

7.3.3 Geocon West, Inc. does not practice in the field of corrosion engineering and mitigation. If corrosion sensitive improvements are planned, it is recommended that a corrosion engineer be retained to evaluate corrosion test results and incorporate the necessary precautions to avoid premature corrosion of buried metal pipes and concrete structures in direct contact with the soils.

7.4 Grading

7.4.1 A preconstruction conference should be held at the site prior to the beginning of excavation operations with the owner, contractor, civil engineer, geotechnical engineer, and building official in attendance. Special soil handling requirements can be discussed at that time.

7.4.2 Earthwork should be observed, and compacted fill tested by representatives of Geocon West, Inc. The existing fill and alluvial soil encountered during exploration are suitable for re-use as an engineered fill, provided any encountered oversize material (greater than 6 inches) and any encountered deleterious debris are removed.

7.4.3 Grading should commence with the removal of all existing vegetation and existing improvements from the area to be graded. Deleterious debris such as wood and root structures should be exported from the site and should not be mixed with the fill soils. Asphalt and concrete should not be mixed with the fill soils unless approved by the Geotechnical Engineer. All existing underground improvements planned for removal should be completely excavated and the resulting depressions properly backfilled in accordance with the procedures described herein. Once a clean excavation bottom has been established it must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.).7.4.3 As a minimum, it is recommended that the upper 5 feet of existing earth materials within proposed structures footprint areas be excavated and properly compacted for foundation and slab support. This depth is based on the existing grades at the time of our site exploration. Deeper excavations should be conducted as necessary to remove any encountered fill or soft soil as necessary at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed building foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. It is recommended that the grading contractor verify the depth of all building foundations prior to commencement of site grading activities in order to correctly determine the required grading overexcavations for foundations. The limits of existing fill and/or soft soil removal will be verified by the Geocon representative during site grading activities.

7.4.4 The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater. Where the recommended lateral over-excavation cannot be performed, such as adjacent to property lines and/or an existing structure, the lateral component of the foundation design can rely solely on friction between the bottom of the foundation and the underlying subgrade soils. The foundation should not utilize passive pressure unless foundations are bounded by and in direct contact with newly placed engineered fill.

7.4.5 All fill and backfill soils should be placed in horizontal loose layers approximately 6 to 8 inches thick, moisture conditioned to near optimum moisture content, and properly compacted to a minimum 90 percent of the maximum dry density in accordance with ASTM D 1557 (latest edition).

7.4.6 All excavations must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon).

7.4.7 Based on our observations during site exploration, areas of loose or soft and overly moist soils may be encountered during grading operations. These conditions may change seasonally. If the soils are more than 3 percent above the optimum moisture content at the time of construction the soils will likely require some spreading and drying activities in order to achieve proper compaction.

7.4.8 Prior to placing fill, a stable excavation bottom must be established. In areas where the subgrade is saturated or soft, proper compaction will likely not be possible or achieved in a timely manner without introducing stabilization measures. If subgrade stabilization is required at the excavation bottom, rubber tire equipment should not be allowed in the excavation bottom until it is stabilized or extensive soil disturbance could result. It is suggested that excavation and grading be performed during the summer season to promote moisture control of the soils. In addition, the use of track equipment should be used to minimize disturbance to the soils at the excavation bottom.

7.4.9 Bottom stabilization, if necessary, may be achieved placing a thin lift of 3- to 6-inch-diameter crushed angular rock into the soft excavation bottom. The use of crushed concrete will also be acceptable. The crushed rock should be spread thinly across the excavation bottom and pressed into the soils by track rolling or wheel rolling with heavy equipment. It is very important that voids between the rock fragments are not created so the rock must be thoroughly pressed or blended into the soils. All subgrade soils must be properly compacted and proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon West, Inc.).

7.4.10 An additional method of subgrade stabilization would be to place a minimum 12 inches thick layer of aggregate base over Tensar InterAx NX850 geogrid or equivalent extruded (nonwoven) geotextile. The Tensar geogrids should be installed taught and should overlap in accordance with the manufacturer's recommendations. Prior to placing the geogrid, excessively soft or wet materials should be removed and the resulting excavation bottom should be free of loose material. Non-vibratory compaction methods should be used for compaction of the base material. The aggregate base should be compacted to a dry density of at least 95 percent of the laboratory maximum density near the optimum moisture. If pumping of the subgrade continues, a thicker layer of aggregate base may be placed. It is very important that subgrade stabilization be performed uniformly across the entire excavation bottom.

7.4.11 It is anticipated that stable excavations for the recommended grading can be achieved with sloping measures. However, if excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures may be necessary in order to maintain lateral support of the existing offsite improvements. Excavation recommendations are provided in the *Temporary Excavations* section of this report (Section 7.13).

7.4.12. Where new paving is to be placed, it is recommended that all existing fill and soft alluvium be excavated and properly compacted for paving support. As a minimum, the upper 12 inches of soil should be scarified, moisture conditioned to near optimum moisture content, and compacted to at least 95 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition). Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report (see Section 7.12).

7.4.13 Although not anticipated for this project, all imported fill shall be observed, tested, and approved by Geocon West, Inc. prior to bringing soil to the site. Import fill should consist of the characteristics presented in the table below.

SUMMARY OF IMPORT FILL RECOMMENDATIONS

Soil Characteristic	Values
Expansion Potential	"Very Low" (Expansion Index of 20 or less)
Particle Size	Maximum Dimension Less Than 6 Inches
	Free of Debris
Corrosivity	Less Detrimental Than Existing Onsite Soils

7.4.14 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied to the proposed building, may be supported on conventional foundations deriving support on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and proper compaction cannot be performed, foundations may derive support directly in the undisturbed alluvial soils and should be deepened as necessary to maintain a minimum 12-inch embedment into the recommended bearing materials. The depth to competent alluvium should be field verified at each location. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative.

7.4.15 It is recommended that flexible utility connections be utilized for all rigid utilities to reduce or prevent damage to utilities from minor differential movements. Utility trenches should be properly backfilled in accordance with the following requirements. The pipe should be bedded with clean sands (Sand Equivalent greater than 30) to a depth of at least 1 foot over the pipe, and the bedding material must be inspected and approved in writing by the Geotechnical Engineer (a representative of Geocon). The use of gravel is not acceptable unless used in conjunction with filter fabric to prevent the gravel from having direct contact with soil. The remainder of the trench backfill may be derived from onsite soil or approved import soil, compacted as necessary, until the required compaction is obtained. The use of minimum 2-sack slurry as backfill is also acceptable. Prior to placing any bedding materials or pipes, the excavation bottom must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon).

7.4.16 All trench and foundation excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to placing bedding materials, fill, steel, gravel, or concrete.

7.5 Shrinkage

7.5.1 Shrinkage results when a volume of material removed at one density is compacted to a higher density. A shrinkage factor of between 5 and 15 percent should be anticipated when excavating and compacting the upper site soils to an average relative compaction of 90 percent.

7.5.2 If import soils will be utilized in the building pad, the soils must be placed uniformly and at equal thickness at the direction of the Geotechnical Engineer (a representative of Geocon West, Inc.).

7.6 Foundation Design – General

7.6.1 Proposed foundations that are situated immediately adjacent to the existing foundations should be deepened as necessary to match the depth of the existing foundation to prevent a surcharge on the existing foundation.

7.6.2 Where proposed foundations will be deeper than the existing foundation, the proposed foundation must be designed to resist the surcharge imposed by the existing foundation. The surcharge area may be defined by a 1:1 projection up and away from the bottom of an existing foundation.

7.6.3 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

7.6.4 This office should be provided a copy of the final construction plans so that the recommendations presented herein could be properly reviewed and revised if necessary.

7.7 Mat Foundation Design

7.7.1 A reinforced concrete mat foundation deriving support in newly placed engineered fill may also be utilized for support the proposed structures. Proposed foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete.

7.7.2 The recommended maximum allowable bearing value for the design of a reinforced concrete mat foundation is 4,000 pounds per square foot (psf). The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

7.7.3 It is recommended that a modulus of subgrade reaction of 150 pounds per cubic inch (pci) be utilized for the design of the mat foundation bearing in newly placed engineered fill. This value is a unit value for use with a 1-foot square footing. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K\left[\frac{B+1}{2B}\right]^2$$

where: K_R = reduced subgrade modulus
K = unit subgrade modulus
B = foundation width (in feet)

7.7.4 The thickness of and reinforcement for the mat foundation should be designed by the project structural engineer.

7.7.5 The maximum expected static settlement for a structure supported on a mat foundation system deriving support in the recommended bearing materials and designed with a maximum bearing pressure of 4,000 psf is estimated to be less than 1 inch and occur below the heaviest loaded structural element. Settlement of the foundation system is expected to occur on initial application of loading. Differential settlement is not expected to exceed ½ inch between the center and corner of the mat foundation.

7.7.6 Based on seismic considerations, proposed structures supported on a mat foundation system should be designed for a combined static and seismically-induced differential settlement of than 1¼ inches.

7.7.7 Settlement resulting from mat foundation loading depends on the pressure distribution across the mat. Typically, some areas of the mat foundation induce larger stresses in the soil than other areas based on the applied loading. Once the design and foundation loading configurations for the proposed structure proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions, the potential for settlement should be reevaluated by this office.

7.7.8 For seismic design purposes, a coefficient of friction of 0.35 may be utilized between concrete slab and subgrade soils without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.8 Conventional Foundation Design

7.8.1 Subsequent to the recommended grading, proposed structures may be supported on a conventional spread foundation system deriving support in newly placed engineered fill. Proposed building foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. The use of a conventional foundation system requires the use of interconnecting foundation ties.

7.8.2 Conventional shallow spread foundations should consist of continuous strip footings and/or isolated spread footings with interconnecting foundation ties and should be designed using the parameters in the table on the following page.

SUMMARY OF FOUNDATION RECOMMENDATIONS

Parameter	Value
Minimum Continuous Foundation Width	12 Inches
Minimum Isolated Foundation Width	24 Inches
Minimum Foundation Depth	18 Inches Below Lowest Adjacent Grade
Minimum Steel Reinforcement	4 No. 4 Bars, 2 Top and 2 Bottom
Allowable Bearing Capacity – Continuous Foundation	2,500 psf
Allowable Bearing Capacity – Isolated Foundation	3,000 psf
Bearing Capacity Increase	300 psf per Foot of Width
	600 psf per Foot of Depth
Maximum Allowable Bearing Capacity	4,000 psf
Estimated Total Settlement	¾ Inch
Estimated Differential Settlement	½ Inch over 20 Feet

7.8.3 The above foundation dimensions and minimum reinforcement recommendations are based on soil conditions and building code requirements only, and are not intended to be used in lieu of those required for structural purposes.

7.8.4 The allowable bearing pressures may be increased by one-third for transient loads due to wind or seismic forces.

7.8.5 The analyses presented herein indicate the site could be susceptible to seismically-induced settlement. These settlements are in addition to the static settlements indicated above and must be considered in the structural design. Based on seismic considerations, the proposed structure should be designed for a combined static and seismically-induced differential settlement indicated in the table below.

SUMMARY OF ANTICIPATED DIFFERENTIAL SETTLEMENT

Parameter	Value
Estimated Differential Static Settlement	½ Inch over 20 Feet
Estimated Differential Seismic Settlement	⅔ Inch over 20 Feet
Recommended Combined Differential Static + Seismic Settlement	1¼ over 20 feet

7.8.6 Once the design and foundation loading configurations for the proposed structures proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions, the potential for settlement should be reevaluated by this office.

7.8.7 No special subgrade presaturation is required prior to placement of concrete. However, the moisture in the foundation subgrade should be sprinkled as necessary to maintain a moist condition at the time of concrete placement.

7.8.8 If depth increases are utilized for the exterior wall footings, this office should be provided a copy of the final construction plans so that the excavation recommendations presented herein could be properly reviewed and revised if necessary. Additional grading should be conducted as needed in order to maintain the required 3-foot-thick blanket of engineered fill below foundations.

7.9 Miscellaneous Foundations

7.9.1 Foundations for small outlying structures, such as block walls up to 6 feet in height, planter walls or trash enclosures, which will not be tied to the proposed structure, may be supported on conventional foundations deriving support on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and compaction cannot be performed, foundations may derive support directly in the competent undisturbed alluvial soils and should be deepened as necessary to maintain a minimum 12-inch embedment into the recommended bearing materials. The depth to competent alluvium should be field verified at each location.

7.9.2 If the soils exposed in the excavation bottom are soft, compaction of the soft soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative. Miscellaneous foundations may be designed for a bearing value of 1,500 psf, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 12 inches into the recommended bearing material. The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

7.9.3 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the excavations and exposed soil conditions are consistent with those anticipated.

7.10 Lateral Design

7.10.1 Resistance to lateral loading may be provided by friction acting at the base of foundations, slabs and by passive earth pressure. An allowable coefficient of friction of 0.35 may be used with the dead load forces in the newly placed engineered fill or undisturbed older alluvial soils.

7.10.2 Passive earth pressure for the sides of foundations and slabs poured against newly placed engineered fill or undisturbed older alluvial soils may be computed as an equivalent fluid having a density of 250 pounds per cubic foot (pcf) with a maximum earth pressure of 2,500 psf. When combining passive and friction for lateral resistance, the passive component should be reduced by one-third. A one-third increase in the passive value may be used for wind or seismic loads.

7.10.3 Where the recommended lateral over-excavation cannot be performed, such as adjacent to property lines and/or an existing structure, the lateral component of the foundation design can rely solely on friction between the bottom of the foundation and the underlying subgrade soils. The foundation should not utilize passive pressure unless foundations are bounded by and in direct contact with newly placed engineered fill.

7.11 Concrete Slabs-on-Grade

7.11.1 Subsequent to the recommended grading, concrete slabs-on-grade for structures, not subject to vehicle loading, should be a minimum of 4 inches thick and minimum slab reinforcement should consist of No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. Steel reinforcing should be positioned vertically near the slab midpoint.

7.11.2 Slabs-on-grade at the ground surface that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder placed directly beneath the slab. The vapor retarder and acceptable permeance should be specified by the project architect or developer based on the type of floor covering that will be installed. The vapor retarder selection and design should be consistent with the guidelines presented in Section 9.3 of the American Concrete Institute's (ACI) Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials (ACI 302.2R-06) as well as ASTM E1745 and should be installed in general conformance with ASTM E 1643 (latest edition) and the manufacturer's recommendations. A minimum thickness of 15 mils extruded polyolefin plastic is recommended; vapor retarders which contain recycled content or woven materials are not recommended. The vapor retarder should have a permeance of less than 0.01 perms demonstrated by testing before and after mandatory conditioning is recommended. The vapor retarder should be installed in direct contact with the concrete slab with proper perimeter seal. If the California Green Building Code requirements apply to this project, the vapor retarder should be underlain by 4 inches of clean aggregate. It is important that the vapor retarder be puncture resistant since it will be in direct contact with angular gravel. As an alternative to the clean aggregate suggested in the Green Building Code, it is our opinion that the concrete slab-on-grade may be underlain by a vapor retarder over 4-inches of clean sand (sand equivalent greater than 30), since the sand will serve a capillary break and will minimize the potential for punctures and damage to the vapor barrier.

7.11.3 For seismic design purposes, a coefficient of friction of 0.35 may be utilized between concrete slabs and subgrade soils without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.11.4 Exterior slabs for walkways and flatwork, not subject to traffic loads, should be at least 4 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions, positioned near the slab midpoint. Prior to construction of slabs, the upper 12 inches of subgrade should be moistened to near optimum moisture content and properly compacted to at least 95 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition). Crack control joints should be spaced at intervals not greater than 10 feet and should be constructed using saw-cuts or other methods as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by the project structural engineer.

7.11.5 The moisture content of the slab subgrade should be maintained and sprinkled as necessary to maintain a moist condition as would be expected in any concrete placement.

7.11.6 The recommendations of this report are intended to reduce the potential for cracking of slabs due to settlement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

7.12 Preliminary Pavement Recommendations

7.12.1 Where new paving is to be placed, it is recommended that all existing fill and soft alluvium be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing artificial fill and soft alluvium in the area of new paving is not required; however, paving constructed over existing uncertified fill or unsuitable alluvium may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of paving subgrade should be scarified, moisture conditioned to near optimum moisture content, and properly compacted to at least 95 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition).

7.12.2 The following pavement sections are based on an assumed R-Value of 20. Once site grading activities are complete an R-Value should be obtained by laboratory testing to confirm the properties of the soils serving as paving subgrade, prior to placing pavement.

7.12.3 The Traffic Indices listed below are estimates. Geocon does not practice in the field of traffic engineering. The actual Traffic Index for each area should be determined by the project civil engineer. If pavement sections for Traffic Indices other than those listed below are required, Geocon should be contacted to provide additional recommendations. Pavement thicknesses were determined following procedures outlined in the *California Highway Design Manual* (Caltrans). It is anticipated that the majority of traffic will consist of automobile and large truck traffic.

PRELIMINARY PAVEMENT DESIGN SECTIONS

Location	Estimated Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Automobile Parking and Driveways	4.0	3.0	6.0
Trash Truck & Fire Lanes	7.0	4.0	12.0

7.12.4 Asphalt concrete should conform to Section 203-6 of the "*Standard Specifications for Public Works Construction"* (Green Book). Class 2 aggregate base materials should conform to Section 26-1.02A of the "*Standard Specifications of the State of California, Department of Transportation"* (Caltrans). The use of Crushed Miscellaneous Base (CMB) in lieu of Class 2 aggregate base is acceptable. Crushed Miscellaneous Base should conform to Section 200-2.4 of the "*Standard Specifications for Public Works Construction"* (Green Book).

7.12.5 Unless specifically designed and evaluated by the project structural engineer, where exterior concrete paving will be utilized for support of vehicles, it is recommended that the concrete be a minimum of 6 inches of concrete reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. Concrete paving supporting vehicular traffic should be underlain by a minimum of 4 inches of aggregate base and a properly compacted subgrade. The subgrade and base material should be compacted to 95 percent relative compaction as determined by ASTM Test Method D 1557 (latest edition).

7.12.6 The performance of pavements is highly dependent upon providing positive surface drainage away from the edge of pavements. Ponding of water on or adjacent to the pavement will likely result in saturation of the subgrade materials and subsequent cracking, subsidence and pavement distress. If planters are planned adjacent to paving, it is recommended that the perimeter curb be extended at least 12 inches below the bottom of the aggregate base to minimize the introduction of water beneath the paving.

7.13 Temporary Excavations

7.13.1 Excavations on the order of 5 feet in height may be required during grading operations. The excavations are expected to expose artificial fill and alluvial soils, which may be subject to caving where granular soils are exposed. Temporary vertical excavations up to 5 feet in height may be attempted where loose soils or caving sands are not present, and where excavations are not surcharged by adjacent traffic or structures.

7.13.2 Vertical excavations greater than 5 feet or where surcharged by existing structures will require sloping or shoring measures in order to provide a stable excavation. Where sufficient space is available, temporary unsurcharged embankments could be sloped back at a uniform 1:1 slope gradient or flatter up to a maximum of 10 feet in height. A uniform slope does not have a vertical portion. Where space is limited, shoring measures will be required.

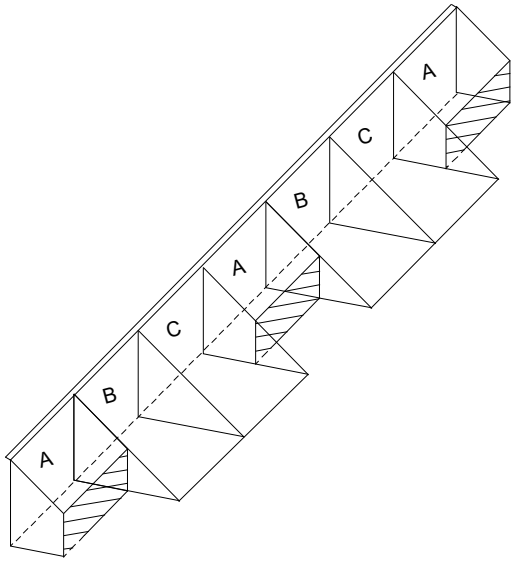
7.13.3 If excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures such as slot-cutting or shoring may be necessary in order to maintain lateral support of offsite improvements. Recommendations for slot-cutting are provided in the following section.

7.13.4 Where temporary construction slopes are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction slopes are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The soils exposed in the cut slopes should be inspected during excavation by our personnel and the contractor's competent person so that modifications of the slopes can be made if variations in the soil conditions occur. All excavations should be stabilized within 30 days of initial excavation.

7.14 Slot Cutting

7.14.1 The slot-cutting method employs the earth as a buttress and allows the earth excavation to proceed in phases. Where slot-cutting is used for foundation construction, the proposed construction techniques should be discussed with the structural engineer so that appropriate modifications can be made to the foundation design; such as additional reinforcing or details for doweling.

7.14.2 It is recommended that the initial temporary excavation along the property line be sloped back at a uniform 1:1 (H:V) slope gradient or flatter for excavation of the existing soils to the necessary depth. The temporary excavation should not extend below the surcharge area of any adjacent foundations. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation. The temporary slope may then be excavated using the slot-cutting (see illustration below).



7.14.3 Alternate "A" slots of 8 feet in width may be worked. The remaining earth buttresses ("B" and "C" slots) should also be 8 feet in width. The wall, foundation, or backfill should be completed in the "A" slots to a point where support of the offsite property and/or any existing structures is restored before the "B" slots are excavated. After completing the wall, foundation, or backfill in the "B" slots, finally the "C" slots may be excavated. Slot-cutting is not recommended for vertical excavations greater than 5 feet in height. A slot-cut calculation is provided as Figure 12 and assumes no surcharge loads will be acting on the excavation. If surcharge loads will be present, the slot-cut calculation should be revised as necessary.

7.15 Stormwater Infiltration

7.15.1 During the site exploration, borings L and M were used to perform percolation testing. The borings were advanced to the depth listed in the table below. Slotted casing was placed in the borings, and the annular space between the casing and excavation was filled with filter pack. The borings were then filled with water to pre-saturate the soils. The casings were refilled with water and percolation test readings were performed after repeated flooding of the cased excavation. Based on the test results, the average infiltration rate (adjusted percolation rate), for the earth materials encountered, is provided in the following table. The field-measured percolation rate has been adjusted to infiltration rates in accordance with the County of Orange Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (December 2013). Additional correction factors may be required and should be applied by the engineer in responsible charge of the design of the stormwater infiltration system and based on applicable guidelines. Percolation test results are provided on Figures 13 and 14.

Boring	Soil Type	Infiltration Depth (ft)	Average Infiltration Rate (in / hour)
L	Silty Sand (SM)	5-10	1.40
M	Silty Sand (SM)	3.5-5	2.73

7.15.2 The results of the percolation testing indicate that the soils are conductive to infiltration. It is our opinion that the soil zones encountered at the depths and locations as listed in the table above are suitable for infiltration of stormwater.

7.15.3 It is our opinion that the introduction of stormwater at the depth and location indicated above will not induce excessive hydro-consolidation, will not create a perched groundwater condition, will not affect soil structure interaction of existing or proposed foundations due to expansive soils, will not saturate soils supported by existing or proposed retaining walls, and will not increase the potential for liquefaction. Resulting settlements are anticipated to be less than ¼ inch, if any.

7.15.4 If infiltration is planned for any location or depth other than where the above testing was performed, additional testing may be required.

7.15.5 The infiltration system should be located such that the closest distance between an adjacent foundation is at least 15 feet in all directions from the zone of saturation. The zone of saturation may be assumed to project downward from the discharge of the infiltration facility at a gradient of 1:1. Additional property line or foundation setbacks may be required by the governing jurisdiction and should be incorporated into the stormwater infiltration system design as necessary.

7.15.6 Subsequent to the placement of the infiltration system, it is acceptable to backfill the resulting void space between the excavation sidewalls and the infiltration system with minimum two-sack slurry provided the slurry is not placed in the infiltration zone. It is recommended that pea gravel be utilized adjacent to the infiltration zone so communication of water to the soil is not hindered.

7.15.7 Due to the preliminary nature of the project at this time, the type of stormwater infiltration system and location of the stormwater infiltration systems has not yet been determined. The design drawings should be reviewed and approved by the Geotechnical Engineer. The installation of the stormwater infiltration system should be observed and approved by the Geotechnical Engineer (a representative of Geocon).

7.16 Surface Drainage

7.16.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the original designed engineering properties. Proper drainage should be maintained at all times.

7.16.2 All site drainage should be collected and controlled in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2022 CBC 1804.4 or other applicable standards. In addition, drainage should not be allowed to flow uncontrolled over any descending slope. Discharge from downspouts, roof drains and scuppers are not recommended onto unprotected soils within 5 feet of the building perimeter. Planters which are located adjacent to foundations should be sealed to prevent moisture intrusion into the soils providing foundation support. Landscape irrigation is not recommended within 5 feet of the building perimeter footings except when enclosed in protected planters.

7.16.3 Positive site drainage should be provided away from structures, pavement, and the tops of slopes to swales or other controlled drainage structures.

7.16.4 Landscaping planters immediately adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. Either a subdrain, which collects excess irrigation water and transmits it to drainage structures, or impervious above-grade planter boxes should be used. In addition, where landscaping is planned adjacent to the pavement, it is recommended that consideration be given to providing a cutoff wall along the edge of the pavement that extends at least 12 inches below the base material.

7.17 Plan Review

7.17.1 Grading, foundation, and shoring plans should be reviewed by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

3. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

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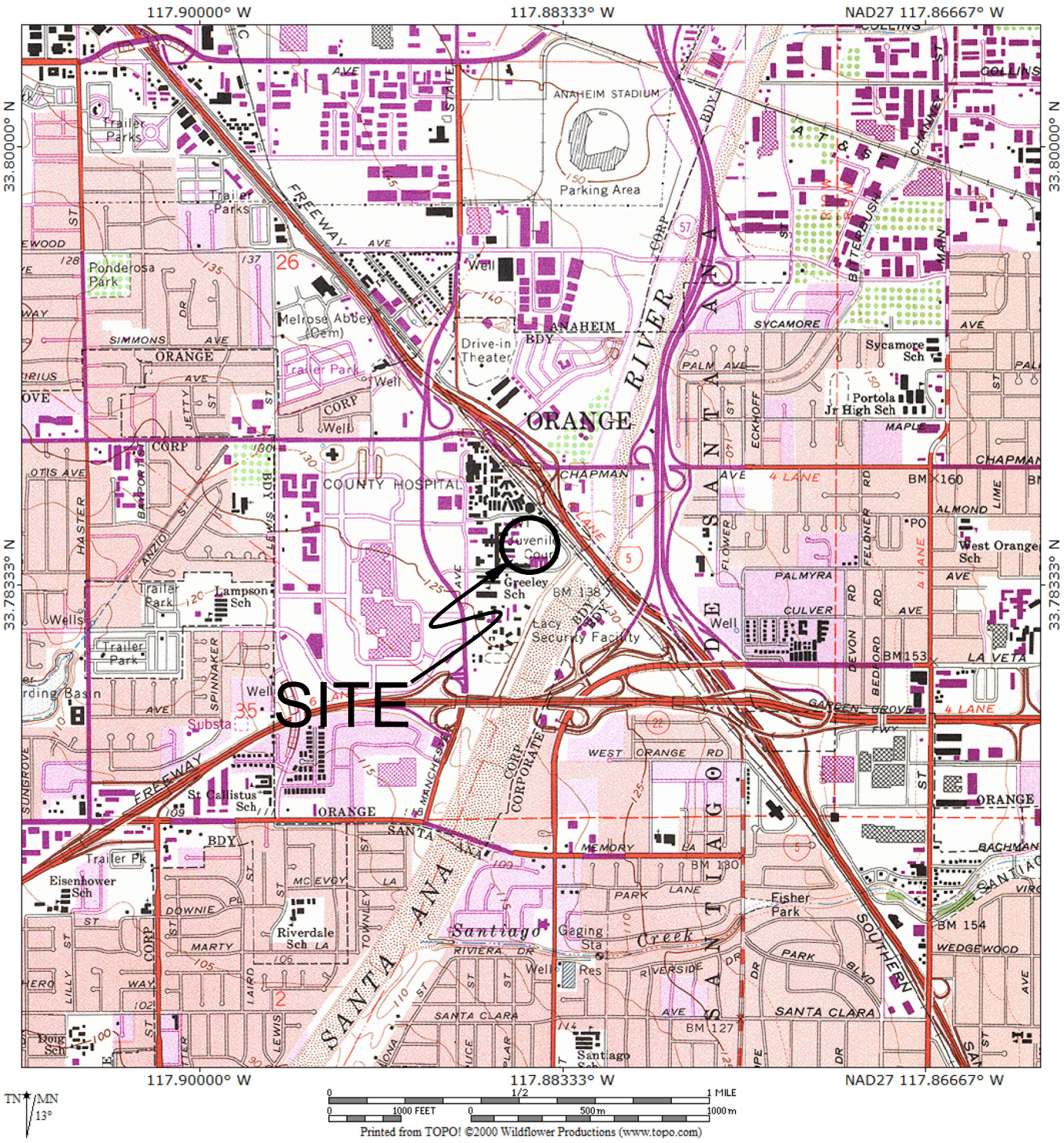

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VICINITY MAP

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

DRAFTED BY: ACS	CHECKED BY: JTA

MARCH 2024	PROJECT NO. W1857-88-01	FIG. 1

LEGEND

M — Approximate Boring Locations

CPT-3 — Approximate CPT Location

Approximate Limits of Project

NORTH

0 100' 200'

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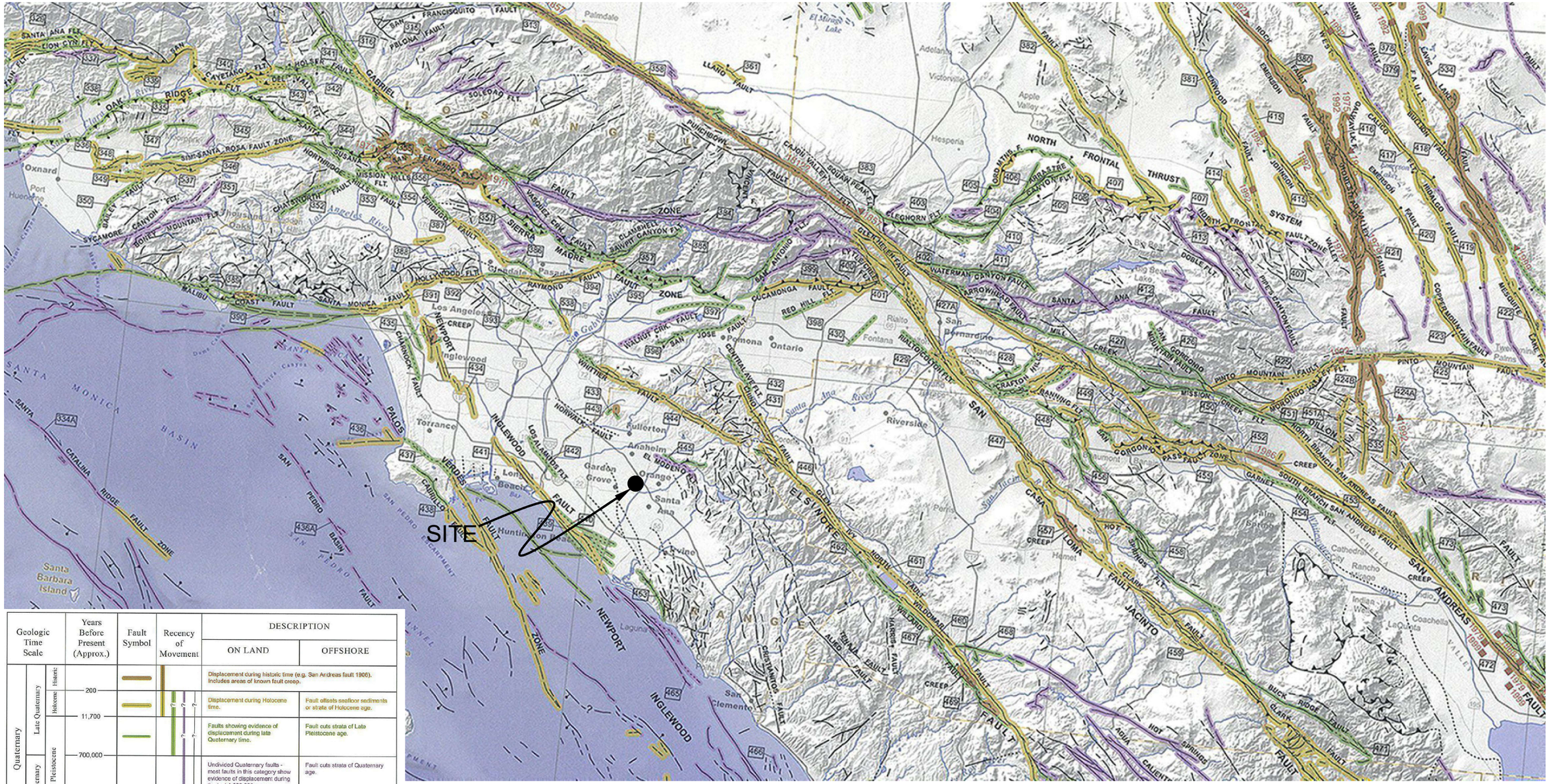
SITE PLAN

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MARCH 2024	PROJECT NO. W1857-88-01	FIG. 2

Reference: Jennings, C.W. and Bryant, W. A., 2010, Fault Activity Map of California, California Geological Survey Geologic Data Map No. 6.



Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Historic				Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	200			Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
		Pleistocene	11,700			Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary		700,000			Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			1,600,000*			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.
			4.5 billion (Age of Earth)				

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.

N

0 12 24 Miles

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REGIONAL FAULT MAP

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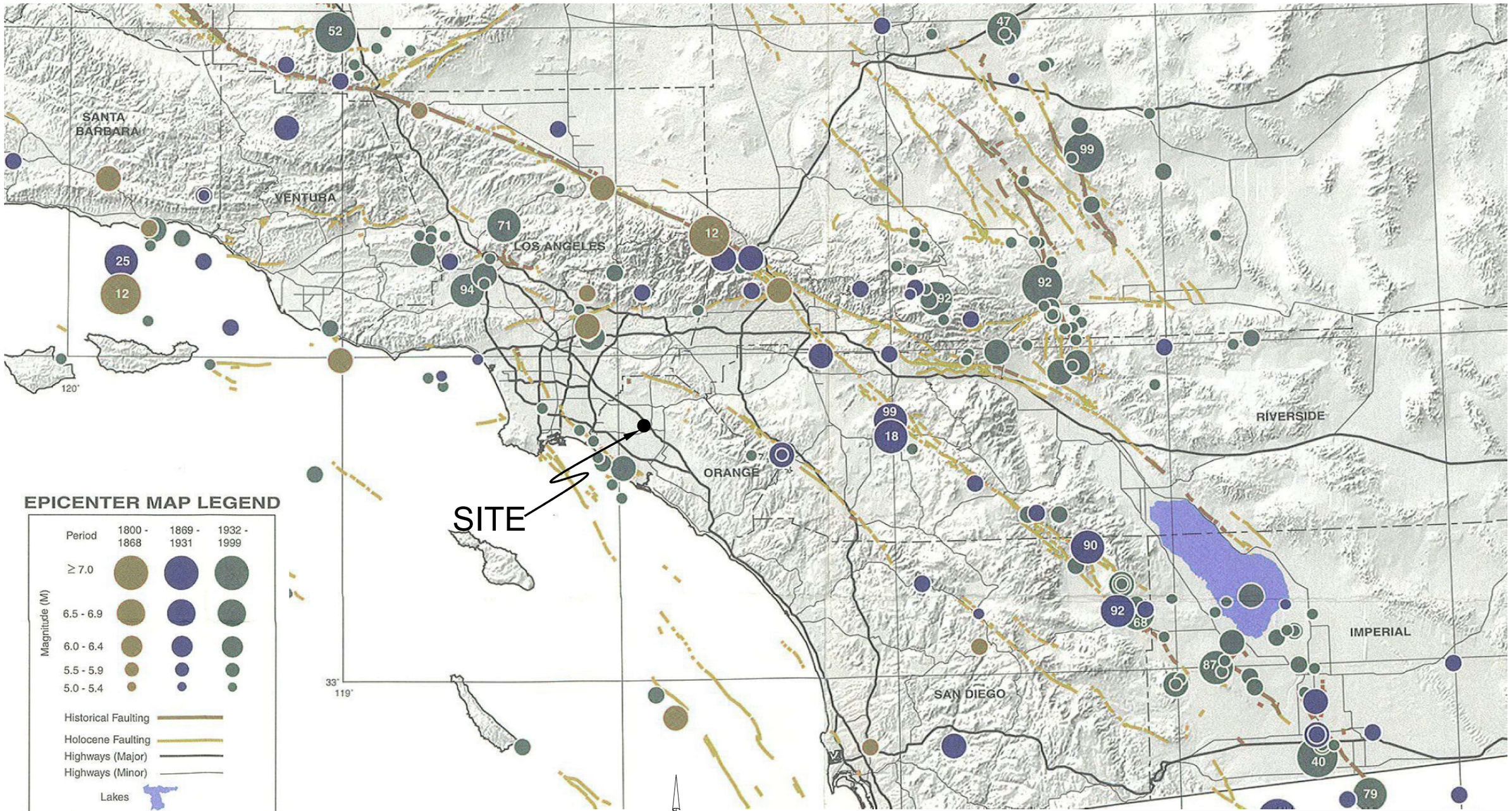
MARCH 2024 | PROJECT NO. W1857-88-01 | FIG. 3



Reference: Toppozada, T., Branum, D., Petersen, M., Hallstrom, C., Cramer, C., and Reichle, M., 2000, Epicenters and Areas Damaged by M>5 California Earthquakes, 1800 - 1999, California Geological Survey, Map Sheet 49.

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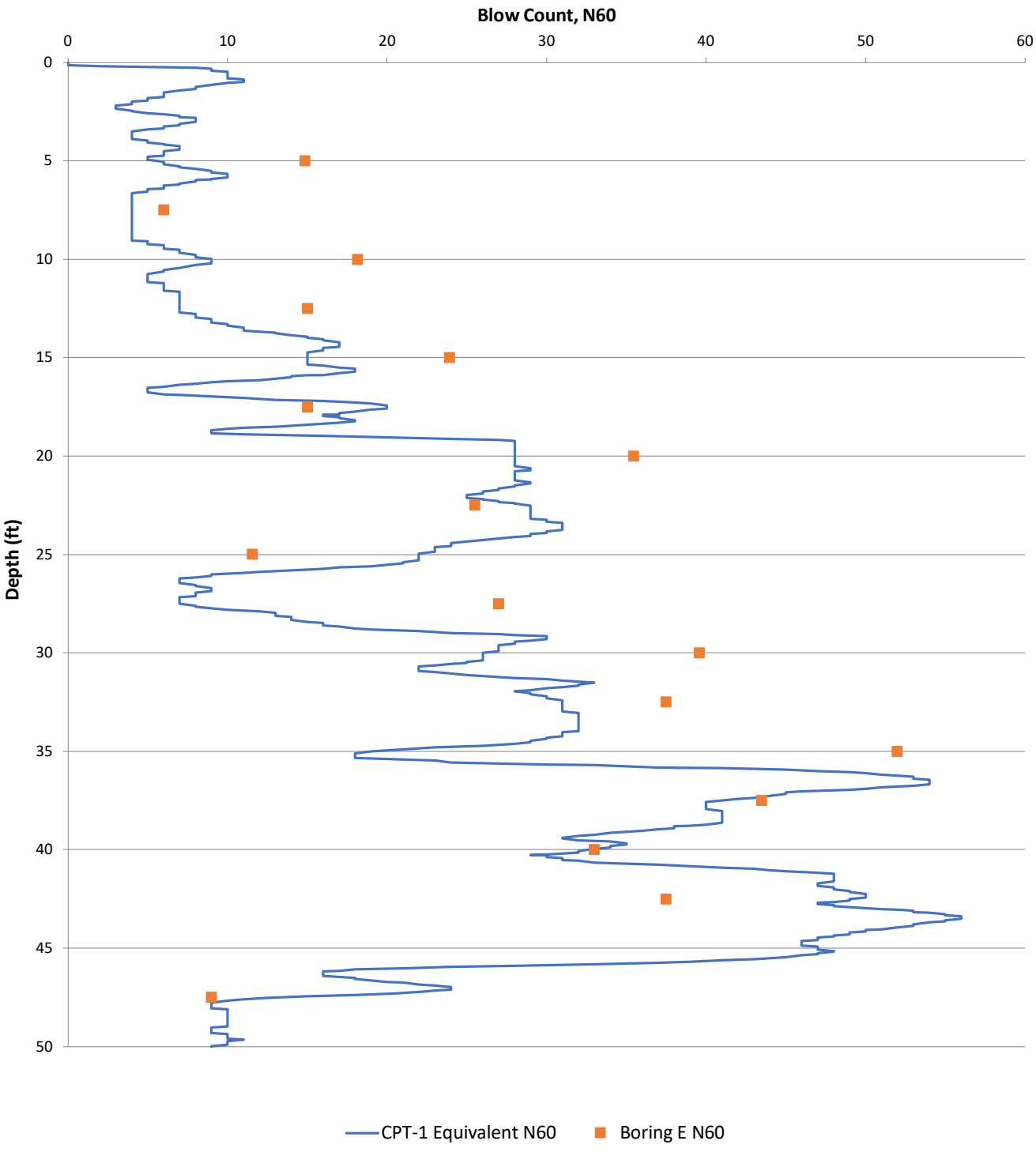
REGIONAL SEISMICITY MAP

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MARCH 2024	PROJECT NO. W1857-88-01	FIG. 4



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CORRELATION OF BORING AND CPT N60

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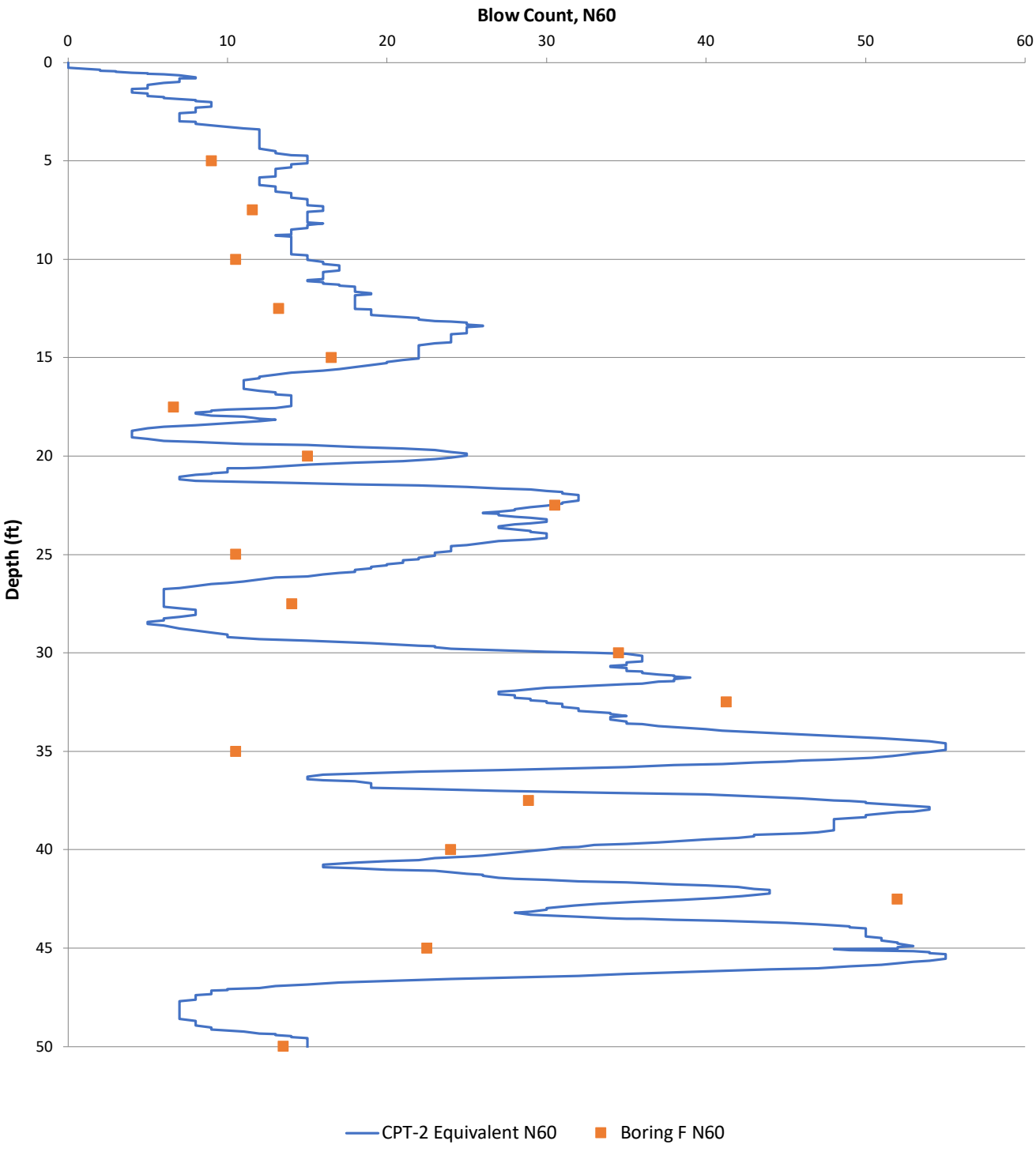
MARCH 2024	PROJECT NO. W1857-88-01	FIG. 5



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CORRELATION OF BORING AND CPT N60

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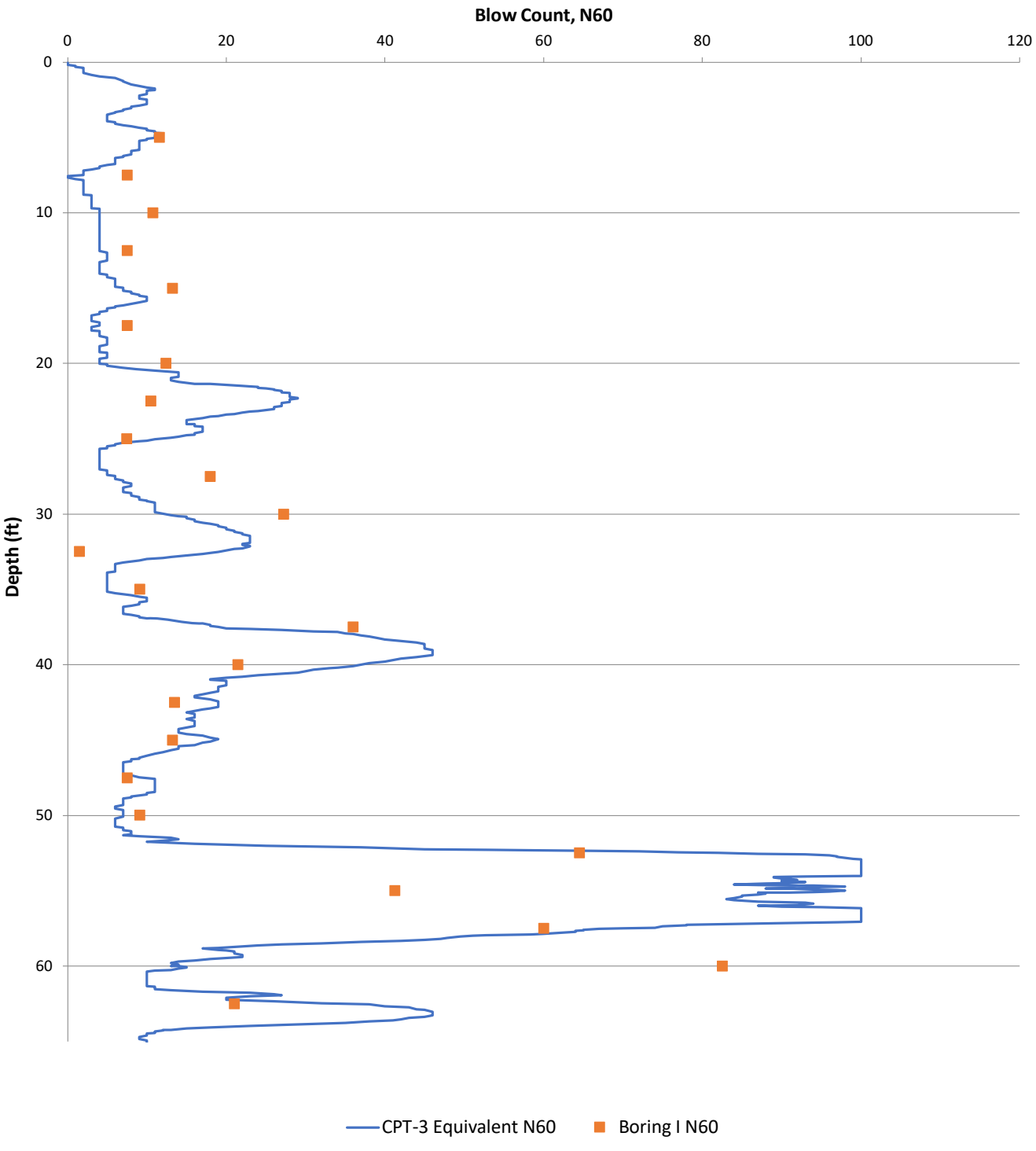
ORANGE, CALIFORNIA

MARCH 2024	PROJECT NO. W1857-88-01	FIG. 6



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CORRELATION OF BORING AND CPT N60

OC YTC
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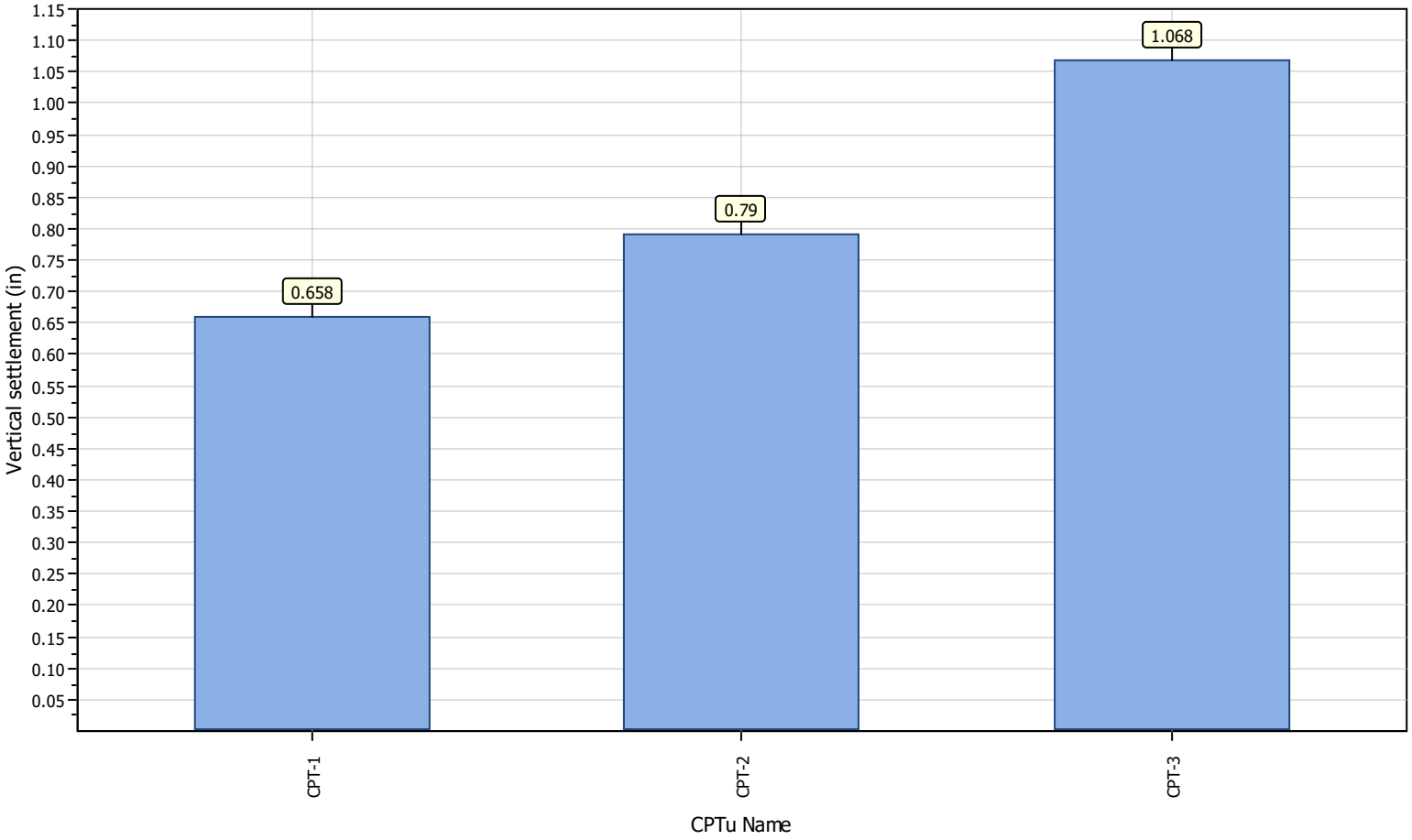
ORANGE, CALIFORNIA

MARCH 2024	PROJECT NO. W1857-88-01	FIG. 7

Project title : W1857-88-01

Location : 331 The City Drive S

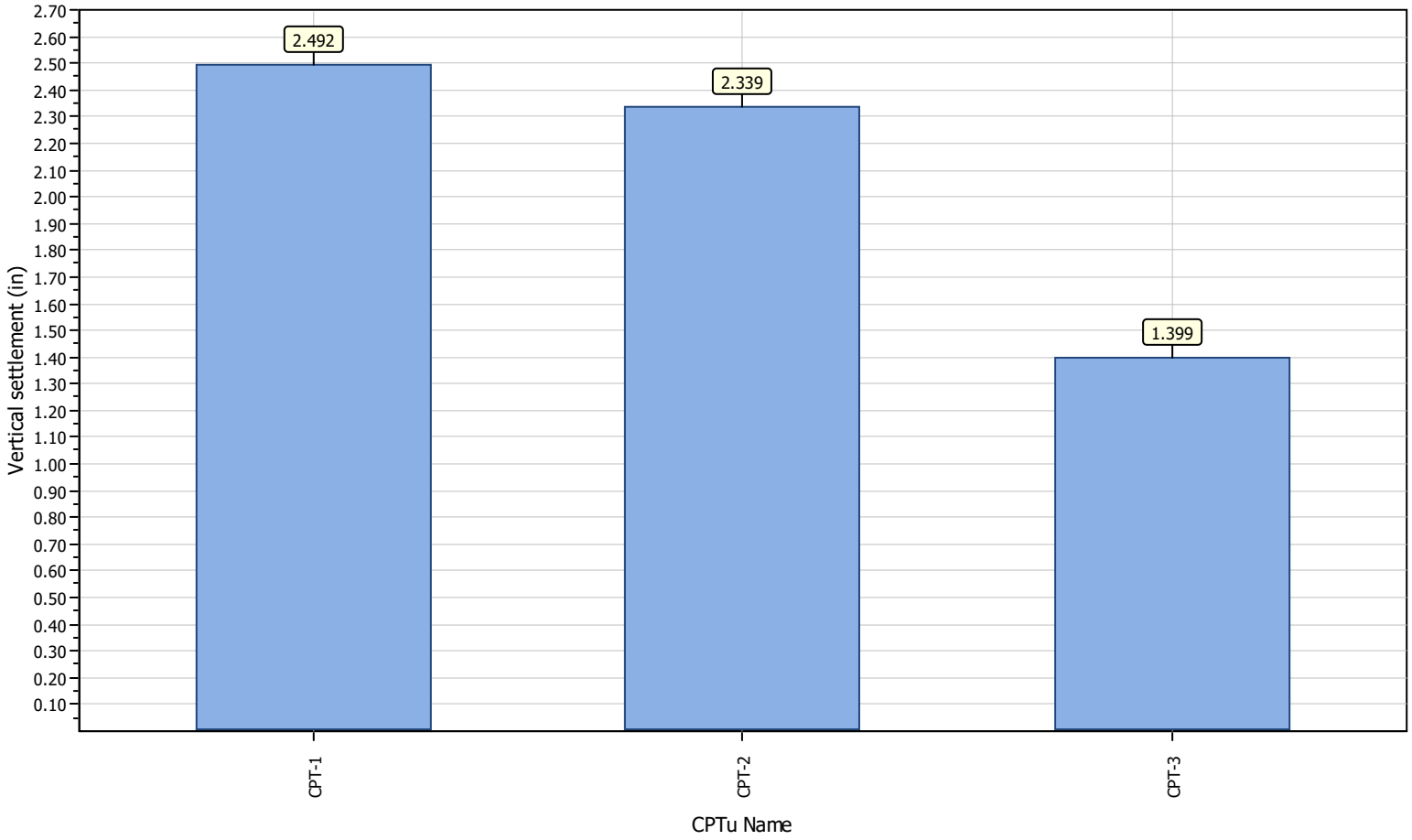
DE Overall vertical settlements report



Project title : W1857-88-01

Location : 331 The City Drive S

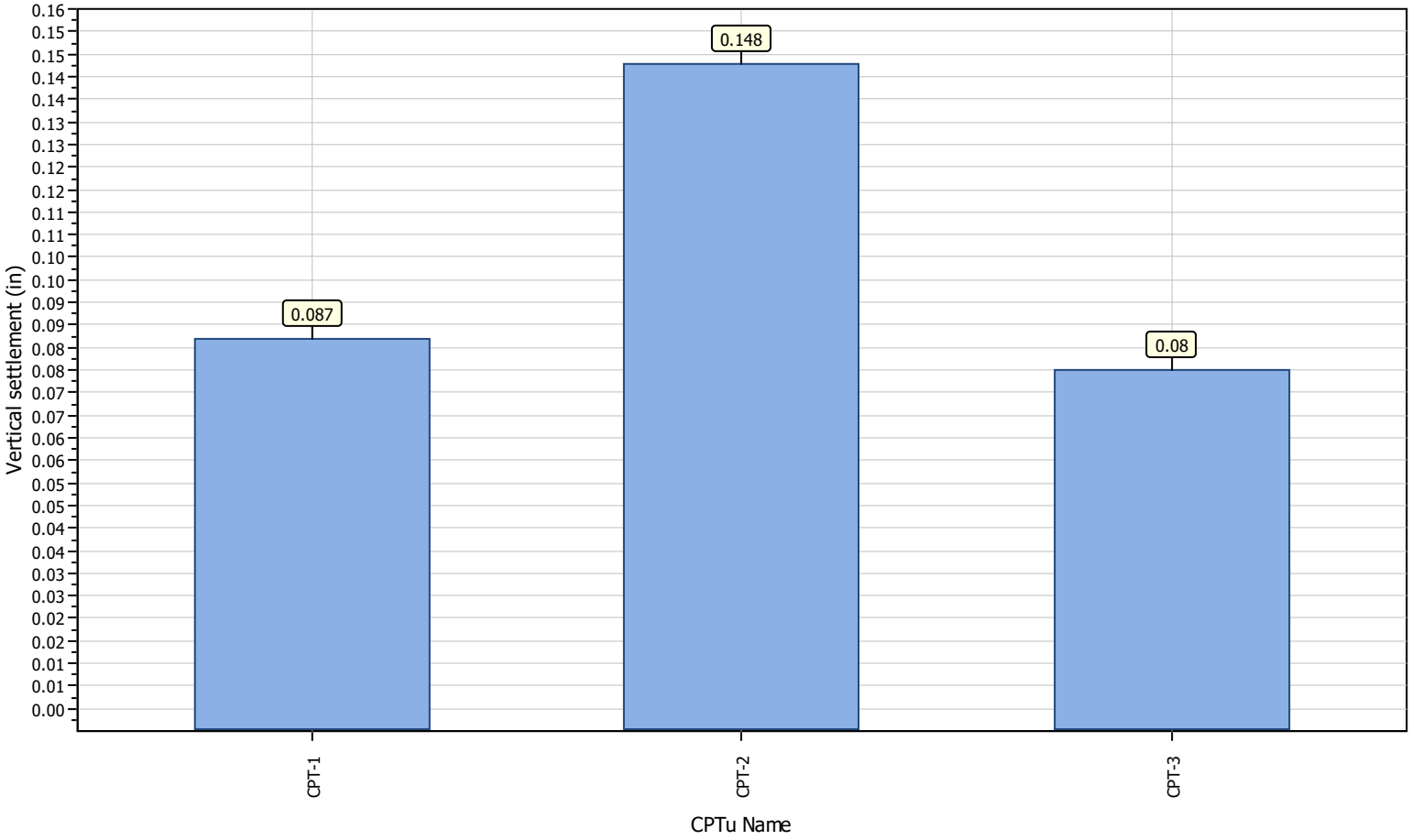
MCE Overall vertical settlements report



Project title : W1857-88-01

Location : 331 The City Drive S

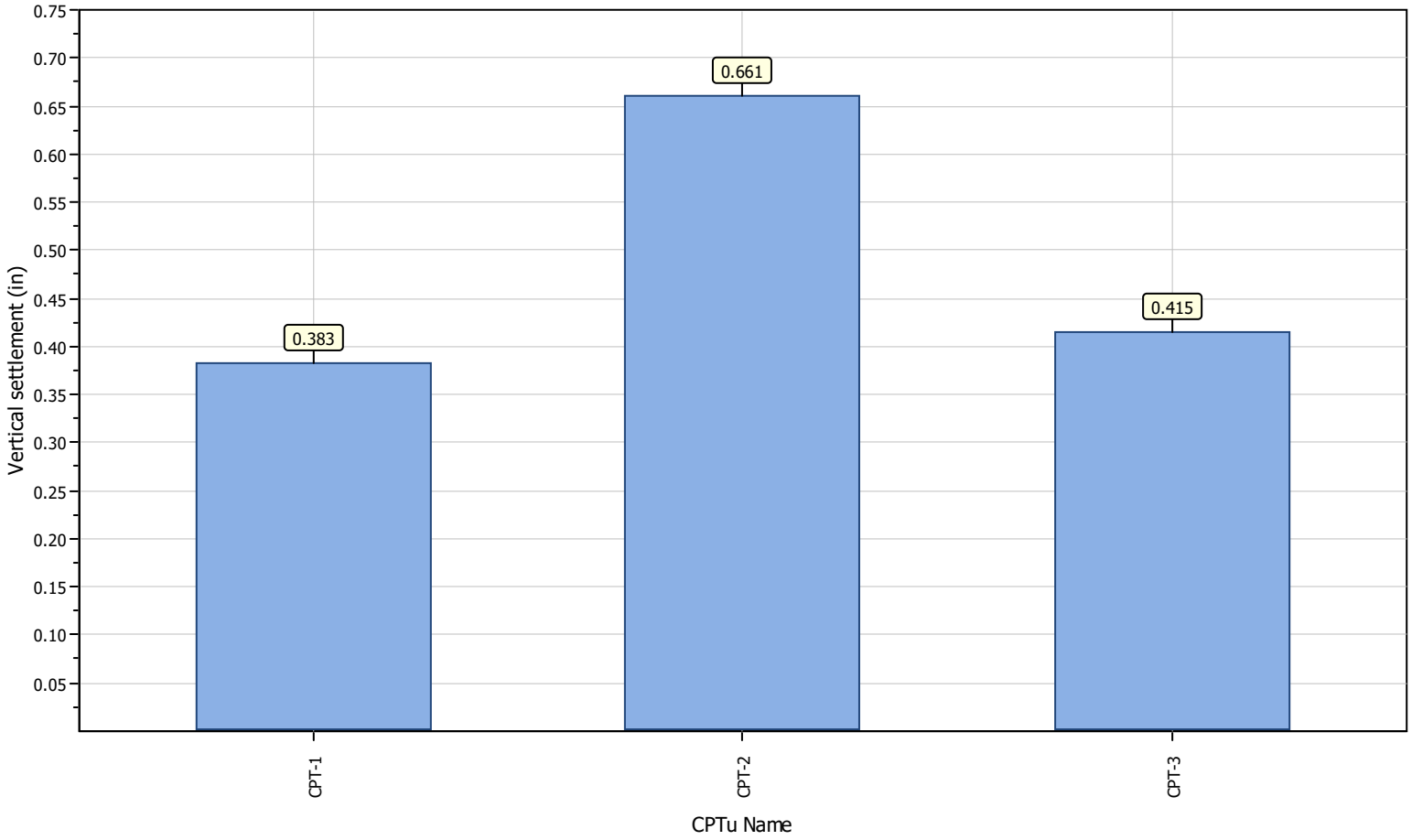
DE Overall vertical settlements report Dry Sands



Project title : W1857-88-01

Location : 331 The City Drive S

MCE Overall vertical settlements report Dry Sands



Slot Cut Calculation

Input:

Height of Slots	(H)	5.00	feet
Unit Weight of Soils	(γ)	115.0	pcf
Friction Angle of Soils	(ϕ)	31.0	degrees
Cohesion of Soils	(c)	150.0	psf
Factor of Safety	(FS)	1.25	

Factor of Safety = Resistance Force/Driving Force

Design Equations

$b = H/(\tan \alpha)$

$A = 0.5*H*b$

$W = 0.5*H*b*\gamma$ *(per lineal foot of slot width)*

$F_1 = d*W*(\sin \alpha)$

$R_1 = d*[W*(\cos\alpha)*(\tan \phi)+(c*b)]$

$R_2 = 2*[(0.5*H*b)*c]$

FS = Resistance Force/Driving Force

$FS = (R_1+R_2)/(F_1)$

Surcharge Pressure:

Line Load Surcharge	(q_L)	0.0	plf
Distance Away from Excavation	(X)	0.0	feet

Failure Angle (α)	Width of Failure Wedge (b)	Area of Wedge (A)	Weight of Wedge (W)	**Driving Force (F_1)** Wedge + Surcharge per lineal foot of Slot Wdith	**Resisting Force (R_1)** Failure Wedge per lineal foot of Slot Width	**Resisting Force (R_2)** Side Resistance Force lbs	**Allowable Width of Slots* (d)**
degrees	feet	$feet^2$	lbs/lineal foot				feet
45	5.0	13	1437.5	1016.5	1671.4	3750.0	8.0
46	4.8	12	1388.2	998.6	1622.0	3621.3	8.0
47	4.7	12	1340.5	980.4	1574.8	3496.9	8.0
48	4.5	11	1294.3	961.9	1529.6	3376.5	8.0
49	4.3	11	1249.6	943.1	1486.4	3259.8	8.0
50	4.2	10	1206.2	924.0	1444.9	3146.6	8.0
51	4.0	10	1164.1	904.6	1405.2	3036.7	8.0
52	3.9	10	1123.1	885.0	1367.2	2929.8	8.0
53	3.8	9	1083.2	865.1	1330.8	2825.8	8.0
54	3.6	9	1044.4	844.9	1295.9	2724.5	8.0
55	3.5	9	1006.5	824.5	1262.5	2625.8	8.0
56	3.4	8	969.6	803.8	1230.4	2529.4	8.0
57	3.2	8	933.5	782.9	1199.8	2435.3	8.0
58	3.1	8	898.2	761.8	1170.4	2343.3	8.0
59	3.0	8	863.7	740.4	1142.3	2253.2	8.0
60	2.9	7	829.9	718.8	1115.4	2165.1	8.0
61	2.8	7	796.8	696.9	1089.6	2078.7	8.0
62	2.7	7	764.3	674.9	1065.0	1993.9	8.0
63	2.5	6	732.4	652.6	1041.5	1910.7	8.0
64	2.4	6	701.1	630.2	1019.1	1829.0	8.0
65	2.3	6	670.3	607.5	997.8	1748.7	8.0
66	2.2	6	640.0	584.7	977.4	1669.6	8.0
67	2.1	5	610.2	561.7	958.0	1591.8	8.0
68	2.0	5	580.8	538.5	939.6	1515.1	8.0
69	1.9	5	551.8	515.2	922.2	1439.5	8.0
70	1.8	5	523.2	491.7	905.7	1364.9	8.0

* Width of Slots to achieve a minimum of 1.25 Factor of Safety, with a Maximum Allowable Slot Width of 8-feet.

Critical Slot Width with Factor of Safety equal or exceeding 1.25:

d_{allow} = 8.0 feet

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ENVIRONMENTAL GEOTECHNICAL MATERIALS

SLOT CUT CALCULATION

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

DRAFTED BY: JTA	CHECKED BY: JTA	March 24	PROJECT NO. W1857-88-01	FIG. 12

PERCOLATION TEST DATA SHEET

Project:	OC YTC	**Project No.:**	W1857-88-01	**Date:**	Tuesday, February 13, 2024
Test Hole No.:	L	**Tested By:**	JC		
Depth of Test Hole, DT:	10	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	-	-	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	8:02 AM	8:27 AM	25	**60.0**	**83.4**	**23.4**	**yes**
2	8:30 AM	8:55 AM	25	**60.0**	**81**	**21**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	9:14 AM	9:24 AM	10.00	60.0	68.0	8.0	1.24
2	9:26 AM	9:36 AM	10.00	60.0	68.0	8.0	1.24
3	9:38 AM	9:48 AM	10.00	60.0	67.2	7.2	1.39
4	9:50 AM	10:00 AM	10.00	60.0	66.8	6.8	1.46
5	10:01 AM	10:11 AM	10.00	60.0	66.8	6.8	1.46
6	10:13 AM	10:23 AM	10.00	60.0	66.8	6.8	1.46
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	H_o =	60.0	inches
Final Depth to Water, D_f =	66.8	inches	H_f =	53.2	inches
Test Hole Radius, r =	4	inches	ΔH =	6.8	inches
Initial Depth to Water, D_0 =	60.0	inches	H_{avg} =	56.6	inches
Total Depth of Test Hole, D_t =	120	inches	$I_t = \frac{\Delta H(60r)}{\Delta t(r+2H_{avg})}$		
			Infiltration Rate, I =	**1.40**	**inches/hour**

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PERCOLATION TEST RESULTS AND CALCULATIONS

331 THE CITY DRIVE S
ORANGE, CALIFORNIA
OC YTC

MAR 2024	PROJECT NO. W1857-88-01	FIG. 13

PERCOLATION TEST DATA SHEET

Project:	OC YTC	**Project No.:**	W1857-88-01	**Date:**	Tuesday, February 13, 2024
Test Hole No.:	M	**Tested By:**	JC		
Depth of Test Hole, DT:	5	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	-	-	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	8:16 AM	8:41 AM	25	**39.0**	**49.8**	**10.8**	**yes**
2	8:44 AM	9:09 AM	25	**31.8**	**42.6**	**10.8**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	10:32 AM	10:42 AM	10.00	42.6	45.4	2.8	3.62
2	10:45 AM	10:55 AM	10.00	42.6	46.2	3.6	2.78
3	11:03 AM	11:13 AM	10.00	42.6	46.3	3.7	2.69
4	11:16 AM	11:26 AM	10.00	42.6	46.3	3.7	2.69
5	11:28 AM	11:38 AM	10.00	42.6	46.3	3.7	2.69
6	11:41 AM	11:51 AM	10.00	42.6	46.6	4.0	2.53
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	H_o =	17.4	inches
Final Depth to Water, D_f =	46.6	inches	H_f =	13.4	inches
Test Hole Radius, r =	4	inches	ΔH =	4.0	inches
Initial Depth to Water, D_0 =	42.6	inches	H_{avg} =	15.4	inches
Total Depth of Test Hole, D_t =	60	inches	$I_t = \frac{\Delta H(60r)}{\Delta t(r+2H_{avg})}$		
			Infiltration Rate, I_t =	**2.73**	**inches/hour**

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PHONE: 949-491-6570

PERCOLATION TEST RESULTS AND CALCULATIONS

331 THE CITY DRIVE S
ORANGE, CALIFORNIA
OC YTC

DRAFTED BY: ACS	CHECKED BY: JTA	MAR 2024	PROJECT NO. W1857-88-01	FIG. 14

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The site was explored between February 7 and 13, 2024, by excavating eight 8-inch-diameter borings using a truck-mounted hollow-stem auger drilling machine and a limited access drilling machine to depths of 5 to 63.5 feet beneath the ground surface. Additionally, five borings were excavated using 3-inch hand augers to depths between 15 and 16½ feet beneath the ground surface. Representative and relatively undisturbed samples were obtained by driving a 3-inch, O. D., California Modified Sampler into the "undisturbed" soil mass with blows from a 140-pound auto-hammer falling 30 inches (hollow stem borings) or from a slide hammer (hand auger borings). The California Modified Sampler was equipped with 1-inch by $2\frac{3}{8}$-inch diameter brass sampler rings to facilitate soil removal and testing. Standard Penetration Tests were performed and bulk samples were also obtained.

The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). The logs of the borings are presented on Figures A1 through A13. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the logs were revised based on subsequent laboratory testing.

Three Cone Penetrometer Tests (CPTs) were also advanced on February 12, 2024, to approximate depths of 63 to 100 feet below the ground surface using a truck-mounted 30-ton CPT rig.

The approximate locations of the borings and CPTs are shown on Figure 2.

PROJECT NO. W1857-88-01

BORING A

ELEV. (MSL.) -- DATE COMPLETED **02/12/2024**

EQUIPMENT **HAND AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, moist, brown, fine-grained.			
2					**ALLUVIUM**			
4	A@3'			SP	Sand, poorly graded, loose, moist, gray, fine-grained.		99.6	7.5
6	A@5'						102.2	10.2
8	A@7'			CL	Sandy Clay, firm, moist, brown, fine-grained.		96.8	24.5
10	A@10'			SM	Silty Sand, medium dense, moist, brown, fine- to medium-grained.		106.2	16.6
12								
14								
16	A@15'						97.2	8.1
					Total depth of boring: 16.5 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A1,
Log of Boring A, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING B

ELEV. (MSL.) -- DATE COMPLETED **02/12/2024**

EQUIPMENT **HAND AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, moist, brown, fine- to medium-grained.			
2					**ALLUVIUM** Silty Sand, loose, moist, gray, fine-grained.			
4	B@3'			SM				
6	B@5'				- loose, fine- to medium-grained		100.5	14.2
8	B@7'				Sand, poorly graded, loose, moist, brown, fine-grained.		104.0	19.1
10	B@10'			SP	- fine- to medium-grained		87.3	19.4
12								
14				SC	Clayey Sand, medium dense, moist, brown, fine- to medium-grained.			
					Silty Sand, loose, moist, brown, fine-grained.			
16	B@15'			SM			34.1	16.8
					Total depth of boring: 16 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A2,
Log of Boring B, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING C

ELEV. (MSL.) -- DATE COMPLETED **02/09/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown, fine-grained.			
2					**ALLUVIUM** Silty Sand, loose, moist, gray, fine-grained.			
4								
6	C@5'			SM		12	100.2	13.7
8	C@7'					12	98.2	25.0
10	C@10'					10	88.6	22.4
12	C@12'				- medium dense	23	106.1	16.1
14	C@15'					25	94.6	9.9
					Total depth of boring: 15.5 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A3,
Log of Boring C, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING D

ELEV. (MSL.) -- DATE COMPLETED **02/07/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'		**ARTIFICIAL FILL** Silty Sand, medium dense, moist, dark brown, fine- to medium-grained.			
			ALLUVIUM Sand, poorly graded, medium dense, moist, light brown, medium- to coarse-grained.			
6	D@5'	SP	- loose	17	91.3	3.7
8	D@7'			12	85.7	4.1
10	D@10'		- medium dense	20	104.1	5.5
12	D@12'			9	100.0	2.3
			Silty Sand, loose, moist, dark brown, fine- to medium-grained.			
16	D@15'	SM		13	92.1	10.2
20	D@20'	ML	Sandy Silt, firm, moist, brown, fine-grained.	20	95.3	24.8
			Total depth of boring: 20.5 feet Fill to 1 foot. No groundwater encountered. Backfilled with soil cuttings and tamped.			

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.

NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A4,
Log of Boring D, Page 1 of 1

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING E

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown.			
2					**ALLUVIUM** Sandy Silt, stiff, moist, gray, fine- to medium-grained.			
4								
6	E@5'					18	92.1	23.9
8	E@7.5'			ML	- brown, fine-grained	4		
10	E@10'				- stiff, slightly moist, fine- to medium-grained	22	109.4	17.4
12	E@12.5'				- firm, fine-grained	10		
14								
16	E@15'				Silty Sand, medium dense, slighlty moist, brown, fine- to medium-grained.	29	96.2	8.5
18	E@17'			SM	- loose	10		
20	E@20'				- medium dense	43	99.1	1.1
22	E@22.5'				Sand, poorly graded, medium dense, slightly moist, gray, fine-grained.	17		
24				SP				
26	E@25'				- loose	14	73.8	12.4
28	E@27.5'			SM	Silty Sand, medium dense, slighlty moist, gray, fine-grained.	18		

W1857-88-01 BORING LOGS.GPJ

Figure A5,
Log of Boring E, Page 1 of 2

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING E

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	E@30'			SM	- fine- to medium-grained.	48	106.6	10.2
32	E@32.5'			SP	Sand, poorly graded, medium dense, slightly moist, gray, fine- to medium-grained.	25		
34	E@35'				- dense	63	104.0	4.7
36								
38	E@37.5'				- medium dense, fine-grained	29		
40	E@40'					40	91.0	29.5
42	E@42.5'			SM	Silty Sand, medium dense, slightly moist, gray, fine- to medium-grained.	25		
44								
46								
48	E@47.5'			ML	Sandy Silt, soft, moist, brown, fine-grained.	6		

Total depth of boring: 48.5 feet
Fill to 2 feet.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A5,
Log of Boring E, Page 2 of 2

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

BORING F

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose to medium dense, moist, dark brown.			
2					**ALLUVIUM** Sand, poorly graded, loose, moist, light brown, medium- to coarse-grained.			
4								
6	F@5'					6		
8	F@7.5'			SP	- gray	14	97.2	3.7
10	F@10'				- yellowish brown	7		
12	F@12.5'				- fine- to medium-grained	16	94.1	4.1
14								
16	F@15'				- medium dense, grayish brown	11		
18	F@17.5'				Sandy Silt, soft, moist, brown, fine-grained.	8	86.7	30.5
20	F@20'			ML	- firm	10		
22	F@22.5'				Silty Sand, medium dense, slightly moist, grayish brown, fine- to medium-grained.	37	105.3	5.3
24				SM				
26	F@25'				Sandy Silt, soft, moist, brown, fine-grained.	7		
28	F@27.5'			ML	- firm	17	109.5	19.3

W1857-88-01 BORING LOGS.GPJ

Figure A6,
Log of Boring F, Page 1 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

BORING F

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	F@30'			SP	Sand, poorly graded, medium dense, slightly moist, light brown, fine-grained.	23		
32	F@32.5'			SP		50	111.1	11.1
34								
36	F@35'			SM	Silty Sand, loose, slightly moist, light brown, fine-grained.	7		
38	F@37.5'			SP	Sand, poorly graded, medium dense, slightly moist, yellowish brown, medium- to coarse-grained.	35	103.4	2.2
40	F@40'			ML	Sandy Silt, firm, moist, brown, fine-grained.	16		
42	F@42.5'			SM	Silty Sand, dense, slighlty moist, gray, mottled reddish brown.	63	103.1	8.5
44	F@45'			SM		15		
46								
48								
50	F@50'		▼	ML	Sandy Silt, firm, slightly moist, brown.	9		
52								
54								
56	F@55'			SM	Silty Sand, dense, wet, brown, some fine gravel.	35		
58								

W1857-88-01 BORING LOGS.GPJ

Figure A6,
Log of Boring F, Page 2 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING F** ELEV. (MSL.) -- DATE COMPLETED **02/08/2024** EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
60	F@60'			GW	Gravel, dense, wet, brown to black, fine to coarse gravel, some medium- to coarse-grained sand.	29		11.5
					Total depth of boring: 61 feet Fill to 2 feet. Groundwater encountered at 54 feet. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A6,
Log of Boring F, Page 3 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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PROJECT NO. W1857-88-01

BORING G

ELEV. (MSL.) -- DATE COMPLETED **02/09/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, brown to dark brown, fine-grained.			
2								
4				SM	**ALLUVIUM** Silty Sand, loose, moist, gray, fine-grained.			
6	G@5'				Sandy Silt, soft, moist, brown, fine-grained.	8		
8	G@7'			ML		9	98.1	23.4
10	G@10'					6	96.8	21.6
					Total depth of boring: 10.5 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A7,
Log of Boring G, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

BORING H

ELEV. (MSL.) -- DATE COMPLETED **02/09/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown, fine-grained.			
2					**ALLUVIUM** Sand, poorly graded, loose, moist, brown, medium- to coarse-grained.			
4								
6	H@5'					16	101.4	2.8
8	H@7'				- slightly moist	18	95.3	5.4
10	H@10'			SP		13	99.8	5.5
12	H@12'				- medium dense	19	100.4	5.2
14								
16	H@15'					32	98.9	8.8
18								
20	H@20'			SM	Silty Sand, medium dense, slightly moist, brown, fine-grained.	20	100.0	9.2

Total depth of boring: 20.5 feet
Fill to 2 feet.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A8,
Log of Boring H, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

BORING I

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Sandy Silt, firm, moist, dark brown, fine-grained.			
2					**ALLUVIUM** Sand, well-graded, loose, moist, brown.			
4				SW				
6	I@5'					14		
8	I@7.5'				Sandy Clay, soft, moist, dark brown, fine-grained.	5		
10	I@10'			CL	- firm	13	105.6	20.2
12	I@12.5'				- soft	5		
14								
16	I@15'			SM	Silty Sand, loose, moist, brown, fine-grained.	16		
18	I@17.5'			CL	Silty Clay, soft, moist, dark brown.	5		
20	I@20'			SM	Silty Sand, medium dense, slightly moist, grayish brown, fine-grained.	15	89.4	32.6
22	I@22.5'				- loose	7		
24								
26	I@25'			ML	Silt, soft, moist, brown.	9		
28	I@27.5'			SM	Silty Sand, medium dense, slightly moist, grayish brown, fine-grained.	12		

W1857-88-01 BORING LOGS.GPJ

Figure A9,
Log of Boring I, Page 1 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

BORING I

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	I@30'			SM		33	107.7	9.5
32	I@32.5'			CL	Sandy Clay, very soft, moist, brown, fine-grained.	PUSH		
34	I@35'					11		
36								
38	I@37.5'			SM	Silty Sand, medium dense, slightly moist, gray, fine-grained.	24		
40	I@40'					26	102.2	7.4
42	I@42.5'			ML	Sandy Silt, firm, slighlty moist, gray, fine-grained.	9		
44	I@45'					16	77.6	37.9
46								
48	I@47.5'			CL	Sandy Clay, soft, moist, fine-grained, trace fine gravel.	5		
50	I@50'				- no recovery	11		
52	I@52.5'		▼	SM	- groundwater encountered at 53'11" Silty Sand, dense, moist, brown, medium-grained, some fine gravel. - groundwater encountered	43		6.4
54	I@55'				- medium dense, wet	50	118.0	15.8
56								
58	I@57.5'			GP	Gravel, dense, wet, brown.	40		7.7

W1857-88-01 BORING LOGS.GPJ

Figure A9,
Log of Boring I, Page 2 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING I** ELEV. (MSL.) -- DATE COMPLETED **02/08/2024** EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
60	I@60'			SC	Clayey Sand, wet, brown, medium-grained, some fine gravel, trace silt.	50 (5")	128.9	11.1
62	I@62.5'			CL	Clay, firm, wet, brown, trace medium-grained sand.	14		
					Total depth of boring: 63.5 feet Fill to 2 feet. Groundwater encountered at 53 feet 11 inches. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A9,
Log of Boring I, Page 3 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

BORING J

ELEV. (MSL.) -- DATE COMPLETED **02/13/2024**

EQUIPMENT **HAND AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, brown, fine- to medium-grained.			
2	J@3'						119.4	8.6
4				SM	**ALLUVIUM** Silty Sand, medium dense, moist, some fine-grained.			
6	J@5'			SP	Sand, poorly graded, loose, slightly moist, dark brown, medium-grained.		99.7	4.3
8	J@7'						100.6	6.9
10	J@10'			CL	Sandy Clay, firm, slightly moist, brown, fine-grained.		99.2	22.2
12								
14								
16	J@15'						98.5	20.0
					Total depth of boring: 16 feet 4 inches Fill to 3.5 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. Asphalt patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A10,
Log of Boring J, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

BORING K

ELEV. (MSL.) -- DATE COMPLETED **02/12/2024**

EQUIPMENT **HAND AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, brown, some coarse gravel.			
2	K@3'							
4				SM	**ALLUVIUM** Silty Sand, loose, moist, brown, fine- to medium-grained.			
6	K@5'			SP	Sand, poorly graded, loose, slightly moist, light brown, medium- to coarse-grained.		103.6	4.2
8	K@7'				- coarse-grained		105.6	7.7
10	K@10'			CL	Sandy Clay, firm, slightly moist, brown, fine-grained.		96.2	26.2
12								
14								
16	K@15'						102.2	24.0
					Total depth of boring: 16.5 feet Fill to 3.5 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. Asphalt patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A11,
Log of Boring K, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

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GEOCON

PROJECT NO. W1857-88-01

BORING L

ELEV. (MSL.) -- DATE COMPLETED **02/09/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown, fine-grained.			
2				SP	**ALLUVIUM** Sand, poorly graded, loose, moist, gray, fine-grained.			
4								
6	L@5'			ML	Sandy Silt, soft, moist, brown, fine-grained.	12		
8	L@7'			SM	Silty Sand, very loose, moist, grayish brown, fine-grained.	5	78.0	30.7
10	L@10'					22	95.6	3.6

Total depth of boring: 10.5 feet
Fill to 2 feet.
No groundwater encountered.
Percolation testing performed.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A12,
Log of Boring L, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING M** ELEV. (MSL.) -- DATE COMPLETED **02/09/2024** EQUIPMENT **HAND AUGER** BY: **ACS**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown.			
2				SM	**ALLUVIUM** Silty Sand, loose, moist, grayish brown.			
4								
					Total depth of boring: 5 feet Fill to 2 feet. No groundwater encountered. Percolation testing performed. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A13,
Log of Boring M, Page 1 of 1

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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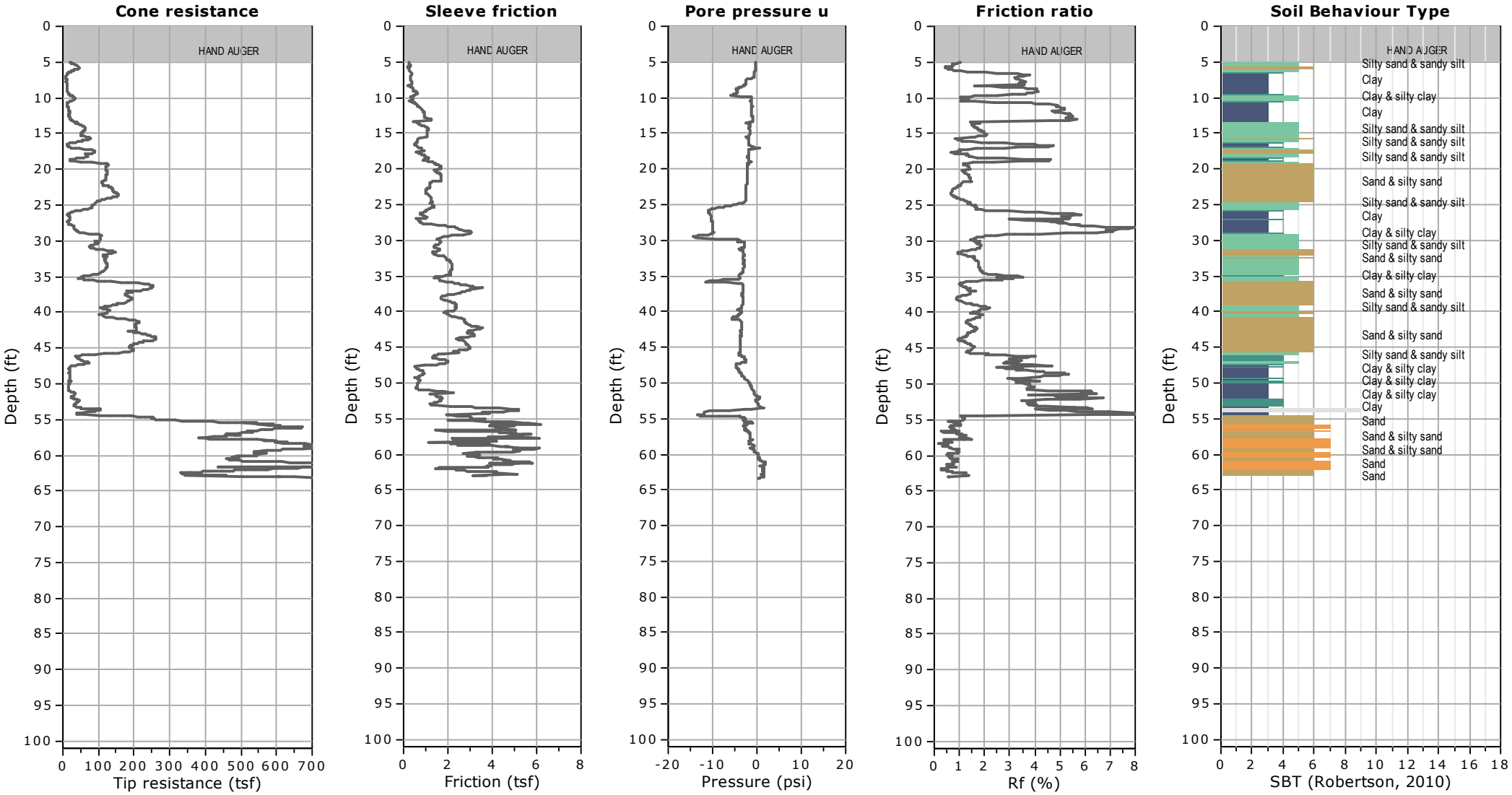
Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Geocon West / Juvenille Hall - Youth Transition Center**
Location: **331 The City Drive S, Orange, CA**

CPT-1
Total depth: 63.40 ft, Date: 2/12/2024



Kehoe Testing and Engineering
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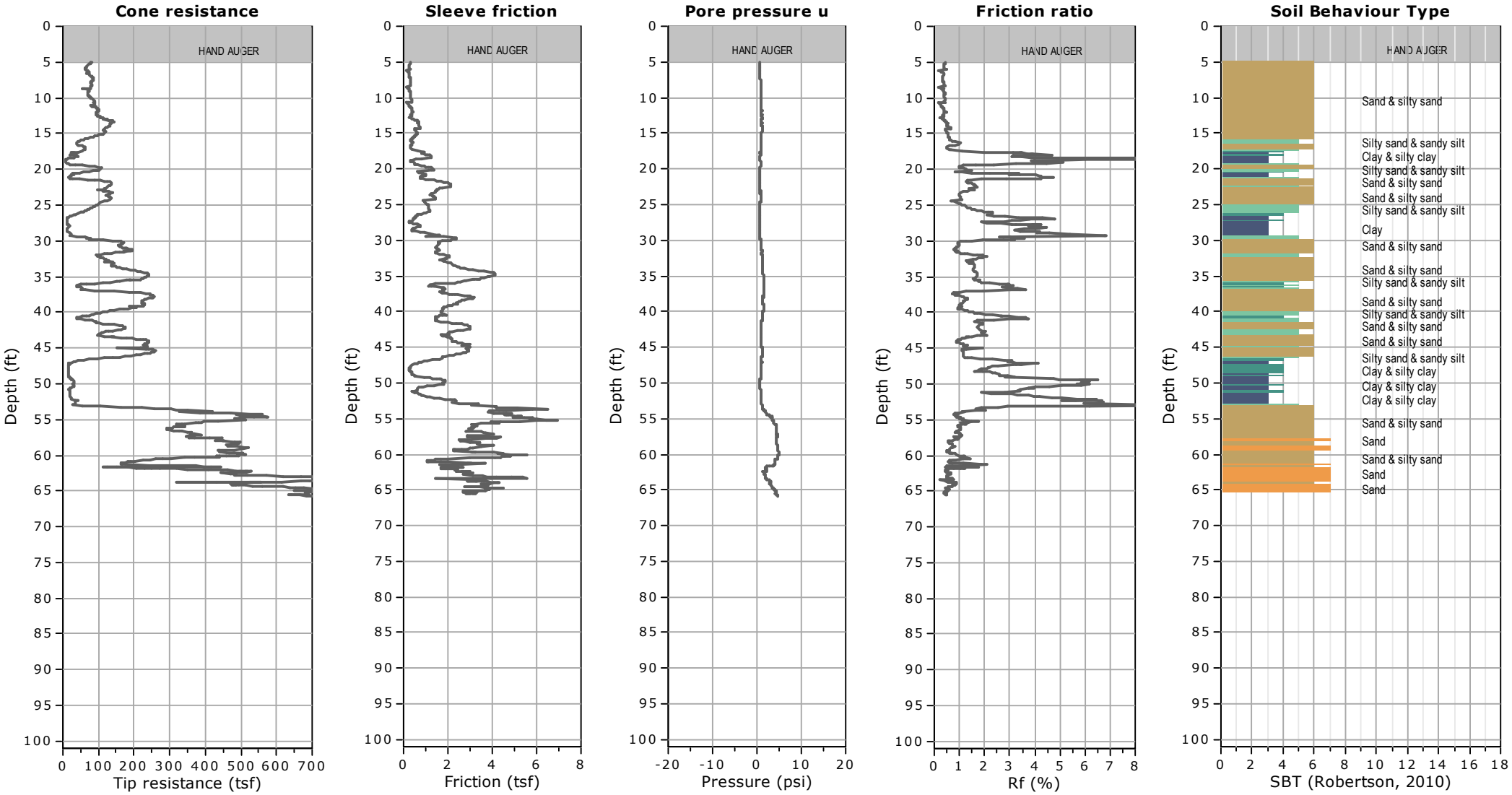
www.kehoetesting.com

Project: **Geocon West / Juvenille Hall - Youth Transition Center**
Location: **331 The City Drive S, Orange, CA**

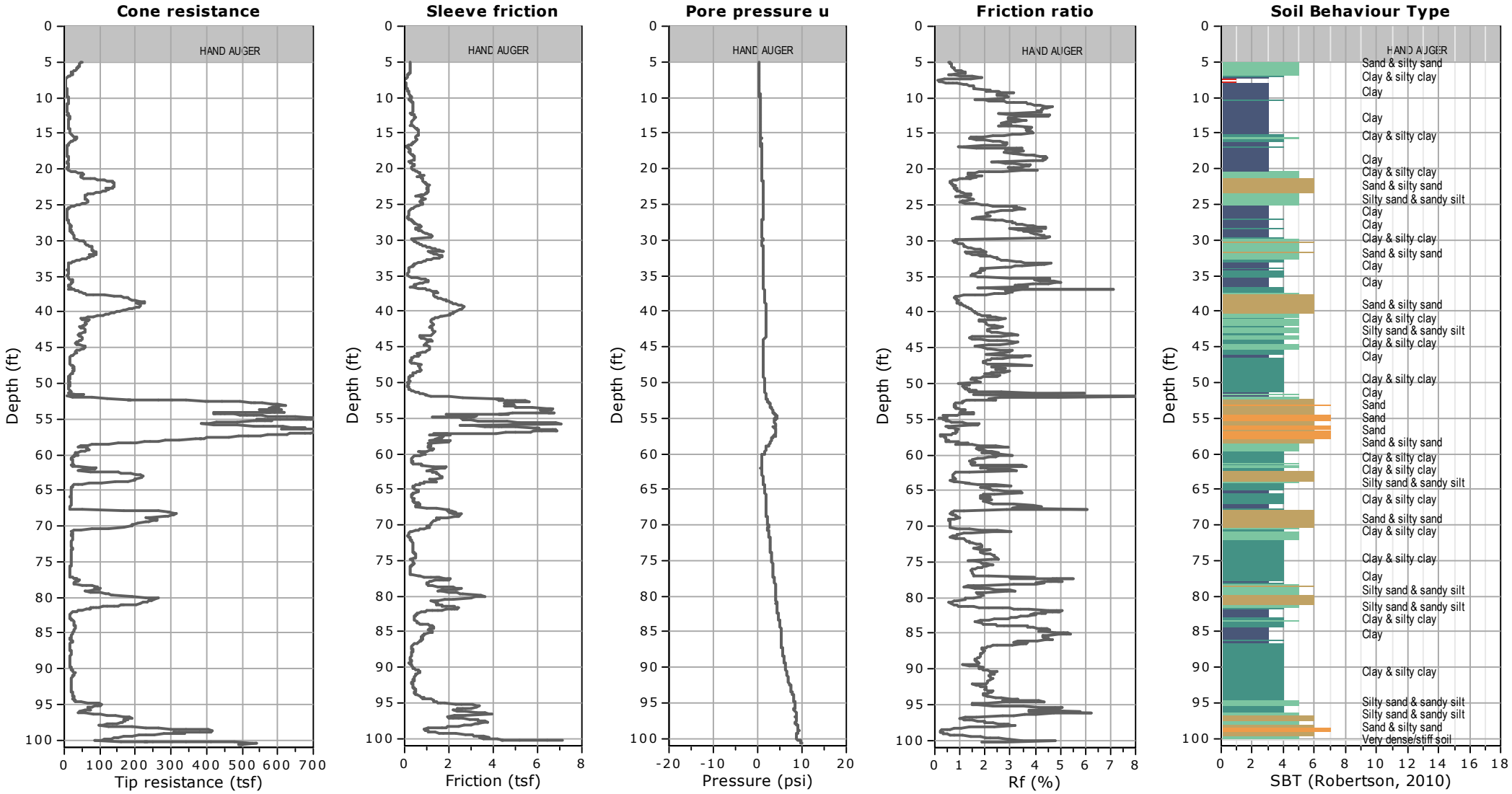
CPT-2
Total depth: 65.96 ft, Date: 2/12/2024



Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Geocon West / Juvenille Hall - Youth Transition Center**
Location: **331 The City Drive S, Orange, CA**

CPT-3
Total depth: 100.60 ft, Date: 2/12/2024

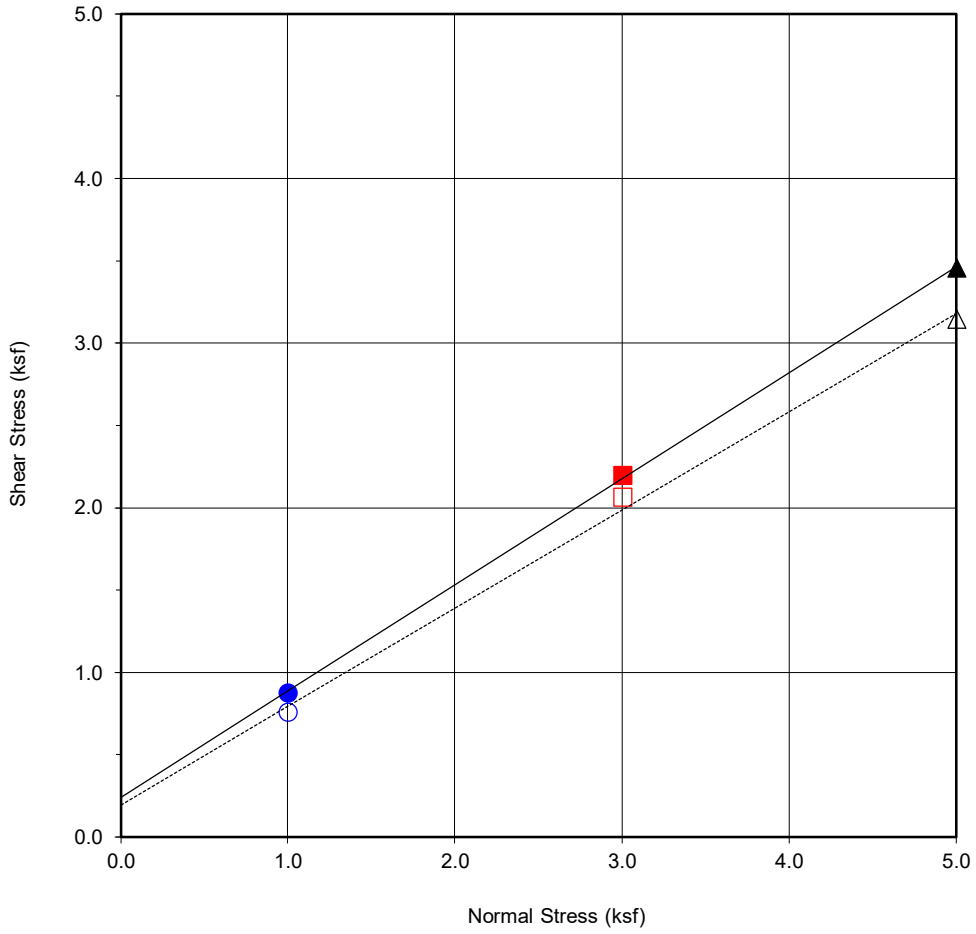


APPENDIX B

APPENDIX B

LABORATORY TESTING

We performed laboratory tests in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected soil samples for direct shear strength, consolidation and expansion characteristics, corrosivity, and maximum dry density and optimum moisture content relationship. The in-place dry density and moisture content of the samples tested are presented on the boring logs, Appendix A.



Boring No.	**B**
Sample No.	**B@3'**
Depth (ft)	**3'**
Sample Type:	Ring

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	241	33
Ultimate	197	31

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.88	■ 2.20	▲ 3.46
Shear Stress @ End of Test (ksf)	○ 0.76	□ 2.06	△ 3.14
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	13.7	14.6	13.2
Initial Dry Density (pcf)	97.5	97.1	101.4
Initial Degree of Saturation (%)	50.7	53.3	53.8
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	21.5	21.2	19.7

GEOCON

DIRECT SHEAR TEST RESULTS

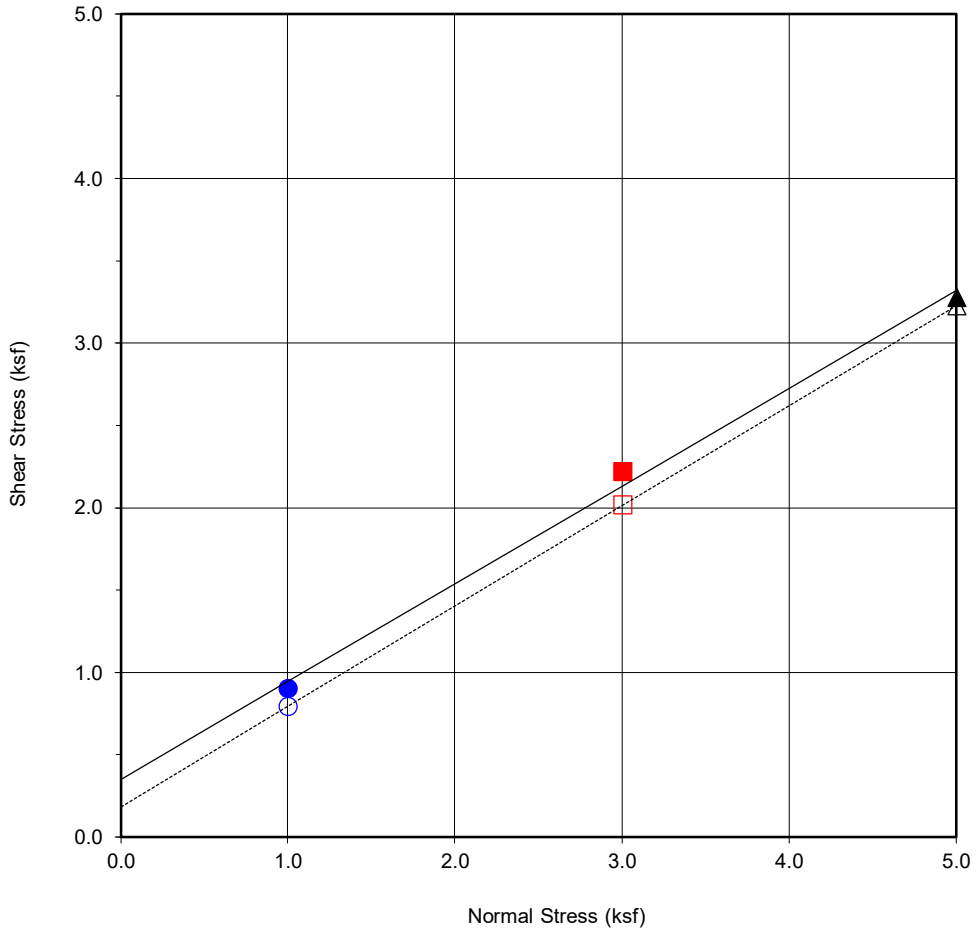
Consolidated Drained ASTM D-3080

Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B1



Boring No.	**G**
Sample No.	**G@5'**
Depth (ft)	**5'**
Sample Type:	Ring

Soil Identification:		
Sandy Silt (ML)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	350	31
Ultimate	185	31

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.90	■ 2.22	▲ 3.28
Shear Stress @ End of Test (ksf)	○ 0.79	□ 2.02	△ 3.23
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	36.2	46.1	42.5
Initial Dry Density (pcf)	88.6	84.3	86.7
Initial Degree of Saturation (%)	108.2	124.5	121.6
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	32.6	33.0	32.7

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DIRECT SHEAR TEST RESULTS

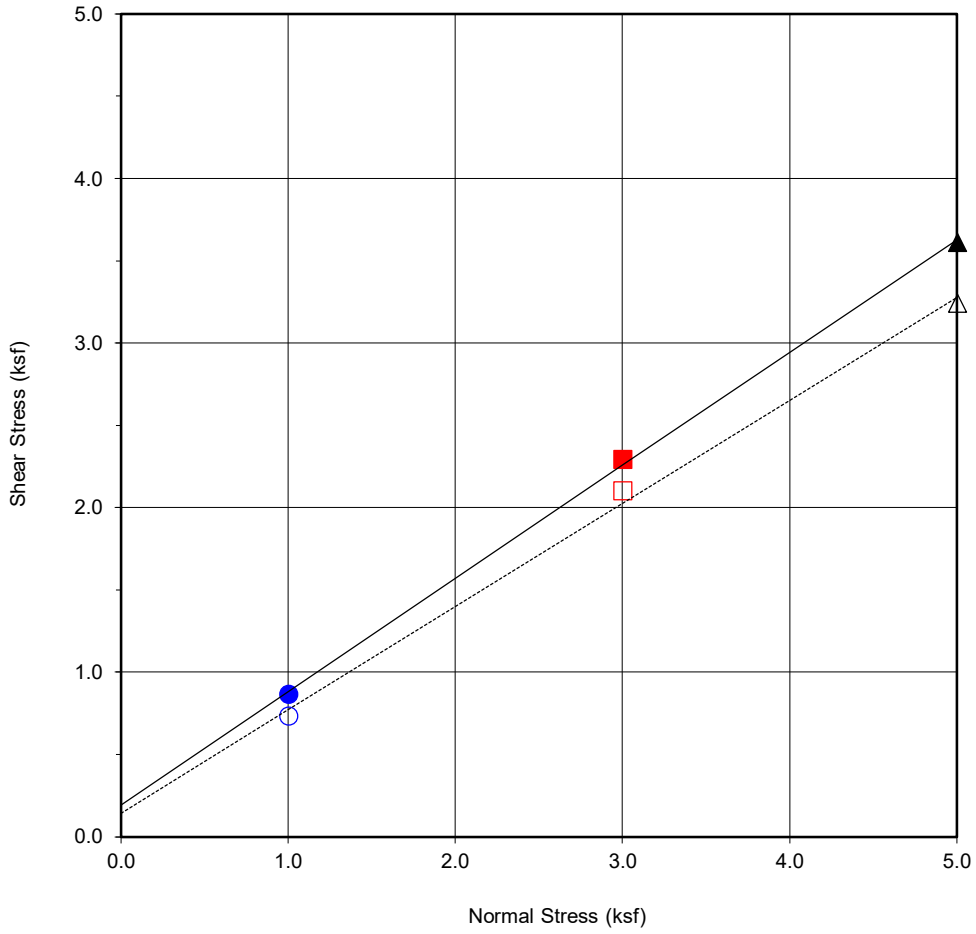
Consolidated Drained ASTM D-3080

Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B2



Boring No.	**K**
Sample No.	**K@3'**
Depth (ft)	**3'**
Sample Type:	Ring

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	195	34
Ultimate	143	32

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.86	■ 2.29	▲ 3.61
Shear Stress @ End of Test (ksf)	○ 0.73	□ 2.10	△ 3.24
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	20.6	13.7	17.8
Initial Dry Density (pcf)	85.5	91.7	87.4
Initial Degree of Saturation (%)	57.4	44.1	51.7
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	28.2	25.1	26.5

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

Checked by: ACS

Project No.: W1857-88-01

OC YTC
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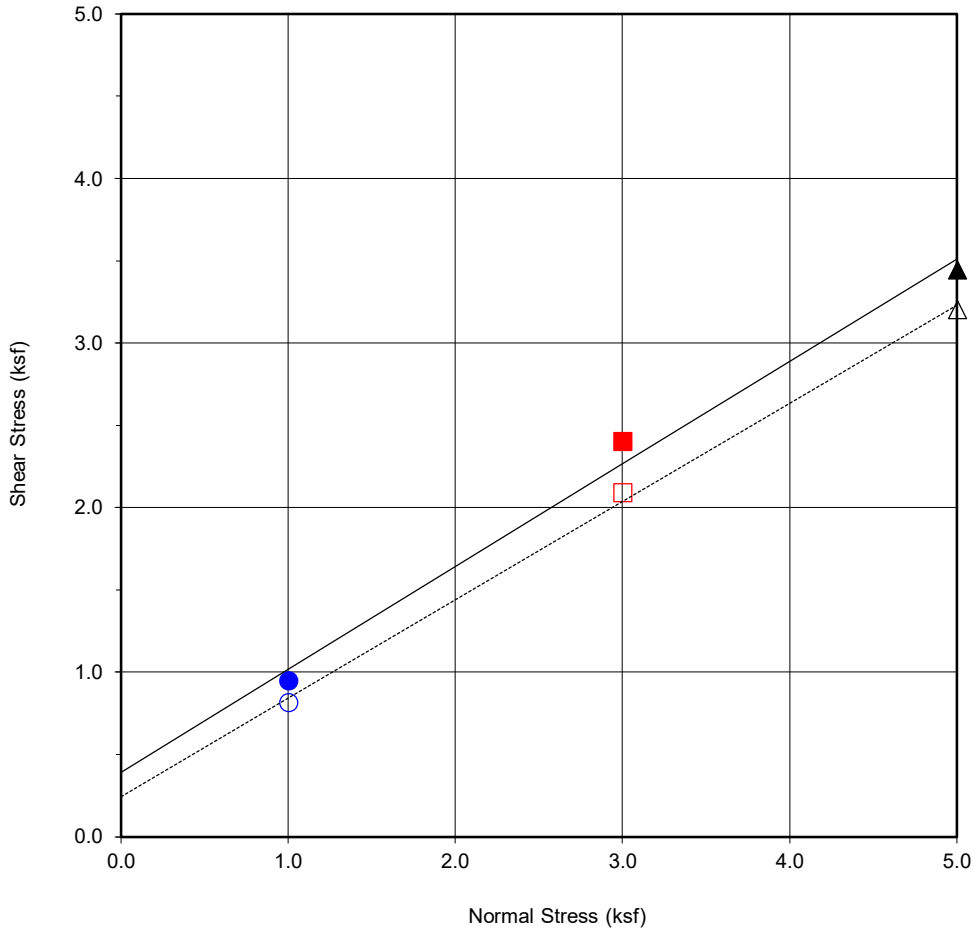
ORANGE, CALIFORNIA

March 2024 Figure B3



Boring No.	**L**
Sample No.	**L@5'**
Depth (ft)	**5'**
Sample Type:	Ring

Soil Identification:		
Sandy Silt (ML)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	392	32
Ultimate	245	31

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.95	■ 2.40	▲ 3.44
Shear Stress @ End of Test (ksf)	○ 0.82	□ 2.09	△ 3.20
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	15.4	14.9	15.6
Initial Dry Density (pcf)	85.6	86.9	88.2
Initial Degree of Saturation (%)	43.0	42.9	46.2
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	29.9	29.4	29.0

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

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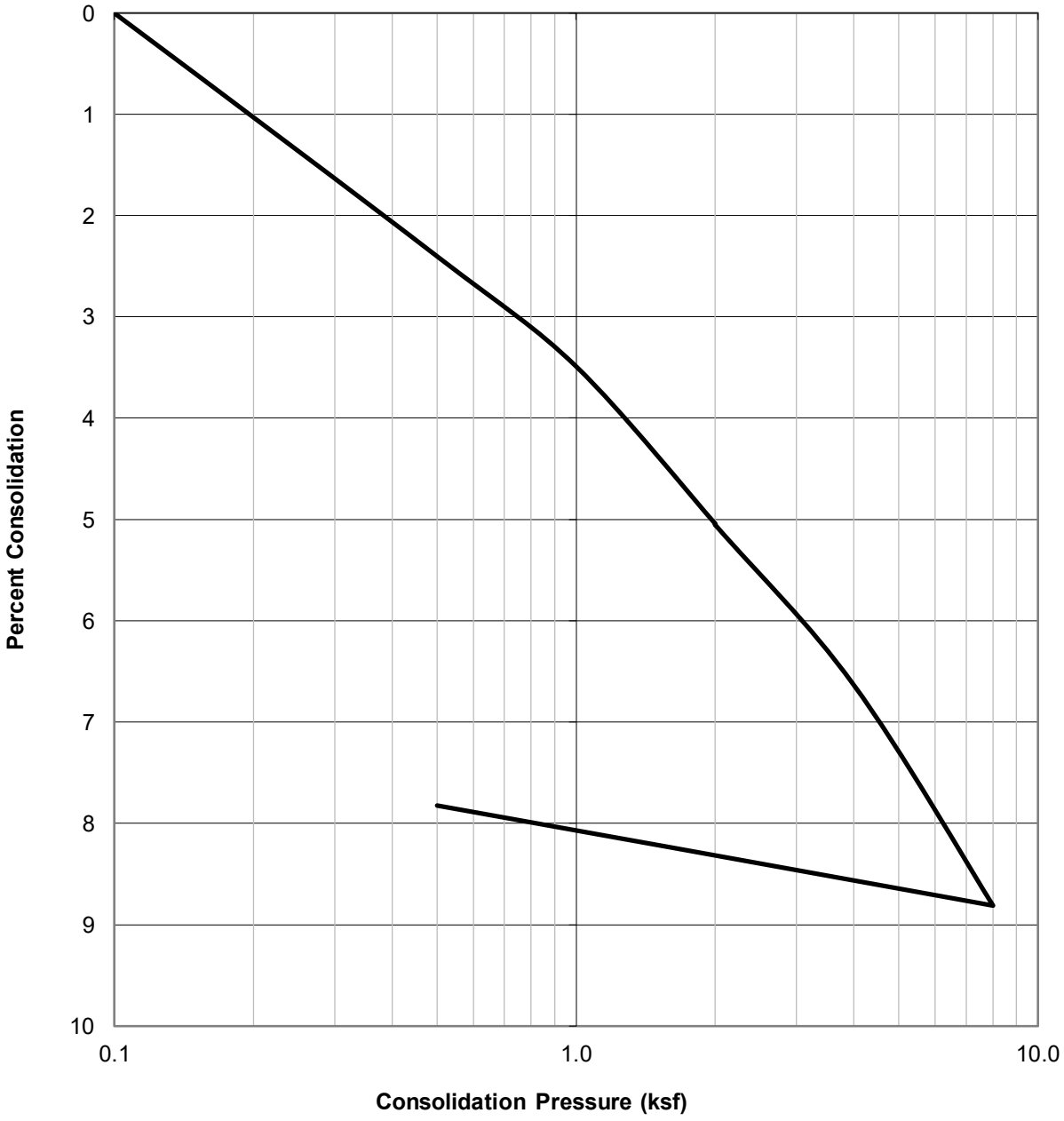
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B4

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
A@7	Sandy Clay (CL)	101.4	24.8	21.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

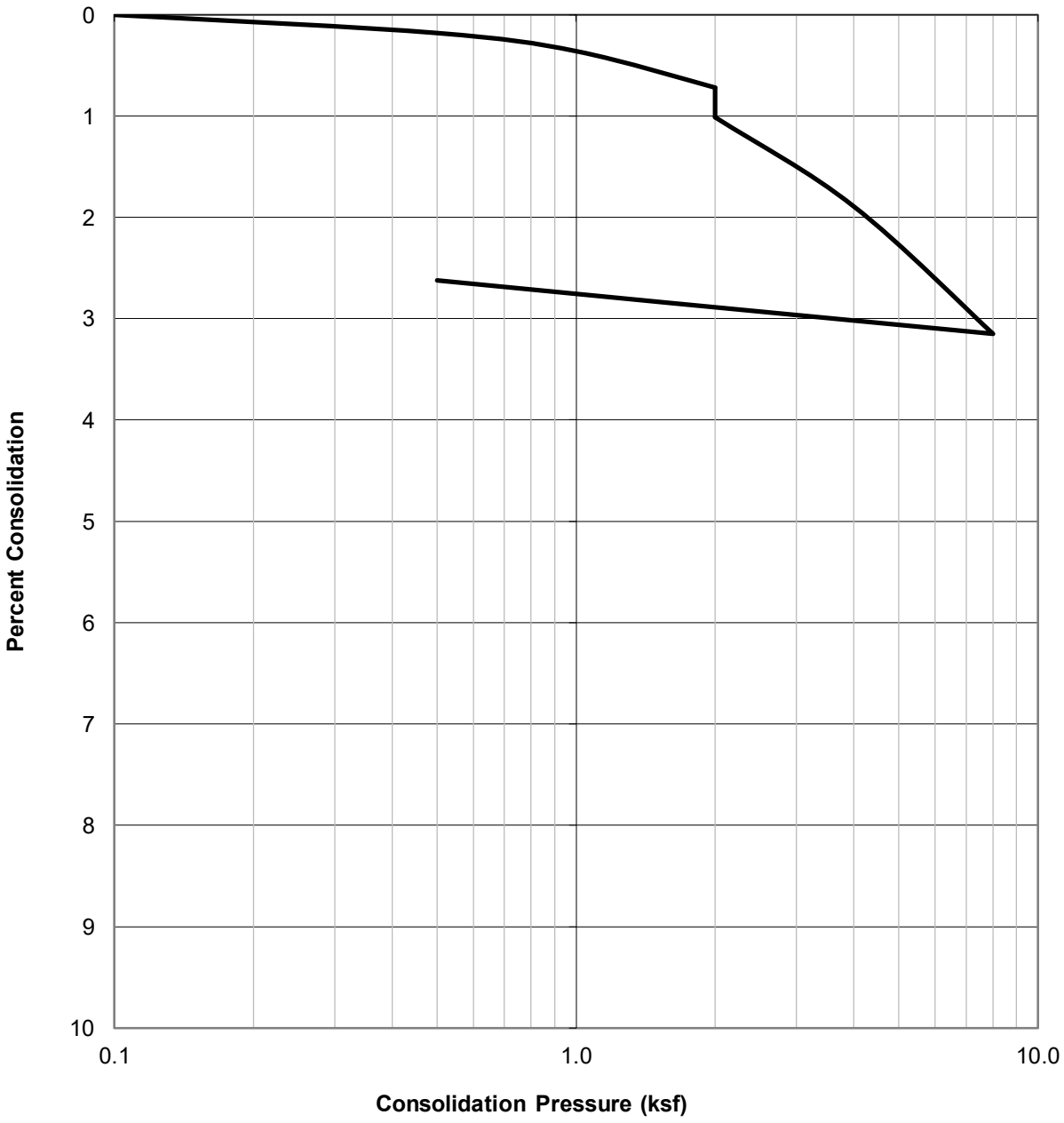
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B5

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B@3	Silty Sand (SM)	97.8	10.4	21.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

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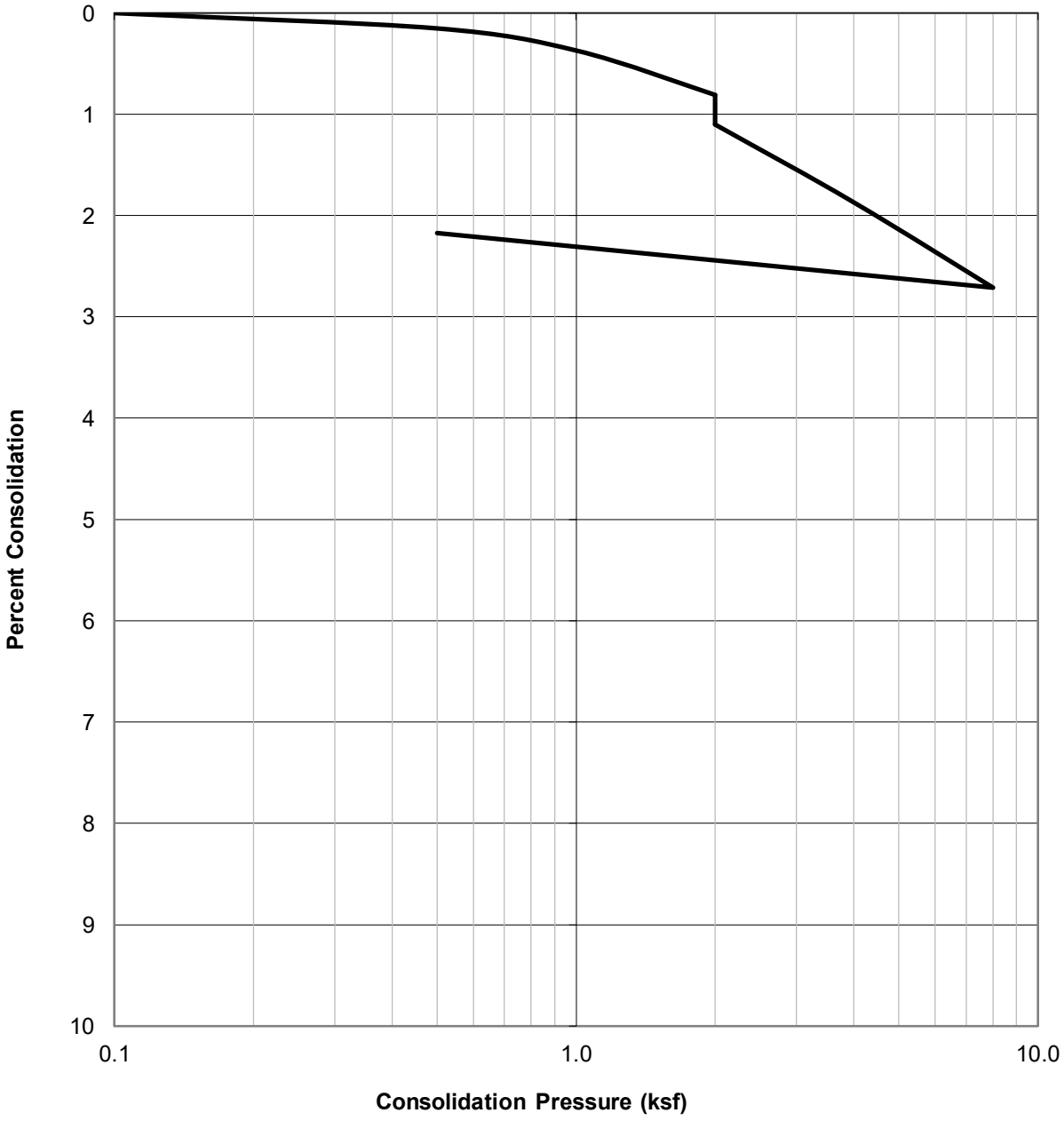
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B6

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
F@7.5	Sand (SP)	92.6	5.5	28.1

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

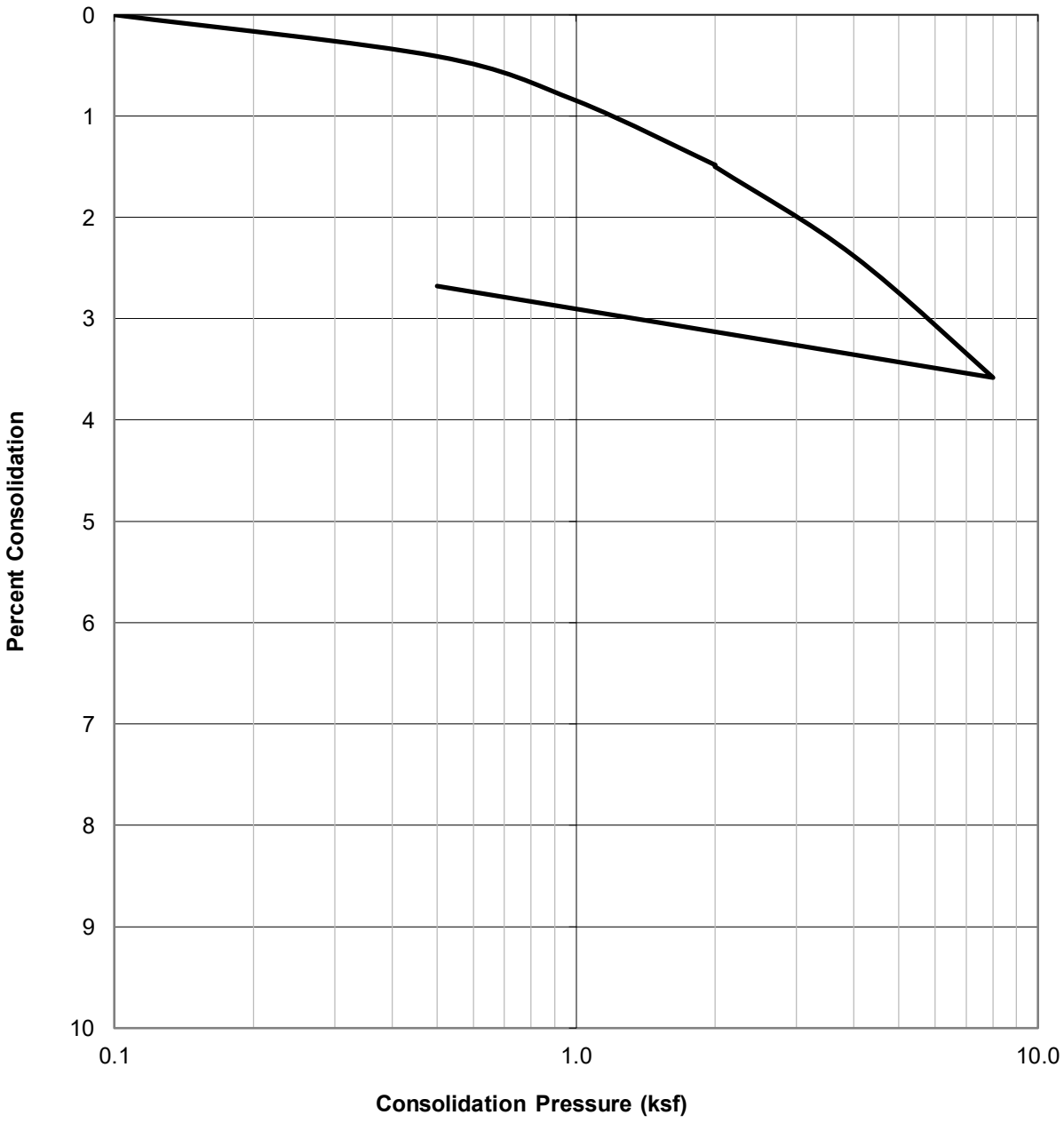
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B7

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
G@5	Sandy Silt (ML)	95.1	29.9	29.9

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

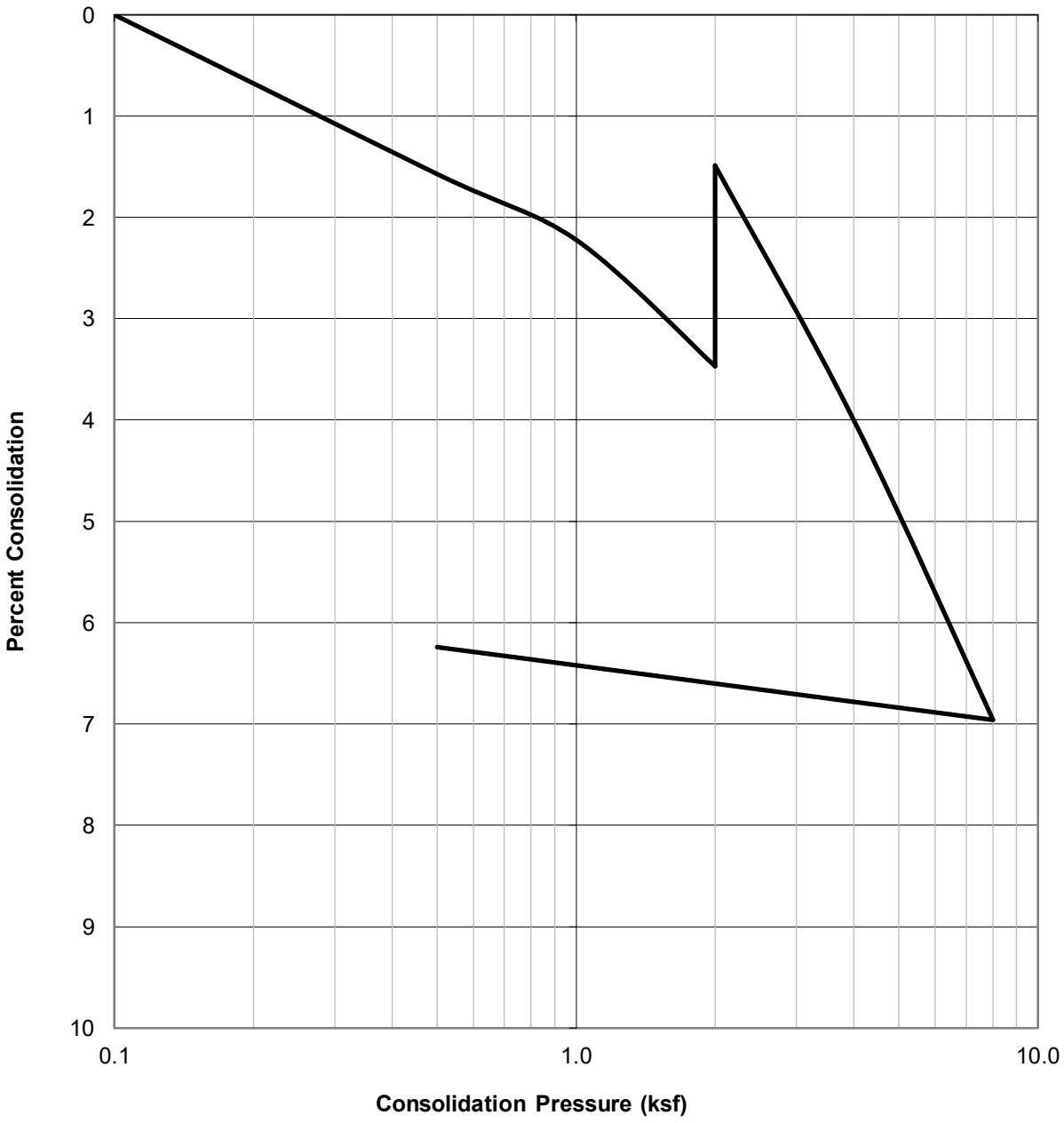
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B8

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
G@7	Sandy Silt (ML)	102.7	23.6	19.8

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

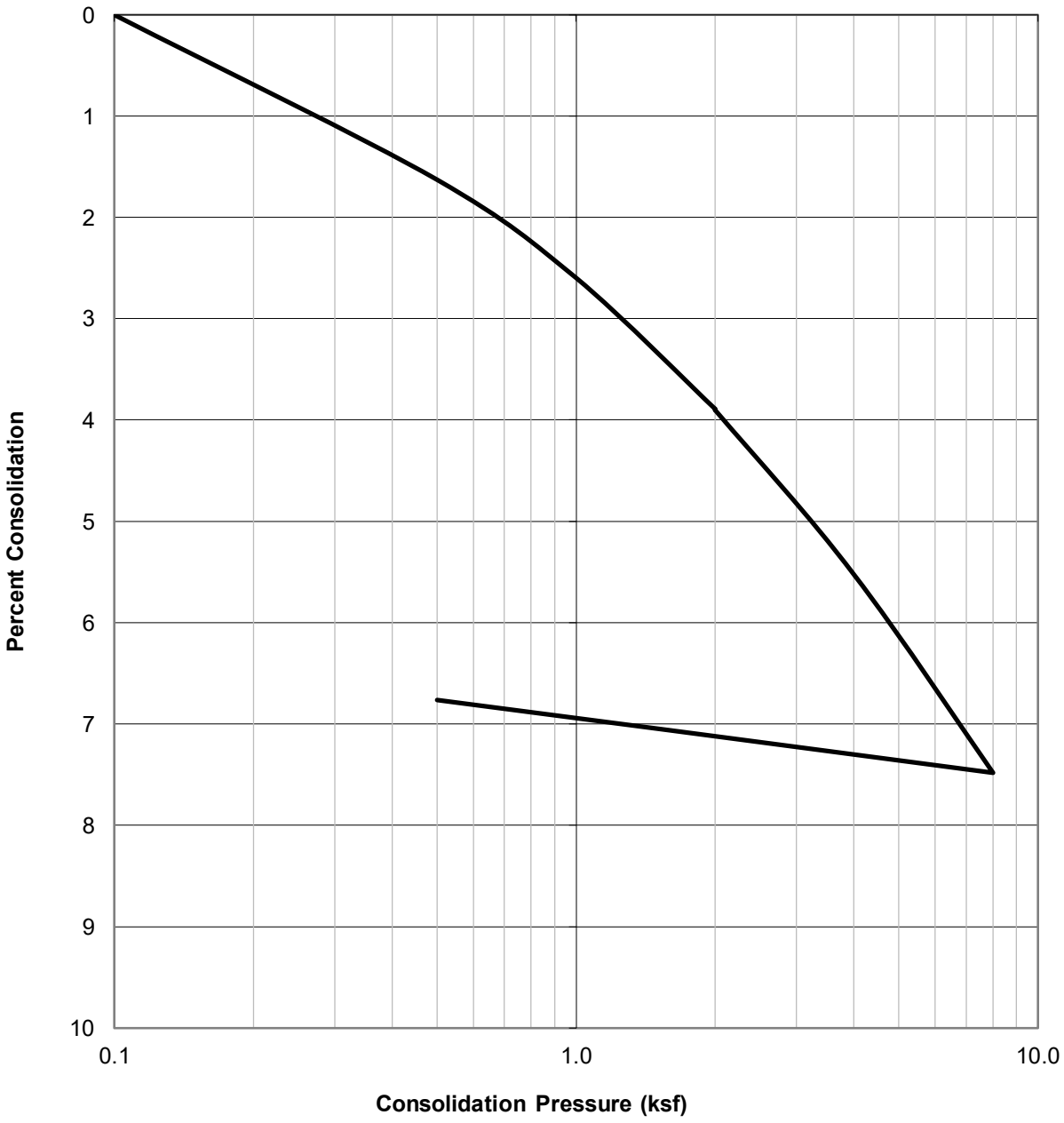
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B9

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
G@10	Sandy Silt (ML)	105.5	22.4	19.6

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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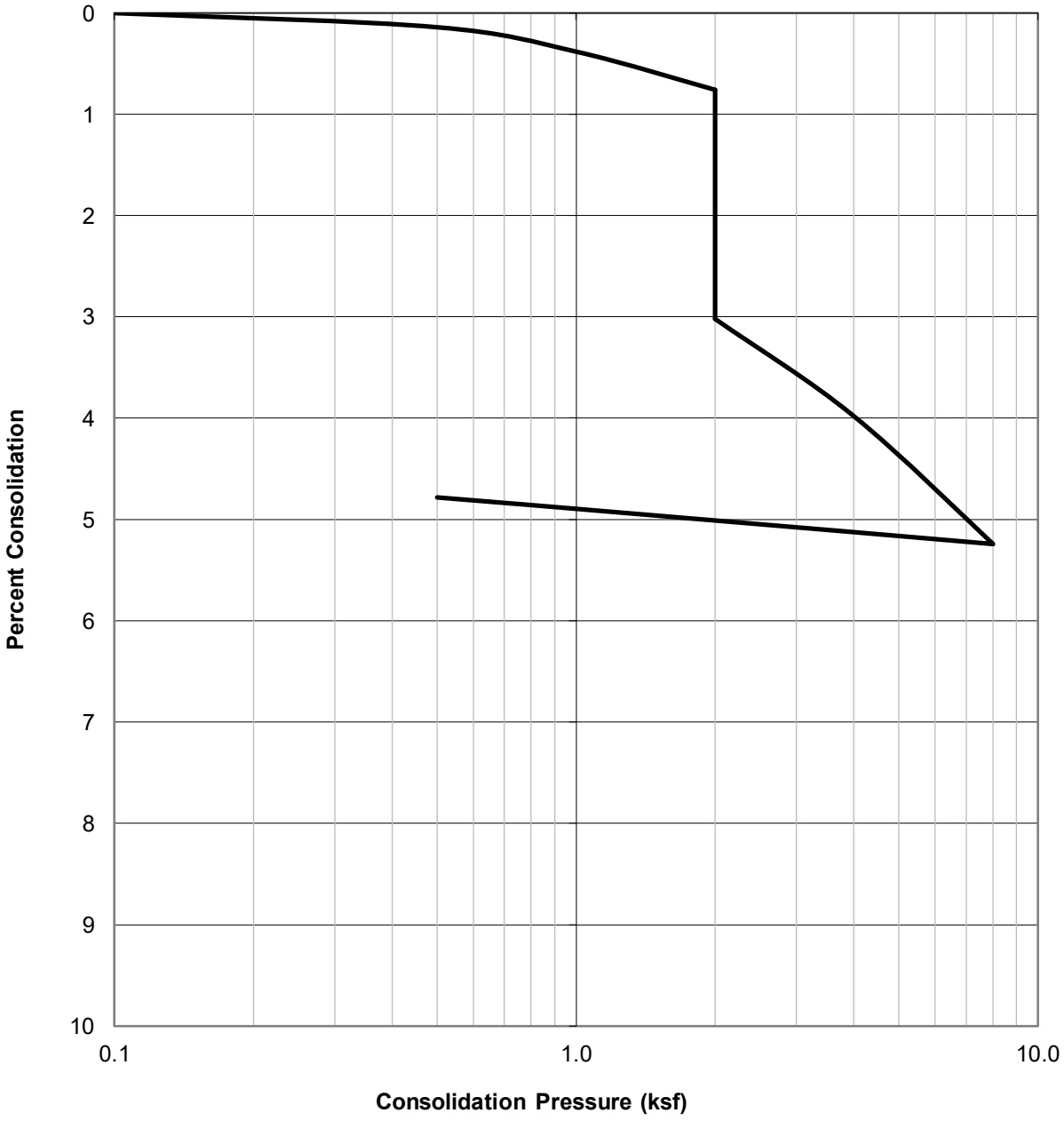
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B10

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
H@7	Sand (SP)	86.9	10.4	29.9

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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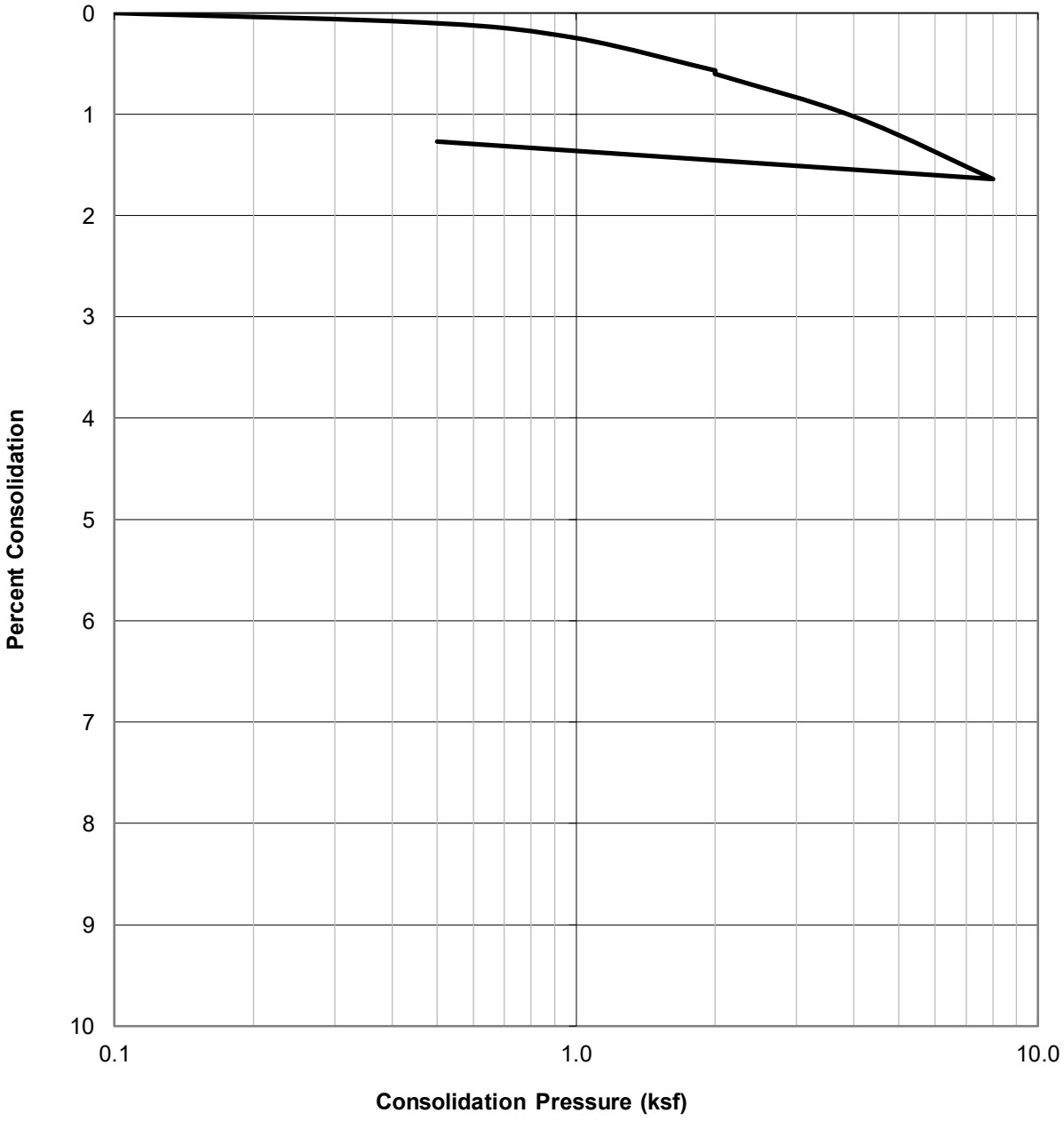
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B11

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
H@12	Sand (SP)	95.2	5.1	24.4

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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Project No.: W1857-88-01

OC YTC
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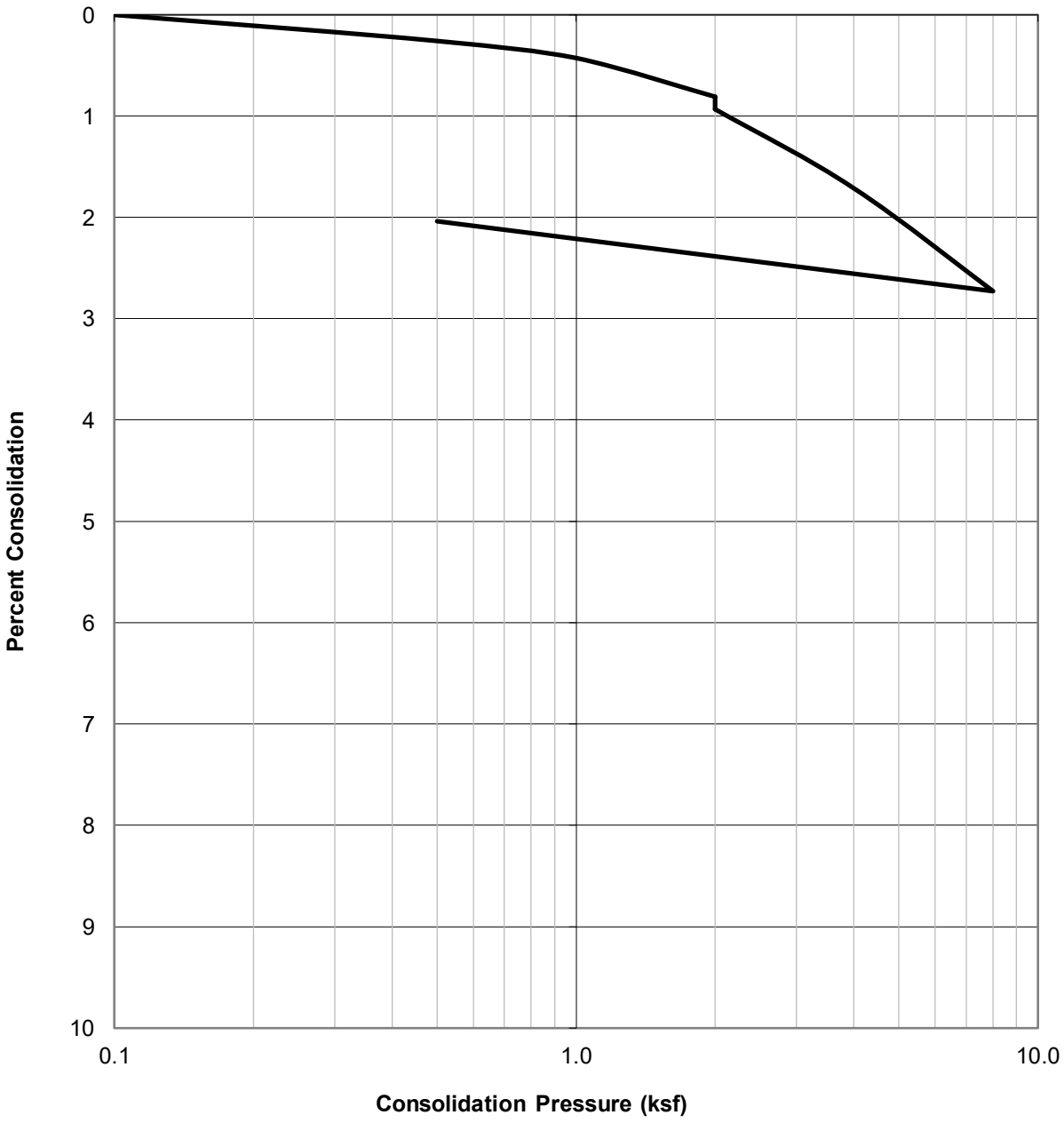
ORANGE, CALIFORNIA

March 2024 Figure B12

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
H@20	Silty Sand (SM)	102.2	14.7	20.8

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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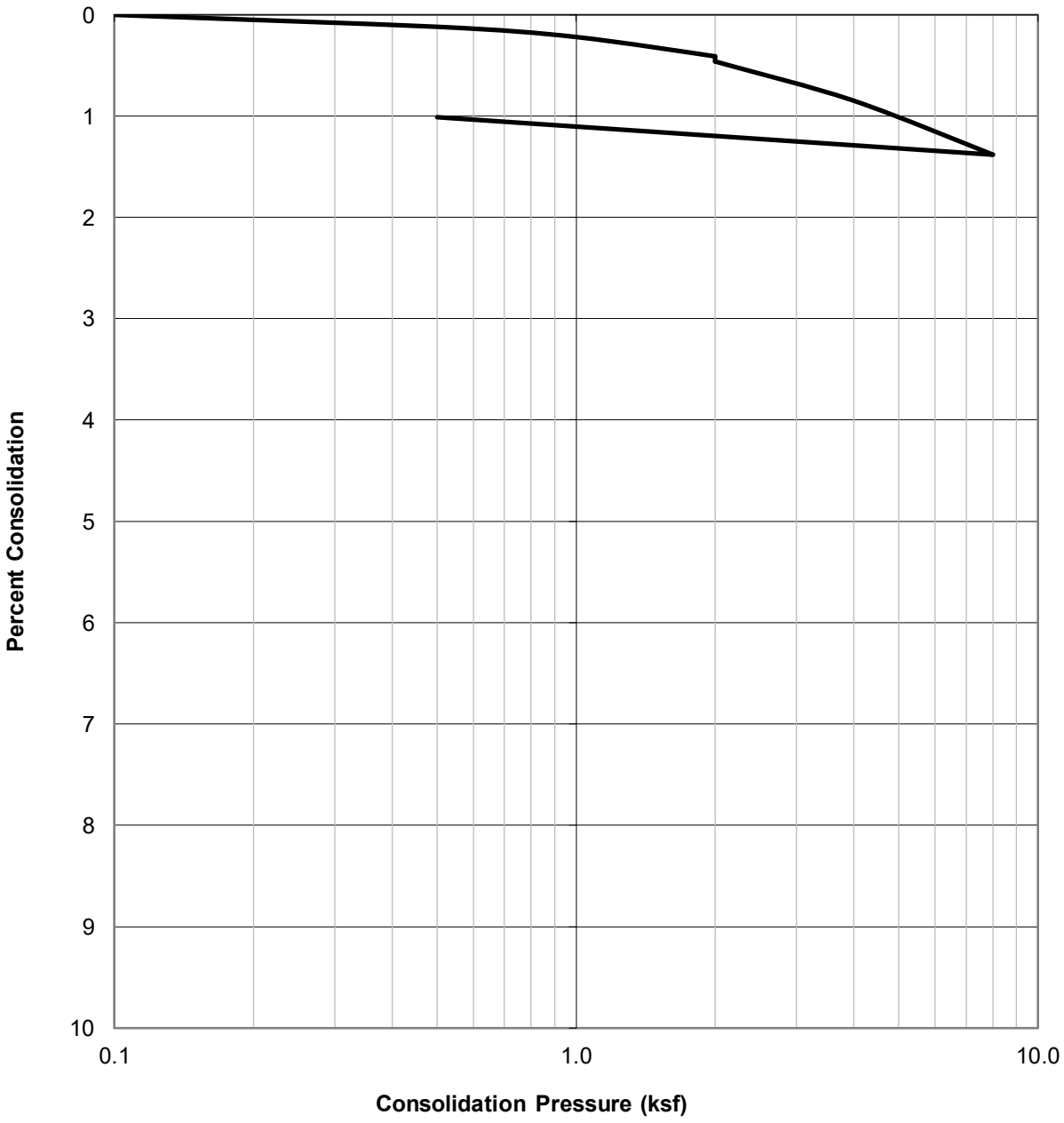
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B13

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
J@5	Sand (SP)	96.1	4.1	23.7

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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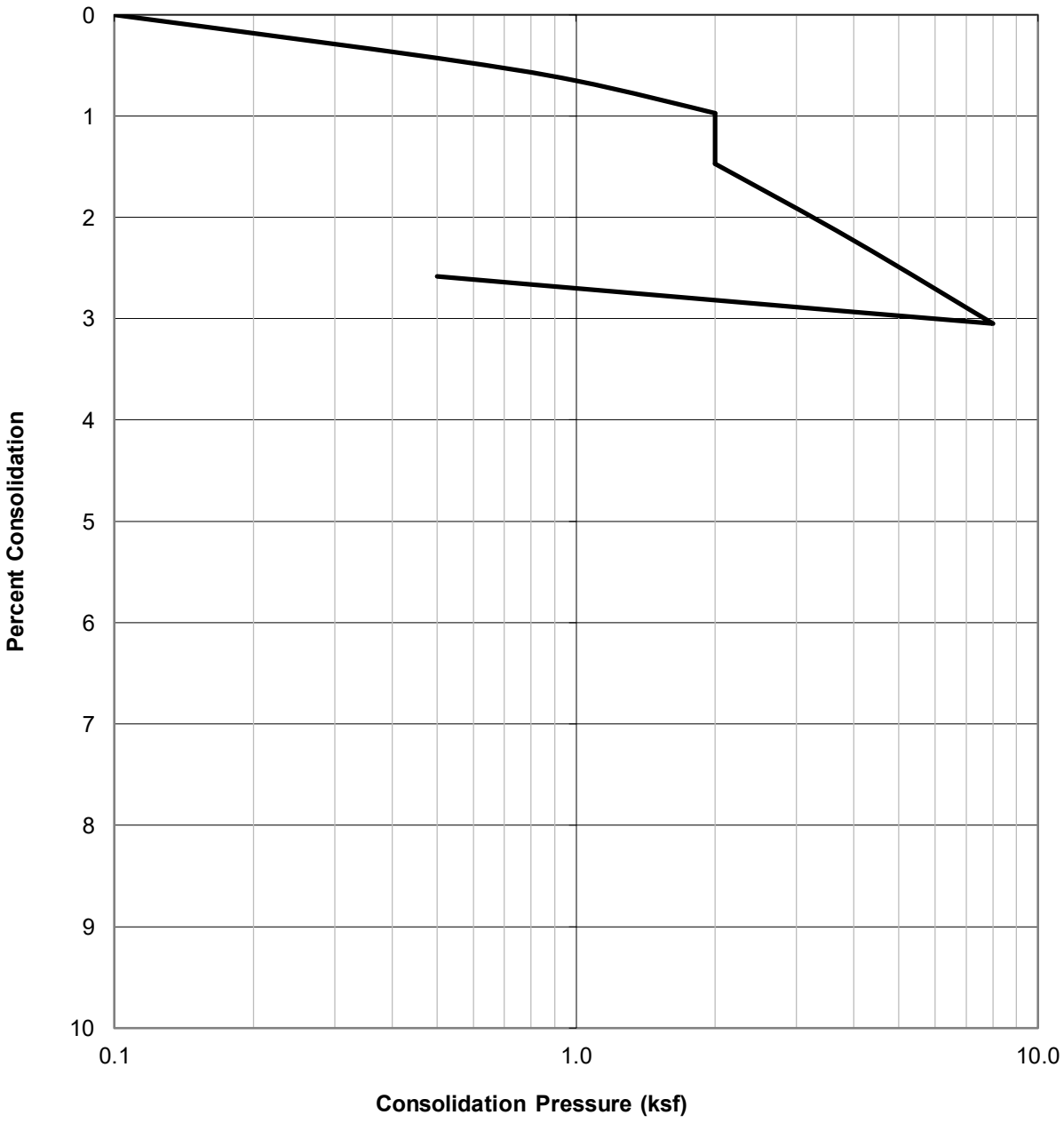
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B14

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
J@7	Sand (SP)	91.0	12.9	26.3

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CONSOLIDATION TEST RESULTS

ASTM D-2435

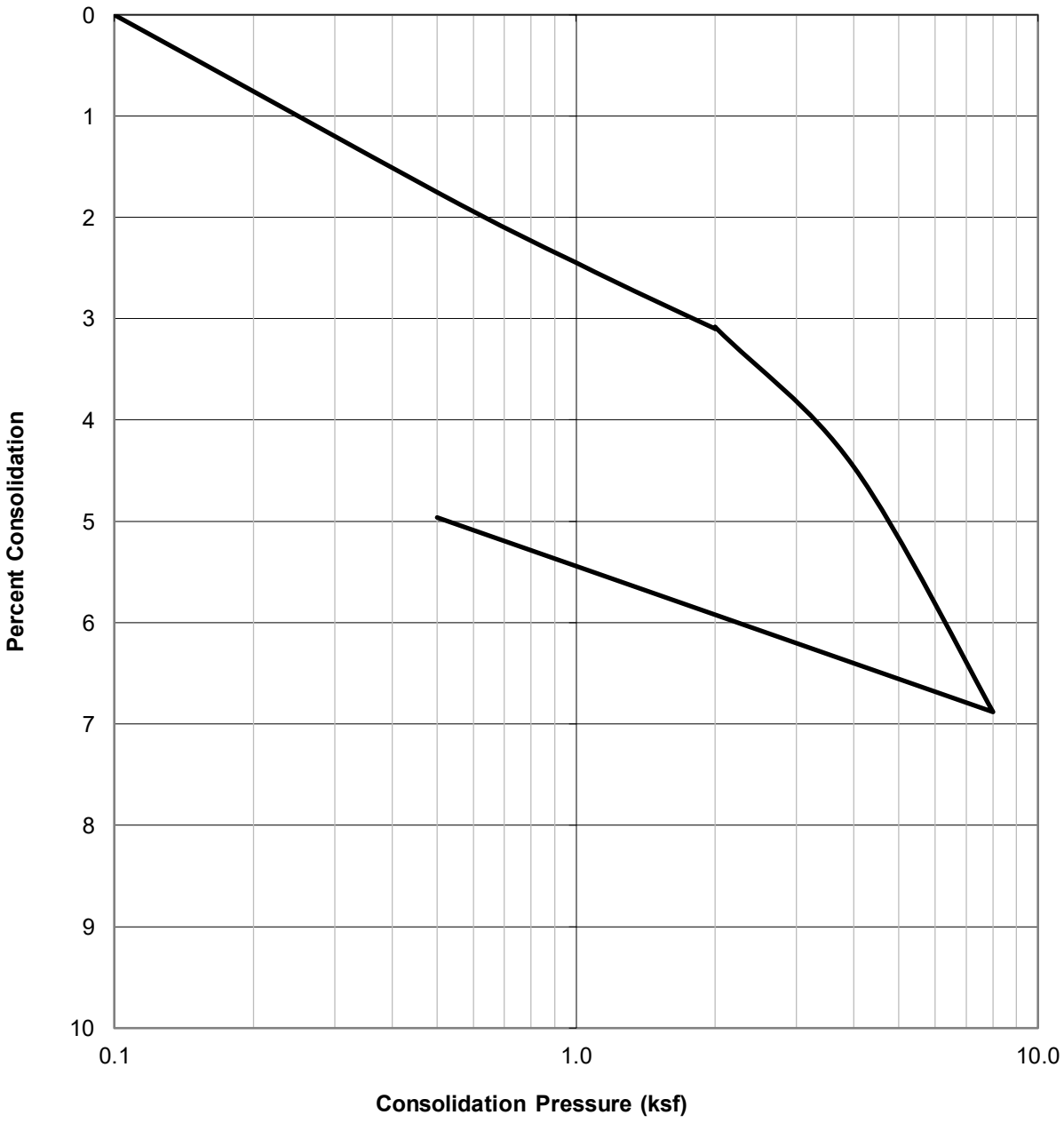
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B15

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
J@10	Sandy Clay (CL)	101.9	25.1	26.2

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CONSOLIDATION TEST RESULTS

ASTM D-2435

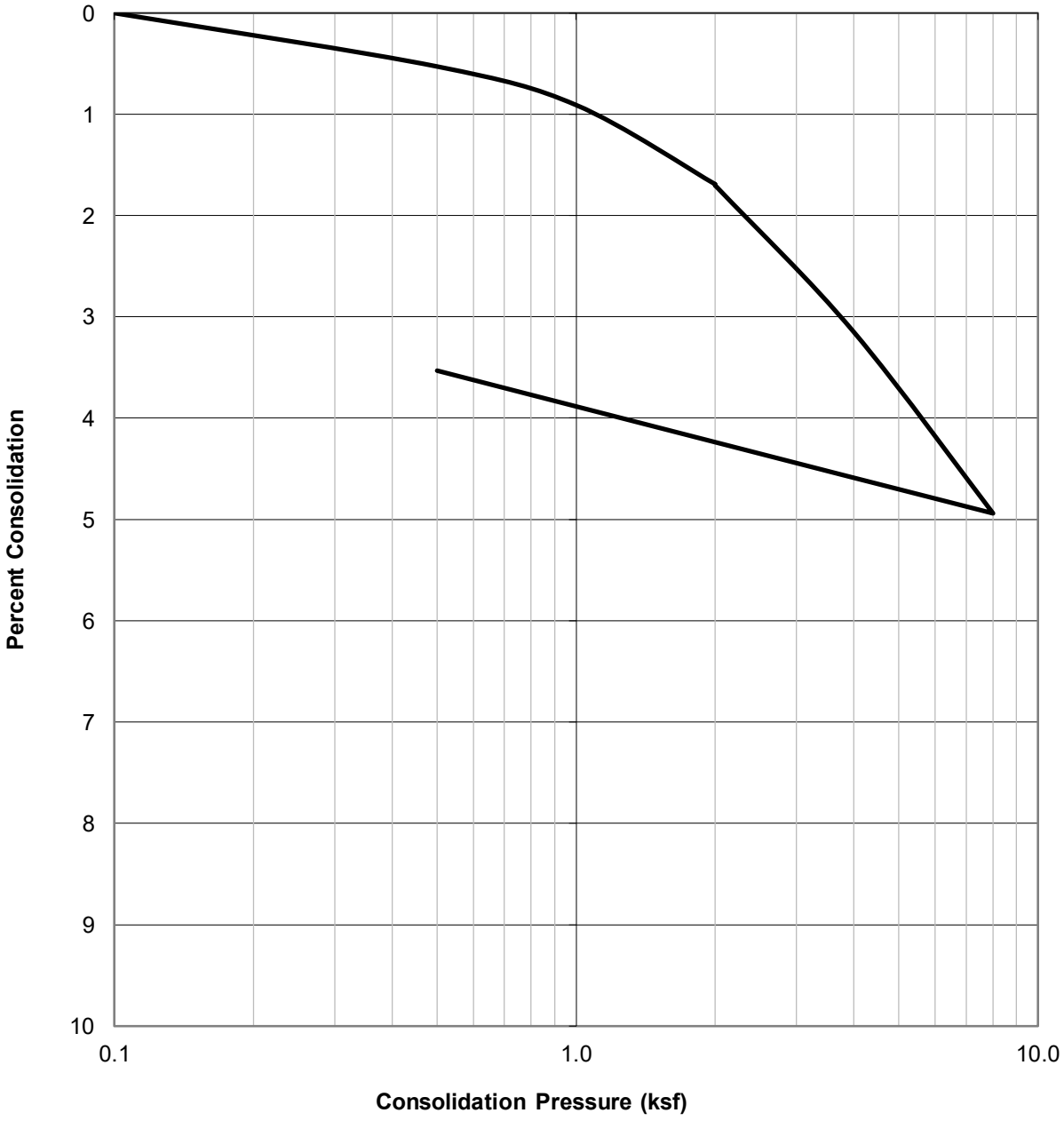
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B16

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
J@15	Sandy Clay (CL)	106.8	21.3	21.1

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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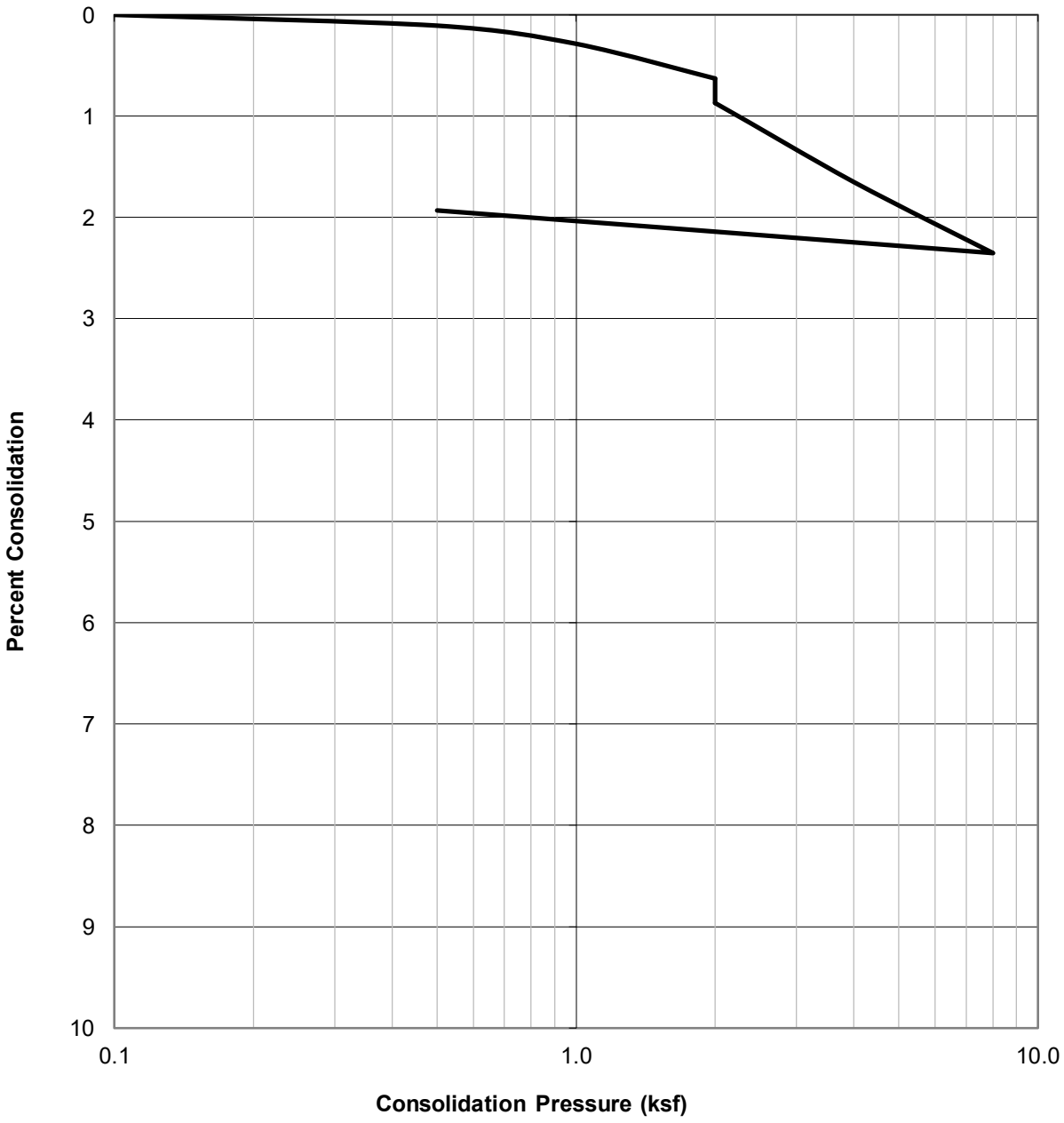
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B17

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
L@10	Silty Sand (SM)	93.5	5.3	29.3

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

March 2024 Figure B18

SUMMARY OF LABORATORY NO. 200 TEST RESULTS

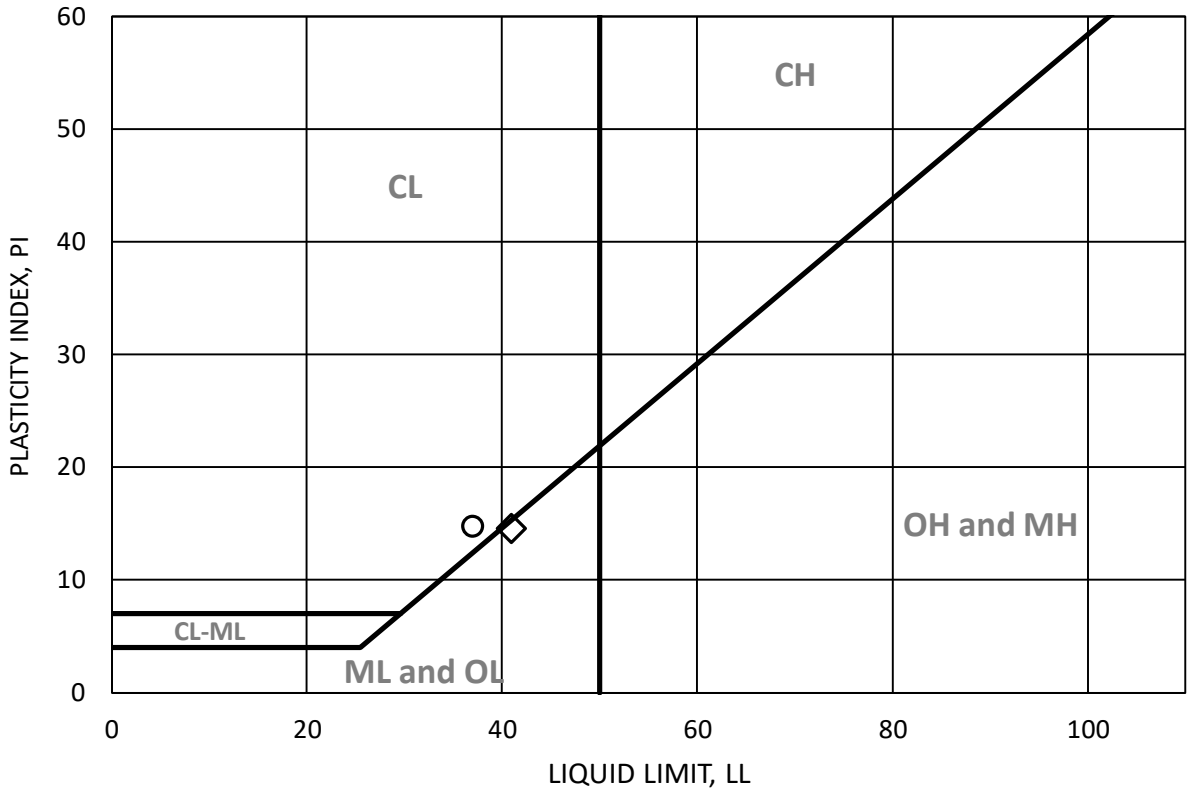
Sample No.	Percent Passing No. 200 Sieve
E @ 5'	**79.9**
E @ 7.5'	**67.6**
E @ 12.5'	**59.3**
E @ 17.5'	**34.7**
E @ 22.5'	**8.7**
E @ 27.5'	**29.1**
E @ 32.5'	**11.9**
E @ 37.5'	**3.8**
E @ 42.5'	**14.9**
E @ 47.5'	**70.5**

SUMMARY OF LABORATORY NO. 200 TEST RESULTS

Sample No.	Percent Passing No. 200 Sieve
F @ 5'	1.4
F @ 10'	1.0
F @ 15'	3.9
F @ 20'	83.3
F @ 25'	50.7
F @ 30'	8.8
F @ 35'	30.8
F @ 40'	65.9
F @ 45'	14.6
F @ 50'	66.3
F @ 55	16.4

SUMMARY OF LABORATORY NO. 200 TEST RESULTS

Sample No.	Percent Passing No. 200 Sieve
I @ 5'	5.2
I @ 7.5'	83.3
I @ 12.5'	84.7
I @ 15'	42.2
I @ 17.5'	98.8
I @ 22.5'	36.3
I @ 25'	97.5
I @ 27.5'	45.1
I @ 32.5'	80.8
I @ 35'	64.3
I @ 37.5'	11.4
I @ 42.5'	81.8
I @ 47.5'	64.6
I @ 62.5	88.8



SYMBOL	BORING	DEPTH (ft)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
■	E	47.5	N/P	N/P	N/P		N/P
◆	F	25	N/P	N/P	N/P		N/P
▲	F	35	N/P	N/P	N/P		N/P
●	F	40	N/P	N/P	N/P		N/P
□	F	50	N/P	N/P	N/P		N/P
◇	I	25	41	26	15		ML
△	I	27.5	N/P	N/P	N/P		N/P
○	I	32.5	37	22	15		CL

N/P = Non-Plastic

GEOCON

ATTERBERG LIMITS

ASTM D-4318

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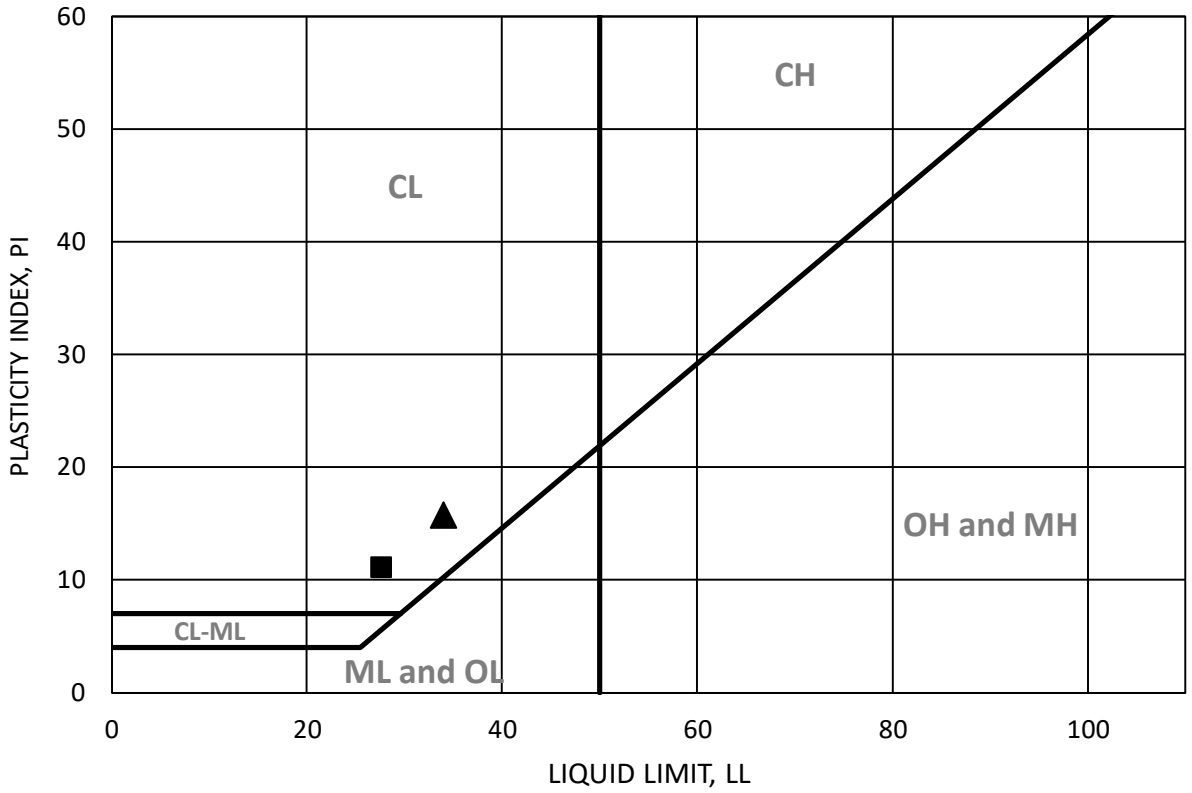
March 2023 Figure B22



SYMBOL	BORING	DEPTH (ft)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
■	I	42.5	N/P	N/P	N/P		N/P
◆	I	47.5	28	17	11		CL
▲	I	62.5	34	18	16		CL
●							
□							
◇							
△							
○							

N/P = Non-Plastic

GEOCON

ATTERBERG LIMITS

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March 2024 Figure B23

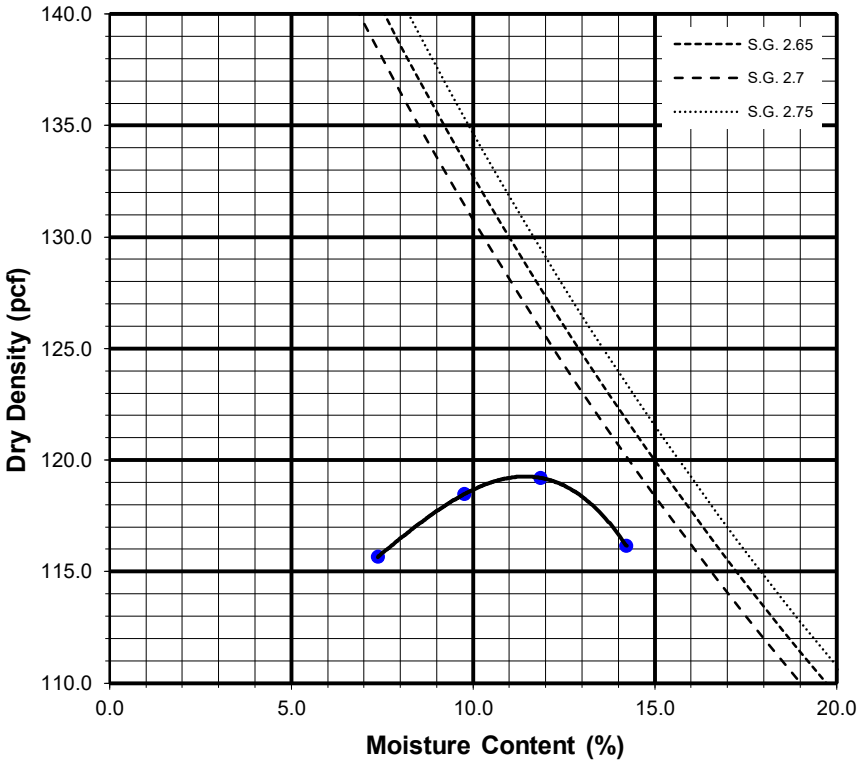
Sample No:

A+B@0-5	Silty Sand (SM)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6158	6246	6296	6286		
Weight of Mold	(g)	4282	4282	4282	4282		
Net Weight of Soil	(g)	1876	1964	2014	2004		
Wet Weight of Soil + Cont.	(g)	2261.4	2323.1	2400.7	2392.5		
Dry Weight of Soil + Cont.	(g)	2131.9	2150.2	2186.3	2141.6		
Weight of Container	(g)	377.8	377.9	378.1	377.8		
Moisture Content	(%)	7.4	9.8	11.9	14.2		
Wet Density	(pcf)	124.2	130.0	133.3	132.7		
Dry Density	(pcf)	115.7	118.5	119.2	116.2		

Maximum Dry Density (pcf)	**119.5**

Optimum Moisture Content (%)	**11.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

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March 2024 Figure B24

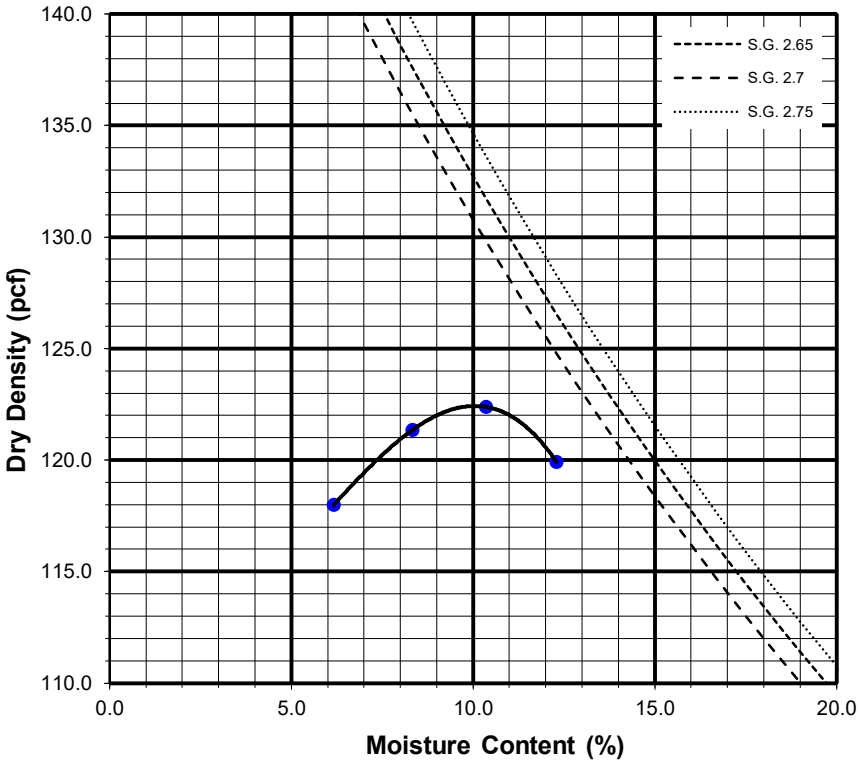
Sample No:

E+F@0-5	Silty Sand (SM)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6174	6268	6322	6316		
Weight of Mold	(g)	4282	4282	4282	4282		
Net Weight of Soil	(g)	1892	1986	2040	2034		
Wet Weight of Soil + Cont.	(g)	2278.4	2367.7	2429.0	2422.6		
Dry Weight of Soil + Cont.	(g)	2167.9	2214.5	2236.6	2198.7		
Weight of Container	(g)	376.3	377.9	378.2	377.8		
Moisture Content	(%)	6.2	8.3	10.4	12.3		
Wet Density	(pcf)	125.3	131.5	135.1	134.7		
Dry Density	(pcf)	118.0	121.4	122.4	119.9		

Maximum Dry Density (pcf)	**123.0**

Optimum Moisture Content (%)	**9.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

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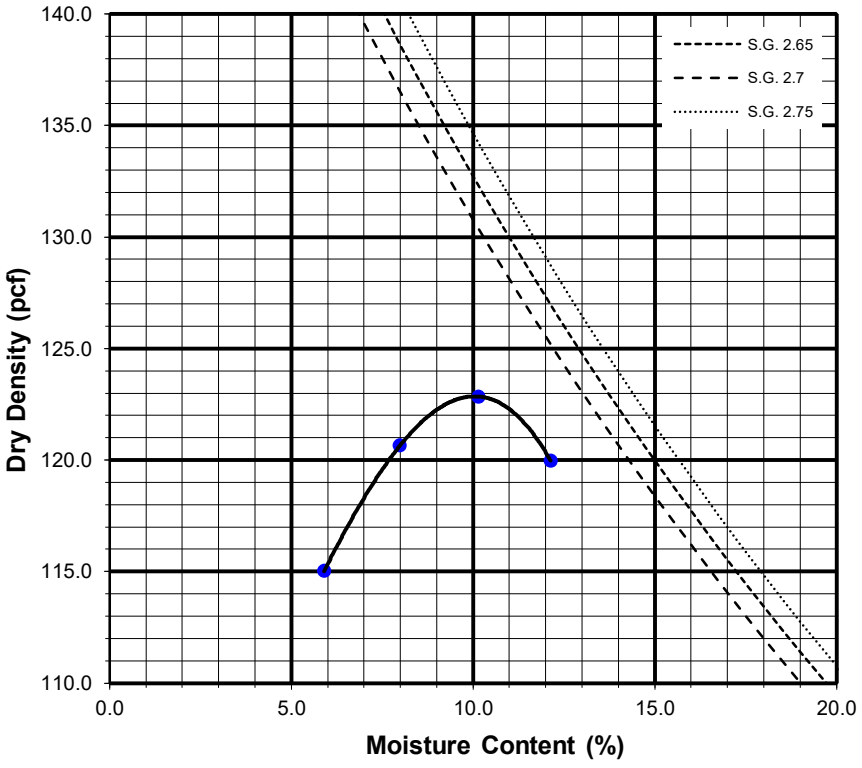
March 2024 Figure B25

Sample No:

M@0-5	Silty Sand (SM)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6326	6314	6250	6122		
Weight of Mold	(g)	4282	4282	4282	4282		
Net Weight of Soil	(g)	2044	2032	1968	1840		
Wet Weight of Soil + Cont.	(g)	2429.4	2418.9	2322.1	2224.9		
Dry Weight of Soil + Cont.	(g)	2240.4	2197.9	2178.2	2122.0		
Weight of Container	(g)	378.5	377.2	377.3	379.0		
Moisture Content	(%)	10.2	12.1	8.0	5.9		
Wet Density	(pcf)	135.3	134.5	130.3	121.8		
Dry Density	(pcf)	122.9	120.0	120.6	115.0		

Maximum Dry Density (pcf)	**123.0**	**Optimum Moisture Content (%)**	**9.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

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March 2024 Figure B26

A+B@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	584.4	623.1
Wt. of Mold	(gm)	201.8	201.8
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	300.0	623.1
Dry Wt. of Soil + Cont.	(gm)	267.9	341.6
Wt. of Container	(gm)	0.0	201.8
Moisture Content	(%)	12.0	23.3
Wet Density	(pcf)	115.4	126.9
Dry Density	(pcf)	103.0	102.9
Void Ratio		0.6	0.6
Total Porosity		0.4	0.4
Pore Volume	(cc)	80.5	80.5
Degree of Saturation	(%) [S_{meas}]	51.3	99.1

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
2/29/2024	10:00	1.0	0	0.4451
2/29/2024	10:10	1.0	10	0.4449
Add Distilled Water to the Specimen				
3/1/2024	10:00	1.0	1430	0.4448
3/1/2024	11:00	1.0	1490	0.4448

Expansion Index (EI meas) =	-0.1
Expansion Index (Report) =	**0**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2022 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: ACS

Project No.: W1857-88-01

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March 2024 Figure B27

E+F@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	572.2	597.5
Wt. of Mold	(gm)	171.3	171.3
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	300.0	597.5
Dry Wt. of Soil + Cont.	(gm)	272.7	364.5
Wt. of Container	(gm)	0.0	171.3
Moisture Content	(%)	10.0	16.9
Wet Density	(pcf)	120.9	128.4
Dry Density	(pcf)	109.9	109.8
Void Ratio		0.5	0.5
Total Porosity		0.3	0.3
Pore Volume	(cc)	72.0	72.0
Degree of Saturation	(%) [S_{meas}]	51.0	85.8

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
2/29/2024	10:00	1.0	0	0.4441
2/29/2024	10:10	1.0	10	0.444
Add Distilled Water to the Specimen				
3/1/2024	10:00	1.0	1430	0.4439
3/1/2024	11:00	1.0	1490	0.4439

Expansion Index (EI meas) =	-0.1
Expansion Index (Report) =	**0**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2022 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

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EXPANSION INDEX TEST RESULTS

ASTM D-4829

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March 2024 Figure B28

M@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	576.2	584.3
Wt. of Mold	(gm)	176.4	176.4
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	300.0	584.3
Dry Wt. of Soil + Cont.	(gm)	272.2	362.8
Wt. of Container	(gm)	0.0	176.4
Moisture Content	(%)	10.2	12.4
Wet Density	(pcf)	120.6	122.9
Dry Density	(pcf)	109.4	109.3
Void Ratio		0.5	0.5
Total Porosity		0.4	0.4
Pore Volume	(cc)	72.6	73.0
Degree of Saturation	(%) [S_{meas}]	51.4	61.8

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
2/29/2024	10:00	1.0	0	0.4416
2/29/2024	10:10	1.0	10	0.4416
Add Distilled Water to the Specimen				
3/1/2024	10:00	1.0	1430	0.4434
3/1/2024	11:00	1.0	1490	0.4434

Expansion Index (EI meas) =	1.8
Expansion Index (Report) =	**2**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2022 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

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March 2024 Figure B29

SUMMARY OF LABORATORY
POTENTIAL OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
AASHTO T289 ASTM D4972 and AASHTO T288 ASTM G187

Sample No.	pH	Resistivity (ohm centimeters)
E+F@0-5	8.4	5900 (Moderately Corrosive)
M@0-5	8.7	2800 (Moderately Corrosive)

SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
AASHTO T291 ASTM C1218

Sample No.	Chloride Ion Content (%)
E+F@0-5	0.002
M@0-5	0.075

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
AASHTO T290 ASTM C1580

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure
E+F@0-5	0.001	S0
M@0-5	0.000	S0

GEOCON

CORROSIVITY TEST RESULTS

Checked by: ACS

Project No.: W1857-88-01

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ORANGE, CALIFORNIA

March 2024 Figure B30

APPENDIX C

APPENDIX C

CPT ANALYSIS OF LIQUEFACTION POTENTIAL

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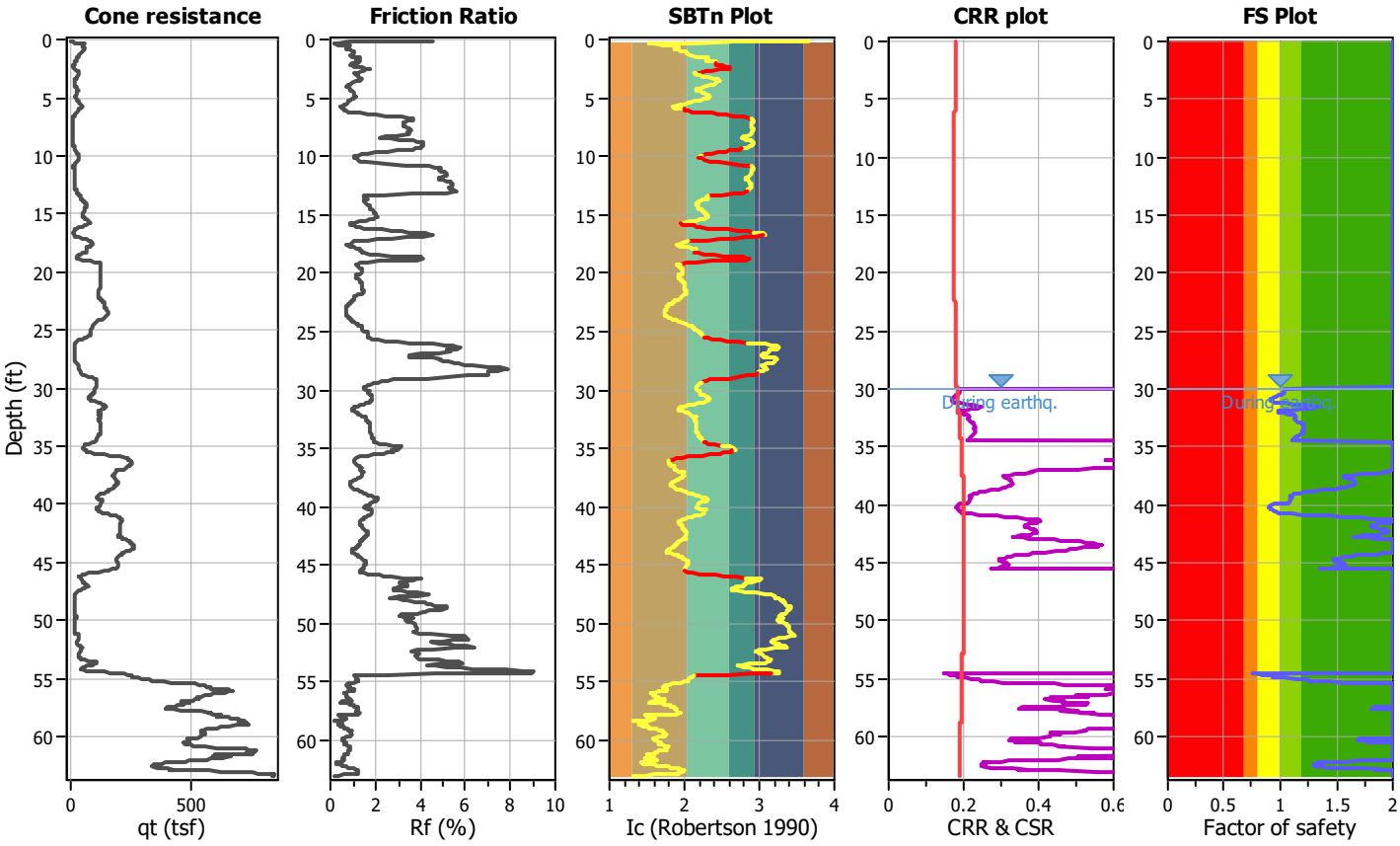
LIQUEFACTION ANALYSIS REPORT

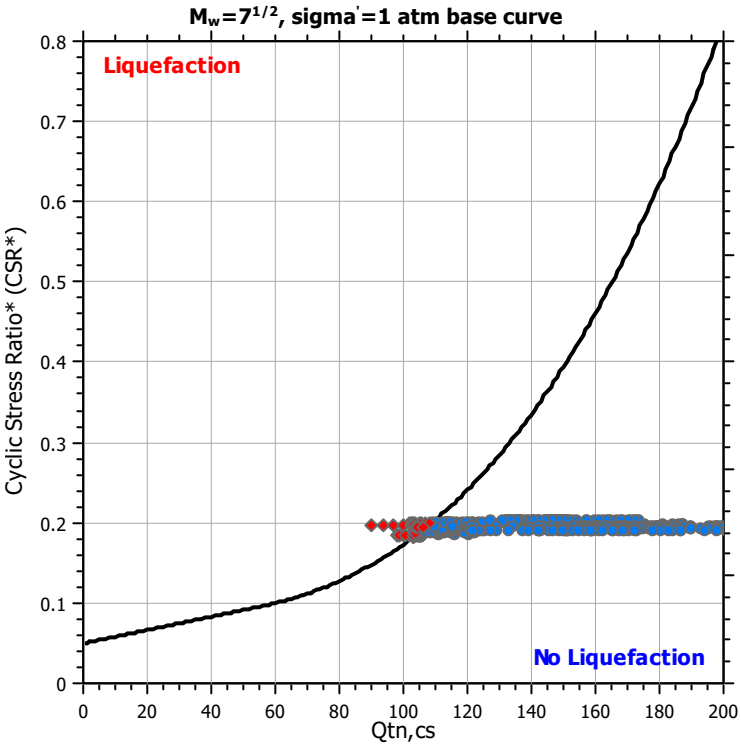
Project title : W1857-88-01 **Location : 331 The City Drive S**

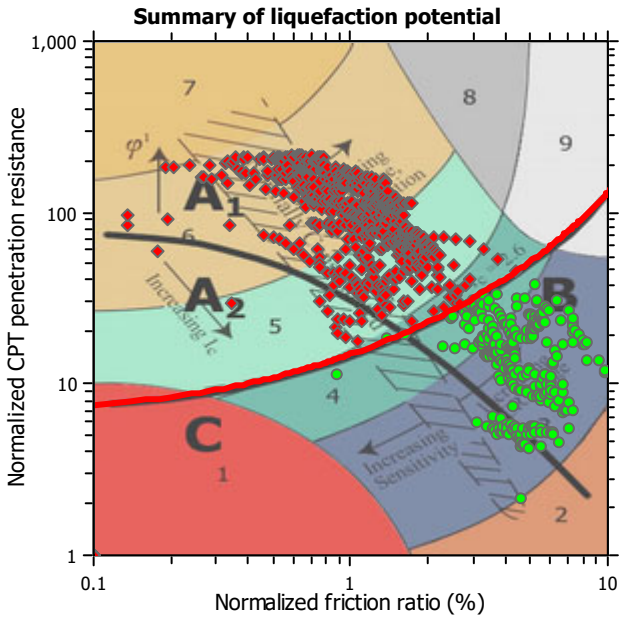
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.12	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

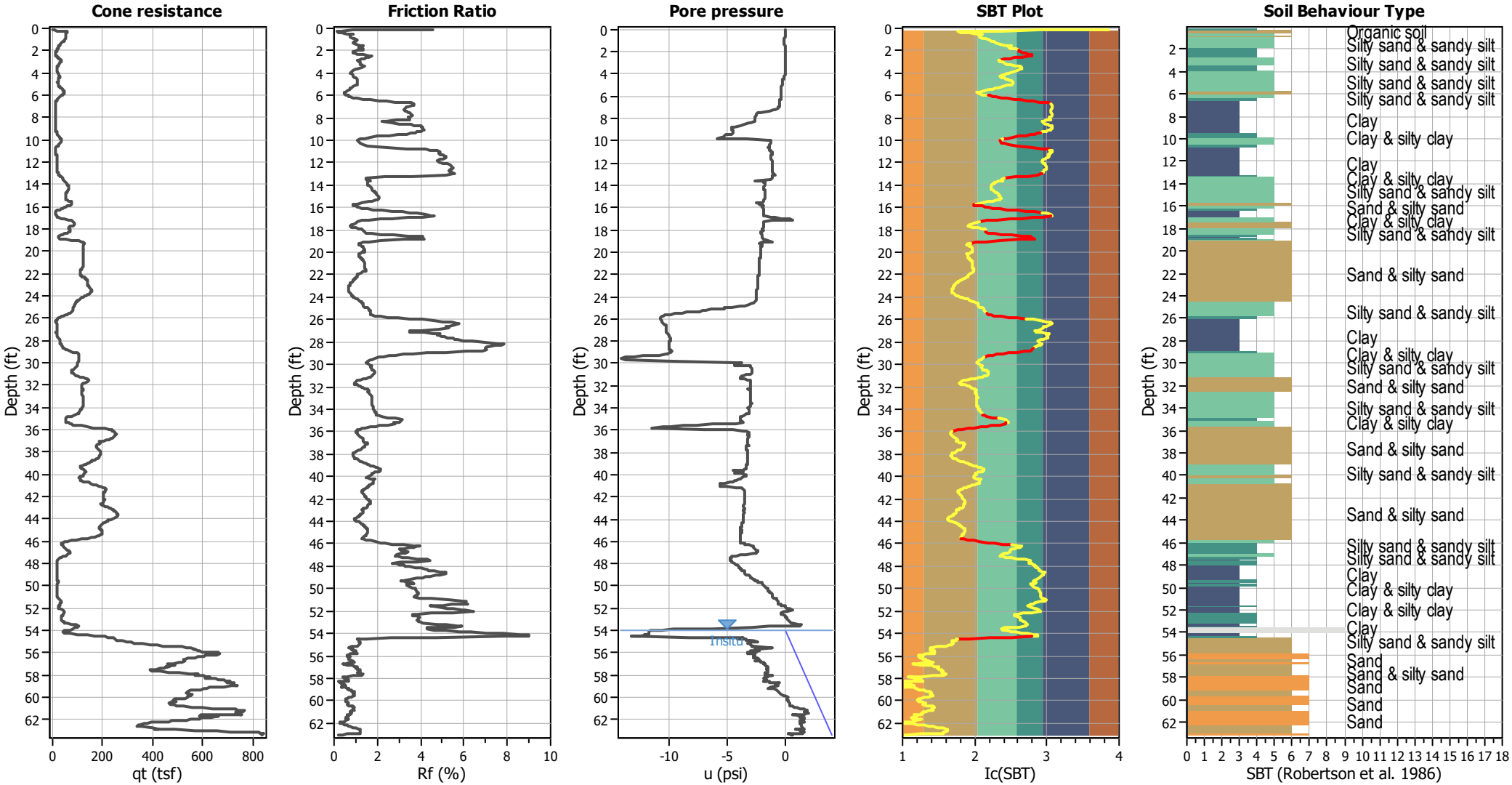






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



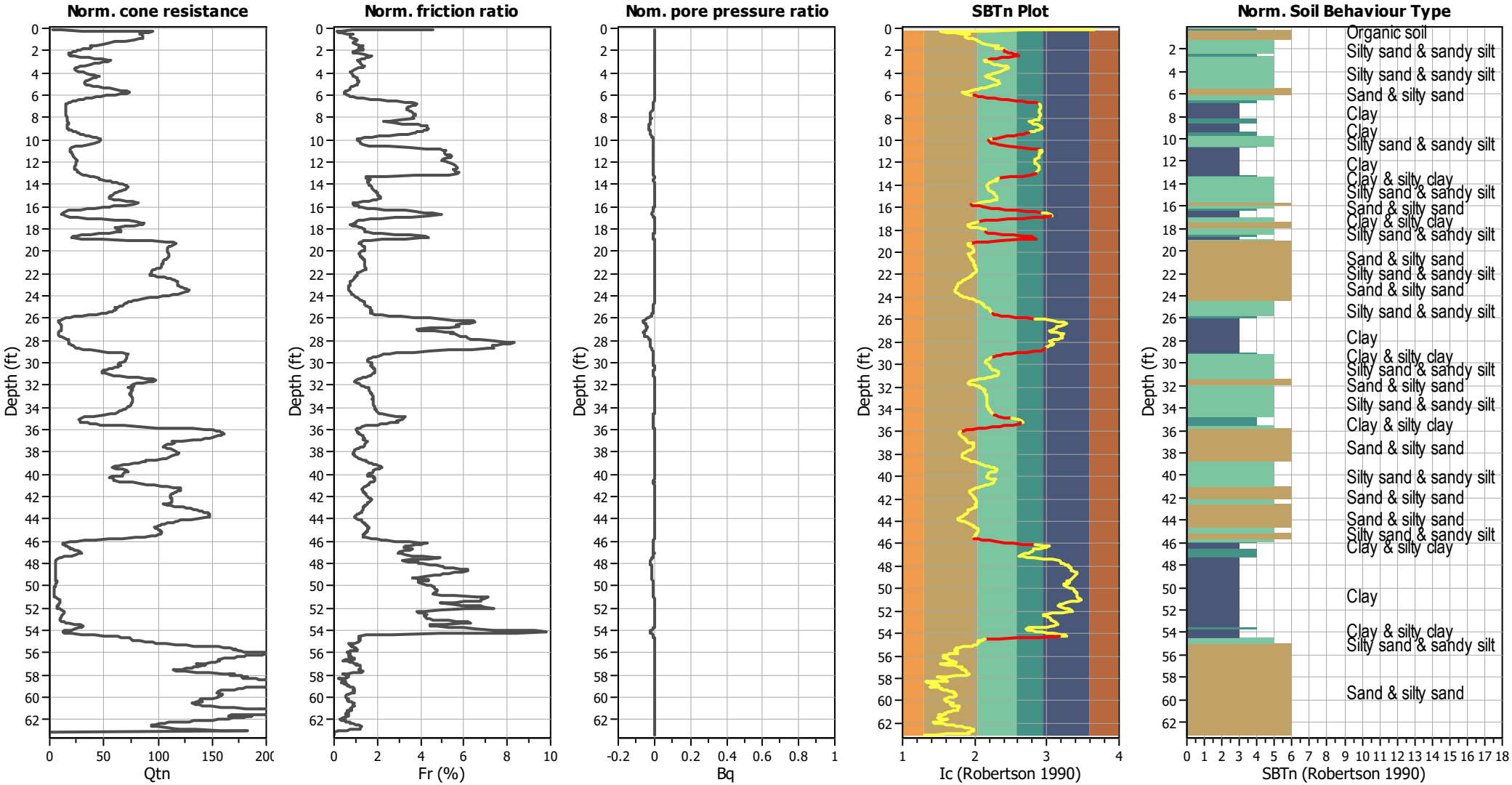
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



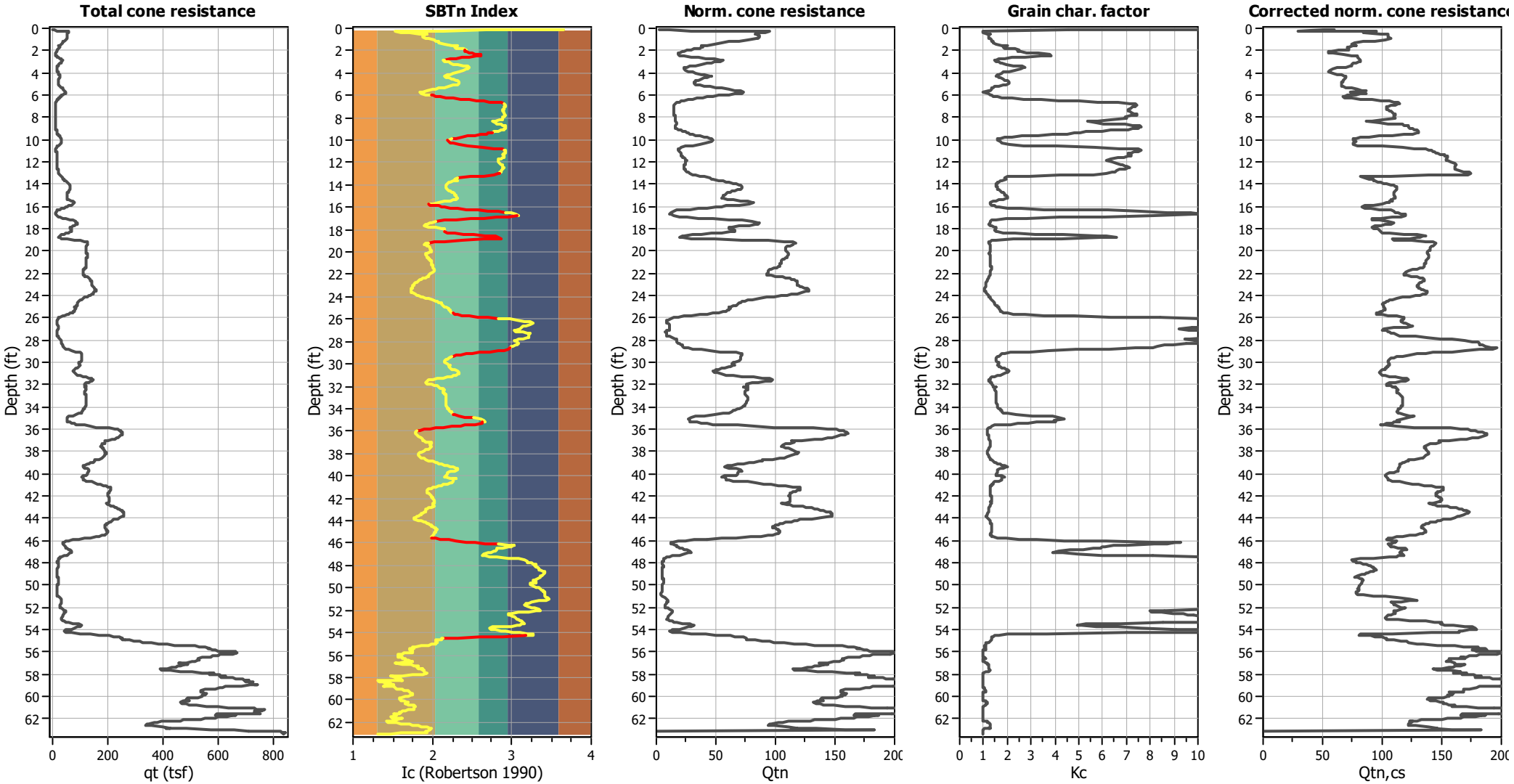
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

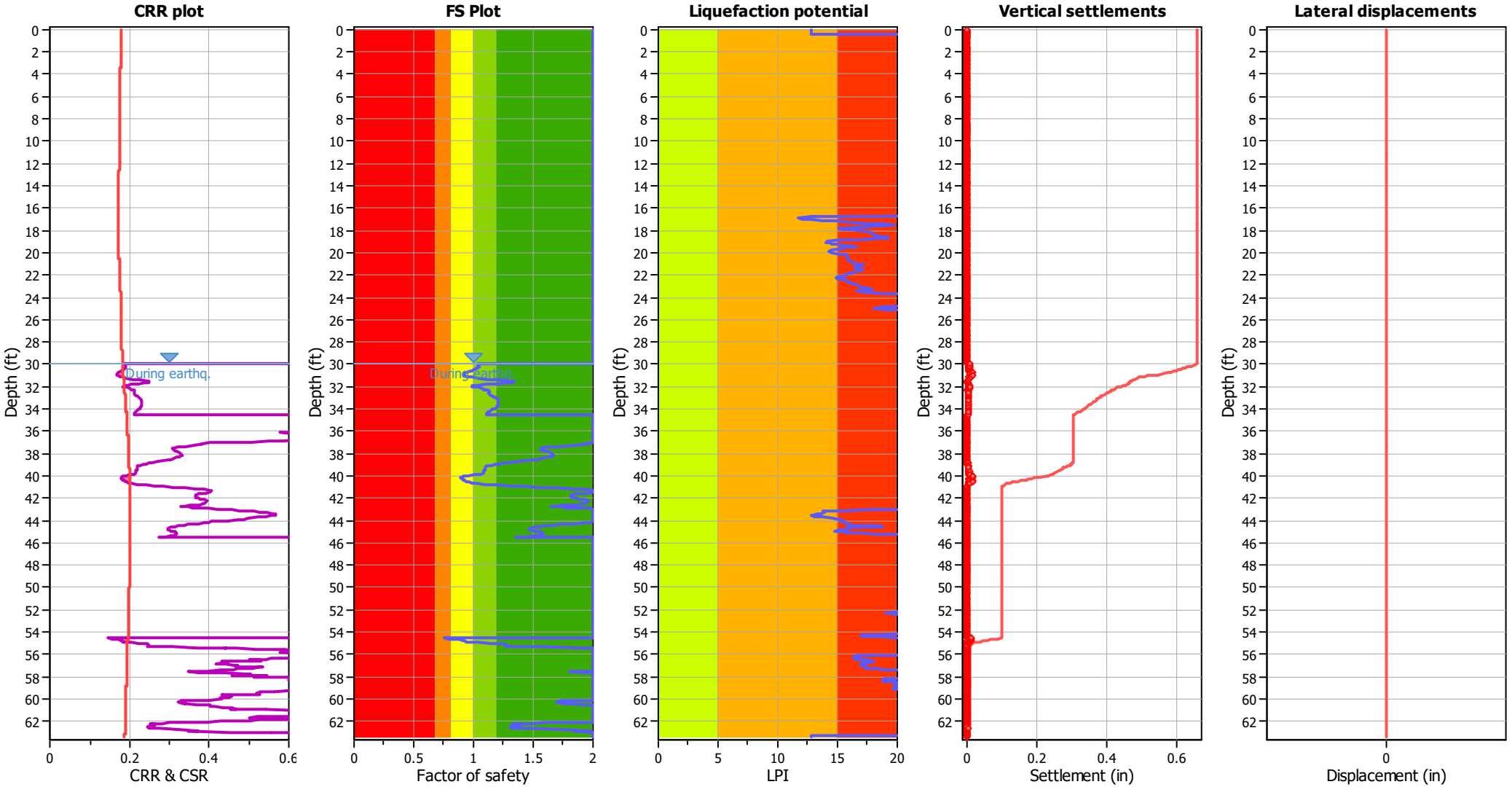
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

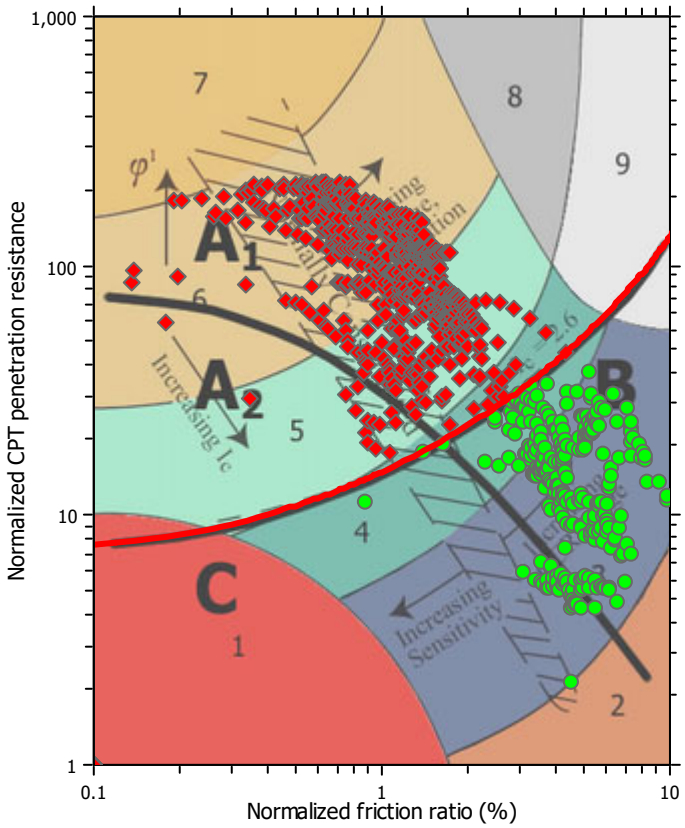
F.S. color scheme

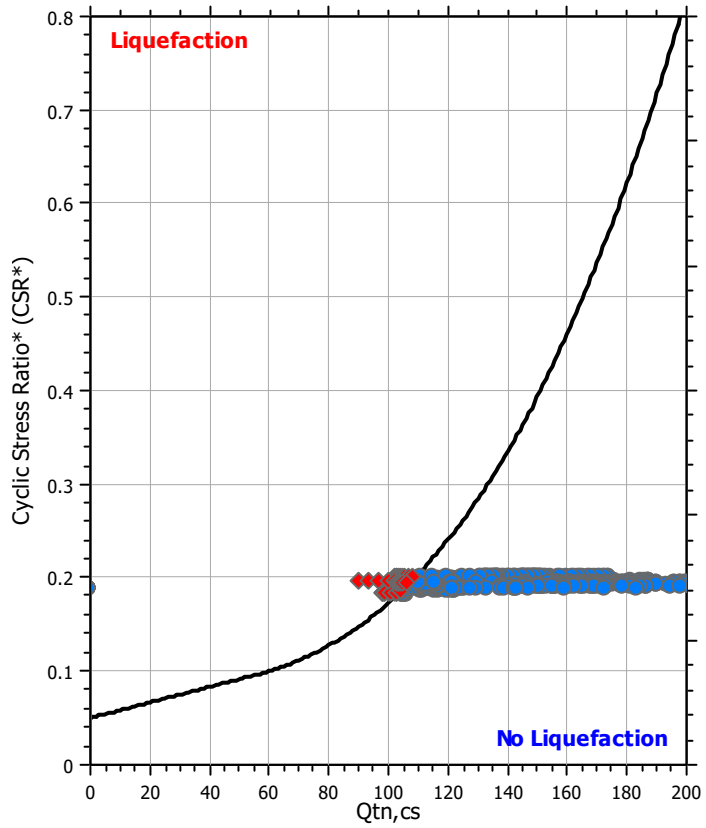
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

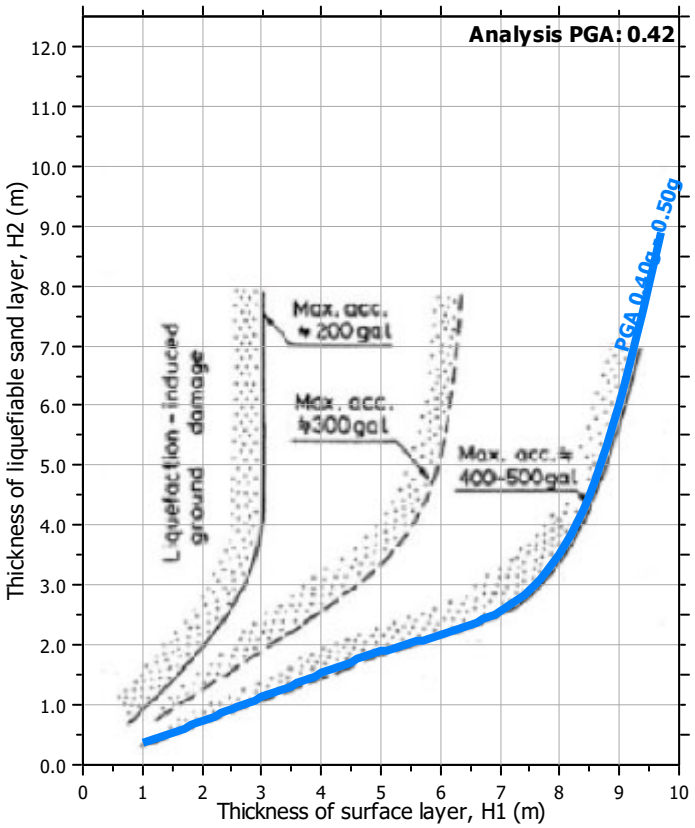
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



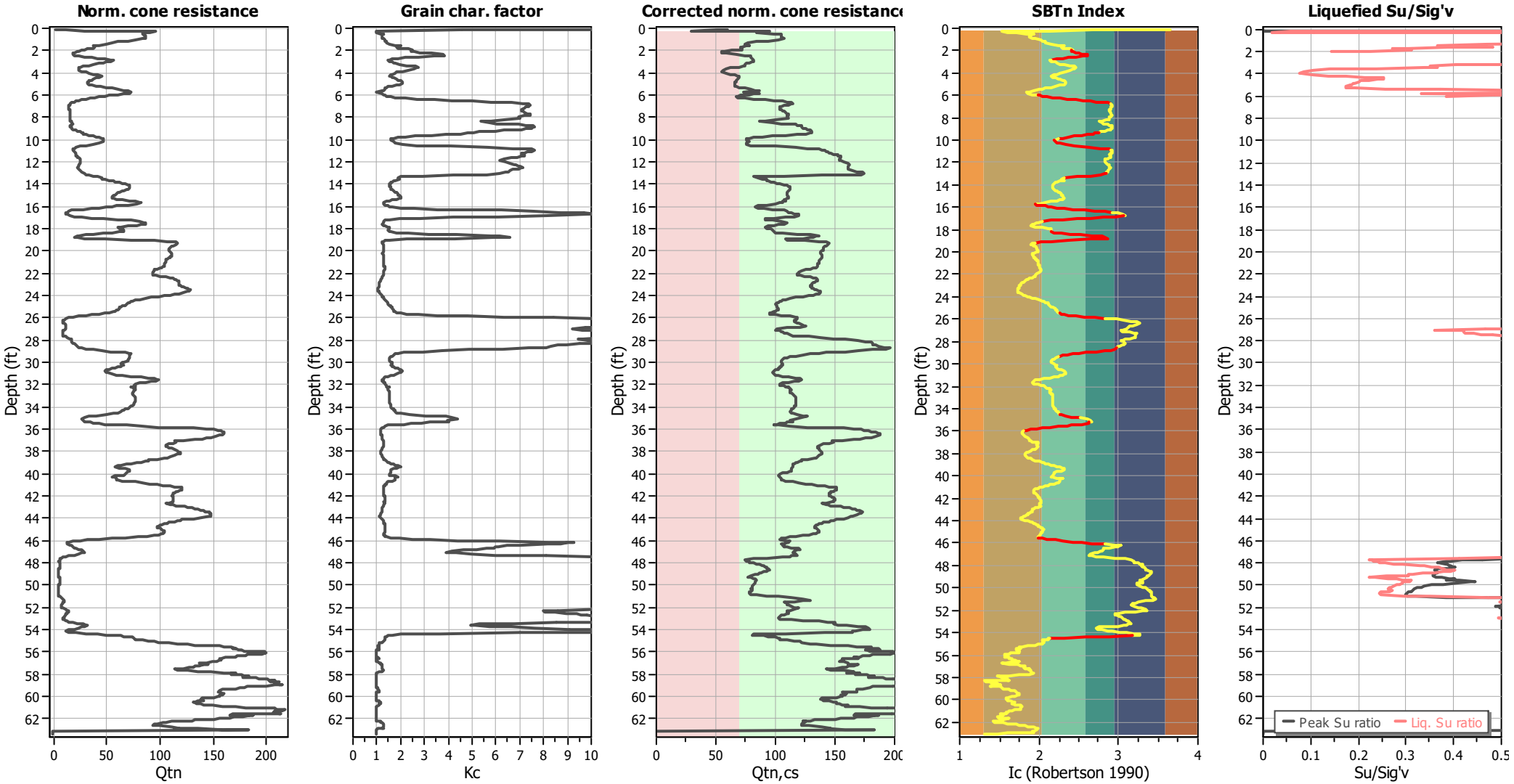




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

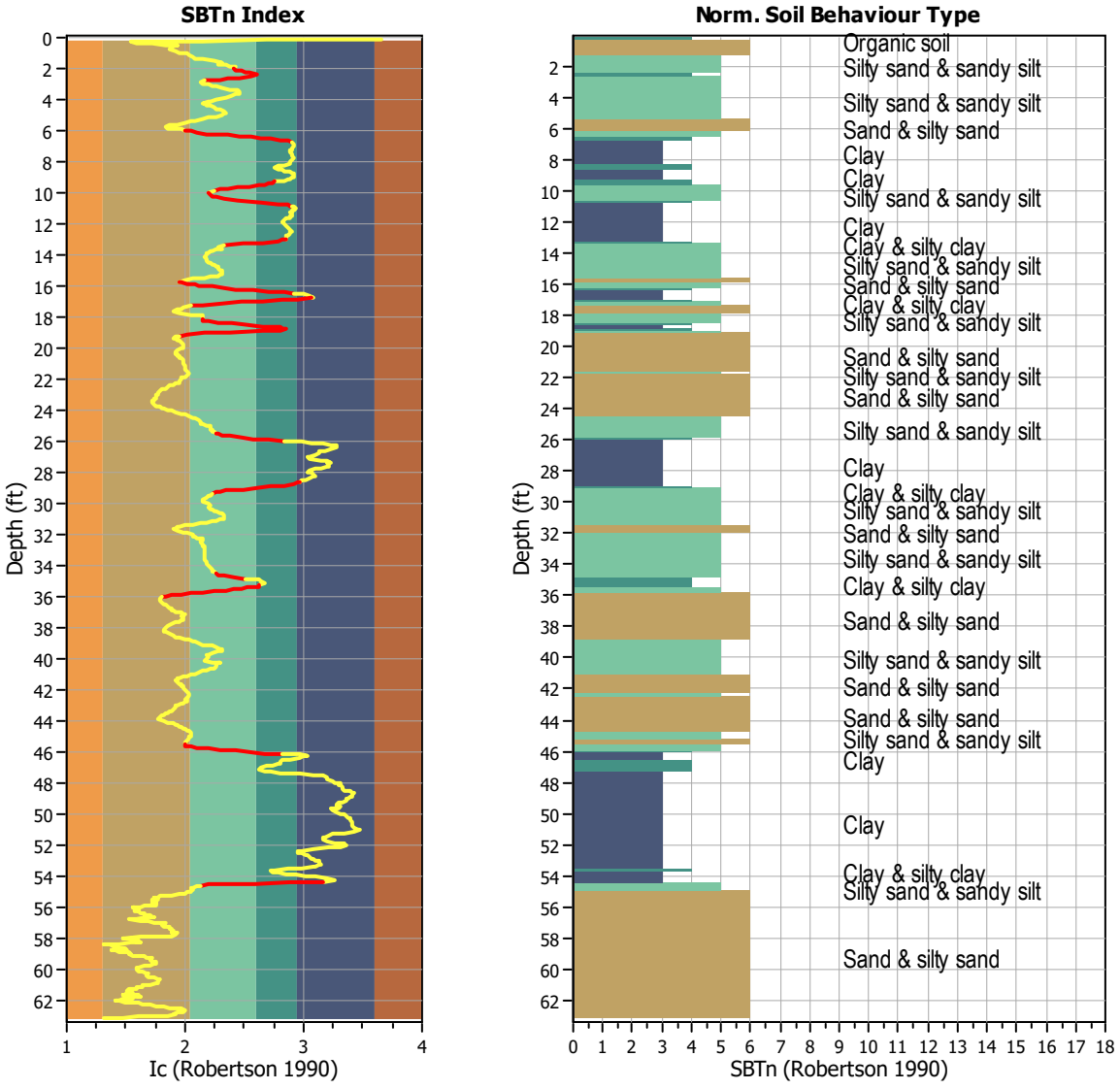
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1063
I_c maximum check value:	3.00	Total points excluded:	146
I_c change ratio value:	0.0250	Exclusion percentage:	13.73%
Minimum number of points in layer:	4	Number of layers detected:	16

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	6	Start depth: 2.05 (ft)	5	Silty sand & sandy silt
		End depth: 2.34 (ft)	4	Clay & silty clay
Transition layer 2	8	Start depth: 2.44 (ft)	4	Clay & silty clay
		End depth: 2.89 (ft)	5	Silty sand & sandy silt
Transition layer 3	14	Start depth: 6.02 (ft)	6	Sand & silty sand
		End depth: 6.83 (ft)	3	Clay
Transition layer 4	10	Start depth: 9.38 (ft)	4	Clay & silty clay
		End depth: 9.97 (ft)	5	Silty sand & sandy silt
Transition layer 5	10	Start depth: 10.20 (ft)	5	Silty sand & sandy silt
		End depth: 10.89 (ft)	3	Clay
Transition layer 6	6	Start depth: 13.04 (ft)	3	Clay
		End depth: 13.47 (ft)	5	Silty sand & sandy silt
Transition layer 7	13	Start depth: 15.79 (ft)	6	Sand & silty sand
		End depth: 16.54 (ft)	3	Clay
Transition layer 8	8	Start depth: 16.86 (ft)	3	Clay
		End depth: 17.34 (ft)	6	Sand & silty sand
Transition layer 9	9	Start depth: 18.22 (ft)	5	Silty sand & sandy silt
		End depth: 18.76 (ft)	3	Clay
Transition layer 10	8	Start depth: 18.76 (ft)	3	Clay
		End depth: 19.24 (ft)	6	Sand & silty sand
Transition layer 11	8	Start depth: 25.52 (ft)	5	Silty sand & sandy silt
		End depth: 26.02 (ft)	3	Clay
Transition layer 12	12	Start depth: 28.67 (ft)	3	Clay
		End depth: 29.43 (ft)	5	Silty sand & sandy silt
Transition layer 13	5	Start depth: 34.55 (ft)	5	Silty sand & sandy silt
		End depth: 34.90 (ft)	4	Clay & silty clay
Transition layer 14	13	Start depth: 35.33 (ft)	4	Clay & silty clay
		End depth: 36.06 (ft)	6	Sand & silty sand
Transition layer 15	10	Start depth: 45.56 (ft)	6	Sand & silty sand
		End depth: 46.15 (ft)	3	Clay
Transition layer 16	6	Start depth: 54.34 (ft)	3	Clay
		End depth: 54.53 (ft)	5	Silty sand & sandy silt

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.01	0.00	0.01	0.00	N/A	120.90
2	0.04	0.00	0.03	0.00	N/A	120.90
3	0.09	0.00	0.06	0.00	N/A	120.90
4	0.11	0.00	0.06	0.00	N/A	120.90
5	0.14	0.00	0.06	0.00	N/A	120.90
6	0.14	0.00	0.06	0.00	100.00	90.58
7	0.18	4.04	0.06	0.00	39.81	94.62
8	0.23	16.88	0.06	0.00	5.00	97.10
9	0.24	33.66	0.06	0.00	5.00	99.09
10	0.28	59.84	0.07	0.00	4.02	100.70
11	0.33	65.70	0.08	0.00	3.32	101.83
12	0.38	52.26	0.09	0.00	4.29	104.01
13	0.42	51.86	0.16	0.00	5.00	107.23
14	0.47	52.21	0.28	0.00	8.85	111.04
15	0.51	51.45	0.45	0.00	10.39	113.09
16	0.52	52.16	0.45	0.00	11.07	113.95
17	0.57	52.66	0.42	0.00	10.65	113.68
18	0.61	53.17	0.40	0.00	10.18	113.34
19	0.67	53.88	0.39	0.00	9.91	113.08
20	0.73	53.37	0.38	0.00	9.72	112.99
21	0.81	54.28	0.39	-0.10	9.70	112.87
22	0.86	53.22	0.37	-0.10	10.78	114.14
23	0.98	53.07	0.60	-0.10	11.85	114.82
24	1.05	50.14	0.53	-0.10	13.47	114.97
25	1.15	41.44	0.44	-0.10	14.02	113.60
26	1.24	39.42	0.37	-0.10	14.97	111.74
27	1.34	32.75	0.28	-0.10	15.41	110.26
28	1.43	31.24	0.27	0.00	17.53	109.89
29	1.53	27.90	0.36	0.00	20.70	109.99
30	1.58	21.43	0.33	0.00	23.01	110.04
31	1.62	24.36	0.30	0.00	23.24	109.31
32	1.67	24.66	0.28	0.00	21.78	108.90
33	1.75	24.06	0.27	0.00	21.84	108.54
34	1.77	22.95	0.27	0.00	22.45	108.33
35	1.81	22.24	0.27	0.00	23.98	108.08
36	1.86	19.31	0.26	0.00	25.81	107.68
37	1.91	17.59	0.25	0.00	27.51	107.00
38	1.95	16.98	0.22	0.00	27.58	105.88
39	2.00	16.38	0.17	0.00	26.85	104.31
40	2.05	15.26	0.13	0.00	26.79	102.37
41	2.11	13.04	0.11	0.00	27.77	100.94
42	2.20	12.23	0.11	0.00	29.43	100.17
43	2.24	11.73	0.11	0.00	30.90	100.15
44	2.29	11.22	0.11	0.00	32.65	100.53
45	2.34	10.82	0.13	0.00	35.39	102.57
46	2.44	11.93	0.22	0.00	35.96	104.47
47	2.48	13.75	0.24	0.00	33.48	106.65
48	2.58	17.99	0.29	0.00	29.16	108.19

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	2.63	22.34	0.33	0.00	25.09	109.71
50	2.71	26.89	0.36	0.00	22.48	110.79
51	2.78	29.01	0.39	0.00	19.70	111.55
52	2.82	35.08	0.39	0.00	17.69	111.93
53	2.89	37.10	0.38	0.00	16.81	111.84
54	2.96	32.65	0.36	0.00	17.52	111.71
55	3.03	31.13	0.39	0.00	19.08	111.39
56	3.11	28.91	0.36	0.00	20.03	110.91
57	3.19	26.89	0.31	0.00	21.15	109.99
58	3.25	23.55	0.29	0.00	22.96	109.06
59	3.35	20.12	0.28	0.00	25.68	108.30
60	3.41	17.79	0.26	0.00	28.08	107.14
61	3.50	15.47	0.20	0.00	29.06	105.47
62	3.59	14.46	0.15	0.00	28.55	103.57
63	3.69	14.56	0.13	0.00	27.72	102.55
64	3.79	14.76	0.14	0.00	26.19	102.21
65	3.88	16.27	0.13	0.00	24.04	102.29
66	3.97	18.60	0.13	0.00	21.42	103.22
67	4.07	22.54	0.17	0.00	20.94	104.68
68	4.14	21.33	0.21	-0.08	19.71	106.20
69	4.17	26.59	0.22	-0.08	18.89	107.22
70	4.26	28.61	0.25	-0.08	17.51	107.99
71	4.32	29.21	0.26	-0.09	17.59	108.49
72	4.37	28.30	0.27	-0.09	18.27	108.68
73	4.42	26.79	0.27	-0.10	19.47	108.64
74	4.51	24.77	0.27	-0.19	20.53	108.32
75	4.61	23.65	0.25	-0.19	21.42	107.89
76	4.65	22.64	0.24	-0.19	22.24	107.37
77	4.74	20.82	0.23	-0.19	23.28	106.98
78	4.80	19.81	0.22	-0.19	23.69	106.69
79	4.89	20.82	0.22	-0.19	24.07	106.54
80	4.95	19.51	0.22	-0.19	23.69	106.58
81	5.04	20.82	0.22	-0.19	23.00	106.70
82	5.13	22.84	0.22	-0.29	21.27	106.93
83	5.18	24.77	0.22	-0.29	19.16	107.22
84	5.28	28.20	0.23	-0.29	17.18	107.58
85	5.32	31.24	0.23	-0.29	15.37	108.17
86	5.42	34.97	0.25	-0.29	14.24	109.03
87	5.51	37.81	0.29	-0.29	13.16	109.85
88	5.60	41.65	0.30	-0.29	11.39	109.42
89	5.66	44.38	0.19	-0.29	9.82	108.84
90	5.76	46.70	0.21	-0.29	5.00	108.20
91	5.85	46.50	0.23	-0.29	9.42	108.60
92	5.92	41.55	0.23	-0.29	10.81	108.56
93	5.95	35.28	0.23	-0.33	11.91	108.38
94	5.97	37.81	0.23	-0.33	12.79	108.24
95	6.02	35.38	0.23	-0.33	13.11	108.15
96	6.06	32.95	0.23	-0.38	14.35	107.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	6.16	29.92	0.22	-0.38	15.93	107.69
98	6.21	27.09	0.23	-0.38	18.25	107.74
99	6.26	23.96	0.26	-0.38	21.09	108.07
100	6.31	21.83	0.28	-0.48	24.86	108.67
101	6.40	19.10	0.33	-0.48	28.84	109.09
102	6.44	16.78	0.34	-0.48	33.47	109.42
103	6.52	14.86	0.37	-0.48	37.59	109.55
104	6.57	13.75	0.38	-0.48	41.98	109.58
105	6.64	11.83	0.39	-0.48	45.80	109.43
106	6.69	10.92	0.39	-0.48	49.59	109.18
107	6.78	10.21	0.38	-0.48	51.74	108.94
108	6.83	9.91	0.38	-0.48	52.73	108.51
109	6.92	9.60	0.34	-0.48	53.03	108.02
110	6.97	9.30	0.32	-0.57	52.79	107.48
111	7.03	9.30	0.31	-0.57	52.62	107.19
112	7.12	9.30	0.30	-0.57	52.17	107.05
113	7.22	9.40	0.30	-0.86	51.84	107.03
114	7.27	9.50	0.31	-0.95	51.49	107.14
115	7.36	9.70	0.31	-1.34	51.37	107.36
116	7.43	9.81	0.33	-2.10	51.48	107.59
117	7.50	9.81	0.33	-2.39	51.81	107.80
118	7.59	9.81	0.34	-2.48	52.08	107.91
119	7.64	9.81	0.34	-2.48	52.59	107.98
120	7.75	9.60	0.35	-2.48	53.06	108.03
121	7.79	9.60	0.35	-2.48	52.94	108.11
122	7.89	10.01	0.35	-2.58	51.93	108.20
123	7.99	10.41	0.35	-2.58	51.00	108.32
124	8.04	10.41	0.36	-2.58	50.93	108.47
125	8.13	10.31	0.37	-2.58	51.23	108.53
126	8.23	10.31	0.36	-2.67	48.25	107.10
127	8.32	10.31	0.16	-2.96	45.66	105.82
128	8.37	10.31	0.23	-3.15	43.57	105.27
129	8.46	11.12	0.30	-3.44	45.48	107.20
130	8.56	11.83	0.36	-3.53	46.89	108.35
131	8.59	11.12	0.37	-3.93	48.24	108.98
132	8.61	11.12	0.39	-3.93	49.87	109.23
133	8.67	11.02	0.41	-3.93	51.01	109.48
134	8.71	10.71	0.41	-4.39	52.13	109.59
135	8.72	10.51	0.42	-4.49	53.07	109.66
136	8.78	10.51	0.43	-4.58	53.51	109.72
137	8.80	10.51	0.43	-4.58	53.62	109.76
138	8.86	10.51	0.43	-4.58	53.65	109.77
139	8.90	10.51	0.43	-4.58	53.45	109.87
140	8.95	10.82	0.44	-4.58	53.21	110.02
141	8.96	10.92	0.45	-4.58	52.79	110.21
142	9.00	11.12	0.45	-4.58	52.52	110.39
143	9.05	11.32	0.47	-4.49	52.13	110.62
144	9.09	11.62	0.48	-4.49	51.55	110.83

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	9.10	11.93	0.48	-4.49	50.65	111.10
146	9.14	12.53	0.51	-4.49	49.64	111.46
147	9.20	13.14	0.53	-4.49	48.16	111.91
148	9.24	14.15	0.55	-4.49	46.46	112.37
149	9.29	15.16	0.57	-4.49	44.67	112.78
150	9.31	15.97	0.59	-4.49	43.27	113.20
151	9.38	16.78	0.62	-4.58	42.21	113.51
152	9.41	17.29	0.63	-4.77	40.91	113.67
153	9.47	18.09	0.60	-5.15	39.32	113.64
154	9.53	18.90	0.58	-5.25	36.22	113.38
155	9.62	21.23	0.52	-5.34	32.67	113.07
156	9.67	23.35	0.49	-5.54	28.33	112.63
157	9.77	26.79	0.43	-5.92	25.15	112.27
158	9.81	28.81	0.41	-3.34	22.18	111.77
159	9.90	31.03	0.36	-1.43	20.30	111.35
160	9.97	32.25	0.34	-1.24	18.94	111.09
161	10.06	33.56	0.35	-1.24	18.88	111.19
162	10.20	32.14	0.37	-1.24	19.84	111.65
163	10.30	30.73	0.42	-1.34	21.09	110.81
164	10.44	25.07	0.26	-1.34	23.79	110.16
165	10.54	20.82	0.33	-1.43	28.52	109.42
166	10.63	16.27	0.39	-1.40	37.17	110.42
167	10.74	12.64	0.49	-1.40	45.02	111.01
168	10.78	12.64	0.51	-1.37	49.84	111.50
169	10.83	12.64	0.53	-1.37	50.94	111.75
170	10.88	12.23	0.55	-1.34	52.01	111.93
171	10.89	12.13	0.55	-1.24	53.26	112.19
172	10.97	12.13	0.60	-1.24	53.74	112.49
173	11.02	12.53	0.61	-1.15	53.76	112.83
174	11.07	12.84	0.63	-1.15	53.28	113.04
175	11.11	13.04	0.63	-1.15	52.89	113.23
176	11.16	13.34	0.65	-1.05	52.38	113.46
177	11.21	13.85	0.67	-1.15	51.91	113.73
178	11.26	14.15	0.69	-1.15	51.53	114.03
179	11.30	14.46	0.72	-1.24	51.55	114.31
180	11.36	14.56	0.74	-1.24	51.71	114.56
181	11.40	14.66	0.76	-1.24	51.84	114.75
182	11.45	14.86	0.77	-1.24	51.87	114.90
183	11.50	14.96	0.78	-1.24	51.65	115.06
184	11.55	15.36	0.79	-1.24	51.39	115.24
185	11.60	15.67	0.81	-1.24	50.61	115.51
186	11.66	16.58	0.84	-1.24	49.52	115.80
187	11.74	17.49	0.86	-1.15	48.09	116.04
188	11.84	18.19	0.85	-1.15	47.34	116.23
189	11.93	18.30	0.88	-1.15	47.43	116.42
190	12.04	18.09	0.91	-1.15	48.38	116.63
191	12.13	17.79	0.93	-1.15	49.30	116.79
192	12.22	17.79	0.95	-1.15	50.08	116.85

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	12.27	17.49	0.95	-1.15	50.46	116.81
194	12.37	17.29	0.93	-1.15	51.02	116.74
195	12.41	17.08	0.93	-1.15	51.24	116.69
196	12.51	17.18	0.94	-1.15	51.67	116.70
197	12.56	16.98	0.94	-1.15	51.47	116.76
198	12.65	17.59	0.95	-1.05	50.92	116.90
199	12.71	18.40	0.97	-1.05	49.81	117.22
200	12.79	19.41	1.02	-1.05	49.34	117.71
201	12.89	19.91	1.11	-0.95	48.93	118.28
202	12.96	21.03	1.17	-0.95	48.62	118.87
203	13.04	22.04	1.25	-0.86	47.37	119.33
204	13.13	23.65	1.26	-1.05	44.91	119.65
205	13.23	26.69	1.23	-1.05	37.79	118.14
206	13.30	30.12	0.44	-1.05	30.22	116.19
207	13.37	34.27	0.48	-1.15	23.39	113.77
208	13.47	38.11	0.56	-1.24	22.02	114.92
209	13.57	42.66	0.63	-2.58	22.72	115.65
210	13.61	35.68	0.65	-1.72	23.01	116.05
211	13.62	39.32	0.66	-1.72	22.69	116.34
212	13.68	45.99	0.69	-1.72	21.00	116.83
213	13.73	47.71	0.72	-1.91	19.82	117.32
214	13.77	49.83	0.75	-1.72	19.40	117.84
215	13.87	52.77	0.82	-1.72	18.89	118.41
216	13.93	56.20	0.87	-1.72	18.50	119.05
217	14.00	58.43	0.92	-1.72	18.11	119.60
218	14.06	61.05	0.98	-1.72	17.96	120.09
219	14.12	62.47	1.02	-1.81	17.96	120.53
220	14.21	63.18	1.08	-1.81	18.11	120.86
221	14.25	63.58	1.10	-1.81	18.27	121.08
222	14.35	63.68	1.12	-1.81	18.46	121.16
223	14.45	62.87	1.11	-1.72	18.76	121.14
224	14.50	61.36	1.11	-1.72	19.22	121.02
225	14.59	59.03	1.09	-1.72	19.83	120.88
226	14.64	57.21	1.08	-1.72	20.46	120.71
227	14.74	55.39	1.07	-1.72	21.03	120.57
228	14.80	54.28	1.06	-1.72	21.53	120.45
229	14.88	53.07	1.06	-1.72	21.95	120.36
230	14.97	52.26	1.05	-1.72	22.36	120.29
231	15.05	51.45	1.05	-1.72	22.79	120.27
232	15.13	50.64	1.07	-1.72	23.16	120.29
233	15.21	50.54	1.07	-1.72	23.18	120.30
234	15.28	51.76	1.05	-1.81	22.62	120.34
235	15.36	54.48	1.06	-1.91	21.45	120.45
236	15.41	59.13	1.06	-1.91	19.60	120.68
237	15.50	67.12	1.06	-2.00	17.73	120.96
238	15.55	72.98	1.07	-2.48	14.99	120.29
239	15.65	78.34	0.69	-2.00	12.97	119.36
240	15.71	79.55	0.68	-2.29	11.49	118.07

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	15.79	76.72	0.66	-2.00	11.94	117.74
242	15.89	69.04	0.63	-1.81	13.58	117.28
243	15.90	56.20	0.63	-1.93	15.06	116.86
244	15.94	58.12	0.62	-1.93	16.49	116.54
245	16.00	54.38	0.60	-1.93	17.46	116.33
246	16.06	47.31	0.61	-1.81	19.74	116.08
247	16.14	41.44	0.62	-1.81	23.40	115.82
248	16.19	33.56	0.63	-1.81	27.82	115.40
249	16.26	27.39	0.61	-1.81	33.97	114.66
250	16.33	20.42	0.58	-1.81	40.60	113.74
251	16.38	16.88	0.54	-1.81	47.75	112.60
252	16.47	13.95	0.48	-1.81	53.58	111.81
253	16.54	12.53	0.50	-1.81	58.20	111.16
254	16.62	11.52	0.48	-1.81	61.95	111.19
255	16.70	11.42	0.52	-1.81	63.86	111.41
256	16.76	11.73	0.55	-1.72	62.72	112.21
257	16.86	13.75	0.62	-1.24	55.66	113.21
258	16.90	19.21	0.65	-0.86	46.99	114.45
259	16.98	25.07	0.71	-0.29	37.95	115.60
260	17.05	33.26	0.75	0.38	29.58	116.88
261	17.14	47.91	0.80	0.67	22.70	117.88
262	17.20	61.46	0.80	-1.15	17.44	118.65
263	17.29	75.11	0.79	-1.91	14.33	119.10
264	17.34	82.59	0.81	-1.91	12.57	119.56
265	17.44	88.35	0.86	-1.91	12.10	120.15
266	17.50	89.76	0.95	-1.91	11.17	119.56
267	17.58	88.65	0.59	-1.91	10.61	118.74
268	17.64	86.12	0.61	-1.91	10.36	117.68
269	17.75	80.36	0.68	-1.91	11.68	118.09
270	17.82	75.11	0.73	-1.91	14.12	118.45
271	17.89	60.85	0.79	-1.94	16.11	118.58
272	17.89	62.17	0.79	-1.94	17.43	118.74
273	17.96	65.10	0.82	-1.94	17.29	119.02
274	18.02	65.00	0.86	-1.91	17.38	119.46
275	18.07	66.01	0.93	-2.00	17.40	119.89
276	18.17	69.65	0.96	-2.00	17.19	120.21
277	18.22	70.76	0.96	-2.10	17.38	120.34
278	18.30	65.91	0.98	-2.10	18.63	120.33
279	18.36	59.03	1.01	-2.10	21.57	120.25
280	18.42	48.22	1.05	-2.00	25.82	120.15
281	18.50	40.43	1.10	-2.00	31.86	119.89
282	18.56	31.34	1.11	-2.00	38.47	119.44
283	18.62	25.47	1.08	-2.00	45.73	118.51
284	18.69	20.42	0.95	-2.00	47.28	117.84
285	18.76	26.08	0.90	-2.00	49.35	117.26
286	18.84	20.22	0.92	-1.91	46.20	117.56
287	18.89	26.69	0.98	-1.81	38.13	118.84
288	18.98	48.82	1.15	-1.53	25.23	120.89

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	19.05	83.09	1.28	-1.15	17.63	122.71
290	19.12	103.41	1.40	-2.00	13.45	123.88
291	19.18	118.98	1.44	-2.19	11.63	124.47
292	19.24	125.34	1.44	-2.00	10.70	124.75
293	19.32	127.97	1.47	-2.10	10.50	124.90
294	19.38	127.06	1.50	-2.00	10.78	125.14
295	19.46	124.64	1.59	-2.00	11.28	125.37
296	19.54	122.82	1.64	-2.10	11.83	125.56
297	19.62	120.49	1.66	-2.10	12.18	125.64
298	19.70	119.78	1.66	-2.10	12.37	125.65
299	19.80	119.78	1.65	-2.10	12.42	125.63
300	19.85	119.78	1.65	-2.10	12.39	125.59
301	19.94	119.78	1.64	-2.10	12.46	125.66
302	20.03	120.39	1.70	-2.10	11.91	125.24
303	20.13	122.11	1.36	-2.10	11.37	124.85
304	20.19	123.12	1.38	-2.10	10.74	124.42
305	20.29	124.84	1.43	-2.10	10.87	124.64
306	20.39	124.28	1.47	-2.15	11.01	124.81
307	20.43	124.49	1.48	-2.15	11.19	124.93
308	20.47	123.73	1.51	-2.15	11.32	125.04
309	20.52	124.13	1.54	-2.19	11.55	125.23
310	20.61	124.13	1.61	-2.19	11.79	125.44
311	20.66	123.73	1.64	-2.19	12.08	125.60
312	20.71	122.01	1.65	-2.19	12.32	125.65
313	20.77	121.00	1.66	-2.19	12.55	125.68
314	20.85	120.09	1.67	-2.19	12.67	125.69
315	20.91	120.59	1.67	-2.19	12.69	125.72
316	21.00	121.30	1.67	-2.19	12.68	125.74
317	21.05	121.20	1.68	-2.19	12.72	125.75
318	21.11	120.39	1.68	-2.19	12.82	125.76
319	21.19	119.99	1.69	-2.19	12.93	125.79
320	21.24	120.19	1.70	-2.19	12.99	125.84
321	21.34	120.59	1.71	-2.19	13.03	125.87
322	21.39	120.49	1.71	-2.19	13.11	125.88
323	21.48	118.98	1.71	-2.19	13.31	125.83
324	21.53	116.65	1.70	-2.19	13.57	125.71
325	21.64	113.62	1.66	-2.19	13.84	125.53
326	21.72	111.39	1.62	-2.19	13.51	124.89
327	21.81	110.48	1.31	-2.19	12.90	124.15
328	21.89	110.59	1.24	-2.29	12.18	123.40
329	21.97	110.59	1.21	-2.29	11.93	123.16
330	22.05	110.99	1.19	-2.29	11.80	123.03
331	22.12	110.94	1.17	-2.34	11.72	122.95
332	22.13	110.94	1.17	-2.34	11.70	122.93
333	22.18	110.89	1.18	-2.34	11.57	122.96
334	22.22	114.22	1.18	-2.39	11.23	123.02
335	22.28	118.47	1.17	-2.39	10.74	123.13
336	22.33	122.82	1.19	-2.39	10.28	123.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	22.38	126.46	1.20	-2.39	9.90	123.41
338	22.41	129.89	1.21	-2.39	9.50	123.49
339	22.51	133.73	1.20	-2.39	9.14	123.51
340	22.56	135.96	1.18	-2.39	8.79	123.46
341	22.61	137.98	1.16	-2.39	8.51	123.37
342	22.65	139.19	1.14	-2.39	8.23	123.24
343	22.71	140.61	1.11	-2.39	8.00	123.09
344	22.76	141.21	1.08	-2.39	7.75	122.87
345	22.85	141.72	1.03	-2.39	7.57	122.67
346	22.89	141.82	1.02	-2.39	7.41	122.48
347	22.99	141.92	1.00	-2.39	7.34	122.38
348	23.04	141.92	0.99	-2.39	7.26	122.31
349	23.12	142.83	0.99	-2.39	7.17	122.30
350	23.18	145.06	0.99	-2.39	7.02	122.35
351	23.24	147.58	1.00	-2.39	6.88	122.47
352	23.33	150.11	1.02	-2.39	6.74	122.61
353	23.38	153.24	1.03	-2.48	6.65	122.79
354	23.47	155.06	1.05	-2.48	6.58	122.94
355	23.52	156.58	1.07	-2.48	6.66	123.16
356	23.61	156.07	1.12	-2.48	6.86	123.36
357	23.68	153.95	1.15	-2.48	7.23	123.57
358	23.76	150.31	1.19	-2.48	7.68	123.69
359	23.83	145.46	1.20	-2.48	8.20	123.74
360	23.90	140.61	1.21	-2.48	8.71	123.73
361	23.97	136.36	1.22	-2.48	9.28	123.71
362	24.05	131.21	1.23	-2.48	9.97	123.67
363	24.10	123.63	1.24	-2.48	10.81	123.59
364	24.19	116.75	1.24	-2.48	11.87	123.44
365	24.27	108.16	1.24	-2.48	12.89	123.28
366	24.34	103.31	1.24	-2.48	13.89	123.13
367	24.43	98.56	1.23	-2.58	14.65	123.04
368	24.48	96.03	1.24	-2.58	15.39	123.04
369	24.57	93.50	1.28	-2.77	16.07	123.15
370	24.62	91.89	1.32	-2.86	16.33	122.96
371	24.72	90.17	1.17	-3.15	16.56	122.82
372	24.81	89.06	1.23	-3.53	16.74	122.68
373	24.86	88.15	1.26	-3.91	17.34	122.92
374	24.95	86.83	1.31	-4.58	18.26	123.01
375	25.01	80.77	1.32	-5.22	19.01	123.05
376	25.02	81.12	1.32	-5.22	19.54	123.03
377	25.05	81.47	1.33	-5.22	19.39	123.10
378	25.11	83.09	1.34	-6.01	19.35	123.16
379	25.15	82.69	1.35	-6.39	19.38	123.22
380	25.21	82.08	1.36	-6.87	19.61	123.23
381	25.25	81.27	1.36	-7.16	19.86	123.21
382	25.30	80.16	1.35	-7.45	20.12	123.10
383	25.40	78.24	1.31	-8.49	20.43	122.88
384	25.45	76.01	1.27	-8.88	20.89	122.49

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	25.52	71.57	1.20	-9.54	21.58	121.99
386	25.60	66.92	1.12	-9.93	23.10	121.43
387	25.66	58.73	1.10	-10.40	25.37	120.85
388	25.74	51.45	1.05	-10.50	29.28	120.35
389	25.80	42.15	1.06	-10.69	34.11	119.74
390	25.88	34.67	1.01	-10.79	40.89	119.02
391	25.94	26.89	0.97	-10.79	48.17	118.23
392	26.02	22.64	0.95	-10.79	56.96	117.39
393	26.09	19.00	0.88	-10.79	63.54	116.56
394	26.17	16.38	0.82	-10.69	70.12	115.68
395	26.23	14.15	0.78	-10.69	75.56	115.05
396	26.29	13.44	0.77	-10.69	79.02	114.78
397	26.37	13.55	0.78	-10.50	78.84	114.95
398	26.46	14.66	0.82	-10.50	75.43	115.54
399	26.55	17.08	0.90	-10.40	71.32	116.21
400	26.60	18.40	0.93	-10.31	68.23	116.84
401	26.70	19.10	0.98	-10.31	67.29	117.29
402	26.78	19.31	1.04	-10.31	67.28	117.57
403	26.87	19.31	1.03	-10.31	65.46	116.94
404	26.94	19.31	0.72	-10.31	62.21	115.56
405	27.03	19.00	0.56	-10.31	60.24	114.24
406	27.13	17.99	0.66	-10.31	61.72	113.90
407	27.18	16.98	0.66	-10.31	68.38	114.01
408	27.27	13.14	0.67	-10.20	73.05	113.89
409	27.32	14.15	0.68	-10.20	75.75	113.91
410	27.37	15.16	0.70	-10.20	73.86	114.24
411	27.41	15.16	0.73	-10.12	73.36	114.52
412	27.46	15.16	0.75	-10.12	74.03	114.74
413	27.51	15.16	0.76	-10.02	74.31	115.06
414	27.61	15.67	0.82	-10.02	73.92	115.57
415	27.66	16.68	0.89	-9.93	72.75	116.57
416	27.73	18.50	1.06	-9.93	69.00	118.04
417	27.80	23.15	1.28	-9.93	64.92	119.84
418	27.88	27.09	1.57	-9.93	61.75	121.59
419	27.96	29.72	1.88	-9.93	61.15	122.86
420	28.04	29.82	2.03	-10.02	62.65	123.82
421	28.12	29.21	2.29	-10.02	64.46	124.33
422	28.18	29.31	2.33	-10.02	64.94	124.77
423	28.27	31.24	2.40	-10.02	63.60	125.01
424	28.32	32.85	2.43	-10.02	61.44	125.31
425	28.42	34.87	2.48	-10.02	59.28	125.61
426	28.47	37.40	2.56	-10.02	57.63	126.07
427	28.61	39.22	2.75	-10.02	56.63	126.53
428	28.67	40.43	2.86	-10.02	55.75	127.05
429	28.75	43.16	3.02	-10.02	52.70	127.47
430	28.81	47.71	3.06	-9.93	47.96	127.92
431	28.90	58.12	3.04	-9.83	41.37	128.35
432	29.00	72.07	3.02	-9.93	35.34	128.76

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	29.05	82.28	3.02	-10.02	30.50	129.11
434	29.10	94.11	3.00	-10.21	27.19	129.31
435	29.15	101.79	2.92	-10.31	24.40	129.24
436	29.24	107.76	2.68	-10.98	22.48	128.87
437	29.29	108.56	2.46	-12.31	21.04	128.21
438	29.37	106.54	2.19	-13.08	20.19	127.50
439	29.43	105.43	2.02	-13.84	19.39	126.74
440	29.53	104.93	1.82	-14.22	18.65	126.11
441	29.62	104.93	1.70	-13.79	18.12	125.67
442	29.68	104.93	1.71	-13.74	17.48	125.18
443	29.80	104.93	1.48	-9.45	17.32	124.98
444	29.91	103.81	1.57	-4.29	17.30	124.83
445	30.00	102.90	1.62	-3.72	18.66	124.98
446	30.07	90.77	1.65	-4.39	19.24	125.07
447	30.15	98.76	1.66	-4.39	19.60	125.10
448	30.21	99.47	1.66	-4.39	19.01	125.18
449	30.26	99.06	1.66	-2.96	19.09	125.17
450	30.31	97.75	1.66	-2.96	19.36	125.12
451	30.38	95.83	1.65	-2.96	19.77	125.02
452	30.45	93.10	1.62	-2.86	20.38	124.87
453	30.50	89.06	1.61	-2.86	21.16	124.68
454	30.55	85.31	1.58	-2.86	22.05	124.38
455	30.64	80.56	1.51	-2.86	22.84	124.05
456	30.70	77.83	1.46	-2.86	23.38	123.62
457	30.79	75.51	1.39	-2.86	23.69	123.34
458	30.84	74.90	1.38	-2.86	23.72	123.20
459	30.93	76.12	1.39	-2.96	23.33	123.30
460	30.98	79.96	1.42	-3.05	22.53	123.52
461	31.05	84.51	1.45	-3.34	21.39	123.92
462	31.13	91.68	1.54	-3.63	20.20	124.38
463	31.17	98.66	1.60	-3.72	18.55	124.91
464	31.27	111.19	1.64	-3.91	16.70	125.32
465	31.32	123.12	1.65	-3.82	14.63	125.57
466	31.41	135.55	1.59	-3.44	13.02	125.62
467	31.46	141.82	1.54	-3.25	11.83	125.51
468	31.52	145.46	1.49	-3.05	11.07	125.22
469	31.61	145.97	1.37	-3.05	10.64	124.85
470	31.66	143.74	1.32	-3.05	10.61	124.43
471	31.75	136.87	1.28	-3.05	11.17	124.24
472	31.80	129.59	1.32	-3.05	12.39	124.35
473	31.90	121.10	1.46	-2.96	13.62	124.39
474	31.94	115.44	1.39	-2.96	14.62	124.45
475	32.04	114.12	1.42	-2.96	14.97	124.60
476	32.09	118.67	1.55	-2.96	15.15	125.24
477	32.20	124.84	1.74	-3.02	15.99	125.83
478	32.24	112.71	1.82	-3.02	16.70	126.23
479	32.28	115.74	1.85	-3.07	17.46	126.32
480	32.29	115.74	1.86	-3.07	17.17	126.42

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	32.30	118.77	1.87	-3.25	16.87	126.53
482	32.40	122.41	1.90	-3.05	16.70	126.62
483	32.45	120.49	1.91	-3.05	16.81	126.69
484	32.55	118.67	1.92	-3.05	17.10	126.69
485	32.59	118.37	1.92	-3.05	17.33	126.73
486	32.69	118.07	1.95	-3.05	17.51	126.82
487	32.76	118.07	1.99	-2.96	17.74	126.96
488	32.84	118.27	2.04	-2.96	17.92	127.13
489	32.90	118.98	2.08	-2.96	18.01	127.28
490	32.98	119.89	2.11	-2.96	17.99	127.39
491	33.06	121.10	2.12	-3.05	17.91	127.48
492	33.12	122.21	2.13	-3.05	17.81	127.55
493	33.22	123.12	2.15	-3.05	17.76	127.60
494	33.31	123.32	2.16	-3.05	17.76	127.64
495	33.37	123.32	2.16	-2.96	17.77	127.65
496	33.46	123.32	2.16	-2.96	17.80	127.65
497	33.55	123.32	2.17	-2.86	17.87	127.68
498	33.65	123.02	2.18	-2.96	17.99	127.72
499	33.70	122.72	2.20	-2.96	18.14	127.75
500	33.79	122.11	2.21	-2.96	18.29	127.77
501	33.89	121.40	2.21	-3.05	18.48	127.74
502	33.99	119.89	2.19	-3.25	18.70	127.68
503	34.04	118.17	2.18	-3.25	18.98	127.58
504	34.13	115.44	2.15	-3.15	19.34	127.46
505	34.23	113.01	2.13	-3.15	19.82	127.32
506	34.32	109.78	2.11	-3.15	20.27	127.22
507	34.37	108.16	2.10	-3.15	20.65	127.13
508	34.47	106.85	2.09	-3.15	21.01	127.08
509	34.55	104.93	2.10	-3.34	21.77	127.01
510	34.63	98.76	2.11	-3.53	23.58	126.91
511	34.73	86.43	2.14	-3.72	26.59	126.63
512	34.80	74.09	2.10	-3.91	31.19	126.00
513	34.90	57.92	1.93	-3.91	36.19	125.07
514	35.00	49.53	1.74	-3.91	37.59	123.92
515	35.12	57.47	1.42	-3.91	38.98	122.90
516	35.20	44.27	1.40	-3.72	36.68	122.71
517	35.33	57.01	1.55	-3.63	36.87	123.05
518	35.41	59.84	1.61	-4.20	32.11	123.80
519	35.44	73.57	1.62	-6.27	29.94	124.11
520	35.48	72.58	1.63	-6.27	26.74	124.41
521	35.57	84.61	1.62	-7.64	24.34	124.63
522	35.62	95.42	1.62	-8.78	20.42	125.05
523	35.67	116.45	1.64	-9.93	17.13	125.56
524	35.71	134.74	1.71	-10.60	14.14	126.40
525	35.82	161.84	1.91	-11.55	12.01	127.28
526	35.86	183.57	2.03	-11.17	10.22	128.24
527	35.93	210.36	2.20	-6.97	8.94	129.00
528	36.01	229.56	2.33	-4.49	8.16	129.62

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	36.06	236.44	2.41	-3.63	7.85	130.06
530	36.12	240.88	2.52	-3.34	7.80	130.37
531	36.18	244.83	2.59	-3.15	7.84	130.72
532	36.25	249.58	2.73	-3.15	7.88	131.01
533	36.30	251.80	2.80	-3.15	8.05	131.37
534	36.39	253.32	2.97	-3.25	8.23	131.64
535	36.44	253.52	3.03	-3.15	8.49	131.92
536	36.53	252.51	3.13	-3.25	8.77	132.08
537	36.59	248.57	3.20	-3.15	9.37	132.44
538	36.68	244.22	3.54	-3.25	9.70	132.41
539	36.75	237.75	3.16	-3.25	9.93	132.25
540	36.83	233.20	3.05	-3.25	9.92	131.78
541	36.90	225.32	3.02	-3.25	10.25	131.57
542	36.97	217.43	2.99	-3.25	10.78	131.42
543	37.02	208.94	2.97	-3.25	11.95	131.17
544	37.04	178.92	2.94	-3.25	12.56	130.99
545	37.08	193.37	2.89	-3.25	12.85	130.76
546	37.17	193.68	2.77	-3.25	12.27	130.55
547	37.27	188.42	2.66	-3.25	12.36	130.20
548	37.37	179.93	2.56	-3.15	12.63	129.85
549	37.42	175.89	2.48	-3.34	12.60	129.41
550	37.51	175.94	2.26	-3.34	12.21	128.93
551	37.58	175.99	2.11	-3.34	11.53	128.42
552	37.66	179.12	2.01	-3.34	10.87	128.00
553	37.76	182.05	1.88	-3.34	10.12	127.61
554	37.85	186.70	1.77	-3.25	9.43	127.24
555	37.93	189.63	1.70	-3.25	8.90	127.02
556	38.04	192.67	1.69	-3.25	8.61	126.94
557	38.13	194.59	1.69	-3.25	8.49	126.94
558	38.18	194.49	1.69	-3.25	8.53	126.96
559	38.28	191.76	1.70	-3.25	8.89	127.11
560	38.37	187.61	1.81	-3.25	9.47	127.34
561	38.47	182.96	1.89	-3.25	10.26	127.74
562	38.57	180.23	2.05	-3.25	10.93	128.06
563	38.62	178.11	2.10	-3.25	11.67	128.38
564	38.72	172.15	2.20	-3.25	12.92	128.49
565	38.78	152.33	2.27	-3.26	13.99	128.58
566	38.81	156.28	2.28	-3.25	14.73	128.61
567	38.86	157.49	2.30	-3.25	14.82	128.67
568	38.91	151.93	2.32	-3.25	15.34	128.70
569	38.95	146.77	2.36	-3.25	16.32	128.70
570	39.05	139.19	2.39	-3.25	17.39	128.67
571	39.09	132.82	2.40	-3.34	18.62	128.58
572	39.14	125.24	2.40	-3.34	19.92	128.44
573	39.24	117.26	2.39	-3.34	21.20	128.25
574	39.29	112.20	2.35	-3.34	22.35	128.02
575	39.39	107.15	2.30	-3.34	23.14	127.89
576	39.43	106.24	2.34	-3.34	23.05	127.94

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	39.53	114.22	2.38	-3.53	21.86	128.13
578	39.57	124.74	2.36	-3.63	20.02	128.31
579	39.68	133.73	2.34	-4.49	18.81	128.39
580	39.73	133.63	2.33	-3.67	18.53	128.37
581	39.81	128.68	2.32	-4.39	18.86	128.23
582	39.89	125.85	2.25	-3.72	18.82	127.76
583	39.96	124.74	1.96	-3.44	18.19	127.14
584	40.06	125.34	1.81	-3.34	17.66	126.63
585	40.15	123.63	1.86	-3.34	17.93	126.54
586	40.20	119.28	1.91	-3.44	19.75	126.53
587	40.24	100.48	1.93	-3.71	21.16	126.50
588	40.26	106.09	1.93	-3.71	22.23	126.44
589	40.27	106.09	1.94	-3.71	21.47	126.59
590	40.37	111.70	1.99	-3.91	21.22	126.73
591	40.42	111.70	2.01	-4.01	21.04	126.91
592	40.52	111.70	2.06	-4.20	21.09	127.05
593	40.56	113.92	2.09	-4.39	20.77	127.30
594	40.66	120.39	2.17	-4.49	19.70	127.64
595	40.70	132.62	2.24	-4.77	18.40	128.08
596	40.75	141.82	2.32	-5.25	17.09	128.59
597	40.85	153.55	2.47	-5.63	16.06	129.13
598	40.91	165.07	2.59	-5.63	15.13	129.61
599	40.96	173.76	2.65	-5.63	14.17	129.97
600	41.04	185.49	2.68	-5.63	13.29	130.19
601	41.09	193.78	2.70	-4.96	12.46	130.39
602	41.18	202.77	2.73	-4.20	11.82	130.54
603	41.23	209.35	2.74	-3.72	11.36	130.66
604	41.29	211.97	2.74	-3.63	11.10	130.71
605	41.38	213.59	2.74	-3.63	11.02	130.73
606	41.42	212.88	2.74	-3.53	11.10	130.74
607	41.52	209.95	2.77	-3.53	11.32	130.76
608	41.57	207.42	2.79	-3.53	11.64	130.80
609	41.62	204.59	2.83	-3.44	11.95	130.86
610	41.71	202.88	2.87	-3.44	12.22	130.92
611	41.76	202.07	2.89	-3.44	12.42	131.01
612	41.84	201.66	2.94	-3.44	12.59	131.09
613	41.91	201.36	2.97	-3.44	12.74	131.20
614	41.95	201.76	3.03	-3.53	12.88	131.32
615	42.01	202.27	3.09	-3.53	13.08	131.54
616	42.10	203.68	3.24	-3.53	13.30	131.80
617	42.15	204.90	3.34	-3.53	13.56	132.12
618	42.24	206.51	3.49	-3.53	13.76	132.35
619	42.28	206.82	3.55	-3.53	13.82	132.43
620	42.39	206.21	3.45	-3.53	13.78	132.37
621	42.43	205.91	3.41	-3.53	13.60	132.21
622	42.50	206.26	3.33	-3.53	13.33	131.99
623	42.58	206.31	3.14	-3.53	12.97	131.71
624	42.65	206.41	3.03	-3.53	13.30	131.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	42.70	184.28	2.97	-3.61	13.40	131.14
626	42.73	197.11	2.95	-3.61	13.48	131.01
627	42.77	199.94	2.91	-3.61	12.77	131.00
628	42.82	203.68	2.86	-3.62	12.36	130.97
629	42.87	208.03	2.85	-3.62	11.87	131.00
630	42.91	215.81	2.87	-3.63	11.40	131.10
631	42.97	222.69	2.90	-3.53	11.00	131.25
632	43.02	226.93	2.94	-3.44	10.78	131.43
633	43.06	230.98	3.03	-3.53	10.72	131.66
634	43.11	233.71	3.13	-3.53	10.67	131.89
635	43.17	238.46	3.19	-3.63	10.57	132.05
636	43.21	241.79	3.19	-3.63	10.32	132.13
637	43.29	246.54	3.17	-3.63	10.05	132.16
638	43.34	250.39	3.16	-3.63	9.74	132.17
639	43.39	254.83	3.15	-3.53	9.49	132.17
640	43.45	257.26	3.12	-3.53	9.24	132.11
641	43.51	258.67	3.05	-3.63	8.93	131.89
642	43.59	258.98	2.87	-3.63	8.66	131.64
643	43.64	258.27	2.81	-3.63	8.23	131.24
644	43.70	260.49	2.58	-3.63	7.80	130.79
645	43.78	259.28	2.37	-3.63	7.50	130.39
646	43.88	255.44	2.40	-3.63	7.60	130.26
647	43.94	250.99	2.49	-3.63	8.46	130.43
648	44.04	228.05	2.65	-3.66	9.36	130.60
649	44.07	225.92	2.69	-3.63	10.23	130.73
650	44.12	223.80	2.73	-3.66	10.49	130.79
651	44.16	221.17	2.75	-3.63	10.73	130.81
652	44.21	218.64	2.74	-3.63	11.01	130.81
653	44.26	214.50	2.77	-3.63	11.32	130.81
654	44.31	210.96	2.79	-3.63	11.70	130.81
655	44.35	207.12	2.80	-3.72	12.07	130.81
656	44.40	202.98	2.81	-3.72	12.44	130.79
657	44.45	199.84	2.82	-3.72	12.75	130.78
658	44.50	197.82	2.82	-3.72	12.98	130.76
659	44.54	196.00	2.82	-3.72	13.20	130.75
660	44.60	193.78	2.85	-3.72	13.50	130.78
661	44.64	190.75	2.88	-3.72	13.86	130.82
662	44.69	188.52	2.92	-3.72	14.21	130.87
663	44.74	186.60	2.94	-3.82	14.38	130.92
664	44.79	188.37	2.96	-3.82	14.49	130.94
665	44.83	186.70	2.95	-3.82	14.44	130.96
666	44.88	188.22	2.95	-3.82	14.34	130.97
667	44.93	191.76	2.96	-3.82	14.12	131.02
668	44.98	193.78	2.97	-3.72	13.90	131.07
669	45.03	195.70	2.97	-3.82	13.77	131.11
670	45.08	196.61	2.98	-3.72	13.68	131.13
671	45.16	197.32	2.98	-3.82	13.57	131.13
672	45.19	198.83	2.96	-3.72	13.41	131.06

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	45.27	198.73	2.88	-3.82	13.22	130.92
674	45.32	197.92	2.81	-3.82	13.07	130.71
675	45.37	196.20	2.73	-3.82	12.89	130.37
676	45.45	192.77	2.52	-3.82	12.75	129.96
677	45.51	188.52	2.41	-3.82	12.79	129.49
678	45.56	180.54	2.32	-3.82	13.16	129.13
679	45.61	172.65	2.26	-3.82	14.11	128.81
680	45.69	156.48	2.24	-3.82	15.78	128.59
681	45.75	140.00	2.30	-3.82	18.95	128.52
682	45.81	115.94	2.49	-3.91	22.57	127.65
683	45.89	90.17	1.83	-3.91	27.28	126.48
684	45.94	73.89	1.73	-3.91	32.45	124.69
685	46.04	56.20	1.58	-3.91	38.98	123.71
686	46.08	47.71	1.52	-3.91	47.47	122.68
687	46.15	36.09	1.45	-3.82	56.21	122.08
688	46.17	36.19	1.44	-3.53	60.34	121.69
689	46.18	36.19	1.43	-3.53	60.04	121.61
690	46.23	36.29	1.40	-3.53	59.44	121.53
691	46.27	37.10	1.38	-3.44	58.23	121.42
692	46.32	38.31	1.34	-3.15	56.14	121.33
693	46.41	40.64	1.30	-2.86	51.16	121.34
694	46.47	43.06	1.32	-2.77	48.66	121.54
695	46.52	45.89	1.37	-2.77	47.10	121.93
696	46.56	47.51	1.45	-2.77	46.43	122.56
697	46.65	49.43	1.62	-2.67	46.28	123.25
698	46.71	51.45	1.75	-2.58	46.04	123.95
699	46.76	53.78	1.86	-2.48	44.89	124.54
700	46.85	58.12	1.95	-2.39	42.94	124.99
701	46.90	62.77	1.97	-2.39	40.08	125.34
702	46.99	69.04	1.98	-2.48	37.61	125.55
703	47.04	71.97	1.98	-2.48	36.35	125.63
704	47.10	70.15	1.97	-2.77	36.71	125.56
705	47.16	66.51	1.95	-3.34	38.66	125.31
706	47.23	59.84	1.90	-3.82	41.64	124.83
707	47.30	52.66	1.77	-4.20	46.53	124.02
708	47.38	42.05	1.62	-4.58	55.83	123.02
709	47.43	33.76	1.52	-4.58	63.91	121.70
710	47.52	27.09	1.27	-4.77	70.43	120.03
711	47.59	23.86	0.95	-4.77	72.90	117.35
712	47.66	21.03	0.52	-4.77	72.89	114.76
713	47.77	19.51	0.53	-4.68	73.13	112.86
714	47.82	18.80	0.54	-4.58	76.41	112.94
715	47.91	18.19	0.56	-4.58	78.15	113.07
716	47.93	18.35	0.57	-4.36	81.01	113.17
717	47.97	16.68	0.58	-4.36	81.15	113.36
718	48.02	18.50	0.60	-4.36	81.66	113.65
719	48.07	18.60	0.64	-4.23	80.69	114.13
720	48.12	18.60	0.68	-4.10	82.08	114.75

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	48.19	18.80	0.77	-4.01	83.29	115.28
722	48.23	18.90	0.79	-4.01	83.94	115.75
723	48.31	19.21	0.82	-4.01	83.94	116.02
724	48.35	19.51	0.84	-3.91	83.94	116.26
725	48.40	19.51	0.86	-3.91	84.74	116.39
726	48.45	18.90	0.88	-3.91	86.54	116.45
727	48.50	18.19	0.88	-3.82	89.36	116.43
728	48.55	17.29	0.89	-3.72	90.62	116.47
729	48.59	18.09	0.90	-3.72	91.76	116.60
730	48.67	17.69	0.94	-3.53	91.23	116.72
731	48.73	17.99	0.92	-3.53	91.27	116.67
732	48.78	17.99	0.89	-3.53	89.99	116.42
733	48.83	18.09	0.84	-3.53	88.84	116.04
734	48.91	17.99	0.79	-3.44	87.70	115.60
735	48.98	17.89	0.74	-3.34	86.94	115.19
736	49.03	17.79	0.72	-3.15	86.65	114.95
737	49.12	17.69	0.72	-3.05	85.60	114.48
738	49.17	17.69	0.61	-2.96	83.33	113.76
739	49.27	17.99	0.53	-2.96	80.70	113.14
740	49.31	18.50	0.56	-2.86	79.11	113.26
741	49.38	19.31	0.62	-2.77	78.69	113.92
742	49.45	19.91	0.66	-2.67	78.67	114.51
743	49.51	20.01	0.70	-2.67	81.86	114.78
744	49.54	17.18	0.72	-2.34	81.23	115.10
745	49.59	21.23	0.74	-2.34	79.36	115.30
746	49.64	22.24	0.73	-2.34	75.47	115.37
747	49.73	21.23	0.70	-2.00	76.06	115.20
748	49.83	20.22	0.70	-2.00	78.94	114.89
749	49.92	18.70	0.68	-1.91	82.21	114.64
750	49.98	17.79	0.67	-1.81	85.18	114.35
751	50.07	17.18	0.66	-1.72	86.78	114.13
752	50.16	17.08	0.64	-1.62	87.78	113.97
753	50.24	16.78	0.64	-1.53	88.72	113.83
754	50.32	16.27	0.63	-1.43	89.58	113.75
755	50.41	16.38	0.63	-1.43	90.32	113.77
756	50.50	16.38	0.65	-1.34	90.32	113.80
757	50.56	16.38	0.64	-1.34	90.32	113.63
758	50.66	16.07	0.59	-1.24	90.38	113.36
759	50.74	15.87	0.59	-1.15	90.68	113.17
760	50.84	15.87	0.60	-1.15	92.49	113.65
761	50.93	15.87	0.71	-1.05	95.02	114.60
762	50.98	16.17	0.85	-1.05	96.87	116.37
763	51.08	18.30	1.14	-0.95	92.70	118.68
764	51.17	24.36	1.53	-0.76	84.52	120.98
765	51.24	30.73	1.80	-0.76	77.19	122.97
766	51.34	35.28	2.14	-0.57	74.02	124.16
767	51.41	34.97	2.26	-0.57	71.12	123.46
768	51.51	32.25	1.21	-0.57	70.63	122.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	51.58	31.24	1.48	-0.57	69.74	121.04
770	51.68	30.12	1.47	-0.38	72.97	121.32
771	51.79	28.51	1.42	-0.38	77.64	121.01
772	51.82	23.55	1.42	0.00	80.70	120.81
773	51.85	25.57	1.43	0.00	84.43	120.74
774	51.91	24.06	1.47	0.10	84.06	121.14
775	52.00	25.37	1.63	0.19	85.77	121.55
776	52.05	25.17	1.70	0.48	82.19	122.20
777	52.10	30.63	1.77	0.67	73.91	122.79
778	52.19	39.52	1.77	0.67	64.23	123.22
779	52.28	45.29	1.67	0.19	57.68	123.38
780	52.34	47.31	1.65	-0.10	55.15	123.36
781	52.42	46.50	1.68	-0.38	55.52	123.38
782	52.48	44.48	1.70	-0.29	57.37	123.35
783	52.57	42.05	1.69	-0.29	59.26	123.14
784	52.62	40.43	1.61	-0.19	60.78	122.72
785	52.69	38.31	1.49	0.00	61.59	122.10
786	52.77	36.79	1.37	0.10	62.55	121.57
787	52.87	35.58	1.36	0.19	63.92	121.31
788	52.91	34.27	1.39	0.19	65.28	120.93
789	53.01	32.35	1.22	0.19	67.19	120.67
790	53.10	31.03	1.28	0.29	68.16	120.77
791	53.16	33.16	1.47	0.38	69.53	122.45
792	53.25	37.91	2.14	0.48	67.34	124.27
793	53.29	44.98	2.40	0.57	65.53	126.29
794	53.38	49.94	3.03	0.67	63.67	127.54
795	53.42	51.76	3.26	1.15	57.59	128.96
796	53.47	76.22	3.60	1.34	50.04	130.26
797	53.52	95.93	4.09	1.43	43.49	131.46
798	53.58	106.44	4.29	1.24	41.58	132.45
799	53.66	106.44	4.88	-1.34	42.62	133.05
800	53.75	98.56	5.19	-2.86	45.49	133.37
801	53.81	91.08	5.18	-6.30	49.54	133.18
802	53.87	77.43	5.01	-9.74	53.77	132.67
803	53.95	68.54	4.74	-10.69	59.61	131.92
804	54.01	56.20	4.47	-11.74	65.69	131.12
805	54.06	47.81	4.22	-11.84	72.92	129.99
806	54.15	39.02	3.56	-11.84	77.78	129.07
807	54.20	39.02	3.50	-11.84	78.61	128.77
808	54.29	44.27	3.87	-11.84	70.76	129.29
809	54.34	59.94	3.77	-11.84	51.11	129.21
810	54.43	104.52	2.08	-12.22	34.79	128.49
811	54.45	137.17	1.94	-11.93	23.26	127.27
812	54.48	170.33	1.92	-12.60	19.04	127.74
813	54.52	191.25	2.08	-13.36	17.01	128.18
814	54.53	195.50	2.08	-13.08	16.36	128.98
815	54.58	210.36	2.46	-12.79	16.17	129.67
816	54.62	218.44	2.63	-8.30	15.74	130.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	54.65	230.47	2.63	-4.01	14.88	130.73
818	54.70	251.70	2.72	-3.63	14.37	131.15
819	54.76	252.00	2.98	-4.09	14.25	131.53
820	54.77	249.83	2.99	-3.42	14.61	131.77
821	54.82	247.96	3.02	-3.42	14.54	131.82
822	54.87	256.85	3.02	-3.42	14.47	131.87
823	54.88	254.53	3.03	-2.96	14.29	131.89
824	54.91	255.64	3.02	-3.09	14.24	131.96
825	54.96	261.81	3.08	-2.96	13.92	132.10
826	54.97	272.93	3.13	-2.77	13.35	132.49
827	55.03	295.47	3.37	-2.39	12.75	133.09
828	55.09	316.39	3.69	-2.96	11.80	133.38
829	55.15	333.88	3.31	-3.25	10.23	132.43
830	55.20	333.38	2.00	-3.05	9.28	131.93
831	55.25	347.93	3.01	-3.05	7.69	130.99
832	55.30	393.32	2.16	-3.05	7.43	132.16
833	55.34	419.40	3.03	-2.96	6.93	132.95
834	55.39	439.92	3.71	-2.77	7.32	134.46
835	55.40	460.94	4.01	-2.86	7.35	135.39
836	55.44	486.11	4.30	-2.67	7.07	135.83
837	55.44	501.48	4.26	-2.67	6.42	136.02
838	55.49	546.16	4.10	-2.64	6.52	136.38
839	55.54	505.72	4.89	-1.24	6.65	137.08
840	55.59	548.48	5.43	-1.05	7.22	137.28
841	55.63	550.81	5.64	-2.46	7.14	137.28
842	55.64	554.04	5.65	-2.46	7.12	137.28
843	55.68	555.66	5.52	-2.67	6.77	137.28
844	55.69	591.24	5.48	-2.60	6.62	137.28
845	55.69	564.35	5.44	-2.60	6.75	137.28
846	55.71	543.02	5.64	-2.53	7.10	137.28
847	55.76	577.59	6.17	-2.53	7.22	137.28
848	55.78	581.33	6.12	-2.39	7.02	137.28
849	55.81	581.74	5.86	-2.19	6.58	137.28
850	55.85	580.73	4.95	-2.67	5.96	137.28
851	55.86	590.13	4.53	-2.96	5.19	136.82
852	55.91	594.27	4.00	-2.96	4.62	136.29
853	55.92	611.66	3.93	-2.58	4.30	135.90
854	55.96	600.94	3.86	-2.48	3.98	135.87
855	55.97	644.61	3.85	-2.96	3.85	136.11
856	56.00	656.84	4.22	-3.15	3.75	136.51
857	56.01	661.80	4.40	-3.25	4.03	137.12
858	56.03	661.85	4.90	-3.25	4.27	137.28
859	56.05	661.85	5.01	-3.05	4.38	137.28
860	56.10	661.90	4.73	-2.86	4.31	137.28
861	56.12	671.50	4.82	-2.77	4.05	137.28
862	56.16	670.79	4.37	-2.67	3.91	137.12
863	56.17	660.89	4.28	-2.77	3.94	136.81
864	56.20	632.79	4.35	-2.77	4.25	136.76

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	56.22	611.76	4.41	-2.77	4.54	136.69
866	56.24	608.02	4.27	-2.67	4.60	136.52
867	56.30	605.70	4.12	-2.77	4.63	136.39
868	56.31	594.48	4.22	-2.67	4.86	136.51
869	56.34	587.00	4.54	-2.67	5.22	136.76
870	56.39	577.29	4.62	-2.67	5.42	136.81
871	56.45	572.94	4.38	-2.77	5.52	136.73
872	56.48	566.78	4.44	-2.58	5.63	136.67
873	56.49	556.57	4.57	-2.48	6.11	137.00
874	56.53	543.12	5.08	-2.39	6.65	137.27
875	56.58	526.85	5.09	-2.29	7.00	137.27
876	56.63	517.25	4.68	-2.39	5.57	135.21
877	56.68	530.19	1.47	-2.67	4.07	132.85
878	56.73	530.69	1.99	-2.19	3.28	131.52
879	56.78	533.22	3.31	-2.10	4.70	133.92
880	56.83	515.12	4.11	-2.10	5.98	135.53
881	56.89	505.72	4.38	-1.81	6.76	136.05
882	56.95	489.35	4.29	-1.72	7.57	136.39
883	56.99	460.13	4.89	-1.77	8.27	136.67
884	57.01	461.35	5.04	-1.81	8.73	136.83
885	57.04	461.35	4.71	-1.77	8.64	136.75
886	57.09	462.56	4.73	-1.77	8.37	136.69
887	57.11	480.76	4.85	-1.72	8.26	136.91
888	57.13	489.04	5.06	-1.72	8.28	137.28
889	57.18	496.12	5.48	-1.72	8.57	137.28
890	57.19	481.26	5.56	-1.72	9.17	137.28
891	57.21	456.09	5.75	-1.53	9.62	137.28
892	57.24	456.14	5.61	-1.53	9.80	137.28
893	57.28	456.19	5.36	-1.53	9.62	137.28
894	57.32	457.91	5.35	-1.53	9.68	137.28
895	57.35	438.71	5.32	-1.62	9.84	137.28
896	57.38	439.61	5.31	-1.43	10.12	137.28
897	57.43	428.50	5.24	-1.43	10.11	137.06
898	57.48	423.44	4.91	-1.62	10.27	136.57
899	57.52	392.11	4.48	-1.53	10.16	135.74
900	57.57	380.28	3.84	-1.53	10.70	135.89
901	57.62	396.35	5.29	-1.53	11.26	136.75
902	57.68	413.43	6.11	-1.53	10.99	137.28
903	57.76	472.77	5.74	-1.43	9.99	137.28
904	57.81	500.57	5.68	-1.72	7.13	136.51
905	57.86	543.23	2.17	-1.72	4.79	134.57
906	57.89	587.00	2.33	-1.72	2.67	131.65
907	57.91	587.40	2.22	-1.72	2.56	131.81
908	57.92	576.28	2.27	-1.72	2.86	132.23
909	57.95	567.79	2.76	-1.72	3.35	132.94
910	57.99	563.14	3.00	-1.72	3.71	133.65
911	58.01	581.13	3.08	-1.72	3.92	134.30
912	58.05	591.95	3.53	-1.72	3.96	134.78

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	58.05	600.54	3.58	-1.05	4.23	135.48
914	58.10	604.18	4.04	-1.43	4.36	135.85
915	58.13	609.64	4.08	-1.53	4.44	136.17
916	58.15	619.75	4.05	-1.53	4.30	136.16
917	58.17	626.22	3.98	-1.53	4.19	136.18
918	58.20	629.45	4.07	-1.53	4.24	136.22
919	58.21	614.69	4.13	-1.72	4.37	136.30
920	58.21	614.14	4.14	-1.72	4.48	136.33
921	58.23	614.14	4.16	-1.72	4.50	136.34
922	58.24	613.58	4.15	-1.81	4.62	136.36
923	58.25	596.70	4.21	-1.81	3.41	134.35
924	58.29	617.42	1.15	-1.72	2.07	131.70
925	58.31	627.93	1.23	-1.72	0.59	127.71
926	58.33	636.43	1.41	-1.72	0.81	129.01
927	58.38	652.70	1.86	-1.62	1.14	130.50
928	58.39	665.03	2.22	-1.70	1.43	131.67
929	58.43	667.96	2.33	-1.62	1.54	132.23
930	58.43	678.68	2.34	-1.70	1.38	132.20
931	58.48	701.62	2.15	-1.62	1.49	132.66
932	58.53	683.83	2.76	-1.62	1.70	133.35
933	58.56	697.78	3.03	-1.81	2.25	134.65
934	58.58	707.59	3.68	-1.91	2.48	135.33
935	58.59	707.99	3.65	-1.73	2.66	135.86
936	58.63	717.19	3.78	-1.54	2.76	135.95
937	58.63	696.42	3.83	-1.37	2.82	136.12
938	58.63	714.06	3.90	-1.37	2.92	135.93
939	58.68	675.65	3.56	-1.03	2.66	135.58
940	58.69	710.92	3.27	-1.03	2.12	134.51
941	58.72	719.11	2.44	-1.03	1.55	133.64
942	58.73	723.56	2.46	-0.91	1.34	133.28
943	58.74	726.19	2.85	-0.48	1.62	134.13
944	58.77	736.20	3.38	-0.85	2.06	135.06
945	58.81	718.51	3.65	-0.85	2.44	135.72
946	58.82	713.35	3.81	-0.85	2.73	136.05
947	58.83	710.01	3.91	-0.86	2.96	136.52
948	58.87	724.07	4.41	-0.86	3.17	137.07
949	58.91	732.96	4.71	-0.86	3.32	137.28
950	58.92	738.02	4.73	-0.76	3.35	137.28
951	58.93	742.66	4.76	-0.67	3.28	137.28
952	58.96	740.95	4.59	-0.57	3.26	137.28
953	59.01	733.57	4.60	-0.57	3.68	137.28
954	59.06	674.43	5.18	-1.24	4.25	137.28
955	59.08	653.91	5.10	-1.24	4.86	137.28
956	59.11	637.54	4.96	-1.24	5.19	137.28
957	59.15	625.41	5.36	-1.24	5.74	137.28
958	59.21	618.74	6.10	-1.43	6.20	137.28
959	59.26	610.75	5.85	-0.95	6.43	137.28
960	59.30	588.81	5.33	-0.67	6.35	137.28

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	59.35	577.39	5.07	-0.67	6.33	137.28
962	59.40	573.45	5.09	-0.67	6.60	137.28
963	59.42	537.46	5.10	-0.62	6.81	137.28
964	59.47	542.01	4.94	-0.62	7.03	137.28
965	59.51	538.58	4.99	-0.62	7.10	137.28
966	59.56	537.67	5.28	-0.48	7.14	137.28
967	59.61	537.67	4.95	-0.48	6.86	137.10
968	59.67	536.76	4.21	-0.48	6.15	136.33
969	59.71	551.52	3.80	-0.29	5.22	135.39
970	59.80	572.94	3.30	-0.29	4.51	134.34
971	59.85	543.02	2.68	-0.10	4.17	133.65
972	59.90	541.41	2.94	0.00	4.17	133.27
973	60.00	542.21	2.91	0.29	4.27	133.47
974	60.04	545.35	2.91	0.19	4.40	133.64
975	60.10	537.57	3.16	0.19	4.95	133.98
976	60.15	496.63	3.43	0.19	5.55	134.23
977	60.19	490.76	3.36	0.19	6.05	134.17
978	60.23	474.79	3.20	0.19	5.92	133.82
979	60.28	484.90	2.99	0.29	5.71	133.46
980	60.33	488.14	2.90	0.29	5.51	133.41
981	60.38	493.90	3.10	0.29	5.65	133.73
982	60.42	493.85	3.38	0.29	5.89	134.17
983	60.44	493.80	3.46	0.29	6.33	134.53
984	60.47	473.88	3.65	0.38	6.98	134.97
985	60.52	460.13	4.12	0.48	7.63	135.40
986	60.56	462.56	4.23	0.38	8.01	135.74
987	60.57	465.39	4.25	0.38	7.98	135.80
988	60.61	467.11	4.21	0.38	7.76	135.74
989	60.66	479.34	4.08	0.38	7.57	135.77
990	60.71	485.41	4.24	0.38	7.40	135.90
991	60.76	495.21	4.35	0.48	7.47	136.31
992	60.81	505.12	4.72	0.67	7.48	136.65
993	60.86	513.91	4.79	0.76	7.09	136.81
994	60.91	550.10	4.48	0.95	6.19	136.86
995	60.95	615.30	4.50	1.05	5.45	137.13
996	61.00	639.05	4.99	1.24	5.05	137.28
997	61.02	658.56	5.11	1.72	5.00	137.28
998	61.05	675.54	5.33	1.72	4.74	137.28
999	61.08	721.13	5.51	1.62	4.50	137.28
1000	61.09	733.97	5.54	1.62	4.27	137.28
1001	61.13	740.34	5.59	1.81	4.24	137.28
1002	61.14	739.43	5.66	1.91	4.28	137.28
1003	61.16	738.52	5.76	1.91	4.32	137.28
1004	61.20	746.30	5.81	1.91	4.05	137.28
1005	61.23	767.73	5.15	1.91	3.75	137.28
1006	61.24	772.28	5.21	1.81	3.14	137.28
1007	61.29	760.66	3.90	1.81	2.97	137.28
1008	61.30	743.57	4.26	1.72	3.09	137.25

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	61.33	728.41	5.05	1.81	3.50	137.28
1010	61.38	731.65	4.85	2.00	3.57	137.28
1011	61.43	732.56	4.32	1.81	3.24	137.17
1012	61.48	728.92	3.98	1.81	2.87	136.68
1013	61.53	753.18	3.97	1.62	2.61	136.51
1014	61.56	770.56	3.96	1.72	2.53	136.46
1015	61.58	740.54	3.88	1.72	2.82	136.29
1016	61.59	669.61	3.85	1.46	3.07	136.12
1017	61.62	696.97	3.82	0.67	4.53	135.66
1018	61.63	435.47	3.76	0.86	4.59	135.59
1019	61.67	653.41	3.77	1.34	4.68	135.51
1020	61.71	676.15	3.74	1.43	3.52	135.82
1021	61.76	658.36	3.79	1.34	3.57	135.69
1022	61.81	631.98	3.61	1.34	3.48	134.89
1023	61.86	611.66	2.70	1.53	3.19	133.76
1024	61.87	601.35	2.42	1.62	2.51	131.84
1025	61.91	589.42	1.65	1.72	2.08	130.34
1026	61.95	575.78	1.49	1.72	1.72	128.91
1027	61.96	568.80	1.46	1.62	1.77	128.59
1028	62.00	555.56	1.48	1.53	2.11	128.99
1029	62.04	536.66	1.77	1.43	2.73	129.80
1030	62.06	513.20	2.07	1.34	3.63	130.78
1031	62.10	482.98	2.34	1.34	4.36	131.39
1032	62.14	478.73	2.39	1.34	4.98	131.79
1033	62.20	464.78	2.54	1.34	5.42	131.98
1034	62.22	445.68	2.60	1.62	6.21	132.17
1035	62.27	407.07	2.72	1.43	7.02	132.25
1036	62.29	393.62	2.77	1.34	7.80	132.39
1037	62.34	388.36	2.89	1.43	8.52	132.51
1038	62.39	358.75	2.98	1.24	9.48	132.97
1039	62.43	352.68	3.46	1.43	11.11	133.79
1040	62.49	331.86	4.17	1.43	12.15	134.44
1041	62.57	335.80	4.05	1.43	12.81	134.86
1042	62.68	341.56	4.21	1.43	12.34	135.49
1043	62.75	394.13	5.02	1.53	11.19	136.33
1044	62.87	459.02	5.12	1.62	10.57	136.91
1045	62.88	425.46	5.04	1.53	11.01	136.62
1046	62.89	343.08	4.64	0.86	9.46	135.64
1047	62.93	504.41	3.12	1.53	6.80	134.88
1048	62.98	608.73	3.27	1.24	4.56	134.66
1049	63.02	602.56	3.75	1.53	2.42	132.17
1050	63.07	649.36	0.00	1.53	0.48	127.73
1051	63.12	723.66	0.00	1.62	N/A	87.36
1052	63.14	759.24	0.00	1.62	N/A	87.36
1053	63.17	774.10	0.00	1.72	N/A	87.36
1054	63.17	810.49	0.00	1.53	N/A	87.36
1055	63.20	813.42	0.00	1.53	N/A	87.36
1056	63.21	853.96	0.00	1.53	N/A	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1057	63.23	825.05	0.00	1.43	N/A	87.36
1058	63.26	849.66	0.00	0.99	N/A	87.36
1059	63.28	829.50	0.00	0.99	N/A	87.36
1060	63.31	845.37	0.00	0.29	N/A	87.36
1061	63.32	839.40	0.00	0.48	N/A	87.36
1062	63.36	833.34	0.00	0.57	N/A	87.36
1063	63.40	838.59	0.00	0.67	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.01	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
2	0.04	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
3	0.09	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
4	0.11	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
5	0.14	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
6	0.14	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
7	0.18	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
8	0.23	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
9	0.24	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
10	0.28	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
11	0.33	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
12	0.38	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
13	0.42	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
14	0.47	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
15	0.51	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
16	0.52	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
17	0.57	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
18	0.61	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
19	0.67	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
20	0.73	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
21	0.81	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
22	0.86	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
23	0.98	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
24	1.05	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
25	1.15	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
26	1.24	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
27	1.34	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
28	1.43	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
29	1.53	0.09	0.00	0.09	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
30	1.58	0.09	0.00	0.09	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
31	1.62	0.09	0.00	0.09	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
32	1.67	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
33	1.75	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
34	1.77	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
35	1.81	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
36	1.86	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
37	1.91	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
38	1.95	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
39	2.00	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
40	2.05	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
41	2.11	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
42	2.20	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
43	2.24	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
44	2.29	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
45	2.34	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
46	2.44	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
47	2.48	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
48	2.58	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	2.63	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
50	2.71	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
51	2.78	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
52	2.82	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
53	2.89	0.16	0.00	0.16	1.00	0.272	1.68	0.161	1.00	1.10	2.000	Yes
54	2.96	0.16	0.00	0.16	1.00	0.272	1.68	0.161	1.00	1.10	2.000	No
55	3.03	0.17	0.00	0.17	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
56	3.11	0.17	0.00	0.17	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
57	3.19	0.17	0.00	0.17	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
58	3.25	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
59	3.35	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
60	3.41	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
61	3.50	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
62	3.59	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
63	3.69	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
64	3.79	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
65	3.88	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
66	3.97	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
67	4.07	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
68	4.14	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
69	4.17	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
70	4.26	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
71	4.32	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
72	4.37	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
73	4.42	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
74	4.51	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
75	4.61	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
76	4.65	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
77	4.74	0.26	0.00	0.26	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
78	4.80	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
79	4.89	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
80	4.95	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
81	5.04	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
82	5.13	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
83	5.18	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
84	5.28	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
85	5.32	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
86	5.42	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
87	5.51	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
88	5.60	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
89	5.66	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
90	5.76	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
91	5.85	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
92	5.92	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
93	5.95	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
94	5.97	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
95	6.02	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
96	6.06	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	6.16	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
98	6.21	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
99	6.26	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
100	6.31	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
101	6.40	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
102	6.44	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
103	6.52	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
104	6.57	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
105	6.64	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
106	6.69	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
107	6.78	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
108	6.83	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
109	6.92	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
110	6.97	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
111	7.03	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
112	7.12	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
113	7.22	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
114	7.27	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
115	7.36	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
116	7.43	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
117	7.50	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
118	7.59	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
119	7.64	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
120	7.75	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
121	7.79	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
122	7.89	0.43	0.00	0.43	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
123	7.99	0.43	0.00	0.43	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
124	8.04	0.43	0.00	0.43	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
125	8.13	0.44	0.00	0.44	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
126	8.23	0.44	0.00	0.44	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
127	8.32	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
128	8.37	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
129	8.46	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
130	8.56	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
131	8.59	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
132	8.61	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
133	8.67	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
134	8.71	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
135	8.72	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
136	8.78	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
137	8.80	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
138	8.86	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
139	8.90	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
140	8.95	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
141	8.96	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
142	9.00	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
143	9.05	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
144	9.09	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	9.10	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
146	9.14	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
147	9.20	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
148	9.24	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
149	9.29	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
150	9.31	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
151	9.38	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
152	9.41	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
153	9.47	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
154	9.53	0.52	0.00	0.52	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
155	9.62	0.52	0.00	0.52	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
156	9.67	0.52	0.00	0.52	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
157	9.77	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
158	9.81	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
159	9.90	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
160	9.97	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
161	10.06	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
162	10.20	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
163	10.30	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
164	10.44	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
165	10.54	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
166	10.63	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
167	10.74	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
168	10.78	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
169	10.83	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
170	10.88	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
171	10.89	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
172	10.97	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
173	11.02	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
174	11.07	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
175	11.11	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
176	11.16	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
177	11.21	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
178	11.26	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
179	11.30	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
180	11.36	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
181	11.40	0.62	0.00	0.62	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
182	11.45	0.62	0.00	0.62	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
183	11.50	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
184	11.55	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
185	11.60	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
186	11.66	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
187	11.74	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
188	11.84	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
189	11.93	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
190	12.04	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
191	12.13	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
192	12.22	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	12.27	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
194	12.37	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
195	12.41	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
196	12.51	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
197	12.56	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
198	12.65	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
199	12.71	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
200	12.79	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
201	12.89	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
202	12.96	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
203	13.04	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	Yes
204	13.13	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	Yes
205	13.23	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	Yes
206	13.30	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	Yes
207	13.37	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	Yes
208	13.47	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	Yes
209	13.57	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
210	13.61	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
211	13.62	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
212	13.68	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
213	13.73	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
214	13.77	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
215	13.87	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
216	13.93	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
217	14.00	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
218	14.06	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
219	14.12	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
220	14.21	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
221	14.25	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
222	14.35	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
223	14.45	0.80	0.00	0.80	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
224	14.50	0.80	0.00	0.80	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
225	14.59	0.81	0.00	0.81	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
226	14.64	0.81	0.00	0.81	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
227	14.74	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
228	14.80	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
229	14.88	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
230	14.97	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
231	15.05	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
232	15.13	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
233	15.21	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
234	15.28	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
235	15.36	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
236	15.41	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
237	15.50	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
238	15.55	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
239	15.65	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
240	15.71	0.88	0.00	0.88	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	15.79	0.88	0.00	0.88	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
242	15.89	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
243	15.90	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
244	15.94	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
245	16.00	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
246	16.06	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
247	16.14	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
248	16.19	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
249	16.26	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
250	16.33	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
251	16.38	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
252	16.47	0.92	0.00	0.92	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
253	16.54	0.92	0.00	0.92	0.97	0.263	1.68	0.157	1.00	1.10	2.000	Yes
254	16.62	0.93	0.00	0.93	0.97	0.263	1.68	0.157	1.00	1.10	2.000	No
255	16.70	0.93	0.00	0.93	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
256	16.76	0.94	0.00	0.94	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
257	16.86	0.94	0.00	0.94	0.96	0.263	1.68	0.157	1.00	1.10	2.000	Yes
258	16.90	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
259	16.98	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
260	17.05	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
261	17.14	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
262	17.20	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
263	17.29	0.97	0.00	0.97	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
264	17.34	0.97	0.00	0.97	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
265	17.44	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
266	17.50	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
267	17.58	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
268	17.64	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
269	17.75	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
270	17.82	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
271	17.89	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
272	17.89	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
273	17.96	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
274	18.02	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
275	18.07	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
276	18.17	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
277	18.22	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
278	18.30	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
279	18.36	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
280	18.42	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
281	18.50	1.04	0.00	1.04	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
282	18.56	1.04	0.00	1.04	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
283	18.62	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
284	18.69	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
285	18.76	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
286	18.84	1.06	0.00	1.06	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
287	18.89	1.06	0.00	1.06	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
288	18.98	1.07	0.00	1.07	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	19.05	1.07	0.00	1.07	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
290	19.12	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
291	19.18	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
292	19.24	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
293	19.32	1.09	0.00	1.09	0.96	0.262	1.68	0.156	0.99	1.10	2.000	No
294	19.38	1.09	0.00	1.09	0.96	0.262	1.68	0.156	0.99	1.10	2.000	No
295	19.46	1.10	0.00	1.10	0.96	0.262	1.68	0.156	0.99	1.10	2.000	No
296	19.54	1.10	0.00	1.10	0.96	0.262	1.68	0.155	0.99	1.10	2.000	No
297	19.62	1.11	0.00	1.11	0.96	0.262	1.68	0.155	0.99	1.10	2.000	No
298	19.70	1.11	0.00	1.11	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
299	19.80	1.12	0.00	1.12	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
300	19.85	1.12	0.00	1.12	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
301	19.94	1.13	0.00	1.13	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
302	20.03	1.13	0.00	1.13	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
303	20.13	1.14	0.00	1.14	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
304	20.19	1.14	0.00	1.14	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
305	20.29	1.15	0.00	1.15	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
306	20.39	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
307	20.43	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
308	20.47	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
309	20.52	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
310	20.61	1.17	0.00	1.17	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
311	20.66	1.17	0.00	1.17	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
312	20.71	1.18	0.00	1.18	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
313	20.77	1.18	0.00	1.18	0.95	0.261	1.68	0.155	0.98	1.10	2.000	No
314	20.85	1.18	0.00	1.18	0.95	0.261	1.68	0.155	0.98	1.10	2.000	No
315	20.91	1.19	0.00	1.19	0.95	0.261	1.68	0.155	0.98	1.10	2.000	No
316	21.00	1.19	0.00	1.19	0.95	0.261	1.68	0.155	0.98	1.10	2.000	No
317	21.05	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
318	21.11	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
319	21.19	1.21	0.00	1.21	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
320	21.24	1.21	0.00	1.21	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
321	21.34	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
322	21.39	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
323	21.48	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
324	21.53	1.23	0.00	1.23	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
325	21.64	1.23	0.00	1.23	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
326	21.72	1.24	0.00	1.24	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
327	21.81	1.24	0.00	1.24	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
328	21.89	1.25	0.00	1.25	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
329	21.97	1.25	0.00	1.25	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
330	22.05	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
331	22.12	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
332	22.13	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
333	22.18	1.27	0.00	1.27	0.95	0.260	1.68	0.154	0.96	1.10	2.000	No
334	22.22	1.27	0.00	1.27	0.95	0.260	1.68	0.154	0.96	1.10	2.000	No
335	22.28	1.27	0.00	1.27	0.95	0.260	1.68	0.154	0.96	1.10	2.000	No
336	22.33	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	22.38	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
338	22.41	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
339	22.51	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
340	22.56	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
341	22.61	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
342	22.65	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
343	22.71	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
344	22.76	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
345	22.85	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
346	22.89	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
347	22.99	1.32	0.00	1.32	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
348	23.04	1.32	0.00	1.32	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
349	23.12	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
350	23.18	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
351	23.24	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
352	23.33	1.34	0.00	1.34	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
353	23.38	1.34	0.00	1.34	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
354	23.47	1.35	0.00	1.35	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
355	23.52	1.35	0.00	1.35	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
356	23.61	1.36	0.00	1.36	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
357	23.68	1.36	0.00	1.36	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
358	23.76	1.36	0.00	1.36	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
359	23.83	1.37	0.00	1.37	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
360	23.90	1.37	0.00	1.37	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
361	23.97	1.38	0.00	1.38	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
362	24.05	1.38	0.00	1.38	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
363	24.10	1.39	0.00	1.39	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
364	24.19	1.39	0.00	1.39	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
365	24.27	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
366	24.34	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
367	24.43	1.41	0.00	1.41	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
368	24.48	1.41	0.00	1.41	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
369	24.57	1.41	0.00	1.41	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
370	24.62	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
371	24.72	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
372	24.81	1.43	0.00	1.43	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
373	24.86	1.43	0.00	1.43	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
374	24.95	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
375	25.01	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
376	25.02	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
377	25.05	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
378	25.11	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
379	25.15	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
380	25.21	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
381	25.25	1.46	0.00	1.46	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
382	25.30	1.46	0.00	1.46	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
383	25.40	1.47	0.00	1.47	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
384	25.45	1.47	0.00	1.47	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	25.52	1.47	0.00	1.47	0.94	0.257	1.68	0.153	0.94	1.10	2.000	Yes
386	25.60	1.48	0.00	1.48	0.94	0.257	1.68	0.152	0.94	1.10	2.000	Yes
387	25.66	1.48	0.00	1.48	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
388	25.74	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
389	25.80	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
390	25.88	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
391	25.94	1.50	0.00	1.50	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
392	26.02	1.50	0.00	1.50	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
393	26.09	1.51	0.00	1.51	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
394	26.17	1.51	0.00	1.51	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
395	26.23	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
396	26.29	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
397	26.37	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
398	26.46	1.53	0.00	1.53	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
399	26.55	1.53	0.00	1.53	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
400	26.60	1.54	0.00	1.54	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
401	26.70	1.54	0.00	1.54	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
402	26.78	1.55	0.00	1.55	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
403	26.87	1.55	0.00	1.55	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
404	26.94	1.56	0.00	1.56	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
405	27.03	1.56	0.00	1.56	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
406	27.13	1.57	0.00	1.57	0.93	0.255	1.68	0.152	0.92	1.10	2.000	No
407	27.18	1.57	0.00	1.57	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
408	27.27	1.58	0.00	1.58	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
409	27.32	1.58	0.00	1.58	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
410	27.37	1.58	0.00	1.58	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
411	27.41	1.58	0.00	1.58	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
412	27.46	1.59	0.00	1.59	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
413	27.51	1.59	0.00	1.59	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
414	27.61	1.59	0.00	1.59	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
415	27.66	1.60	0.00	1.60	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
416	27.73	1.60	0.00	1.60	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
417	27.80	1.61	0.00	1.61	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
418	27.88	1.61	0.00	1.61	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
419	27.96	1.62	0.00	1.62	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
420	28.04	1.62	0.00	1.62	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
421	28.12	1.63	0.00	1.63	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
422	28.18	1.63	0.00	1.63	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
423	28.27	1.64	0.00	1.64	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
424	28.32	1.64	0.00	1.64	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
425	28.42	1.64	0.00	1.64	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
426	28.47	1.65	0.00	1.65	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
427	28.61	1.66	0.00	1.66	0.93	0.253	1.68	0.150	0.91	1.10	2.000	No
428	28.67	1.66	0.00	1.66	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
429	28.75	1.67	0.00	1.67	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
430	28.81	1.67	0.00	1.67	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
431	28.90	1.68	0.00	1.68	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
432	29.00	1.68	0.00	1.68	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	29.05	1.68	0.00	1.68	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
434	29.10	1.69	0.00	1.69	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
435	29.15	1.69	0.00	1.69	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
436	29.24	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
437	29.29	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
438	29.37	1.71	0.00	1.71	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
439	29.43	1.71	0.00	1.71	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
440	29.53	1.72	0.00	1.72	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
441	29.62	1.72	0.00	1.72	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
442	29.68	1.72	0.00	1.72	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
443	29.80	1.73	0.00	1.73	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
444	29.91	1.74	0.00	1.74	0.92	0.251	1.68	0.149	0.91	1.10	2.000	No
445	30.00	1.74	0.00	1.74	0.92	0.251	1.68	0.149	0.90	1.10	0.182	No
446	30.07	1.75	0.00	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
447	30.15	1.75	0.00	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
448	30.21	1.76	0.01	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
449	30.26	1.76	0.01	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
450	30.31	1.76	0.01	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
451	30.38	1.77	0.01	1.76	0.92	0.252	1.68	0.150	0.90	1.10	0.183	No
452	30.45	1.77	0.01	1.76	0.92	0.253	1.68	0.150	0.90	1.10	0.183	No
453	30.50	1.78	0.02	1.76	0.92	0.253	1.68	0.150	0.90	1.10	0.183	No
454	30.55	1.78	0.02	1.76	0.92	0.253	1.68	0.150	0.90	1.10	0.183	No
455	30.64	1.78	0.02	1.76	0.92	0.253	1.68	0.151	0.90	1.10	0.183	No
456	30.70	1.79	0.02	1.77	0.92	0.253	1.68	0.151	0.90	1.10	0.184	No
457	30.79	1.79	0.02	1.77	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
458	30.84	1.80	0.03	1.77	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
459	30.93	1.80	0.03	1.77	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
460	30.98	1.81	0.03	1.78	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
461	31.05	1.81	0.03	1.78	0.92	0.254	1.68	0.151	0.90	1.10	0.185	No
462	31.13	1.81	0.04	1.78	0.91	0.255	1.68	0.151	0.90	1.10	0.185	No
463	31.17	1.82	0.04	1.78	0.91	0.255	1.68	0.151	0.90	1.10	0.185	No
464	31.27	1.82	0.04	1.78	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
465	31.32	1.83	0.04	1.79	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
466	31.41	1.83	0.04	1.79	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
467	31.46	1.84	0.05	1.79	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
468	31.52	1.84	0.05	1.79	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
469	31.61	1.84	0.05	1.79	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
470	31.66	1.85	0.05	1.80	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
471	31.75	1.85	0.05	1.80	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
472	31.80	1.86	0.06	1.80	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
473	31.90	1.86	0.06	1.80	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
474	31.94	1.87	0.06	1.81	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
475	32.04	1.87	0.06	1.81	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
476	32.09	1.87	0.07	1.81	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
477	32.20	1.88	0.07	1.81	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
478	32.24	1.88	0.07	1.81	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
479	32.28	1.89	0.07	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
480	32.29	1.89	0.07	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	32.30	1.89	0.07	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
482	32.40	1.89	0.07	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
483	32.45	1.90	0.08	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
484	32.55	1.90	0.08	1.82	0.91	0.258	1.68	0.154	0.90	1.10	0.188	No
485	32.59	1.91	0.08	1.83	0.91	0.258	1.68	0.154	0.90	1.10	0.188	No
486	32.69	1.91	0.08	1.83	0.91	0.259	1.68	0.154	0.90	1.10	0.189	No
487	32.76	1.92	0.09	1.83	0.91	0.259	1.68	0.154	0.90	1.10	0.189	No
488	32.84	1.92	0.09	1.83	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
489	32.90	1.93	0.09	1.84	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
490	32.98	1.93	0.09	1.84	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
491	33.06	1.94	0.10	1.84	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
492	33.12	1.94	0.10	1.84	0.90	0.260	1.68	0.154	0.89	1.10	0.190	No
493	33.22	1.95	0.10	1.85	0.90	0.260	1.68	0.154	0.89	1.10	0.190	No
494	33.31	1.95	0.10	1.85	0.90	0.260	1.68	0.155	0.89	1.10	0.190	No
495	33.37	1.96	0.10	1.85	0.90	0.260	1.68	0.155	0.89	1.10	0.190	No
496	33.46	1.96	0.11	1.85	0.90	0.260	1.68	0.155	0.89	1.10	0.190	No
497	33.55	1.97	0.11	1.86	0.90	0.260	1.68	0.155	0.89	1.10	0.191	No
498	33.65	1.97	0.11	1.86	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
499	33.70	1.98	0.12	1.86	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
500	33.79	1.98	0.12	1.86	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
501	33.89	1.99	0.12	1.87	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
502	33.99	2.00	0.12	1.87	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
503	34.04	2.00	0.13	1.87	0.90	0.261	1.68	0.155	0.89	1.10	0.192	No
504	34.13	2.00	0.13	1.88	0.90	0.262	1.68	0.155	0.89	1.10	0.192	No
505	34.23	2.01	0.13	1.88	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
506	34.32	2.02	0.13	1.88	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
507	34.37	2.02	0.14	1.88	0.89	0.262	1.68	0.156	0.89	1.10	0.192	No
508	34.47	2.03	0.14	1.89	0.89	0.262	1.68	0.156	0.89	1.10	0.192	No
509	34.55	2.03	0.14	1.89	0.89	0.262	1.68	0.156	0.89	1.10	2.000	Yes
510	34.63	2.04	0.14	1.89	0.89	0.262	1.68	0.156	0.89	1.10	2.000	Yes
511	34.73	2.04	0.15	1.90	0.89	0.263	1.68	0.156	0.89	1.10	2.000	Yes
512	34.80	2.05	0.15	1.90	0.89	0.263	1.68	0.156	0.89	1.10	2.000	Yes
513	34.90	2.05	0.15	1.90	0.89	0.263	1.68	0.156	0.89	1.10	2.000	Yes
514	35.00	2.06	0.16	1.90	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
515	35.12	2.07	0.16	1.91	0.89	0.263	1.68	0.156	0.89	1.10	0.194	No
516	35.20	2.07	0.16	1.91	0.89	0.263	1.68	0.157	0.89	1.10	0.194	No
517	35.33	2.08	0.17	1.91	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
518	35.41	2.08	0.17	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
519	35.44	2.09	0.17	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
520	35.48	2.09	0.17	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
521	35.57	2.10	0.17	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
522	35.62	2.10	0.18	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
523	35.67	2.10	0.18	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
524	35.71	2.10	0.18	1.93	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
525	35.82	2.11	0.18	1.93	0.88	0.264	1.68	0.157	0.89	1.10	2.000	Yes
526	35.86	2.11	0.18	1.93	0.88	0.264	1.68	0.157	0.89	1.10	2.000	Yes
527	35.93	2.12	0.19	1.93	0.88	0.264	1.68	0.157	0.89	1.10	2.000	Yes
528	36.01	2.12	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	36.06	2.13	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
530	36.12	2.13	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	0.195	No
531	36.18	2.13	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	0.195	No
532	36.25	2.14	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	0.196	No
533	36.30	2.14	0.20	1.95	0.88	0.265	1.68	0.157	0.89	1.10	0.196	No
534	36.39	2.15	0.20	1.95	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
535	36.44	2.15	0.20	1.95	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
536	36.53	2.16	0.20	1.95	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
537	36.59	2.16	0.21	1.96	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
538	36.68	2.17	0.21	1.96	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
539	36.75	2.17	0.21	1.96	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
540	36.83	2.18	0.21	1.96	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
541	36.90	2.18	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
542	36.97	2.19	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
543	37.02	2.19	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
544	37.04	2.19	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
545	37.08	2.19	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
546	37.17	2.20	0.22	1.98	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
547	37.27	2.21	0.23	1.98	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
548	37.37	2.21	0.23	1.98	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
549	37.42	2.22	0.23	1.98	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
550	37.51	2.22	0.23	1.99	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
551	37.58	2.23	0.24	1.99	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
552	37.66	2.23	0.24	1.99	0.87	0.266	1.68	0.158	0.88	1.10	0.198	No
553	37.76	2.24	0.24	1.99	0.87	0.266	1.68	0.158	0.88	1.10	0.198	No
554	37.85	2.24	0.24	2.00	0.87	0.266	1.68	0.158	0.88	1.10	0.198	No
555	37.93	2.25	0.25	2.00	0.87	0.266	1.68	0.158	0.88	1.10	0.198	No
556	38.04	2.26	0.25	2.00	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
557	38.13	2.26	0.25	2.01	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
558	38.18	2.26	0.26	2.01	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
559	38.28	2.27	0.26	2.01	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
560	38.37	2.28	0.26	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
561	38.47	2.28	0.26	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
562	38.57	2.29	0.27	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
563	38.62	2.29	0.27	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
564	38.72	2.30	0.27	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
565	38.78	2.30	0.27	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
566	38.81	2.30	0.27	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
567	38.86	2.31	0.28	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
568	38.91	2.31	0.28	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
569	38.95	2.31	0.28	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
570	39.05	2.32	0.28	2.04	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
571	39.09	2.32	0.28	2.04	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
572	39.14	2.33	0.29	2.04	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
573	39.24	2.33	0.29	2.04	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
574	39.29	2.33	0.29	2.05	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
575	39.39	2.34	0.29	2.05	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
576	39.43	2.34	0.29	2.05	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	39.53	2.35	0.30	2.05	0.86	0.267	1.68	0.159	0.88	1.10	0.200	No
578	39.57	2.35	0.30	2.05	0.85	0.267	1.68	0.159	0.88	1.10	0.200	No
579	39.68	2.36	0.30	2.06	0.85	0.267	1.68	0.159	0.88	1.10	0.200	No
580	39.73	2.36	0.30	2.06	0.85	0.267	1.68	0.159	0.88	1.10	0.200	No
581	39.81	2.37	0.31	2.06	0.85	0.267	1.68	0.159	0.88	1.10	0.200	No
582	39.89	2.37	0.31	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
583	39.96	2.38	0.31	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
584	40.06	2.38	0.31	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
585	40.15	2.39	0.32	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
586	40.20	2.39	0.32	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
587	40.24	2.40	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
588	40.26	2.40	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
589	40.27	2.40	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
590	40.37	2.40	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
591	40.42	2.41	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
592	40.52	2.41	0.33	2.09	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
593	40.56	2.42	0.33	2.09	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
594	40.66	2.42	0.33	2.09	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
595	40.70	2.43	0.33	2.09	0.84	0.267	1.68	0.159	0.87	1.10	0.200	No
596	40.75	2.43	0.34	2.09	0.84	0.267	1.68	0.159	0.87	1.10	0.200	No
597	40.85	2.43	0.34	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.200	No
598	40.91	2.44	0.34	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
599	40.96	2.44	0.34	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
600	41.04	2.45	0.34	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
601	41.09	2.45	0.35	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
602	41.18	2.46	0.35	2.11	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
603	41.23	2.46	0.35	2.11	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
604	41.29	2.46	0.35	2.11	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
605	41.38	2.47	0.36	2.11	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
606	41.42	2.47	0.36	2.12	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
607	41.52	2.48	0.36	2.12	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
608	41.57	2.48	0.36	2.12	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
609	41.62	2.49	0.36	2.12	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
610	41.71	2.49	0.37	2.13	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
611	41.76	2.49	0.37	2.13	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
612	41.84	2.50	0.37	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
613	41.91	2.50	0.37	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
614	41.95	2.51	0.37	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
615	42.01	2.51	0.37	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
616	42.10	2.52	0.38	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
617	42.15	2.52	0.38	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
618	42.24	2.53	0.38	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
619	42.28	2.53	0.38	2.15	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
620	42.39	2.54	0.39	2.15	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
621	42.43	2.54	0.39	2.15	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
622	42.50	2.54	0.39	2.15	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
623	42.58	2.55	0.39	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
624	42.65	2.55	0.39	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	42.70	2.56	0.40	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
626	42.73	2.56	0.40	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
627	42.77	2.56	0.40	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
628	42.82	2.56	0.40	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
629	42.87	2.57	0.40	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
630	42.91	2.57	0.40	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
631	42.97	2.57	0.40	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
632	43.02	2.58	0.41	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
633	43.06	2.58	0.41	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
634	43.11	2.58	0.41	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
635	43.17	2.59	0.41	2.18	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
636	43.21	2.59	0.41	2.18	0.82	0.267	1.68	0.158	0.87	1.10	0.201	No
637	43.29	2.59	0.41	2.18	0.82	0.267	1.68	0.158	0.87	1.10	0.201	No
638	43.34	2.60	0.42	2.18	0.82	0.267	1.68	0.158	0.87	1.10	0.201	No
639	43.39	2.60	0.42	2.18	0.82	0.267	1.68	0.158	0.87	1.10	0.201	No
640	43.45	2.61	0.42	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
641	43.51	2.61	0.42	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
642	43.59	2.61	0.42	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
643	43.64	2.62	0.43	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
644	43.70	2.62	0.43	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
645	43.78	2.63	0.43	2.20	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
646	43.88	2.63	0.43	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
647	43.94	2.64	0.43	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
648	44.04	2.64	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
649	44.07	2.65	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
650	44.12	2.65	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
651	44.16	2.65	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
652	44.21	2.65	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
653	44.26	2.66	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
654	44.31	2.66	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
655	44.35	2.66	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
656	44.40	2.67	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
657	44.45	2.67	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
658	44.50	2.67	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
659	44.54	2.68	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
660	44.60	2.68	0.46	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
661	44.64	2.68	0.46	2.23	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
662	44.69	2.69	0.46	2.23	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
663	44.74	2.69	0.46	2.23	0.81	0.265	1.68	0.158	0.86	1.10	0.202	No
664	44.79	2.69	0.46	2.23	0.81	0.265	1.68	0.158	0.86	1.10	0.201	No
665	44.83	2.70	0.46	2.23	0.81	0.265	1.68	0.158	0.86	1.10	0.201	No
666	44.88	2.70	0.46	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
667	44.93	2.70	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
668	44.98	2.71	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
669	45.03	2.71	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
670	45.08	2.71	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
671	45.16	2.72	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
672	45.19	2.72	0.47	2.25	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	45.27	2.72	0.48	2.25	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
674	45.32	2.73	0.48	2.25	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
675	45.37	2.73	0.48	2.25	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
676	45.45	2.74	0.48	2.25	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
677	45.51	2.74	0.48	2.26	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
678	45.56	2.74	0.49	2.26	0.80	0.265	1.68	0.157	0.86	1.10	2.000	Yes
679	45.61	2.75	0.49	2.26	0.80	0.265	1.68	0.157	0.86	1.10	2.000	Yes
680	45.69	2.75	0.49	2.26	0.80	0.265	1.68	0.157	0.86	1.10	2.000	Yes
681	45.75	2.76	0.49	2.26	0.80	0.265	1.68	0.157	0.86	1.10	2.000	Yes
682	45.81	2.76	0.49	2.27	0.80	0.264	1.68	0.157	0.86	1.10	2.000	Yes
683	45.89	2.76	0.50	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
684	45.94	2.77	0.50	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
685	46.04	2.77	0.50	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
686	46.08	2.78	0.50	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
687	46.15	2.78	0.50	2.28	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
688	46.17	2.78	0.50	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
689	46.18	2.78	0.50	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
690	46.23	2.79	0.51	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
691	46.27	2.79	0.51	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
692	46.32	2.79	0.51	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
693	46.41	2.80	0.51	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
694	46.47	2.80	0.51	2.29	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
695	46.52	2.80	0.52	2.29	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
696	46.56	2.81	0.52	2.29	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
697	46.65	2.81	0.52	2.29	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
698	46.71	2.81	0.52	2.29	0.79	0.263	1.68	0.157	0.86	1.10	0.201	No
699	46.76	2.82	0.52	2.29	0.79	0.263	1.68	0.157	0.86	1.10	0.201	No
700	46.85	2.82	0.53	2.30	0.78	0.263	1.68	0.157	0.86	1.10	0.201	No
701	46.90	2.83	0.53	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
702	46.99	2.83	0.53	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
703	47.04	2.84	0.53	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
704	47.10	2.84	0.53	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
705	47.16	2.84	0.54	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
706	47.23	2.85	0.54	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
707	47.30	2.85	0.54	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
708	47.38	2.86	0.54	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
709	47.43	2.86	0.54	2.32	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
710	47.52	2.86	0.55	2.32	0.78	0.263	1.68	0.156	0.85	1.10	0.201	No
711	47.59	2.87	0.55	2.32	0.78	0.262	1.68	0.156	0.85	1.10	0.201	No
712	47.66	2.87	0.55	2.32	0.78	0.262	1.68	0.156	0.85	1.10	0.201	No
713	47.77	2.88	0.55	2.32	0.78	0.262	1.68	0.156	0.85	1.10	0.201	No
714	47.82	2.88	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
715	47.91	2.89	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
716	47.93	2.89	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
717	47.97	2.89	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
718	48.02	2.89	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
719	48.07	2.90	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
720	48.12	2.90	0.57	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	48.19	2.90	0.57	2.34	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
722	48.23	2.91	0.57	2.34	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
723	48.31	2.91	0.57	2.34	0.77	0.262	1.68	0.155	0.85	1.10	0.200	No
724	48.35	2.91	0.57	2.34	0.77	0.262	1.68	0.155	0.85	1.10	0.200	No
725	48.40	2.92	0.57	2.34	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
726	48.45	2.92	0.58	2.34	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
727	48.50	2.92	0.58	2.34	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
728	48.55	2.92	0.58	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
729	48.59	2.93	0.58	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
730	48.67	2.93	0.58	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
731	48.73	2.93	0.58	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
732	48.78	2.94	0.59	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
733	48.83	2.94	0.59	2.35	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
734	48.91	2.94	0.59	2.35	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
735	48.98	2.95	0.59	2.36	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
736	49.03	2.95	0.59	2.36	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
737	49.12	2.96	0.60	2.36	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
738	49.17	2.96	0.60	2.36	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
739	49.27	2.97	0.60	2.36	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
740	49.31	2.97	0.60	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
741	49.38	2.97	0.60	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
742	49.45	2.98	0.61	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
743	49.51	2.98	0.61	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
744	49.54	2.98	0.61	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
745	49.59	2.98	0.61	2.37	0.76	0.260	1.68	0.154	0.85	1.10	0.200	No
746	49.64	2.99	0.61	2.37	0.76	0.260	1.68	0.154	0.85	1.10	0.200	No
747	49.73	2.99	0.62	2.38	0.76	0.260	1.68	0.154	0.85	1.10	0.200	No
748	49.83	3.00	0.62	2.38	0.75	0.260	1.68	0.154	0.85	1.10	0.200	No
749	49.92	3.00	0.62	2.38	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
750	49.98	3.01	0.62	2.38	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
751	50.07	3.01	0.63	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
752	50.16	3.02	0.63	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
753	50.24	3.02	0.63	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
754	50.32	3.03	0.63	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
755	50.41	3.03	0.64	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
756	50.50	3.04	0.64	2.40	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
757	50.56	3.04	0.64	2.40	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
758	50.66	3.04	0.64	2.40	0.75	0.258	1.68	0.154	0.85	1.10	0.199	No
759	50.74	3.05	0.65	2.40	0.75	0.258	1.68	0.153	0.85	1.10	0.199	No
760	50.84	3.05	0.65	2.40	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
761	50.93	3.06	0.65	2.41	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
762	50.98	3.06	0.65	2.41	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
763	51.08	3.07	0.66	2.41	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
764	51.17	3.07	0.66	2.41	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
765	51.24	3.08	0.66	2.42	0.74	0.257	1.68	0.153	0.85	1.10	0.199	No
766	51.34	3.09	0.67	2.42	0.74	0.257	1.68	0.153	0.85	1.10	0.199	No
767	51.41	3.09	0.67	2.42	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No
768	51.51	3.10	0.67	2.42	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	51.58	3.10	0.67	2.43	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No
770	51.68	3.11	0.68	2.43	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No
771	51.79	3.11	0.68	2.43	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
772	51.82	3.11	0.68	2.43	0.73	0.257	1.68	0.152	0.85	1.10	0.198	No
773	51.85	3.12	0.68	2.43	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
774	51.91	3.12	0.68	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
775	52.00	3.13	0.69	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
776	52.05	3.13	0.69	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
777	52.10	3.13	0.69	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
778	52.19	3.14	0.69	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
779	52.28	3.14	0.70	2.45	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
780	52.34	3.15	0.70	2.45	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
781	52.42	3.15	0.70	2.45	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
782	52.48	3.15	0.70	2.45	0.73	0.255	1.68	0.152	0.85	1.10	0.198	No
783	52.57	3.16	0.70	2.46	0.73	0.255	1.68	0.152	0.84	1.10	0.198	No
784	52.62	3.16	0.71	2.46	0.73	0.255	1.68	0.152	0.84	1.10	0.198	No
785	52.69	3.17	0.71	2.46	0.73	0.255	1.68	0.152	0.84	1.10	0.197	No
786	52.77	3.17	0.71	2.46	0.72	0.255	1.68	0.152	0.84	1.10	0.197	No
787	52.87	3.18	0.71	2.46	0.72	0.255	1.68	0.151	0.84	1.10	0.197	No
788	52.91	3.18	0.71	2.47	0.72	0.255	1.68	0.151	0.84	1.10	0.197	No
789	53.01	3.19	0.72	2.47	0.72	0.255	1.68	0.151	0.84	1.10	0.197	No
790	53.10	3.19	0.72	2.47	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
791	53.16	3.20	0.72	2.47	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
792	53.25	3.20	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
793	53.29	3.20	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
794	53.38	3.21	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
795	53.42	3.21	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
796	53.47	3.22	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
797	53.52	3.22	0.73	2.49	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
798	53.58	3.22	0.74	2.49	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
799	53.66	3.23	0.74	2.49	0.72	0.253	1.68	0.151	0.84	1.10	0.197	No
800	53.75	3.23	0.74	2.49	0.72	0.253	1.68	0.151	0.84	1.10	0.197	No
801	53.81	3.24	0.74	2.50	0.71	0.253	1.68	0.151	0.84	1.10	0.197	No
802	53.87	3.24	0.74	2.50	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
803	53.95	3.25	0.75	2.50	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
804	54.01	3.25	0.75	2.50	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
805	54.06	3.26	0.75	2.50	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
806	54.15	3.26	0.75	2.51	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
807	54.20	3.26	0.76	2.51	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
808	54.29	3.27	0.76	2.51	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
809	54.34	3.27	0.76	2.51	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
810	54.43	3.28	0.76	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
811	54.45	3.28	0.76	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
812	54.48	3.28	0.76	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
813	54.52	3.28	0.76	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
814	54.53	3.29	0.77	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
815	54.58	3.29	0.77	2.52	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
816	54.62	3.29	0.77	2.52	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	54.65	3.29	0.77	2.52	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
818	54.70	3.30	0.77	2.53	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
819	54.76	3.30	0.77	2.53	0.71	0.252	1.68	0.149	0.84	1.10	0.196	No
820	54.77	3.30	0.77	2.53	0.71	0.251	1.68	0.149	0.84	1.10	0.196	No
821	54.82	3.30	0.77	2.53	0.71	0.251	1.68	0.149	0.84	1.10	0.196	No
822	54.87	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
823	54.88	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
824	54.91	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
825	54.96	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
826	54.97	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
827	55.03	3.32	0.78	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
828	55.09	3.32	0.78	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
829	55.15	3.33	0.78	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
830	55.20	3.33	0.79	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
831	55.25	3.33	0.79	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
832	55.30	3.34	0.79	2.55	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
833	55.34	3.34	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
834	55.39	3.34	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
835	55.40	3.34	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
836	55.44	3.34	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
837	55.44	3.35	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
838	55.49	3.35	0.80	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
839	55.54	3.35	0.80	2.56	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
840	55.59	3.36	0.80	2.56	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
841	55.63	3.36	0.80	2.56	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
842	55.64	3.36	0.80	2.56	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
843	55.68	3.36	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
844	55.69	3.36	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
845	55.69	3.36	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
846	55.71	3.36	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
847	55.76	3.37	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
848	55.78	3.37	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
849	55.81	3.37	0.81	2.57	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
850	55.85	3.37	0.81	2.57	0.70	0.249	1.68	0.148	0.84	1.10	0.195	No
851	55.86	3.37	0.81	2.57	0.70	0.249	1.68	0.148	0.84	1.10	0.195	No
852	55.91	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
853	55.92	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
854	55.96	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
855	55.97	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
856	56.00	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
857	56.01	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
858	56.03	3.39	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
859	56.05	3.39	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
860	56.10	3.39	0.81	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
861	56.12	3.39	0.81	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
862	56.16	3.39	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
863	56.17	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
864	56.20	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	56.22	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
866	56.24	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
867	56.30	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
868	56.31	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
869	56.34	3.41	0.82	2.59	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
870	56.39	3.41	0.82	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
871	56.45	3.41	0.83	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
872	56.48	3.42	0.83	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
873	56.49	3.42	0.83	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
874	56.53	3.42	0.83	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
875	56.58	3.42	0.83	2.59	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
876	56.63	3.43	0.83	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
877	56.68	3.43	0.83	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
878	56.73	3.43	0.83	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
879	56.78	3.44	0.84	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
880	56.83	3.44	0.84	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
881	56.89	3.44	0.84	2.61	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
882	56.95	3.45	0.84	2.61	0.69	0.247	1.68	0.147	0.83	1.10	0.194	No
883	56.99	3.45	0.84	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
884	57.01	3.45	0.84	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
885	57.04	3.45	0.84	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
886	57.09	3.46	0.85	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
887	57.11	3.46	0.85	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
888	57.13	3.46	0.85	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
889	57.18	3.46	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
890	57.19	3.46	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
891	57.21	3.47	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
892	57.24	3.47	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
893	57.28	3.47	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
894	57.32	3.47	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
895	57.35	3.48	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
896	57.38	3.48	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
897	57.43	3.48	0.86	2.63	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
898	57.48	3.48	0.86	2.63	0.68	0.246	1.68	0.147	0.83	1.10	0.193	No
899	57.52	3.49	0.86	2.63	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
900	57.57	3.49	0.86	2.63	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
901	57.62	3.49	0.86	2.63	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
902	57.68	3.50	0.86	2.63	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
903	57.76	3.50	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
904	57.81	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
905	57.86	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
906	57.89	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
907	57.91	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
908	57.92	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
909	57.95	3.52	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
910	57.99	3.52	0.87	2.65	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
911	58.01	3.52	0.87	2.65	0.68	0.245	1.68	0.146	0.83	1.10	0.193	No
912	58.05	3.52	0.88	2.65	0.68	0.245	1.68	0.146	0.83	1.10	0.193	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	58.05	3.52	0.88	2.65	0.68	0.245	1.68	0.146	0.83	1.10	0.193	No
914	58.10	3.53	0.88	2.65	0.68	0.245	1.68	0.146	0.83	1.10	0.193	No
915	58.13	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
916	58.15	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
917	58.17	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
918	58.20	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
919	58.21	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
920	58.21	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
921	58.23	3.54	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
922	58.24	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
923	58.25	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
924	58.29	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
925	58.31	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
926	58.33	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
927	58.38	3.55	0.89	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
928	58.39	3.55	0.89	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
929	58.43	3.55	0.89	2.66	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
930	58.43	3.55	0.89	2.66	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
931	58.48	3.55	0.89	2.66	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
932	58.53	3.56	0.89	2.67	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
933	58.56	3.56	0.89	2.67	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
934	58.58	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
935	58.59	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
936	58.63	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
937	58.63	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
938	58.63	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
939	58.68	3.57	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
940	58.69	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
941	58.72	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
942	58.73	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
943	58.74	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
944	58.77	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
945	58.81	3.57	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
946	58.82	3.57	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
947	58.83	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
948	58.87	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
949	58.91	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
950	58.92	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
951	58.93	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
952	58.96	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
953	59.01	3.59	0.91	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
954	59.06	3.59	0.91	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
955	59.08	3.59	0.91	2.69	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
956	59.11	3.59	0.91	2.69	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
957	59.15	3.60	0.91	2.69	0.67	0.243	1.68	0.145	0.83	1.10	0.192	No
958	59.21	3.60	0.91	2.69	0.67	0.243	1.68	0.145	0.83	1.10	0.192	No
959	59.26	3.60	0.91	2.69	0.67	0.243	1.68	0.145	0.83	1.10	0.192	No
960	59.30	3.61	0.91	2.69	0.66	0.243	1.68	0.145	0.83	1.10	0.192	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	59.35	3.61	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.192	No
962	59.40	3.61	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.192	No
963	59.42	3.62	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.192	No
964	59.47	3.62	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.192	No
965	59.51	3.62	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
966	59.56	3.63	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
967	59.61	3.63	0.92	2.71	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
968	59.67	3.63	0.93	2.71	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
969	59.71	3.64	0.93	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
970	59.80	3.64	0.93	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
971	59.85	3.65	0.93	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
972	59.90	3.65	0.93	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
973	60.00	3.65	0.94	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
974	60.04	3.66	0.94	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
975	60.10	3.66	0.94	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
976	60.15	3.67	0.94	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
977	60.19	3.67	0.94	2.73	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
978	60.23	3.67	0.94	2.73	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
979	60.28	3.67	0.94	2.73	0.66	0.241	1.68	0.144	0.83	1.10	0.191	No
980	60.33	3.68	0.95	2.73	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
981	60.38	3.68	0.95	2.73	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
982	60.42	3.68	0.95	2.73	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
983	60.44	3.68	0.95	2.73	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
984	60.47	3.69	0.95	2.74	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
985	60.52	3.69	0.95	2.74	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
986	60.56	3.69	0.95	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
987	60.57	3.69	0.95	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
988	60.61	3.70	0.96	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
989	60.66	3.70	0.96	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
990	60.71	3.70	0.96	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
991	60.76	3.71	0.96	2.75	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
992	60.81	3.71	0.96	2.75	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
993	60.86	3.71	0.96	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
994	60.91	3.72	0.96	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
995	60.95	3.72	0.97	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
996	61.00	3.72	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
997	61.02	3.72	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
998	61.05	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
999	61.08	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1000	61.09	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1001	61.13	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1002	61.14	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1003	61.16	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1004	61.20	3.74	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1005	61.23	3.74	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1006	61.24	3.74	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1007	61.29	3.74	0.98	2.77	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
1008	61.30	3.74	0.98	2.77	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	61.33	3.75	0.98	2.77	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
1010	61.38	3.75	0.98	2.77	0.65	0.240	1.68	0.142	0.82	1.10	0.190	No
1011	61.43	3.75	0.98	2.77	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1012	61.48	3.76	0.98	2.77	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1013	61.53	3.76	0.98	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1014	61.56	3.76	0.98	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1015	61.58	3.76	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1016	61.59	3.76	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1017	61.62	3.76	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1018	61.63	3.77	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1019	61.67	3.77	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1020	61.71	3.77	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1021	61.76	3.77	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1022	61.81	3.78	0.99	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1023	61.86	3.78	0.99	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1024	61.87	3.78	0.99	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1025	61.91	3.78	1.00	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1026	61.95	3.79	1.00	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1027	61.96	3.79	1.00	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1028	62.00	3.79	1.00	2.79	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1029	62.04	3.79	1.00	2.79	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1030	62.06	3.79	1.00	2.79	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1031	62.10	3.80	1.00	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1032	62.14	3.80	1.00	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1033	62.20	3.80	1.00	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1034	62.22	3.80	1.01	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1035	62.27	3.81	1.01	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1036	62.29	3.81	1.01	2.80	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1037	62.34	3.81	1.01	2.80	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1038	62.39	3.82	1.01	2.81	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1039	62.43	3.82	1.01	2.81	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1040	62.49	3.82	1.01	2.81	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1041	62.57	3.83	1.02	2.81	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1042	62.68	3.84	1.02	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1043	62.75	3.84	1.02	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1044	62.87	3.85	1.03	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1045	62.88	3.85	1.03	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1046	62.89	3.85	1.03	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1047	62.93	3.85	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1048	62.98	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1049	63.02	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1050	63.07	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.188	No
1051	63.12	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.188	No
1052	63.14	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.188	No
1053	63.17	3.87	1.03	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1054	63.17	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1055	63.20	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1056	63.21	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1057	63.23	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1058	63.26	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1059	63.28	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1060	63.31	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1061	63.32	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1062	63.36	3.87	1.04	2.83	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
1063	63.40	3.88	1.04	2.83	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.01	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
2	0.04	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
3	0.09	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
4	0.11	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
5	0.14	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
6	0.14	1.35	3.66	4.59	1.00	2.15	27.82	59.81	4.000	No	Yes	2.00
7	0.18	6.97	2.69	0.89	0.81	11.19	4.58	51.24	4.000	No	Yes	2.00
8	0.23	18.19	2.14	0.35	0.65	29.21	1.00	29.21	4.000	No	No	2.00
9	0.24	36.79	1.76	0.18	0.54	59.09	1.00	59.09	4.000	No	No	2.00
10	0.28	53.07	1.58	0.14	0.50	85.23	1.00	85.23	4.000	No	No	2.00
11	0.33	59.27	1.53	0.14	0.50	95.19	1.00	95.19	4.000	No	No	2.00
12	0.38	56.61	1.60	0.20	0.50	90.91	1.00	90.91	4.000	No	No	2.00
13	0.42	52.11	1.72	0.34	0.52	83.69	1.00	83.69	4.000	No	No	2.00
14	0.47	51.84	1.83	0.58	0.56	83.25	1.19	98.77	4.000	No	No	2.00
15	0.51	51.94	1.90	0.76	0.58	83.40	1.24	103.16	4.000	No	No	2.00
16	0.52	52.09	1.93	0.85	0.59	83.64	1.26	104.99	4.000	No	No	2.00
17	0.57	52.66	1.91	0.81	0.58	84.56	1.24	105.20	4.000	No	No	2.00
18	0.61	53.24	1.89	0.76	0.58	85.48	1.23	105.23	4.000	No	No	2.00
19	0.67	53.47	1.88	0.73	0.57	85.85	1.22	105.00	4.000	No	No	2.00
20	0.73	53.84	1.87	0.71	0.57	86.44	1.22	105.23	4.000	No	No	2.00
21	0.81	53.62	1.87	0.71	0.57	86.08	1.22	104.72	4.000	No	No	2.00
22	0.86	53.52	1.92	0.84	0.58	85.91	1.25	107.16	4.000	No	No	2.00
23	0.98	52.14	1.96	0.96	0.60	83.69	1.28	106.78	4.000	No	No	2.00
24	1.05	48.22	2.02	1.08	0.61	77.37	1.32	102.42	4.000	No	No	2.00
25	1.15	43.67	2.04	1.03	0.62	70.05	1.34	94.07	4.000	No	No	2.00
26	1.24	37.87	2.07	0.96	0.63	60.73	1.38	83.84	4.000	No	No	2.00
27	1.34	34.47	2.09	0.89	0.63	55.26	1.40	77.37	4.000	No	No	2.00
28	1.43	30.63	2.16	0.99	0.65	49.08	1.51	74.33	4.000	No	No	2.00
29	1.53	26.86	2.25	1.20	0.68	43.01	1.75	75.37	4.000	No	No	2.00
30	1.58	24.56	2.31	1.36	0.70	39.32	1.98	77.68	4.000	No	No	2.00
31	1.62	23.48	2.32	1.31	0.70	37.59	2.00	75.15	4.000	No	No	2.00
32	1.67	24.36	2.28	1.18	0.69	38.99	1.85	72.19	4.000	No	No	2.00
33	1.75	23.89	2.28	1.15	0.69	38.23	1.86	70.99	4.000	No	No	2.00
34	1.77	23.08	2.30	1.17	0.70	36.93	1.92	70.79	4.000	No	No	2.00
35	1.81	21.50	2.34	1.25	0.71	34.38	2.08	71.55	4.000	No	No	2.00
36	1.86	19.71	2.39	1.32	0.72	31.51	2.30	72.37	4.000	No	No	2.00
37	1.91	17.96	2.43	1.37	0.74	28.69	2.52	72.24	4.000	No	No	2.00
38	1.95	16.98	2.43	1.26	0.74	27.11	2.53	68.54	4.000	No	No	2.00
39	2.00	16.21	2.41	1.09	0.73	25.86	2.43	62.85	4.000	No	No	2.00
40	2.05	14.89	2.41	0.93	0.73	23.75	2.42	57.52	4.000	Yes	No	2.00
41	2.11	13.51	2.43	0.88	0.74	21.52	2.55	54.95	4.000	Yes	No	2.00
42	2.20	12.33	2.47	0.89	0.75	19.62	2.79	54.76	4.000	Yes	No	2.00
43	2.24	11.73	2.50	0.95	0.76	18.64	3.01	56.15	4.000	Yes	No	2.00
44	2.29	11.26	2.54	1.06	0.77	17.88	3.29	58.85	4.000	Yes	No	2.00
45	2.34	11.32	2.60	1.39	0.79	17.99	3.76	67.59	4.000	Yes	Yes	2.00
46	2.44	12.17	2.61	1.64	0.79	19.33	3.86	74.63	4.000	Yes	Yes	2.00
47	2.48	14.56	2.56	1.73	0.78	23.17	3.43	79.44	4.000	Yes	No	2.00
48	2.58	18.03	2.47	1.60	0.75	28.74	2.75	79.05	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	2.63	22.41	2.37	1.48	0.72	35.77	2.21	79.01	4.000	Yes	No	2.00
50	2.71	26.08	2.30	1.39	0.70	41.66	1.92	80.03	4.000	Yes	No	2.00
51	2.78	30.33	2.22	1.27	0.67	48.48	1.67	80.89	4.000	Yes	No	2.00
52	2.82	33.73	2.16	1.16	0.66	53.95	1.52	82.21	4.000	Yes	No	2.00
53	2.89	34.94	2.13	1.09	0.65	55.89	1.47	82.24	4.000	Yes	No	2.00
54	2.96	33.63	2.16	1.13	0.65	53.77	1.51	81.39	4.000	No	No	2.00
55	3.03	30.90	2.20	1.21	0.67	49.37	1.62	80.00	4.000	No	No	2.00
56	3.11	28.98	2.23	1.23	0.68	46.28	1.70	78.46	4.000	No	No	2.00
57	3.19	26.45	2.26	1.23	0.69	42.22	1.79	75.65	4.000	No	No	2.00
58	3.25	23.52	2.31	1.27	0.70	37.50	1.97	73.87	4.000	No	No	2.00
59	3.35	20.49	2.38	1.38	0.72	32.62	2.28	74.42	4.000	No	No	2.00
60	3.41	17.79	2.44	1.42	0.74	28.29	2.60	73.49	4.000	No	No	2.00
61	3.50	15.91	2.46	1.31	0.75	25.25	2.74	69.10	4.000	No	No	2.00
62	3.59	14.83	2.45	1.11	0.74	23.51	2.66	62.63	4.000	No	No	2.00
63	3.69	14.59	2.43	0.99	0.74	23.12	2.55	58.90	4.000	No	No	2.00
64	3.79	15.20	2.39	0.89	0.73	24.09	2.35	56.48	4.000	No	No	2.00
65	3.88	16.54	2.34	0.81	0.71	26.24	2.09	54.78	4.000	No	No	2.00
66	3.97	19.14	2.27	0.75	0.69	30.40	1.82	55.25	4.000	No	No	2.00
67	4.07	20.82	2.26	0.82	0.68	33.10	1.77	58.69	4.000	No	No	2.00
68	4.14	23.49	2.22	0.86	0.67	37.37	1.67	62.38	4.000	No	No	2.00
69	4.17	25.51	2.20	0.89	0.67	40.62	1.61	65.25	4.000	No	No	2.00
70	4.26	28.14	2.15	0.86	0.65	44.83	1.51	67.83	4.000	No	No	2.00
71	4.32	28.71	2.16	0.90	0.66	45.74	1.52	69.43	4.000	No	No	2.00
72	4.37	28.10	2.18	0.95	0.66	44.77	1.56	69.94	4.000	No	No	2.00
73	4.42	26.62	2.21	1.02	0.67	42.38	1.65	69.93	4.000	No	No	2.00
74	4.51	25.07	2.24	1.05	0.68	39.88	1.74	69.30	4.000	No	No	2.00
75	4.61	23.68	2.27	1.07	0.69	37.65	1.82	68.42	4.000	No	No	2.00
76	4.65	22.37	2.29	1.08	0.70	35.53	1.90	67.38	4.000	No	No	2.00
77	4.74	21.09	2.32	1.11	0.70	33.47	2.00	67.06	4.000	No	No	2.00
78	4.80	20.48	2.33	1.11	0.71	32.49	2.05	66.55	4.000	No	No	2.00
79	4.89	20.04	2.34	1.12	0.71	31.78	2.09	66.46	4.000	No	No	2.00
80	4.95	20.38	2.33	1.10	0.71	32.32	2.05	66.20	4.000	No	No	2.00
81	5.04	21.05	2.31	1.07	0.70	33.39	1.97	65.92	4.000	No	No	2.00
82	5.13	22.81	2.27	0.99	0.69	36.20	1.80	65.26	4.000	No	No	2.00
83	5.18	25.27	2.20	0.90	0.67	40.14	1.63	65.28	4.000	No	No	2.00
84	5.28	28.07	2.14	0.82	0.65	44.63	1.49	66.64	4.000	No	No	2.00
85	5.32	31.47	2.09	0.76	0.63	50.09	1.40	70.04	4.000	No	No	2.00
86	5.42	34.67	2.05	0.75	0.62	55.23	1.35	74.62	4.000	No	No	2.00
87	5.51	38.14	2.01	0.74	0.61	60.80	1.31	79.86	4.000	No	No	2.00
88	5.60	41.28	1.94	0.63	0.59	65.83	1.26	83.18	4.000	No	No	2.00
89	5.66	44.24	1.88	0.53	0.57	70.58	1.22	86.14	4.000	No	No	2.00
90	5.76	45.86	1.83	0.46	0.56	73.17	1.00	73.17	4.000	No	No	2.00
91	5.85	44.91	1.86	0.50	0.57	71.65	1.21	86.53	4.000	No	No	2.00
92	5.92	41.11	1.92	0.56	0.58	65.53	1.25	81.79	4.000	No	No	2.00
93	5.95	38.21	1.96	0.61	0.60	60.87	1.28	77.76	4.000	No	No	2.00
94	5.97	36.15	1.99	0.64	0.61	57.56	1.30	74.97	4.000	No	No	2.00
95	6.02	35.37	2.01	0.65	0.61	56.31	1.31	73.90	4.000	Yes	No	2.00
96	6.06	32.74	2.05	0.70	0.62	52.08	1.36	70.59	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	6.16	29.98	2.10	0.76	0.64	47.63	1.42	67.87	4.000	Yes	No	2.00
98	6.21	26.98	2.18	0.88	0.66	42.82	1.56	66.83	4.000	Yes	No	2.00
99	6.26	24.29	2.26	1.07	0.69	38.48	1.79	68.74	4.000	Yes	No	2.00
100	6.31	21.62	2.36	1.35	0.72	34.19	2.18	74.63	4.000	Yes	No	2.00
101	6.40	19.23	2.46	1.68	0.75	30.34	2.70	82.06	4.000	Yes	No	2.00
102	6.44	16.91	2.56	2.09	0.78	26.60	3.43	91.18	4.000	Yes	No	2.00
103	6.52	15.12	2.64	2.48	0.80	23.73	4.16	98.65	4.000	Yes	Yes	2.00
104	6.57	13.47	2.73	2.91	0.83	21.08	5.01	105.63	4.000	Yes	Yes	2.00
105	6.64	12.16	2.80	3.29	0.85	18.96	5.81	110.19	4.000	Yes	Yes	2.00
106	6.69	10.98	2.86	3.65	0.87	17.06	6.65	113.46	4.000	Yes	Yes	2.00
107	6.78	10.34	2.90	3.84	0.88	16.02	7.15	114.49	4.000	Yes	Yes	2.00
108	6.83	9.90	2.91	3.84	0.88	15.31	7.38	112.96	4.000	Yes	Yes	2.00
109	6.92	9.60	2.92	3.75	0.88	14.82	7.45	110.37	4.000	No	Yes	2.00
110	6.97	9.39	2.91	3.59	0.88	14.48	7.39	107.07	4.000	No	Yes	2.00
111	7.03	9.29	2.91	3.50	0.88	14.32	7.35	105.27	4.000	No	Yes	2.00
112	7.12	9.32	2.90	3.42	0.88	14.36	7.25	104.07	4.000	No	Yes	2.00
113	7.22	9.39	2.90	3.38	0.88	14.46	7.17	103.64	4.000	No	Yes	2.00
114	7.27	9.52	2.89	3.37	0.88	14.66	7.09	103.89	4.000	No	Yes	2.00
115	7.36	9.65	2.89	3.41	0.87	14.86	7.06	104.93	4.000	No	Yes	2.00
116	7.43	9.75	2.89	3.48	0.88	15.01	7.08	106.34	4.000	No	Yes	2.00
117	7.50	9.78	2.90	3.56	0.88	15.06	7.16	107.82	4.000	No	Yes	2.00
118	7.59	9.77	2.90	3.61	0.88	15.04	7.22	108.69	4.000	No	Yes	2.00
119	7.64	9.70	2.91	3.69	0.88	14.93	7.34	109.64	4.000	No	Yes	2.00
120	7.75	9.63	2.92	3.75	0.88	14.81	7.46	110.40	4.000	No	Yes	2.00
121	7.79	9.70	2.92	3.76	0.88	14.91	7.43	110.74	4.000	No	Yes	2.00
122	7.89	9.97	2.90	3.67	0.88	15.33	7.19	110.22	4.000	No	Yes	2.00
123	7.99	10.24	2.88	3.59	0.87	15.76	6.97	109.89	4.000	No	Yes	2.00
124	8.04	10.34	2.88	3.62	0.87	15.91	6.96	110.71	4.000	No	Yes	2.00
125	8.13	10.31	2.89	3.67	0.87	15.85	7.03	111.39	4.000	No	Yes	2.00
126	8.23	10.27	2.84	3.03	0.86	15.79	6.35	100.23	4.000	No	Yes	2.00
127	8.32	10.27	2.79	2.55	0.85	15.77	5.78	91.18	4.000	No	Yes	2.00
128	8.37	10.53	2.76	2.28	0.84	16.20	5.34	86.47	4.000	No	Yes	2.00
129	8.46	11.04	2.79	2.79	0.85	17.00	5.74	97.61	4.000	No	Yes	2.00
130	8.56	11.30	2.82	3.16	0.85	17.42	6.05	105.35	4.000	No	Yes	2.00
131	8.59	11.30	2.84	3.44	0.86	17.41	6.35	110.51	4.000	No	Yes	2.00
132	8.61	11.03	2.87	3.69	0.87	16.97	6.71	113.97	4.000	No	Yes	2.00
133	8.67	10.89	2.88	3.88	0.87	16.75	6.98	116.82	4.000	No	Yes	2.00
134	8.71	10.69	2.90	4.05	0.88	16.41	7.24	118.78	4.000	No	Yes	2.00
135	8.72	10.51	2.92	4.18	0.88	16.13	7.46	120.30	4.000	No	Yes	2.00
136	8.78	10.44	2.92	4.25	0.89	16.02	7.56	121.13	4.000	No	Yes	2.00
137	8.80	10.44	2.93	4.28	0.89	16.02	7.59	121.54	4.000	No	Yes	2.00
138	8.86	10.44	2.93	4.29	0.89	16.01	7.60	121.62	4.000	No	Yes	2.00
139	8.90	10.55	2.92	4.29	0.88	16.17	7.55	122.08	4.000	No	Yes	2.00
140	8.95	10.68	2.92	4.30	0.88	16.39	7.49	122.77	4.000	No	Yes	2.00
141	8.96	10.89	2.91	4.30	0.88	16.71	7.39	123.54	4.000	No	Yes	2.00
142	9.00	11.05	2.91	4.31	0.88	16.98	7.33	124.43	4.000	No	Yes	2.00
143	9.05	11.29	2.90	4.33	0.88	17.35	7.24	125.55	4.000	No	Yes	2.00
144	9.09	11.56	2.89	4.31	0.88	17.78	7.10	126.26	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	9.10	11.96	2.88	4.27	0.87	18.43	6.89	127.03	4.000	No	Yes	2.00
146	9.14	12.47	2.86	4.24	0.87	19.24	6.66	128.15	4.000	No	Yes	2.00
147	9.20	13.21	2.84	4.16	0.86	20.42	6.33	129.23	4.000	No	Yes	2.00
148	9.24	14.09	2.81	4.06	0.85	21.83	5.95	129.98	4.000	No	Yes	2.00
149	9.29	15.03	2.78	3.93	0.84	23.34	5.57	129.97	4.000	No	Yes	2.00
150	9.31	15.90	2.75	3.85	0.83	24.74	5.28	130.54	4.000	No	Yes	2.00
151	9.38	16.61	2.73	3.79	0.83	25.88	5.06	130.87	4.000	Yes	Yes	2.00
152	9.41	17.32	2.71	3.66	0.82	27.00	4.80	129.53	4.000	Yes	Yes	2.00
153	9.47	18.02	2.68	3.45	0.81	28.13	4.48	126.15	4.000	Yes	Yes	2.00
154	9.53	19.33	2.62	3.03	0.79	30.23	3.91	118.10	4.000	Yes	Yes	2.00
155	9.62	21.08	2.54	2.58	0.77	33.03	3.29	108.83	4.000	Yes	No	2.00
156	9.67	23.71	2.45	2.07	0.74	36.88	2.63	97.08	4.000	Yes	No	2.00
157	9.77	26.25	2.37	1.72	0.72	39.96	2.22	88.55	4.000	Yes	No	2.00
158	9.81	28.83	2.29	1.42	0.70	43.12	1.89	81.52	4.000	Yes	No	2.00
159	9.90	30.67	2.24	1.23	0.68	45.16	1.72	77.57	4.000	Yes	No	2.00
160	9.97	32.26	2.20	1.11	0.67	46.92	1.61	75.55	4.000	Yes	No	2.00
161	10.06	32.63	2.20	1.11	0.67	47.13	1.61	75.67	4.000	No	No	2.00
162	10.20	32.13	2.22	1.20	0.68	46.19	1.68	77.59	4.000	Yes	No	2.00
163	10.30	29.29	2.26	1.22	0.69	42.06	1.79	75.15	4.000	Yes	No	2.00
164	10.44	25.52	2.33	1.34	0.71	36.67	2.06	75.52	4.000	Yes	No	2.00
165	10.54	20.70	2.45	1.61	0.74	30.03	2.66	79.87	4.000	Yes	No	2.00
166	10.63	16.56	2.64	2.51	0.80	24.49	4.08	99.92	4.000	Yes	Yes	2.00
167	10.74	13.83	2.78	3.48	0.84	20.66	5.64	116.62	4.000	Yes	Yes	2.00
168	10.78	12.62	2.86	4.22	0.87	18.99	6.71	127.39	4.000	Yes	Yes	2.00
169	10.83	12.48	2.88	4.44	0.87	18.76	6.96	130.59	4.000	Yes	Yes	2.00
170	10.88	12.31	2.90	4.63	0.88	18.47	7.21	133.16	4.000	Yes	Yes	2.00
171	10.89	12.15	2.92	4.89	0.88	18.24	7.50	136.86	4.000	Yes	Yes	2.00
172	10.97	12.25	2.93	5.04	0.89	18.30	7.62	139.36	4.000	No	Yes	2.00
173	11.02	12.48	2.93	5.14	0.89	18.59	7.62	141.70	4.000	No	Yes	2.00
174	11.07	12.79	2.92	5.12	0.88	18.96	7.51	142.37	4.000	No	Yes	2.00
175	11.11	13.06	2.91	5.11	0.88	19.28	7.42	143.00	4.000	No	Yes	2.00
176	11.16	13.39	2.91	5.09	0.88	19.70	7.30	143.71	4.000	No	Yes	2.00
177	11.21	13.76	2.90	5.09	0.88	20.15	7.19	144.81	4.000	No	Yes	2.00
178	11.26	14.14	2.89	5.11	0.88	20.62	7.10	146.37	4.000	No	Yes	2.00
179	11.30	14.37	2.89	5.20	0.88	20.90	7.10	148.42	4.000	No	Yes	2.00
180	11.36	14.54	2.90	5.29	0.88	21.07	7.14	150.43	4.000	No	Yes	2.00
181	11.40	14.68	2.90	5.36	0.88	21.19	7.17	151.92	4.000	No	Yes	2.00
182	11.45	14.81	2.90	5.40	0.88	21.32	7.18	152.97	4.000	No	Yes	2.00
183	11.50	15.04	2.89	5.41	0.88	21.57	7.12	153.64	4.000	No	Yes	2.00
184	11.55	15.31	2.89	5.41	0.88	21.86	7.06	154.44	4.000	No	Yes	2.00
185	11.60	15.85	2.88	5.35	0.87	22.53	6.88	155.07	4.000	No	Yes	2.00
186	11.66	16.56	2.86	5.25	0.87	23.39	6.63	155.14	4.000	No	Yes	2.00
187	11.74	17.40	2.84	5.06	0.86	24.38	6.31	153.92	4.000	No	Yes	2.00
188	11.84	17.98	2.82	4.98	0.86	24.97	6.15	153.46	4.000	No	Yes	2.00
189	11.93	18.18	2.82	5.03	0.86	25.08	6.17	154.65	4.000	No	Yes	2.00
190	12.04	18.04	2.84	5.23	0.86	24.73	6.38	157.76	4.000	No	Yes	2.00
191	12.13	17.87	2.86	5.42	0.87	24.37	6.58	160.42	4.000	No	Yes	2.00
192	12.22	17.67	2.87	5.55	0.87	23.94	6.76	161.87	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	12.27	17.51	2.88	5.59	0.87	23.64	6.85	161.93	4.000	No	Yes	2.00
194	12.37	17.27	2.88	5.64	0.87	23.16	6.98	161.58	4.000	No	Yes	2.00
195	12.41	17.17	2.89	5.65	0.87	22.94	7.03	161.26	4.000	No	Yes	2.00
196	12.51	17.06	2.89	5.71	0.88	22.65	7.13	161.48	4.000	No	Yes	2.00
197	12.56	17.23	2.89	5.68	0.88	22.78	7.08	161.37	4.000	No	Yes	2.00
198	12.65	17.64	2.88	5.61	0.87	23.15	6.96	161.03	4.000	No	Yes	2.00
199	12.71	18.45	2.86	5.51	0.87	24.09	6.70	161.44	4.000	No	Yes	2.00
200	12.79	19.23	2.86	5.57	0.87	24.96	6.59	164.56	4.000	No	Yes	2.00
201	12.89	20.10	2.85	5.67	0.86	25.92	6.50	168.54	4.000	No	Yes	2.00
202	12.96	20.98	2.84	5.80	0.86	26.96	6.43	173.33	4.000	No	Yes	2.00
203	13.04	22.23	2.82	5.70	0.86	28.37	6.15	174.57	4.000	Yes	Yes	2.00
204	13.13	24.11	2.78	5.33	0.84	30.49	5.62	171.40	4.000	Yes	Yes	2.00
205	13.23	26.80	2.65	3.76	0.80	33.27	4.19	139.58	4.000	Yes	Yes	2.00
206	13.30	30.34	2.49	2.43	0.76	36.95	2.91	107.47	4.000	Yes	No	2.00
207	13.37	34.15	2.32	1.49	0.70	40.77	2.02	82.17	4.000	Yes	No	2.00
208	13.47	38.32	2.29	1.49	0.69	45.44	1.87	85.15	4.000	Yes	No	2.00
209	13.57	38.79	2.31	1.62	0.70	45.84	1.94	89.15	4.000	No	No	2.00
210	13.61	39.19	2.31	1.69	0.70	46.27	1.98	91.39	4.000	No	No	2.00
211	13.62	40.31	2.30	1.69	0.70	47.52	1.94	92.31	4.000	No	No	2.00
212	13.68	44.31	2.26	1.59	0.69	51.92	1.78	92.36	4.000	No	No	2.00
213	13.73	47.82	2.22	1.53	0.68	55.76	1.68	93.57	4.000	No	No	2.00
214	13.77	50.08	2.21	1.55	0.67	58.23	1.65	95.79	4.000	No	No	2.00
215	13.87	52.91	2.20	1.55	0.67	61.16	1.61	98.26	4.000	No	No	2.00
216	13.93	55.78	2.19	1.58	0.66	64.26	1.58	101.41	4.000	No	No	2.00
217	14.00	58.54	2.17	1.60	0.66	67.15	1.55	104.21	4.000	No	No	2.00
218	14.06	60.62	2.17	1.63	0.66	69.33	1.54	106.89	4.000	No	No	2.00
219	14.12	62.21	2.17	1.67	0.66	70.95	1.54	109.37	4.000	No	No	2.00
220	14.21	63.05	2.17	1.71	0.66	71.63	1.55	111.13	4.000	No	No	2.00
221	14.25	63.45	2.18	1.75	0.66	71.96	1.56	112.44	4.000	No	No	2.00
222	14.35	63.35	2.18	1.78	0.66	71.51	1.58	112.67	4.000	No	No	2.00
223	14.45	62.61	2.19	1.80	0.67	70.37	1.60	112.38	4.000	No	No	2.00
224	14.50	61.06	2.21	1.83	0.67	68.50	1.63	111.75	4.000	No	No	2.00
225	14.59	59.18	2.22	1.87	0.68	66.15	1.68	111.04	4.000	No	No	2.00
226	14.64	57.19	2.24	1.92	0.68	63.82	1.73	110.49	4.000	No	No	2.00
227	14.74	55.60	2.26	1.95	0.69	61.79	1.78	110.08	4.000	No	No	2.00
228	14.80	54.22	2.27	1.99	0.69	60.12	1.83	109.86	4.000	No	No	2.00
229	14.88	53.18	2.28	2.02	0.69	58.73	1.87	109.70	4.000	No	No	2.00
230	14.97	52.24	2.30	2.05	0.70	57.45	1.91	109.62	4.000	No	No	2.00
231	15.05	51.43	2.31	2.08	0.70	56.38	1.95	110.04	4.000	No	No	2.00
232	15.13	50.85	2.32	2.12	0.70	55.53	1.99	110.56	4.000	No	No	2.00
233	15.21	50.95	2.32	2.12	0.70	55.42	1.99	110.46	4.000	No	No	2.00
234	15.28	52.23	2.30	2.06	0.70	56.58	1.93	109.48	4.000	No	No	2.00
235	15.36	55.10	2.27	1.95	0.69	59.37	1.82	108.07	4.000	No	No	2.00
236	15.41	60.22	2.22	1.78	0.67	64.61	1.66	107.30	4.000	No	No	2.00
237	15.50	66.38	2.16	1.62	0.66	70.74	1.53	108.00	4.000	No	No	2.00
238	15.55	72.78	2.07	1.31	0.63	77.07	1.38	106.45	4.000	No	No	2.00
239	15.65	76.92	2.00	1.07	0.61	80.83	1.31	105.71	4.000	No	No	2.00
240	15.71	78.17	1.94	0.88	0.59	81.68	1.27	103.43	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	15.79	75.07	1.96	0.89	0.60	78.22	1.28	99.99	4.000	Yes	No	2.00
242	15.89	67.29	2.02	0.97	0.61	69.97	1.33	92.88	4.000	Yes	No	2.00
243	15.90	61.09	2.07	1.04	0.63	63.58	1.38	88.03	4.000	Yes	No	2.00
244	15.94	56.21	2.12	1.11	0.64	58.47	1.45	84.99	4.000	Yes	No	2.00
245	16.00	53.24	2.15	1.16	0.65	55.28	1.51	83.45	4.000	Yes	No	2.00
246	16.06	47.68	2.22	1.30	0.67	49.45	1.67	82.65	4.000	Yes	No	2.00
247	16.14	40.74	2.32	1.56	0.71	42.17	2.02	85.02	4.000	Yes	No	2.00
248	16.19	34.10	2.43	1.87	0.74	35.24	2.56	90.26	4.000	Yes	No	2.00
249	16.26	27.10	2.57	2.32	0.78	27.88	3.51	97.89	4.000	Yes	No	2.00
250	16.33	21.54	2.70	2.80	0.82	22.01	4.74	104.24	4.000	Yes	Yes	2.00
251	16.38	17.06	2.83	3.31	0.86	17.28	6.24	107.80	4.000	Yes	Yes	2.00
252	16.47	14.43	2.93	3.75	0.89	14.45	7.58	109.50	4.000	Yes	Yes	2.00
253	16.54	12.64	3.00	4.14	1.00	12.69	8.71	110.54	4.000	Yes	Yes	2.00
254	16.62	11.80	3.05	4.58	1.00	11.71	9.67	113.31	4.000	No	Yes	2.00
255	16.70	11.53	3.08	4.88	1.00	11.36	10.18	115.66	4.000	No	Yes	2.00
256	16.76	12.28	3.06	4.98	1.00	12.12	9.88	119.66	4.000	No	Yes	2.00
257	16.86	14.88	2.96	4.36	1.00	14.80	8.08	119.59	4.000	Yes	Yes	2.00
258	16.90	19.33	2.82	3.59	0.85	19.15	6.07	116.24	4.000	Yes	Yes	2.00
259	16.98	25.84	2.65	2.82	0.80	25.69	4.22	108.51	4.000	Yes	Yes	2.00
260	17.05	35.42	2.48	2.18	0.75	35.23	2.81	99.11	4.000	Yes	No	2.00
261	17.14	47.54	2.30	1.68	0.70	47.19	1.94	91.71	4.000	Yes	No	2.00
262	17.20	61.48	2.15	1.32	0.65	60.90	1.51	91.88	4.000	Yes	No	2.00
263	17.29	73.03	2.05	1.11	0.62	72.03	1.35	97.56	4.000	Yes	No	2.00
264	17.34	81.99	1.99	1.01	0.60	80.70	1.30	104.58	4.000	Yes	No	2.00
265	17.44	86.87	1.97	1.01	0.60	85.21	1.28	109.31	4.000	No	No	2.00
266	17.50	88.89	1.93	0.91	0.59	86.96	1.26	109.36	4.000	No	No	2.00
267	17.58	88.15	1.91	0.82	0.58	85.91	1.24	106.78	4.000	No	No	2.00
268	17.64	85.02	1.90	0.75	0.58	82.63	1.24	102.13	4.000	No	No	2.00
269	17.75	80.50	1.95	0.85	0.59	77.97	1.27	99.12	4.000	No	No	2.00
270	17.82	72.08	2.04	1.03	0.62	69.66	1.35	93.80	4.000	No	No	2.00
271	17.89	66.02	2.11	1.19	0.64	63.60	1.43	91.18	4.000	No	No	2.00
272	17.89	62.68	2.15	1.30	0.65	60.37	1.51	91.04	4.000	No	No	2.00
273	17.96	64.06	2.15	1.31	0.65	61.55	1.50	92.30	4.000	No	No	2.00
274	18.02	65.34	2.15	1.35	0.65	62.67	1.51	94.33	4.000	No	No	2.00
275	18.07	66.86	2.15	1.39	0.65	64.01	1.51	96.43	4.000	No	No	2.00
276	18.17	68.78	2.14	1.40	0.65	65.62	1.49	98.02	4.000	No	No	2.00
277	18.22	68.74	2.15	1.43	0.65	65.47	1.51	98.54	4.000	Yes	No	2.00
278	18.30	65.20	2.19	1.53	0.66	61.85	1.59	98.20	4.000	Yes	No	2.00
279	18.36	57.69	2.27	1.79	0.69	54.52	1.83	99.83	4.000	Yes	No	2.00
280	18.42	49.20	2.39	2.19	0.72	46.28	2.30	106.36	4.000	Yes	No	2.00
281	18.50	39.97	2.53	2.80	0.77	37.31	3.16	118.00	4.000	Yes	No	2.00
282	18.56	32.38	2.66	3.50	0.81	29.97	4.32	129.55	4.000	Yes	Yes	2.00
283	18.62	25.71	2.80	4.24	0.85	23.53	5.80	136.40	4.000	Yes	Yes	2.00
284	18.69	23.96	2.82	4.26	0.85	21.78	6.13	133.60	4.000	Yes	Yes	2.00
285	18.76	22.21	2.86	4.37	0.87	20.05	6.60	132.24	4.000	Yes	Yes	2.00
286	18.84	24.30	2.80	4.02	0.85	21.95	5.90	129.41	4.000	Yes	Yes	2.00
287	18.89	31.88	2.66	3.30	0.80	29.04	4.26	123.66	4.000	Yes	Yes	2.00
288	18.98	52.85	2.37	2.20	0.72	48.61	2.23	108.20	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	19.05	78.42	2.16	1.65	0.66	72.48	1.52	110.23	4.000	Yes	No	2.00
290	19.12	101.80	2.02	1.36	0.61	94.21	1.32	124.65	4.000	Yes	No	2.00
291	19.18	115.88	1.95	1.24	0.59	107.18	1.27	136.09	4.000	Yes	No	2.00
292	19.24	124.07	1.91	1.18	0.58	114.61	1.25	142.72	4.000	Yes	No	2.00
293	19.32	126.76	1.90	1.17	0.58	116.83	1.24	144.84	4.000	No	No	2.00
294	19.38	126.53	1.92	1.21	0.58	116.38	1.25	145.16	4.000	No	No	2.00
295	19.46	124.81	1.94	1.27	0.59	114.42	1.26	144.25	4.000	No	No	2.00
296	19.54	122.62	1.96	1.34	0.60	112.08	1.28	142.92	4.000	No	No	2.00
297	19.62	121.00	1.97	1.38	0.60	110.26	1.28	141.68	4.000	No	No	2.00
298	19.70	119.99	1.98	1.40	0.60	109.01	1.29	140.65	4.000	No	No	2.00
299	19.80	119.75	1.98	1.39	0.60	108.41	1.29	140.01	4.000	No	No	2.00
300	19.85	119.75	1.98	1.39	0.60	108.23	1.29	139.71	4.000	No	No	2.00
301	19.94	119.95	1.98	1.40	0.60	108.07	1.29	139.71	4.000	No	No	2.00
302	20.03	120.73	1.96	1.31	0.60	108.50	1.28	138.61	4.000	No	No	2.00
303	20.13	121.84	1.94	1.23	0.59	109.19	1.26	137.92	4.000	No	No	2.00
304	20.19	123.33	1.91	1.14	0.58	110.40	1.25	137.60	4.000	No	No	2.00
305	20.29	124.05	1.92	1.16	0.58	110.67	1.25	138.32	4.000	No	No	2.00
306	20.39	124.51	1.93	1.18	0.59	110.70	1.25	138.76	4.000	No	No	2.00
307	20.43	124.14	1.93	1.21	0.59	110.23	1.26	138.70	4.000	No	No	2.00
308	20.47	124.09	1.94	1.23	0.59	109.99	1.26	138.78	4.000	No	No	2.00
309	20.52	123.97	1.95	1.26	0.59	109.69	1.27	139.06	4.000	No	No	2.00
310	20.61	123.97	1.96	1.30	0.59	109.33	1.27	139.29	4.000	No	No	2.00
311	20.66	123.26	1.97	1.34	0.60	108.48	1.28	139.08	4.000	No	No	2.00
312	20.71	122.22	1.98	1.36	0.60	107.35	1.29	138.34	4.000	No	No	2.00
313	20.77	121.00	1.99	1.39	0.60	106.04	1.30	137.35	4.000	No	No	2.00
314	20.85	120.53	1.99	1.40	0.60	105.33	1.30	136.79	4.000	No	No	2.00
315	20.91	120.63	1.99	1.40	0.61	105.23	1.30	136.74	4.000	No	No	2.00
316	21.00	121.00	1.99	1.40	0.61	105.23	1.30	136.71	4.000	No	No	2.00
317	21.05	120.93	1.99	1.40	0.61	105.01	1.30	136.53	4.000	No	No	2.00
318	21.11	120.50	2.00	1.41	0.61	104.40	1.30	136.06	4.000	No	No	2.00
319	21.19	120.16	2.00	1.42	0.61	103.82	1.31	135.66	4.000	No	No	2.00
320	21.24	120.23	2.00	1.43	0.61	103.70	1.31	135.67	4.000	No	No	2.00
321	21.34	120.39	2.00	1.43	0.61	103.52	1.31	135.57	4.000	No	No	2.00
322	21.39	119.99	2.01	1.44	0.61	103.00	1.31	135.16	4.000	No	No	2.00
323	21.48	118.68	2.01	1.45	0.61	101.52	1.32	133.84	4.000	No	No	2.00
324	21.53	116.39	2.02	1.47	0.61	99.34	1.33	131.86	4.000	No	No	2.00
325	21.64	113.86	2.03	1.47	0.62	96.79	1.34	129.36	4.000	No	No	2.00
326	21.72	111.80	2.02	1.38	0.61	94.83	1.33	125.65	4.000	No	No	2.00
327	21.81	110.79	2.00	1.27	0.61	93.80	1.31	122.48	4.000	No	No	2.00
328	21.89	110.52	1.97	1.15	0.60	93.48	1.28	120.09	4.000	No	No	2.00
329	21.97	110.69	1.96	1.11	0.60	93.44	1.28	119.40	4.000	No	No	2.00
330	22.05	110.81	1.96	1.09	0.60	93.32	1.27	118.94	4.000	No	No	2.00
331	22.12	110.92	1.95	1.07	0.59	93.25	1.27	118.64	4.000	No	No	2.00
332	22.13	110.89	1.95	1.07	0.59	93.20	1.27	118.54	4.000	No	No	2.00
333	22.18	111.98	1.95	1.06	0.59	94.01	1.27	119.22	4.000	No	No	2.00
334	22.22	114.49	1.93	1.04	0.59	96.10	1.26	121.02	4.000	No	No	2.00
335	22.28	118.47	1.91	1.01	0.58	99.41	1.25	123.90	4.000	No	No	2.00
336	22.33	122.55	1.90	0.98	0.58	102.85	1.23	126.89	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	22.38	126.36	1.88	0.96	0.57	106.02	1.22	129.64	4.000	No	No	2.00
338	22.41	129.99	1.86	0.93	0.57	109.11	1.21	132.05	4.000	No	No	2.00
339	22.51	133.16	1.85	0.91	0.56	111.59	1.20	133.67	4.000	No	No	2.00
340	22.56	135.86	1.83	0.88	0.56	113.83	1.18	134.77	4.000	No	No	2.00
341	22.61	137.68	1.82	0.85	0.55	115.29	1.17	135.13	4.000	No	No	2.00
342	22.65	139.23	1.81	0.82	0.55	116.56	1.16	135.07	4.000	No	No	2.00
343	22.71	140.30	1.79	0.80	0.55	117.38	1.15	134.57	4.000	No	No	2.00
344	22.76	141.15	1.78	0.77	0.54	118.01	1.13	133.54	4.000	No	No	2.00
345	22.85	141.55	1.77	0.74	0.54	118.16	1.12	132.33	4.000	No	No	2.00
346	22.89	141.79	1.77	0.72	0.54	118.28	1.11	131.19	4.000	No	No	2.00
347	22.99	141.85	1.76	0.71	0.54	118.07	1.10	130.38	4.000	No	No	2.00
348	23.04	142.19	1.76	0.71	0.54	118.24	1.10	129.89	4.000	No	No	2.00
349	23.12	143.24	1.75	0.70	0.53	118.92	1.09	129.72	4.000	No	No	2.00
350	23.18	145.12	1.75	0.69	0.53	120.36	1.08	129.86	4.000	No	No	2.00
351	23.24	147.55	1.74	0.69	0.53	122.28	1.07	130.48	4.000	No	No	2.00
352	23.33	150.28	1.73	0.68	0.53	124.35	1.05	131.06	4.000	No	No	2.00
353	23.38	152.77	1.73	0.68	0.53	126.31	1.04	131.98	4.000	No	No	2.00
354	23.47	154.92	1.72	0.68	0.53	127.86	1.04	132.70	4.000	No	No	2.00
355	23.52	155.87	1.73	0.70	0.53	128.46	1.05	134.34	4.000	No	No	2.00
356	23.61	155.50	1.74	0.72	0.53	127.76	1.06	136.02	4.000	No	No	2.00
357	23.68	153.41	1.76	0.76	0.54	125.65	1.10	137.67	4.000	No	No	2.00
358	23.76	149.87	1.78	0.79	0.54	122.29	1.13	137.84	4.000	No	No	2.00
359	23.83	145.42	1.80	0.83	0.55	118.19	1.16	136.72	4.000	No	No	2.00
360	23.90	140.77	1.83	0.87	0.56	113.95	1.18	134.56	4.000	No	No	2.00
361	23.97	136.02	1.85	0.91	0.56	109.66	1.20	131.87	4.000	No	No	2.00
362	24.05	130.36	1.88	0.95	0.57	104.58	1.22	128.11	4.000	No	No	2.00
363	24.10	123.83	1.92	1.01	0.58	98.86	1.25	123.41	4.000	No	No	2.00
364	24.19	116.14	1.96	1.08	0.60	92.13	1.28	117.58	4.000	No	No	2.00
365	24.27	109.37	2.00	1.15	0.61	86.22	1.31	112.54	4.000	No	No	2.00
366	24.34	103.31	2.03	1.21	0.62	80.98	1.34	108.37	4.000	No	No	2.00
367	24.43	99.26	2.06	1.26	0.63	77.39	1.37	105.81	4.000	No	No	2.00
368	24.48	95.99	2.09	1.32	0.63	74.54	1.40	104.29	4.000	No	No	2.00
369	24.57	93.77	2.11	1.39	0.64	72.46	1.43	103.72	4.000	No	No	2.00
370	24.62	91.81	2.12	1.39	0.64	70.77	1.45	102.28	4.000	No	No	2.00
371	24.72	90.33	2.12	1.39	0.65	69.37	1.46	101.12	4.000	No	No	2.00
372	24.81	89.08	2.13	1.39	0.65	68.17	1.47	100.03	4.000	No	No	2.00
373	24.86	87.96	2.15	1.46	0.65	67.09	1.50	100.81	4.000	No	No	2.00
374	24.95	85.18	2.18	1.55	0.66	64.60	1.56	100.88	4.000	No	No	2.00
375	25.01	82.83	2.20	1.62	0.67	62.55	1.62	101.05	4.000	No	No	2.00
376	25.02	81.04	2.22	1.66	0.67	61.07	1.66	101.09	4.000	No	No	2.00
377	25.05	81.81	2.21	1.65	0.67	61.63	1.64	101.34	4.000	No	No	2.00
378	25.11	82.33	2.21	1.65	0.67	61.92	1.64	101.59	4.000	No	No	2.00
379	25.15	82.53	2.21	1.66	0.67	61.99	1.64	101.87	4.000	No	No	2.00
380	25.21	81.92	2.22	1.68	0.67	61.38	1.66	101.94	4.000	No	No	2.00
381	25.25	81.07	2.23	1.70	0.68	60.61	1.68	101.90	4.000	No	No	2.00
382	25.30	79.78	2.23	1.71	0.68	59.50	1.70	101.32	4.000	No	No	2.00
383	25.40	78.02	2.24	1.71	0.68	57.95	1.73	100.17	4.000	No	No	2.00
384	25.45	75.14	2.25	1.71	0.68	55.63	1.77	98.38	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	25.52	71.36	2.27	1.71	0.69	52.56	1.83	96.28	4.000	Yes	No	2.00
386	25.60	65.60	2.32	1.78	0.70	47.92	1.99	95.12	4.000	Yes	No	2.00
387	25.66	58.89	2.37	1.90	0.72	42.57	2.24	95.48	4.000	Yes	No	2.00
388	25.74	50.63	2.47	2.18	0.75	36.01	2.77	99.69	4.000	Yes	No	2.00
389	25.80	42.60	2.57	2.54	0.78	29.74	3.54	105.15	4.000	Yes	No	2.00
390	25.88	34.42	2.71	3.09	0.82	23.44	4.79	112.31	4.000	Yes	Yes	2.00
391	25.94	27.91	2.84	3.70	0.86	18.51	6.33	117.20	4.000	Yes	Yes	2.00
392	26.02	22.69	2.98	4.41	1.00	14.10	8.40	118.43	4.000	Yes	Yes	2.00
393	26.09	19.19	3.07	4.99	1.00	11.73	10.09	118.41	4.000	No	Yes	2.00
394	26.17	16.36	3.16	5.56	1.00	9.82	11.90	116.89	4.000	No	Yes	2.00
395	26.23	14.50	3.23	6.07	1.00	8.57	13.49	115.61	4.000	No	Yes	2.00
396	26.29	13.56	3.28	6.45	1.00	7.93	14.54	115.33	4.000	No	Yes	2.00
397	26.37	13.73	3.27	6.48	1.00	8.01	14.49	116.10	4.000	No	Yes	2.00
398	26.46	14.95	3.23	6.22	1.00	8.78	13.45	118.10	4.000	No	Yes	2.00
399	26.55	16.56	3.18	5.88	1.00	9.80	12.25	120.00	4.000	No	Yes	2.00
400	26.60	18.04	3.14	5.67	1.00	10.74	11.37	122.14	4.000	No	Yes	2.00
401	26.70	18.79	3.12	5.69	1.00	11.18	11.11	124.24	4.000	No	Yes	2.00
402	26.78	19.09	3.12	5.78	1.00	11.34	11.11	125.96	4.000	No	Yes	2.00
403	26.87	19.16	3.10	5.28	1.00	11.34	10.61	120.33	4.000	No	Yes	2.00
404	26.94	19.06	3.05	4.41	1.00	11.25	9.74	109.55	4.000	No	Yes	2.00
405	27.03	18.62	3.03	3.81	1.00	10.92	9.23	100.80	4.000	No	Yes	2.00
406	27.13	17.84	3.05	3.86	1.00	10.38	9.61	99.83	4.000	No	Yes	2.00
407	27.18	15.89	3.14	4.63	1.00	9.12	11.41	104.10	4.000	No	Yes	2.00
408	27.27	14.61	3.20	5.14	1.00	8.27	12.75	105.48	4.000	No	Yes	2.00
409	27.32	14.00	3.23	5.49	1.00	7.87	13.55	106.67	4.000	No	Yes	2.00
410	27.37	14.68	3.21	5.36	1.00	8.28	12.99	107.59	4.000	No	Yes	2.00
411	27.41	15.01	3.20	5.40	1.00	8.48	12.84	108.89	4.000	No	Yes	2.00
412	27.46	15.01	3.21	5.56	1.00	8.47	13.04	110.36	4.000	No	Yes	2.00
413	27.51	15.19	3.22	5.71	1.00	8.56	13.12	112.25	4.000	No	Yes	2.00
414	27.61	15.69	3.21	5.85	1.00	8.84	13.00	114.96	4.000	No	Yes	2.00
415	27.66	16.81	3.20	6.07	1.00	9.52	12.66	120.53	4.000	No	Yes	2.00
416	27.73	19.30	3.15	6.09	1.00	11.05	11.59	128.02	4.000	No	Yes	2.00
417	27.80	22.77	3.09	6.16	1.00	13.18	10.46	137.91	4.000	No	Yes	2.00
418	27.88	26.51	3.05	6.33	1.00	15.46	9.62	148.75	4.000	No	Yes	2.00
419	27.96	28.73	3.04	6.73	1.00	16.78	9.46	158.82	4.000	No	Yes	2.00
420	28.04	29.44	3.06	7.42	1.00	17.16	9.86	169.19	4.000	No	Yes	2.00
421	28.12	29.30	3.09	8.01	1.00	17.02	10.34	175.99	4.000	No	Yes	2.00
422	28.18	29.78	3.09	8.32	1.00	17.27	10.47	180.83	4.000	No	Yes	2.00
423	28.27	30.99	3.07	8.13	1.00	17.95	10.11	181.45	4.000	No	Yes	2.00
424	28.32	32.84	3.04	7.81	1.00	19.04	9.54	181.70	4.000	No	Yes	2.00
425	28.42	34.90	3.01	7.49	1.00	20.22	8.98	181.66	4.000	No	Yes	2.00
426	28.47	37.02	2.99	7.35	1.00	21.47	8.57	183.98	4.000	No	Yes	2.00
427	28.61	38.87	2.97	7.32	1.00	22.47	8.32	186.93	4.000	No	Yes	2.00
428	28.67	40.79	2.96	7.36	1.00	23.57	8.10	190.99	4.000	Yes	Yes	2.00
429	28.75	43.62	2.91	7.10	0.88	26.58	7.37	195.90	4.000	Yes	Yes	2.00
430	28.81	49.52	2.83	6.35	0.86	30.58	6.28	192.19	4.000	Yes	Yes	2.00
431	28.90	59.16	2.72	5.28	0.82	37.21	4.89	181.92	4.000	Yes	Yes	2.00
432	29.00	70.68	2.60	4.38	0.79	45.27	3.75	169.71	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	29.05	82.68	2.50	3.72	0.76	53.82	2.95	158.84	4.000	Yes	No	2.00
434	29.10	92.58	2.42	3.28	0.73	60.99	2.48	151.03	4.000	Yes	No	2.00
435	29.15	101.07	2.35	2.88	0.71	67.24	2.13	143.11	4.000	Yes	No	2.00
436	29.24	105.88	2.30	2.58	0.70	70.82	1.92	136.02	4.000	Yes	No	2.00
437	29.29	107.45	2.26	2.31	0.69	72.19	1.78	128.66	4.000	Yes	No	2.00
438	29.37	106.66	2.23	2.12	0.68	71.76	1.71	122.57	4.000	Yes	No	2.00
439	29.43	105.44	2.21	1.94	0.67	71.05	1.64	116.77	4.000	Yes	No	2.00
440	29.53	104.90	2.19	1.79	0.66	70.72	1.59	112.38	4.000	No	No	2.00
441	29.62	104.73	2.17	1.69	0.66	70.61	1.55	109.62	4.000	No	No	2.00
442	29.68	104.75	2.15	1.58	0.65	70.73	1.51	106.89	4.000	No	No	2.00
443	29.80	104.42	2.15	1.54	0.65	70.36	1.50	105.63	4.000	No	No	2.00
444	29.91	103.80	2.15	1.52	0.65	69.74	1.50	104.61	4.000	No	No	2.00
445	30.00	99.10	2.19	1.66	0.66	65.97	1.59	104.86	0.187	No	No	1.03
446	30.07	97.42	2.21	1.72	0.67	64.55	1.63	105.36	0.189	No	No	1.04
447	30.15	96.27	2.22	1.75	0.67	63.56	1.66	105.54	0.189	No	No	1.04
448	30.21	99.04	2.20	1.70	0.67	65.49	1.62	105.77	0.190	No	No	1.04
449	30.26	98.71	2.20	1.71	0.67	65.16	1.62	105.66	0.190	No	No	1.04
450	30.31	97.50	2.21	1.73	0.67	64.21	1.64	105.39	0.189	No	No	1.03
451	30.38	95.52	2.22	1.75	0.67	62.65	1.67	104.86	0.187	No	No	1.02
452	30.45	92.62	2.24	1.79	0.68	60.44	1.72	104.23	0.185	No	No	1.01
453	30.50	89.12	2.26	1.84	0.69	57.84	1.79	103.72	0.184	No	No	1.00
454	30.55	84.94	2.29	1.88	0.69	54.79	1.88	102.88	0.181	No	No	0.99
455	30.64	81.19	2.31	1.91	0.70	52.03	1.96	101.83	0.178	No	No	0.97
456	30.70	77.93	2.32	1.91	0.70	49.71	2.01	100.16	0.173	No	No	0.94
457	30.79	76.04	2.33	1.90	0.71	48.30	2.05	98.96	0.170	No	No	0.93
458	30.84	75.47	2.33	1.88	0.71	47.86	2.05	98.19	0.168	No	No	0.91
459	30.93	76.95	2.32	1.86	0.70	48.79	2.01	98.05	0.168	No	No	0.91
460	30.98	80.15	2.30	1.81	0.70	50.98	1.93	98.14	0.168	No	No	0.91
461	31.05	85.34	2.27	1.76	0.69	54.54	1.81	98.98	0.170	No	No	0.92
462	31.13	91.57	2.24	1.70	0.68	58.82	1.71	100.51	0.174	No	No	0.94
463	31.17	100.46	2.19	1.61	0.66	65.08	1.58	102.97	0.182	No	No	0.98
464	31.27	110.94	2.13	1.49	0.65	72.52	1.47	106.25	0.192	No	No	1.03
465	31.32	123.23	2.06	1.34	0.63	81.52	1.37	111.37	0.208	No	No	1.13
466	31.41	133.45	2.00	1.21	0.61	89.03	1.31	116.56	0.227	No	No	1.23
467	31.46	140.90	1.96	1.11	0.60	94.67	1.28	120.72	0.244	No	No	1.31
468	31.52	144.37	1.93	1.03	0.59	97.40	1.26	122.24	0.250	No	No	1.35
469	31.61	145.01	1.91	0.97	0.58	97.95	1.24	121.83	0.248	No	No	1.33
470	31.66	142.15	1.91	0.95	0.58	95.90	1.24	119.20	0.238	No	No	1.28
471	31.75	136.69	1.93	0.97	0.59	91.66	1.26	115.29	0.223	No	No	1.19
472	31.80	129.14	1.98	1.06	0.60	85.76	1.29	110.68	0.206	No	No	1.11
473	31.90	122.00	2.02	1.16	0.62	80.16	1.33	106.52	0.192	No	No	1.03
474	31.94	116.84	2.06	1.24	0.63	76.18	1.37	104.07	0.185	No	No	0.99
475	32.04	116.03	2.07	1.27	0.63	75.33	1.38	104.00	0.185	No	No	0.99
476	32.09	119.17	2.08	1.34	0.63	77.25	1.39	107.23	0.195	No	No	1.04
477	32.20	118.70	2.11	1.46	0.64	76.38	1.43	109.06	0.201	No	No	1.07
478	32.24	117.72	2.13	1.56	0.65	75.37	1.47	110.44	0.205	No	No	1.09
479	32.28	114.69	2.15	1.64	0.65	73.02	1.51	110.26	0.205	No	No	1.09
480	32.29	116.70	2.14	1.62	0.65	74.43	1.49	111.09	0.207	No	No	1.11

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	32.30	118.93	2.13	1.60	0.65	75.98	1.47	112.06	0.211	No	No	1.12
482	32.40	120.51	2.13	1.59	0.65	76.91	1.47	112.71	0.213	No	No	1.13
483	32.45	120.48	2.13	1.61	0.65	76.77	1.47	112.95	0.214	No	No	1.14
484	32.55	119.13	2.14	1.63	0.65	75.61	1.49	112.51	0.212	No	No	1.13
485	32.59	118.33	2.15	1.66	0.65	74.91	1.50	112.50	0.212	No	No	1.13
486	32.69	118.13	2.15	1.68	0.65	74.54	1.51	112.79	0.213	No	No	1.13
487	32.76	118.09	2.16	1.72	0.66	74.31	1.53	113.51	0.216	No	No	1.14
488	32.84	118.40	2.17	1.75	0.66	74.31	1.54	114.35	0.219	No	No	1.16
489	32.90	119.00	2.17	1.77	0.66	74.55	1.55	115.19	0.222	No	No	1.17
490	32.98	119.95	2.17	1.78	0.66	75.02	1.54	115.83	0.225	No	No	1.19
491	33.06	121.02	2.17	1.78	0.66	75.61	1.54	116.33	0.226	No	No	1.19
492	33.12	122.10	2.16	1.78	0.66	76.23	1.53	116.77	0.228	No	No	1.20
493	33.22	122.84	2.16	1.78	0.66	76.56	1.53	117.03	0.229	No	No	1.21
494	33.31	123.21	2.16	1.78	0.66	76.64	1.53	117.14	0.229	No	No	1.21
495	33.37	123.28	2.16	1.78	0.66	76.59	1.53	117.11	0.229	No	No	1.21
496	33.46	123.28	2.16	1.78	0.66	76.41	1.53	117.00	0.229	No	No	1.20
497	33.55	123.18	2.17	1.79	0.66	76.17	1.54	117.00	0.229	No	No	1.20
498	33.65	122.98	2.17	1.80	0.66	75.83	1.54	117.07	0.229	No	No	1.20
499	33.70	122.57	2.17	1.82	0.66	75.42	1.55	117.18	0.230	No	No	1.20
500	33.79	122.03	2.18	1.84	0.66	74.86	1.56	117.10	0.229	No	No	1.20
501	33.89	121.09	2.18	1.85	0.66	74.04	1.58	116.76	0.228	No	No	1.19
502	33.99	119.77	2.19	1.86	0.67	72.98	1.59	116.20	0.226	No	No	1.18
503	34.04	117.79	2.20	1.88	0.67	71.55	1.61	115.43	0.223	No	No	1.16
504	34.13	115.49	2.21	1.89	0.67	69.85	1.64	114.59	0.220	No	No	1.15
505	34.23	112.70	2.22	1.92	0.68	67.80	1.68	113.76	0.217	No	No	1.13
506	34.32	110.27	2.24	1.95	0.68	66.01	1.71	113.20	0.215	No	No	1.12
507	34.37	108.22	2.25	1.98	0.68	64.55	1.75	112.84	0.214	No	No	1.11
508	34.47	106.60	2.26	2.00	0.69	63.31	1.78	112.69	0.213	No	No	1.11
509	34.55	103.47	2.28	2.07	0.69	61.05	1.85	112.96	4.000	Yes	No	2.00
510	34.63	96.66	2.33	2.24	0.71	56.31	2.04	114.64	4.000	Yes	No	2.00
511	34.73	86.37	2.40	2.51	0.73	49.33	2.40	118.21	4.000	Yes	No	2.00
512	34.80	72.76	2.51	2.91	0.76	40.42	3.06	123.59	4.000	Yes	No	2.00
513	34.90	60.46	2.62	3.30	0.79	32.62	3.90	127.28	4.000	Yes	Yes	2.00
514	35.00	54.92	2.64	3.21	0.80	29.29	4.16	121.79	3.600	No	Yes	2.00
515	35.12	50.37	2.67	3.15	0.81	26.54	4.42	117.31	3.600	No	Yes	2.00
516	35.20	52.86	2.63	2.87	0.80	28.11	3.99	112.19	3.600	No	Yes	2.00
517	35.33	53.65	2.63	2.95	0.80	28.43	4.02	114.42	4.000	Yes	Yes	2.00
518	35.41	63.41	2.53	2.60	0.77	34.44	3.20	110.34	4.000	Yes	No	2.00
519	35.44	68.58	2.48	2.43	0.75	37.68	2.87	108.02	4.000	Yes	No	2.00
520	35.48	76.82	2.41	2.17	0.73	42.96	2.42	103.82	4.000	Yes	No	2.00
521	35.57	84.09	2.35	1.98	0.71	47.63	2.12	101.05	4.000	Yes	No	2.00
522	35.62	98.70	2.24	1.69	0.68	57.30	1.73	98.99	4.000	Yes	No	2.00
523	35.67	115.40	2.14	1.46	0.65	68.51	1.49	102.07	4.000	Yes	No	2.00
524	35.71	137.52	2.04	1.30	0.62	83.52	1.35	112.52	4.000	Yes	No	2.00
525	35.82	159.89	1.96	1.19	0.60	98.71	1.28	126.36	4.000	Yes	No	2.00
526	35.86	185.11	1.89	1.12	0.58	116.11	1.23	143.07	4.000	Yes	No	2.00
527	35.93	207.72	1.84	1.06	0.56	131.80	1.19	156.85	4.000	Yes	No	2.00
528	36.01	225.38	1.80	1.04	0.55	144.00	1.16	166.33	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	36.06	235.57	1.79	1.04	0.54	150.92	1.14	171.69	4.000	Yes	No	2.00
530	36.12	240.67	1.78	1.05	0.54	154.12	1.13	174.89	0.578	No	No	2.00
531	36.18	245.05	1.79	1.08	0.54	156.73	1.14	178.20	0.606	No	No	2.00
532	36.25	248.69	1.79	1.10	0.54	158.84	1.14	180.98	0.631	No	No	2.00
533	36.30	251.52	1.80	1.14	0.55	160.26	1.15	184.12	0.661	No	No	2.00
534	36.39	252.83	1.81	1.17	0.55	160.54	1.16	185.99	0.678	No	No	2.00
535	36.44	253.07	1.82	1.21	0.55	160.15	1.17	187.57	0.694	No	No	2.00
536	36.53	251.49	1.83	1.25	0.56	158.45	1.18	187.51	0.693	No	No	2.00
537	36.59	248.39	1.86	1.34	0.57	155.45	1.21	187.43	0.692	No	No	2.00
538	36.68	243.47	1.87	1.37	0.57	151.62	1.22	184.49	0.664	No	No	2.00
539	36.75	238.34	1.88	1.38	0.57	147.93	1.22	180.99	0.631	No	No	2.00
540	36.83	232.04	1.88	1.34	0.57	143.78	1.22	175.91	0.586	No	No	2.00
541	36.90	225.27	1.89	1.35	0.58	138.95	1.23	171.34	0.548	No	No	2.00
542	36.97	217.18	1.92	1.39	0.58	133.11	1.25	166.05	0.506	No	No	2.00
543	37.02	201.72	1.96	1.49	0.60	122.19	1.28	156.23	0.435	No	No	2.00
544	37.04	193.70	1.99	1.53	0.60	116.64	1.30	151.13	0.401	No	No	2.00
545	37.08	188.61	2.00	1.54	0.61	113.19	1.30	147.61	0.379	No	No	1.93
546	37.17	191.78	1.97	1.46	0.60	115.46	1.29	148.65	0.385	No	No	1.96
547	37.27	187.30	1.98	1.44	0.60	112.45	1.29	145.04	0.364	No	No	1.85
548	37.37	181.37	1.99	1.43	0.60	108.42	1.30	140.68	0.339	No	No	1.72
549	37.42	177.21	1.99	1.39	0.60	105.83	1.30	137.22	0.320	No	No	1.62
550	37.51	175.89	1.97	1.32	0.60	105.19	1.29	135.25	0.310	No	No	1.57
551	37.58	176.97	1.95	1.22	0.59	106.34	1.27	134.76	0.308	No	No	1.56
552	37.66	179.01	1.92	1.13	0.58	108.07	1.25	135.08	0.309	No	No	1.57
553	37.76	182.58	1.89	1.05	0.57	110.83	1.23	136.26	0.315	No	No	1.59
554	37.85	186.08	1.86	0.97	0.57	113.57	1.21	137.18	0.320	No	No	1.62
555	37.93	189.62	1.84	0.92	0.56	116.22	1.19	138.14	0.325	No	No	1.64
556	38.04	192.25	1.82	0.89	0.55	117.99	1.18	138.80	0.329	No	No	1.66
557	38.13	193.87	1.82	0.88	0.55	118.97	1.17	139.30	0.331	No	No	1.67
558	38.18	193.57	1.82	0.88	0.55	118.63	1.17	139.16	0.331	No	No	1.67
559	38.28	191.24	1.84	0.92	0.56	116.58	1.19	138.51	0.327	No	No	1.65
560	38.37	187.40	1.86	0.97	0.57	113.37	1.21	137.08	0.320	No	No	1.61
561	38.47	183.55	1.89	1.06	0.58	109.99	1.23	135.63	0.312	No	No	1.57
562	38.57	180.39	1.92	1.13	0.58	107.19	1.25	134.14	0.304	No	No	1.53
563	38.62	176.78	1.95	1.21	0.59	104.23	1.27	132.48	0.296	No	No	1.49
564	38.72	167.48	2.00	1.33	0.61	97.43	1.31	127.27	0.272	No	No	1.37
565	38.78	160.21	2.04	1.42	0.62	92.19	1.34	123.72	0.256	No	No	1.29
566	38.81	155.32	2.06	1.49	0.63	88.77	1.37	121.63	0.247	No	No	1.24
567	38.86	155.19	2.07	1.50	0.63	88.54	1.37	121.68	0.248	No	No	1.24
568	38.91	152.02	2.08	1.55	0.63	86.27	1.40	120.51	0.243	No	No	1.22
569	38.95	145.92	2.12	1.64	0.64	82.06	1.44	118.55	0.235	No	No	1.18
570	39.05	139.55	2.15	1.74	0.65	77.66	1.51	116.91	0.229	No	No	1.15
571	39.09	132.37	2.19	1.84	0.66	72.88	1.59	115.64	0.224	No	No	1.12
572	39.14	125.06	2.23	1.95	0.68	68.10	1.69	114.83	0.221	No	No	1.11
573	39.24	118.19	2.26	2.05	0.69	63.61	1.80	114.32	0.219	No	No	1.10
574	39.29	112.16	2.30	2.14	0.70	59.80	1.91	114.03	0.218	No	No	1.09
575	39.39	108.48	2.32	2.20	0.70	57.39	1.99	114.16	0.218	No	No	1.10
576	39.43	109.15	2.31	2.19	0.70	57.74	1.98	114.28	0.219	No	No	1.10

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	39.53	115.02	2.28	2.10	0.69	61.25	1.86	113.89	0.217	No	No	1.09
578	39.57	124.17	2.23	1.94	0.68	67.01	1.69	113.55	0.216	No	No	1.08
579	39.68	130.64	2.19	1.83	0.67	71.04	1.60	113.69	0.217	No	No	1.09
580	39.73	131.95	2.19	1.80	0.66	71.83	1.58	113.53	0.216	No	No	1.08
581	39.81	129.33	2.20	1.81	0.67	70.10	1.60	112.48	0.212	No	No	1.06
582	39.89	126.37	2.19	1.75	0.67	68.39	1.60	109.51	0.202	No	No	1.01
583	39.96	125.26	2.18	1.63	0.66	68.01	1.56	105.89	0.190	No	No	0.95
584	40.06	124.52	2.16	1.53	0.66	67.75	1.52	103.14	0.182	No	No	0.91
585	40.15	122.70	2.17	1.55	0.66	66.50	1.54	102.38	0.180	No	No	0.90
586	40.20	114.41	2.22	1.70	0.67	61.03	1.67	102.07	0.179	No	No	0.89
587	40.24	108.56	2.26	1.81	0.69	57.23	1.79	102.62	0.181	No	No	0.90
588	40.26	104.17	2.29	1.90	0.70	54.45	1.90	103.22	0.182	No	No	0.91
589	40.27	107.91	2.27	1.85	0.69	56.72	1.82	103.36	0.183	No	No	0.91
590	40.37	109.77	2.26	1.84	0.69	57.73	1.80	103.81	0.184	No	No	0.92
591	40.42	111.64	2.26	1.85	0.69	58.75	1.78	104.71	0.187	No	No	0.93
592	40.52	112.38	2.26	1.87	0.69	59.02	1.79	105.44	0.189	No	No	0.94
593	40.56	115.27	2.25	1.87	0.68	60.66	1.76	106.63	0.193	No	No	0.96
594	40.66	122.24	2.22	1.81	0.67	64.78	1.67	108.06	0.197	No	No	0.99
595	40.70	131.54	2.18	1.74	0.66	70.42	1.57	110.67	0.206	No	No	1.03
596	40.75	142.59	2.14	1.67	0.65	77.15	1.49	114.79	0.221	No	No	1.10
597	40.85	153.40	2.11	1.63	0.64	83.66	1.43	119.75	0.240	No	No	1.20
598	40.91	164.05	2.08	1.59	0.63	90.16	1.39	125.10	0.262	No	No	1.31
599	40.96	174.69	2.04	1.53	0.62	96.83	1.35	130.56	0.287	No	No	1.43
600	41.04	184.27	2.01	1.47	0.61	102.87	1.32	135.59	0.312	No	No	1.55
601	41.09	193.94	1.98	1.41	0.60	109.10	1.29	141.03	0.341	No	No	1.70
602	41.18	201.90	1.96	1.36	0.60	114.17	1.28	145.57	0.367	No	No	1.83
603	41.23	207.97	1.94	1.33	0.59	118.08	1.26	149.12	0.388	No	No	1.94
604	41.29	211.58	1.93	1.31	0.59	120.37	1.26	151.17	0.401	No	No	2.00
605	41.38	212.76	1.93	1.30	0.59	120.98	1.25	151.67	0.404	No	No	2.00
606	41.42	212.09	1.93	1.31	0.59	120.40	1.26	151.21	0.402	No	No	2.00
607	41.52	210.03	1.94	1.33	0.59	118.76	1.26	149.86	0.393	No	No	1.96
608	41.57	207.27	1.95	1.36	0.59	116.72	1.27	148.26	0.383	No	No	1.91
609	41.62	204.91	1.96	1.40	0.60	114.93	1.28	146.93	0.375	No	No	1.87
610	41.71	203.13	1.97	1.43	0.60	113.45	1.29	145.89	0.369	No	No	1.84
611	41.76	202.15	1.98	1.45	0.60	112.60	1.29	145.43	0.366	No	No	1.82
612	41.84	201.65	1.99	1.47	0.60	111.98	1.30	145.17	0.364	No	No	1.81
613	41.91	201.54	1.99	1.50	0.61	111.64	1.30	145.22	0.365	No	No	1.81
614	41.95	201.75	2.00	1.52	0.61	111.52	1.31	145.53	0.367	No	No	1.82
615	42.01	202.52	2.00	1.56	0.61	111.63	1.31	146.36	0.372	No	No	1.85
616	42.10	203.57	2.01	1.60	0.61	111.82	1.32	147.40	0.378	No	No	1.88
617	42.15	204.98	2.02	1.66	0.61	112.23	1.33	148.90	0.387	No	No	1.92
618	42.24	206.03	2.03	1.70	0.62	112.44	1.33	149.94	0.394	No	No	1.96
619	42.28	206.46	2.03	1.71	0.62	112.53	1.34	150.31	0.396	No	No	1.97
620	42.39	206.26	2.03	1.70	0.62	112.27	1.33	149.81	0.393	No	No	1.95
621	42.43	206.08	2.02	1.67	0.62	112.28	1.33	149.14	0.389	No	No	1.93
622	42.50	206.11	2.01	1.62	0.61	112.45	1.32	148.36	0.384	No	No	1.91
623	42.58	206.28	2.00	1.56	0.61	112.80	1.31	147.54	0.379	No	No	1.88
624	42.65	198.95	2.01	1.55	0.61	108.28	1.32	142.73	0.350	No	No	1.74

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	42.70	195.88	2.02	1.54	0.61	106.39	1.32	140.58	0.338	No	No	1.68
626	42.73	193.72	2.02	1.54	0.61	105.08	1.32	139.14	0.331	No	No	1.64
627	42.77	200.19	1.99	1.47	0.61	109.31	1.30	142.31	0.348	No	No	1.73
628	42.82	203.83	1.98	1.43	0.60	111.68	1.29	144.06	0.358	No	No	1.78
629	42.87	209.12	1.96	1.39	0.60	115.10	1.28	146.92	0.375	No	No	1.86
630	42.91	215.46	1.94	1.35	0.59	119.14	1.26	150.57	0.397	No	No	1.97
631	42.97	221.76	1.92	1.32	0.59	123.09	1.25	154.27	0.421	No	No	2.00
632	43.02	226.82	1.92	1.32	0.58	126.14	1.25	157.35	0.442	No	No	2.00
633	43.06	230.49	1.91	1.33	0.58	128.19	1.25	159.72	0.459	No	No	2.00
634	43.11	234.33	1.91	1.34	0.58	130.34	1.24	162.21	0.477	No	No	2.00
635	43.17	237.93	1.91	1.35	0.58	132.40	1.24	164.40	0.493	No	No	2.00
636	43.21	242.21	1.90	1.33	0.58	135.09	1.23	166.83	0.512	No	No	2.00
637	43.29	246.19	1.89	1.30	0.57	137.59	1.23	168.85	0.528	No	No	2.00
638	43.34	250.53	1.87	1.28	0.57	140.43	1.22	171.05	0.545	No	No	2.00
639	43.39	254.11	1.86	1.25	0.57	142.76	1.21	172.71	0.559	No	No	2.00
640	43.45	256.87	1.85	1.22	0.56	144.64	1.20	173.74	0.568	No	No	2.00
641	43.51	258.25	1.84	1.18	0.56	145.84	1.19	173.50	0.566	No	No	2.00
642	43.59	258.59	1.82	1.14	0.56	146.35	1.18	172.47	0.557	No	No	2.00
643	43.64	259.19	1.80	1.07	0.55	147.38	1.16	170.73	0.543	No	No	2.00
644	43.70	259.29	1.78	1.01	0.54	148.12	1.13	168.10	0.522	No	No	2.00
645	43.78	258.35	1.77	0.96	0.54	147.98	1.12	165.08	0.498	No	No	2.00
646	43.88	255.18	1.77	0.96	0.54	145.77	1.12	163.55	0.487	No	No	2.00
647	43.94	244.77	1.82	1.04	0.55	138.10	1.17	161.52	0.472	No	No	2.00
648	44.04	234.93	1.86	1.12	0.57	130.84	1.21	157.74	0.445	No	No	2.00
649	44.07	225.87	1.89	1.21	0.58	124.41	1.23	153.31	0.415	No	No	2.00
650	44.12	223.58	1.90	1.23	0.58	122.68	1.24	152.08	0.407	No	No	2.00
651	44.16	221.15	1.91	1.25	0.58	120.94	1.25	150.70	0.398	No	No	1.98
652	44.21	218.05	1.93	1.28	0.59	118.76	1.25	148.86	0.387	No	No	1.92
653	44.26	214.65	1.94	1.30	0.59	116.39	1.26	146.86	0.375	No	No	1.86
654	44.31	210.81	1.95	1.34	0.59	113.73	1.27	144.63	0.361	No	No	1.79
655	44.35	206.97	1.97	1.37	0.60	111.11	1.28	142.44	0.349	No	No	1.73
656	44.40	203.26	1.98	1.40	0.60	108.60	1.29	140.32	0.337	No	No	1.67
657	44.45	200.16	1.99	1.43	0.61	106.49	1.30	138.56	0.327	No	No	1.62
658	44.50	197.83	2.00	1.45	0.61	104.91	1.31	137.24	0.320	No	No	1.59
659	44.54	195.81	2.01	1.47	0.61	103.53	1.32	136.15	0.315	No	No	1.56
660	44.60	193.46	2.02	1.49	0.61	101.86	1.32	134.97	0.309	No	No	1.53
661	44.64	190.96	2.03	1.53	0.62	100.11	1.34	133.85	0.303	No	No	1.50
662	44.69	188.57	2.05	1.57	0.62	98.42	1.35	132.85	0.298	No	No	1.48
663	44.74	187.78	2.05	1.59	0.62	97.76	1.36	132.59	0.297	No	No	1.47
664	44.79	187.17	2.06	1.60	0.62	97.27	1.36	132.34	0.296	No	No	1.47
665	44.83	187.71	2.05	1.60	0.62	97.52	1.36	132.53	0.296	No	No	1.47
666	44.88	188.84	2.05	1.59	0.62	98.15	1.35	132.96	0.299	No	No	1.48
667	44.93	191.20	2.04	1.57	0.62	99.52	1.35	134.02	0.304	No	No	1.51
668	44.98	193.69	2.03	1.55	0.62	100.99	1.34	135.20	0.310	No	No	1.54
669	45.03	195.31	2.03	1.54	0.62	101.90	1.33	135.95	0.314	No	No	1.56
670	45.08	196.49	2.03	1.54	0.62	102.54	1.33	136.45	0.316	No	No	1.57
671	45.16	197.53	2.02	1.52	0.62	103.08	1.33	136.81	0.318	No	No	1.58
672	45.19	198.24	2.02	1.50	0.61	103.58	1.32	136.91	0.319	No	No	1.58

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	45.27	198.44	2.01	1.47	0.61	103.76	1.32	136.53	0.317	No	No	1.57
674	45.32	197.56	2.00	1.44	0.61	103.38	1.31	135.53	0.312	No	No	1.55
675	45.37	195.58	2.00	1.39	0.61	102.45	1.31	133.73	0.302	No	No	1.50
676	45.45	192.44	1.99	1.35	0.61	100.80	1.30	131.17	0.290	No	No	1.44
677	45.51	187.22	1.99	1.31	0.61	97.91	1.30	127.52	0.273	No	No	1.35
678	45.56	180.52	2.01	1.31	0.61	93.92	1.31	123.37	4.000	Yes	No	2.00
679	45.61	169.84	2.04	1.36	0.62	87.34	1.35	117.60	4.000	Yes	No	2.00
680	45.69	156.32	2.10	1.48	0.64	78.89	1.42	111.79	4.000	Yes	No	2.00
681	45.75	137.42	2.20	1.74	0.67	67.17	1.61	108.19	4.000	Yes	No	2.00
682	45.81	115.31	2.30	1.96	0.70	54.45	1.93	105.04	4.000	Yes	No	2.00
683	45.89	93.28	2.42	2.23	0.73	42.25	2.49	105.10	4.000	Yes	No	2.00
684	45.94	73.36	2.54	2.43	0.77	31.83	3.26	103.73	4.000	Yes	No	2.00
685	46.04	59.21	2.67	2.85	0.81	24.44	4.42	108.05	4.000	Yes	Yes	2.00
686	46.08	46.61	2.83	3.46	0.86	18.15	6.18	112.07	4.000	Yes	Yes	2.00
687	46.15	39.94	2.97	3.96	1.00	13.37	8.22	109.85	4.000	Yes	Yes	2.00
688	46.17	36.10	3.03	4.33	1.00	11.98	9.26	110.89	3.600	No	Yes	2.00
689	46.18	36.17	3.02	4.27	1.00	12.00	9.18	110.17	3.600	No	Yes	2.00
690	46.23	36.48	3.01	4.17	1.00	12.10	9.03	109.18	3.600	No	Yes	2.00
691	46.27	37.18	3.00	4.00	1.00	12.34	8.72	107.58	3.600	No	Yes	2.00
692	46.32	38.64	2.96	3.74	1.00	12.85	8.20	105.33	3.600	No	Yes	2.00
693	46.41	40.63	2.89	3.49	0.87	15.29	7.01	107.19	3.600	No	Yes	2.00
694	46.47	43.16	2.85	3.30	0.86	16.49	6.44	106.19	3.600	No	Yes	2.00
695	46.52	45.45	2.82	3.23	0.85	17.54	6.09	106.89	3.600	No	Yes	2.00
696	46.56	47.57	2.81	3.31	0.85	18.46	5.95	109.81	3.600	No	Yes	2.00
697	46.65	49.42	2.80	3.44	0.85	19.21	5.91	113.60	3.600	No	Yes	2.00
698	46.71	51.52	2.80	3.58	0.85	20.07	5.86	117.68	3.600	No	Yes	2.00
699	46.76	54.41	2.78	3.59	0.84	21.37	5.62	120.04	3.600	No	Yes	2.00
700	46.85	58.19	2.75	3.48	0.83	23.13	5.21	120.43	3.600	No	Yes	2.00
701	46.90	63.28	2.69	3.26	0.82	25.63	4.63	118.71	3.600	No	Yes	2.00
702	46.99	67.89	2.65	3.04	0.80	27.93	4.16	116.19	3.600	No	Yes	2.00
703	47.04	70.35	2.62	2.93	0.79	29.16	3.93	114.63	3.600	No	Yes	2.00
704	47.10	69.50	2.63	2.95	0.80	28.71	4.00	114.71	3.600	No	Yes	2.00
705	47.16	65.45	2.67	3.09	0.81	26.63	4.36	116.10	3.600	No	Yes	2.00
706	47.23	59.62	2.72	3.30	0.82	23.71	4.94	117.23	3.600	No	Yes	2.00
707	47.30	51.46	2.81	3.62	0.85	19.76	5.97	117.96	3.600	No	Yes	2.00
708	47.38	42.76	2.96	4.09	1.00	13.97	8.12	113.48	3.600	No	Yes	2.00
709	47.43	34.23	3.08	4.68	1.00	10.97	10.19	111.84	3.600	No	Yes	2.00
710	47.52	28.17	3.17	4.93	1.00	8.83	11.99	105.92	3.600	No	Yes	2.00
711	47.59	23.92	3.20	4.34	1.00	7.34	12.70	93.23	3.600	No	Yes	2.00
712	47.66	21.40	3.20	3.59	1.00	6.45	12.70	81.89	3.600	No	Yes	2.00
713	47.77	19.71	3.20	3.13	1.00	5.85	12.77	74.67	3.600	No	Yes	2.00
714	47.82	18.77	3.24	3.41	1.00	5.51	13.75	75.76	3.600	No	Yes	2.00
715	47.91	18.38	3.26	3.59	1.00	5.37	14.28	76.63	3.600	No	Yes	2.00
716	47.93	17.68	3.30	3.86	1.00	5.12	15.17	77.65	3.600	No	Yes	2.00
717	47.97	17.78	3.30	3.92	1.00	5.15	15.21	78.37	3.600	No	Yes	2.00
718	48.02	17.86	3.31	4.05	1.00	5.17	15.38	79.56	3.600	No	Yes	2.00
719	48.07	18.51	3.30	4.11	1.00	5.39	15.07	81.21	3.600	No	Yes	2.00
720	48.12	18.61	3.31	4.43	1.00	5.42	15.51	84.04	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	48.19	18.71	3.33	4.73	1.00	5.44	15.90	86.54	3.600	No	Yes	2.00
722	48.23	18.91	3.33	4.96	1.00	5.51	16.11	88.74	3.600	No	Yes	2.00
723	48.31	19.15	3.33	5.05	1.00	5.58	16.11	89.88	3.600	No	Yes	2.00
724	48.35	19.35	3.33	5.13	1.00	5.64	16.11	90.92	3.600	No	Yes	2.00
725	48.40	19.25	3.34	5.27	1.00	5.60	16.37	91.72	3.600	No	Yes	2.00
726	48.45	18.81	3.36	5.50	1.00	5.45	16.96	92.39	3.600	No	Yes	2.00
727	48.50	18.07	3.40	5.83	1.00	5.19	17.92	92.93	3.600	No	Yes	2.00
728	48.55	17.80	3.41	6.00	1.00	5.09	18.35	93.37	3.600	No	Yes	2.00
729	48.59	17.64	3.42	6.20	1.00	5.03	18.75	94.24	3.600	No	Yes	2.00
730	48.67	17.87	3.42	6.18	1.00	5.10	18.56	94.62	3.600	No	Yes	2.00
731	48.73	17.84	3.42	6.16	1.00	5.08	18.58	94.36	3.600	No	Yes	2.00
732	48.78	17.97	3.40	5.89	1.00	5.12	18.13	92.80	3.600	No	Yes	2.00
733	48.83	17.97	3.39	5.58	1.00	5.11	17.74	90.68	3.600	No	Yes	2.00
734	48.91	17.94	3.38	5.27	1.00	5.09	17.35	88.35	3.600	No	Yes	2.00
735	48.98	17.84	3.37	5.04	1.00	5.05	17.10	86.35	3.600	No	Yes	2.00
736	49.03	17.74	3.37	4.91	1.00	5.01	17.00	85.19	3.600	No	Yes	2.00
737	49.12	17.68	3.35	4.63	1.00	4.98	16.65	82.90	3.600	No	Yes	2.00
738	49.17	17.75	3.33	4.17	1.00	5.00	15.91	79.48	3.600	No	Yes	2.00
739	49.27	18.02	3.30	3.75	1.00	5.08	15.07	76.51	3.600	No	Yes	2.00
740	49.31	18.56	3.28	3.65	1.00	5.25	14.57	76.55	3.600	No	Yes	2.00
741	49.38	19.20	3.27	3.79	1.00	5.46	14.44	78.88	3.600	No	Yes	2.00
742	49.45	19.70	3.27	3.95	1.00	5.62	14.44	81.15	3.600	No	Yes	2.00
743	49.51	19.00	3.31	4.33	1.00	5.38	15.44	83.00	3.600	No	Yes	2.00
744	49.54	19.44	3.30	4.37	1.00	5.52	15.24	84.13	3.600	No	Yes	2.00
745	49.59	20.18	3.28	4.25	1.00	5.76	14.65	84.45	3.600	No	Yes	2.00
746	49.64	21.53	3.23	3.89	1.00	6.21	13.47	83.63	3.600	No	Yes	2.00
747	49.73	21.20	3.24	3.89	1.00	6.09	13.64	83.01	3.600	No	Yes	2.00
748	49.83	20.02	3.27	4.07	1.00	5.68	14.52	82.47	3.600	No	Yes	2.00
749	49.92	18.88	3.31	4.30	1.00	5.29	15.55	82.19	3.600	No	Yes	2.00
750	49.98	17.86	3.35	4.49	1.00	4.94	16.51	81.62	3.600	No	Yes	2.00
751	50.07	17.33	3.37	4.57	1.00	4.75	17.04	81.01	3.600	No	Yes	2.00
752	50.16	16.99	3.38	4.61	1.00	4.63	17.38	80.51	3.600	No	Yes	2.00
753	50.24	16.69	3.39	4.65	1.00	4.52	17.70	80.06	3.600	No	Yes	2.00
754	50.32	16.46	3.40	4.71	1.00	4.44	17.99	79.87	3.600	No	Yes	2.00
755	50.41	16.32	3.41	4.79	1.00	4.39	18.25	80.02	3.600	No	Yes	2.00
756	50.50	16.36	3.41	4.79	1.00	4.39	18.25	80.09	3.600	No	Yes	2.00
757	50.56	16.26	3.41	4.73	1.00	4.35	18.25	79.36	3.600	No	Yes	2.00
758	50.66	16.09	3.41	4.63	1.00	4.28	18.27	78.27	3.600	No	Yes	2.00
759	50.74	15.92	3.41	4.59	1.00	4.22	18.37	77.53	3.600	No	Yes	2.00
760	50.84	15.85	3.43	4.94	1.00	4.19	19.00	79.62	3.600	No	Yes	2.00
761	50.93	15.95	3.46	5.57	1.00	4.21	19.91	83.88	3.600	No	Yes	2.00
762	50.98	16.77	3.48	6.56	1.00	4.47	20.59	92.08	3.600	No	Yes	2.00
763	51.08	19.60	3.43	7.08	1.00	5.39	19.08	102.75	3.600	No	Yes	2.00
764	51.17	24.45	3.34	6.97	1.00	6.95	16.30	113.31	3.600	No	Yes	2.00
765	51.24	30.11	3.25	6.75	1.00	8.78	13.98	122.80	3.600	No	Yes	2.00
766	51.34	33.65	3.21	6.76	1.00	9.91	13.03	129.12	3.600	No	Yes	2.00
767	51.41	34.16	3.18	6.01	1.00	10.06	12.19	122.59	3.600	No	Yes	2.00
768	51.51	32.81	3.17	5.54	1.00	9.60	12.05	115.66	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	51.58	31.20	3.16	4.92	1.00	9.06	11.80	106.93	3.600	No	Yes	2.00
770	51.68	29.95	3.20	5.43	1.00	8.64	12.73	109.98	3.600	No	Yes	2.00
771	51.79	27.39	3.26	5.93	1.00	7.80	14.12	110.16	3.600	No	Yes	2.00
772	51.82	25.87	3.30	6.27	1.00	7.31	15.07	110.15	3.600	No	Yes	2.00
773	51.85	24.39	3.34	6.78	1.00	6.83	16.27	111.07	3.600	No	Yes	2.00
774	51.91	25.00	3.34	6.90	1.00	7.01	16.14	113.23	3.600	No	Yes	2.00
775	52.00	24.87	3.36	7.36	1.00	6.96	16.71	116.25	3.600	No	Yes	2.00
776	52.05	27.06	3.31	7.10	1.00	7.65	15.54	118.92	3.600	No	Yes	2.00
777	52.10	31.78	3.21	6.10	1.00	9.15	13.00	118.95	3.600	No	Yes	2.00
778	52.19	38.49	3.08	4.92	1.00	11.27	10.28	115.81	3.600	No	Yes	2.00
779	52.28	44.04	2.99	4.15	1.00	13.02	8.58	111.69	3.600	No	Yes	2.00
780	52.34	46.37	2.95	3.85	1.00	13.74	7.96	109.32	3.600	No	Yes	2.00
781	52.42	46.09	2.96	3.90	1.00	13.63	8.05	109.66	3.600	No	Yes	2.00
782	52.48	44.34	2.98	4.10	1.00	13.05	8.50	111.03	3.600	No	Yes	2.00
783	52.57	42.32	3.01	4.26	1.00	12.39	8.98	111.27	3.600	No	Yes	2.00
784	52.62	40.26	3.03	4.31	1.00	11.73	9.37	109.88	3.600	No	Yes	2.00
785	52.69	38.51	3.05	4.22	1.00	11.16	9.58	106.89	3.600	No	Yes	2.00
786	52.77	36.89	3.06	4.17	1.00	10.63	9.83	104.50	3.600	No	Yes	2.00
787	52.87	35.55	3.08	4.24	1.00	10.19	10.19	103.83	3.600	No	Yes	2.00
788	52.91	34.07	3.10	4.28	1.00	9.71	10.56	102.56	3.600	No	Yes	2.00
789	53.01	32.55	3.12	4.42	1.00	9.21	11.08	102.13	3.600	No	Yes	2.00
790	53.10	32.18	3.14	4.56	1.00	9.08	11.35	103.11	3.600	No	Yes	2.00
791	53.16	34.04	3.15	5.28	1.00	9.65	11.74	113.26	3.600	No	Yes	2.00
792	53.25	38.69	3.13	5.64	1.00	11.08	11.13	123.32	3.600	No	Yes	2.00
793	53.29	44.28	3.10	6.15	1.00	12.82	10.63	136.25	3.600	No	Yes	2.00
794	53.38	48.90	3.07	6.34	1.00	14.23	10.13	144.18	3.600	No	Yes	2.00
795	53.42	59.32	2.99	5.88	1.00	17.47	8.56	149.47	3.600	No	Yes	2.00
796	53.47	74.66	2.87	5.11	1.00	22.21	6.75	150.02	3.600	No	Yes	2.00
797	53.52	92.88	2.76	4.46	1.00	27.85	5.32	148.22	3.600	No	Yes	2.00
798	53.58	102.94	2.72	4.44	1.00	30.94	4.93	152.55	3.600	No	Yes	2.00
799	53.66	103.80	2.74	4.76	1.00	31.15	5.14	160.18	3.600	No	Yes	2.00
800	53.75	98.64	2.79	5.33	1.00	29.50	5.74	169.41	3.600	No	Yes	2.00
801	53.81	88.93	2.86	5.98	1.00	26.46	6.64	175.67	3.600	No	Yes	2.00
802	53.87	78.89	2.93	6.58	1.00	23.33	7.63	177.89	3.600	No	Yes	2.00
803	53.95	67.24	3.02	7.41	1.00	19.70	9.07	178.71	3.600	No	Yes	2.00
804	54.01	57.35	3.10	8.28	1.00	16.64	10.67	177.57	3.600	No	Yes	2.00
805	54.06	47.51	3.20	9.23	1.00	13.60	12.71	172.90	3.600	No	Yes	2.00
806	54.15	41.78	3.26	9.77	1.00	11.83	14.16	167.57	3.600	No	Yes	2.00
807	54.20	40.60	3.27	9.77	1.00	11.46	14.42	165.24	3.600	No	Yes	2.00
808	54.29	47.57	3.17	8.38	1.00	13.59	12.09	164.23	3.600	No	Yes	2.00
809	54.34	69.40	2.89	4.90	1.00	20.27	7.00	141.87	4.000	Yes	Yes	2.00
810	54.43	100.37	2.59	2.67	1.00	29.73	3.65	108.63	4.000	Yes	No	2.00
811	54.45	137.16	2.32	1.48	1.00	41.00	2.00	82.07	4.000	Yes	No	2.00
812	54.48	166.07	2.20	1.22	1.00	49.83	1.62	80.59	4.000	Yes	No	2.00
813	54.52	185.51	2.14	1.11	1.00	55.76	1.48	82.69	4.000	Yes	No	2.00
814	54.53	198.85	2.12	1.13	1.00	59.83	1.45	86.57	4.000	Yes	No	2.00
815	54.58	207.94	2.11	1.17	1.00	62.58	1.44	89.91	0.148	No	No	0.75
816	54.62	219.64	2.10	1.19	1.00	66.13	1.42	93.59	0.156	No	No	0.80

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	54.65	233.46	2.07	1.16	1.00	70.33	1.38	96.81	0.164	No	No	0.84
818	54.70	244.67	2.05	1.15	1.00	73.72	1.36	99.98	0.173	No	No	0.88
819	54.76	251.12	2.05	1.17	1.00	75.64	1.35	102.23	0.179	No	No	0.92
820	54.77	249.88	2.06	1.22	1.00	75.25	1.37	102.77	0.181	No	No	0.92
821	54.82	251.50	2.06	1.21	1.00	75.71	1.36	103.16	0.182	No	No	0.93
822	54.87	253.07	2.05	1.21	1.00	76.14	1.36	103.55	0.183	No	No	0.94
823	54.88	255.63	2.05	1.20	1.00	76.92	1.35	104.08	0.185	No	No	0.94
824	54.91	257.28	2.05	1.20	1.00	77.39	1.35	104.56	0.186	No	No	0.95
825	54.96	263.42	2.04	1.18	1.00	79.22	1.34	106.09	0.191	No	No	0.98
826	54.97	276.70	2.01	1.17	1.00	83.26	1.32	109.90	0.203	No	No	1.04
827	55.03	294.89	1.99	1.17	1.00	88.74	1.30	115.47	0.223	No	No	1.14
828	55.09	315.21	1.96	1.11	1.00	94.86	1.27	120.89	0.244	No	No	1.25
829	55.15	327.84	1.89	0.92	1.00	98.63	1.23	121.55	0.247	No	No	1.26
830	55.20	338.35	1.85	0.83	1.00	101.77	1.20	122.41	0.251	No	No	1.28
831	55.25	358.17	1.78	0.67	1.00	107.74	1.13	121.49	0.247	No	No	1.26
832	55.30	386.84	1.77	0.71	1.00	116.38	1.11	129.28	0.281	No	No	1.44
833	55.34	417.50	1.74	0.72	1.00	125.63	1.07	134.62	0.307	No	No	1.57
834	55.39	440.05	1.76	0.82	1.00	132.40	1.10	146.03	0.370	No	No	1.89
835	55.40	462.28	1.76	0.87	1.00	139.13	1.10	153.71	0.418	No	No	2.00
836	55.44	482.80	1.75	0.87	1.00	145.29	1.08	157.35	0.442	No	No	2.00
837	55.44	511.21	1.72	0.83	1.00	153.88	1.02	157.04	0.440	No	No	2.00
838	55.49	517.76	1.72	0.86	1.00	155.78	1.03	160.78	0.467	No	No	2.00
839	55.54	533.43	1.73	0.91	1.00	160.44	1.05	167.71	0.519	No	No	2.00
840	55.59	534.98	1.76	1.00	1.00	160.82	1.10	176.17	0.588	No	No	2.00
841	55.63	551.08	1.75	1.02	1.00	165.61	1.09	180.34	0.625	No	No	2.00
842	55.64	553.47	1.75	1.02	1.00	166.31	1.09	180.79	0.630	No	No	2.00
843	55.68	566.94	1.73	0.98	1.00	170.31	1.06	179.92	0.622	No	No	2.00
844	55.69	570.38	1.73	0.97	1.00	171.33	1.04	178.50	0.609	No	No	2.00
845	55.69	566.17	1.73	0.98	1.00	170.04	1.05	179.38	0.617	No	No	2.00
846	55.71	561.62	1.75	1.03	1.00	168.63	1.09	183.08	0.651	No	No	2.00
847	55.76	567.28	1.76	1.06	1.00	170.25	1.10	186.45	0.683	No	No	2.00
848	55.78	580.19	1.75	1.05	1.00	174.11	1.08	187.85	0.696	No	No	2.00
849	55.81	581.23	1.72	0.98	1.00	174.36	1.04	180.96	0.631	No	No	2.00
850	55.85	584.16	1.69	0.88	1.00	175.16	1.00	175.16	0.580	No	No	2.00
851	55.86	588.34	1.65	0.77	1.00	176.41	1.00	176.41	0.591	No	No	2.00
852	55.91	598.65	1.62	0.70	1.00	179.42	1.00	179.42	0.617	No	No	2.00
853	55.92	602.25	1.60	0.66	1.00	180.48	1.00	180.48	0.627	No	No	2.00
854	55.96	619.03	1.58	0.63	1.00	185.46	1.00	185.46	0.673	No	No	2.00
855	55.97	634.09	1.57	0.63	1.00	189.98	1.00	189.98	0.718	No	No	2.00
856	56.00	654.37	1.56	0.64	1.00	196.01	1.00	196.01	0.780	No	No	2.00
857	56.01	660.12	1.58	0.69	1.00	197.72	1.00	197.72	0.799	No	No	2.00
858	56.03	661.79	1.59	0.72	1.00	198.18	1.00	198.18	0.804	No	No	2.00
859	56.05	661.82	1.60	0.74	1.00	198.14	1.00	198.14	0.803	No	No	2.00
860	56.10	665.04	1.60	0.73	1.00	198.99	1.00	198.99	0.813	No	No	2.00
861	56.12	668.02	1.58	0.70	1.00	199.86	1.00	199.86	0.822	No	No	2.00
862	56.16	667.69	1.57	0.68	1.00	199.67	1.00	199.67	0.820	No	No	2.00
863	56.17	654.78	1.57	0.67	1.00	195.76	1.00	195.76	0.778	No	No	2.00
864	56.20	635.11	1.59	0.69	1.00	189.78	1.00	189.78	0.716	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	56.22	617.48	1.61	0.71	1.00	184.46	1.00	184.46	0.664	No	No	2.00
866	56.24	608.45	1.61	0.71	1.00	181.69	1.00	181.69	0.638	No	No	2.00
867	56.30	602.69	1.62	0.70	1.00	179.84	1.00	179.84	0.621	No	No	2.00
868	56.31	595.69	1.63	0.72	1.00	177.72	1.00	177.72	0.602	No	No	2.00
869	56.34	586.22	1.65	0.77	1.00	174.82	1.00	174.82	0.577	No	No	2.00
870	56.39	579.04	1.66	0.78	1.00	172.57	1.00	172.57	0.558	No	No	2.00
871	56.45	572.30	1.67	0.79	1.00	170.44	1.00	170.44	0.540	No	No	2.00
872	56.48	565.39	1.67	0.79	1.00	168.31	1.00	168.31	0.523	No	No	2.00
873	56.49	555.45	1.70	0.85	1.00	165.32	1.00	165.32	0.500	No	No	2.00
874	56.53	542.15	1.73	0.91	1.00	161.25	1.05	168.57	0.525	No	No	2.00
875	56.58	529.04	1.75	0.94	1.00	157.24	1.08	169.38	0.532	No	No	2.00
876	56.63	524.73	1.67	0.72	1.00	155.86	1.00	155.86	0.432	No	No	2.00
877	56.68	526.01	1.58	0.52	1.00	156.17	1.00	156.17	0.434	No	No	2.00
878	56.73	531.33	1.53	0.43	1.00	157.68	1.00	157.68	0.445	No	No	2.00
879	56.78	526.31	1.62	0.60	1.00	156.09	1.00	156.09	0.434	No	No	2.00
880	56.83	517.99	1.69	0.76	1.00	153.53	1.00	153.53	0.417	No	No	2.00
881	56.89	503.37	1.73	0.85	1.00	149.05	1.06	157.35	0.442	No	No	2.00
882	56.95	485.04	1.77	0.94	1.00	143.50	1.12	160.76	0.466	No	No	2.00
883	56.99	470.25	1.81	1.02	1.00	139.02	1.16	161.37	0.471	No	No	2.00
884	57.01	460.92	1.83	1.07	1.00	136.23	1.18	160.98	0.468	No	No	2.00
885	57.04	461.73	1.82	1.05	1.00	136.41	1.18	160.65	0.466	No	No	2.00
886	57.09	468.20	1.81	1.02	1.00	138.26	1.17	161.13	0.469	No	No	2.00
887	57.11	477.43	1.81	1.03	1.00	140.98	1.16	163.57	0.487	No	No	2.00
888	57.13	488.62	1.81	1.06	1.00	144.26	1.16	167.47	0.517	No	No	2.00
889	57.18	488.78	1.82	1.11	1.00	144.24	1.17	169.44	0.532	No	No	2.00
890	57.19	477.80	1.85	1.18	1.00	140.96	1.20	168.95	0.529	No	No	2.00
891	57.21	464.47	1.87	1.22	1.00	136.96	1.21	166.30	0.508	No	No	2.00
892	57.24	456.12	1.88	1.23	1.00	134.45	1.22	164.00	0.490	No	No	2.00
893	57.28	456.72	1.87	1.20	1.00	134.56	1.21	163.35	0.485	No	No	2.00
894	57.32	450.91	1.87	1.19	1.00	132.78	1.22	161.45	0.471	No	No	2.00
895	57.35	445.39	1.88	1.21	1.00	131.08	1.22	160.03	0.461	No	No	2.00
896	57.38	435.59	1.89	1.22	1.00	128.14	1.23	157.50	0.443	No	No	2.00
897	57.43	430.50	1.89	1.21	1.00	126.56	1.23	155.53	0.430	No	No	2.00
898	57.48	414.66	1.90	1.19	1.00	121.80	1.23	150.26	0.396	No	No	2.00
899	57.52	398.59	1.89	1.12	1.00	116.98	1.23	143.92	0.357	No	No	1.85
900	57.57	389.56	1.91	1.18	1.00	114.25	1.25	142.28	0.348	No	No	1.80
901	57.62	396.66	1.94	1.29	1.00	116.29	1.26	146.53	0.373	No	No	1.93
902	57.68	427.50	1.92	1.35	1.00	125.32	1.25	157.03	0.440	No	No	2.00
903	57.76	462.23	1.88	1.27	1.00	135.46	1.23	166.00	0.505	No	No	2.00
904	57.81	505.50	1.75	0.90	1.00	148.16	1.09	161.17	0.469	No	No	2.00
905	57.86	543.58	1.63	0.63	1.00	159.31	1.00	159.31	0.456	No	No	2.00
906	57.89	572.52	1.49	0.39	1.00	167.80	1.00	167.80	0.519	No	No	2.00
907	57.91	583.54	1.48	0.39	1.00	171.02	1.00	171.02	0.545	No	No	2.00
908	57.92	577.13	1.50	0.42	1.00	169.11	1.00	169.11	0.530	No	No	2.00
909	57.95	569.05	1.54	0.47	1.00	166.67	1.00	166.67	0.511	No	No	2.00
910	57.99	570.66	1.56	0.52	1.00	167.08	1.00	167.08	0.514	No	No	2.00
911	58.01	578.72	1.57	0.56	1.00	169.42	1.00	169.42	0.532	No	No	2.00
912	58.05	591.19	1.58	0.58	1.00	173.02	1.00	173.02	0.562	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	58.05	598.87	1.59	0.62	1.00	175.27	1.00	175.27	0.581	No	No	2.00
914	58.10	604.77	1.60	0.65	1.00	176.91	1.00	176.91	0.595	No	No	2.00
915	58.13	611.17	1.60	0.67	1.00	178.73	1.00	178.73	0.611	No	No	2.00
916	58.15	618.51	1.60	0.66	1.00	180.87	1.00	180.87	0.630	No	No	2.00
917	58.17	625.12	1.59	0.65	1.00	182.75	1.00	182.75	0.648	No	No	2.00
918	58.20	623.43	1.59	0.66	1.00	182.21	1.00	182.21	0.643	No	No	2.00
919	58.21	619.40	1.60	0.67	1.00	181.00	1.00	181.00	0.632	No	No	2.00
920	58.21	614.30	1.61	0.68	1.00	179.50	1.00	179.50	0.618	No	No	2.00
921	58.23	613.93	1.61	0.68	1.00	179.34	1.00	179.34	0.616	No	No	2.00
922	58.24	608.11	1.62	0.69	1.00	177.62	1.00	177.62	0.601	No	No	2.00
923	58.25	609.21	1.54	0.52	1.00	177.92	1.00	177.92	0.604	No	No	2.00
924	58.29	613.99	1.44	0.36	1.00	179.26	1.00	179.26	0.616	No	No	2.00
925	58.31	627.24	1.32	0.20	1.00	183.11	1.00	183.11	0.651	No	No	2.00
926	58.33	639.00	1.34	0.24	1.00	186.52	1.00	186.52	0.683	No	No	2.00
927	58.38	651.36	1.37	0.28	1.00	190.06	1.00	190.06	0.718	No	No	2.00
928	58.39	661.87	1.39	0.32	1.00	193.13	1.00	193.13	0.750	No	No	2.00
929	58.43	670.53	1.40	0.34	1.00	195.59	1.00	195.59	0.776	No	No	2.00
930	58.43	682.73	1.39	0.33	1.00	199.15	1.00	199.15	0.815	No	No	2.00
931	58.48	688.02	1.40	0.35	1.00	200.60	1.00	200.60	4.000	No	No	2.00
932	58.53	694.39	1.41	0.38	1.00	202.36	1.00	202.36	4.000	No	No	2.00
933	58.56	696.37	1.46	0.46	1.00	202.90	1.00	202.90	4.000	No	No	2.00
934	58.58	704.43	1.47	0.49	1.00	205.20	1.00	205.20	4.000	No	No	2.00
935	58.59	710.90	1.49	0.52	1.00	207.06	1.00	207.06	4.000	No	No	2.00
936	58.63	707.18	1.49	0.53	1.00	205.90	1.00	205.90	4.000	No	No	2.00
937	58.63	709.20	1.50	0.54	1.00	206.49	1.00	206.49	4.000	No	No	2.00
938	58.63	695.36	1.51	0.54	1.00	202.42	1.00	202.42	4.000	No	No	2.00
939	58.68	700.19	1.49	0.51	1.00	203.74	1.00	203.74	4.000	No	No	2.00
940	58.69	701.88	1.45	0.44	1.00	204.22	1.00	204.22	4.000	No	No	2.00
941	58.72	717.85	1.40	0.38	1.00	208.81	1.00	208.81	4.000	No	No	2.00
942	58.73	722.94	1.38	0.36	1.00	210.28	1.00	210.28	4.000	No	No	2.00
943	58.74	728.64	1.41	0.40	1.00	211.92	1.00	211.92	4.000	No	No	2.00
944	58.77	726.96	1.44	0.45	1.00	211.36	1.00	211.36	4.000	No	No	2.00
945	58.81	722.67	1.47	0.50	1.00	210.02	1.00	210.02	4.000	No	No	2.00
946	58.82	713.94	1.49	0.53	1.00	207.44	1.00	207.44	4.000	No	No	2.00
947	58.83	715.80	1.51	0.57	1.00	207.97	1.00	207.97	4.000	No	No	2.00
948	58.87	722.33	1.52	0.60	1.00	209.78	1.00	209.78	4.000	No	No	2.00
949	58.91	731.67	1.53	0.63	1.00	212.41	1.00	212.41	4.000	No	No	2.00
950	58.92	737.87	1.54	0.64	1.00	214.21	1.00	214.21	4.000	No	No	2.00
951	58.93	740.53	1.53	0.64	1.00	214.95	1.00	214.95	4.000	No	No	2.00
952	58.96	739.05	1.53	0.63	1.00	214.44	1.00	214.44	4.000	No	No	2.00
953	59.01	716.31	1.56	0.67	1.00	207.70	1.00	207.70	4.000	No	No	2.00
954	59.06	687.29	1.59	0.73	1.00	199.13	1.00	199.13	0.814	No	No	2.00
955	59.08	655.28	1.63	0.78	1.00	189.77	1.00	189.77	0.716	No	No	2.00
956	59.11	638.94	1.65	0.81	1.00	184.95	1.00	184.95	0.668	No	No	2.00
957	59.15	627.21	1.68	0.88	1.00	181.46	1.00	181.46	0.636	No	No	2.00
958	59.21	618.28	1.70	0.94	1.00	178.75	1.00	178.75	0.611	No	No	2.00
959	59.26	606.09	1.72	0.96	1.00	175.11	1.02	178.89	0.612	No	No	2.00
960	59.30	592.31	1.71	0.92	1.00	171.02	1.01	173.20	0.563	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	59.35	579.87	1.71	0.90	1.00	167.32	1.01	169.07	0.529	No	No	2.00
962	59.40	562.76	1.73	0.91	1.00	162.26	1.04	168.73	0.527	No	No	2.00
963	59.42	550.96	1.74	0.92	1.00	158.81	1.06	168.34	0.524	No	No	2.00
964	59.47	539.34	1.75	0.93	1.00	155.35	1.08	167.78	0.519	No	No	2.00
965	59.51	539.41	1.75	0.95	1.00	155.29	1.09	168.63	0.526	No	No	2.00
966	59.56	537.97	1.75	0.95	1.00	154.79	1.09	168.59	0.526	No	No	2.00
967	59.61	537.36	1.74	0.90	1.00	154.53	1.06	164.50	0.494	No	No	2.00
968	59.67	541.98	1.70	0.80	1.00	155.77	1.00	155.77	0.432	No	No	2.00
969	59.71	553.73	1.65	0.69	1.00	159.11	1.00	159.11	0.455	No	No	2.00
970	59.80	555.82	1.61	0.59	1.00	159.56	1.00	159.56	0.458	No	No	2.00
971	59.85	552.45	1.59	0.54	1.00	158.50	1.00	158.50	0.450	No	No	2.00
972	59.90	542.21	1.59	0.53	1.00	155.47	1.00	155.47	0.429	No	No	2.00
973	60.00	542.99	1.59	0.54	1.00	155.53	1.00	155.53	0.430	No	No	2.00
974	60.04	541.71	1.60	0.56	1.00	155.09	1.00	155.09	0.427	No	No	2.00
975	60.10	526.52	1.63	0.60	1.00	150.62	1.00	150.62	0.398	No	No	2.00
976	60.15	508.32	1.67	0.66	1.00	145.30	1.00	145.30	0.365	No	No	1.91
977	60.19	487.40	1.70	0.69	1.00	139.22	1.00	139.22	0.331	No	No	1.73
978	60.23	483.49	1.69	0.66	1.00	138.03	1.00	138.03	0.325	No	No	1.70
979	60.28	482.61	1.68	0.63	1.00	137.71	1.00	137.71	0.323	No	No	1.69
980	60.33	488.98	1.67	0.62	1.00	139.47	1.00	139.47	0.332	No	No	1.74
981	60.38	491.97	1.67	0.64	1.00	140.26	1.00	140.26	0.337	No	No	1.77
982	60.42	493.85	1.69	0.68	1.00	140.74	1.00	140.74	0.339	No	No	1.78
983	60.44	487.18	1.71	0.72	1.00	138.79	1.01	140.24	0.337	No	No	1.76
984	60.47	475.94	1.74	0.79	1.00	135.53	1.08	145.72	0.368	No	No	1.93
985	60.52	465.53	1.78	0.87	1.00	132.47	1.12	148.94	0.387	No	No	2.00
986	60.56	462.70	1.79	0.92	1.00	131.60	1.15	150.90	0.400	No	No	2.00
987	60.57	465.03	1.79	0.92	1.00	132.25	1.15	151.48	0.403	No	No	2.00
988	60.61	470.62	1.78	0.89	1.00	133.80	1.13	151.48	0.403	No	No	2.00
989	60.66	477.29	1.77	0.88	1.00	135.64	1.12	151.98	0.406	No	No	2.00
990	60.71	486.66	1.77	0.87	1.00	138.25	1.11	153.21	0.414	No	No	2.00
991	60.76	495.25	1.77	0.90	1.00	140.63	1.11	156.59	0.437	No	No	2.00
992	60.81	504.76	1.77	0.92	1.00	143.27	1.11	159.58	0.458	No	No	2.00
993	60.86	523.05	1.75	0.90	1.00	148.43	1.08	161.02	0.468	No	No	2.00
994	60.91	559.78	1.70	0.83	1.00	158.84	1.00	158.84	0.453	No	No	2.00
995	60.95	601.50	1.66	0.78	1.00	170.69	1.00	170.69	0.542	No	No	2.00
996	61.00	637.66	1.64	0.77	1.00	180.91	1.00	180.91	0.631	No	No	2.00
997	61.02	657.74	1.64	0.79	1.00	186.60	1.00	186.60	0.684	No	No	2.00
998	61.05	685.10	1.62	0.78	1.00	194.34	1.00	194.34	0.763	No	No	2.00
999	61.08	710.24	1.61	0.77	1.00	201.44	1.00	201.44	4.000	No	No	2.00
1000	61.09	731.84	1.59	0.76	1.00	207.57	1.00	207.57	4.000	No	No	2.00
1001	61.13	737.94	1.59	0.76	1.00	209.24	1.00	209.24	4.000	No	No	2.00
1002	61.14	739.46	1.60	0.77	1.00	209.63	1.00	209.63	4.000	No	No	2.00
1003	61.16	741.44	1.60	0.78	1.00	210.15	1.00	210.15	4.000	No	No	2.00
1004	61.20	750.88	1.58	0.75	1.00	212.77	1.00	212.77	4.000	No	No	2.00
1005	61.23	762.13	1.56	0.71	1.00	215.88	1.00	215.88	4.000	No	No	2.00
1006	61.24	766.92	1.52	0.62	1.00	217.23	1.00	217.23	4.000	No	No	2.00
1007	61.29	758.86	1.51	0.59	1.00	214.83	1.00	214.83	4.000	No	No	2.00
1008	61.30	744.24	1.52	0.59	1.00	210.65	1.00	210.65	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	61.33	734.57	1.55	0.65	1.00	207.82	1.00	207.82	4.000	No	No	2.00
1010	61.38	730.90	1.55	0.65	1.00	206.66	1.00	206.66	4.000	No	No	2.00
1011	61.43	731.07	1.53	0.60	1.00	206.60	1.00	206.60	4.000	No	No	2.00
1012	61.48	738.25	1.50	0.56	1.00	208.54	1.00	208.54	4.000	No	No	2.00
1013	61.53	750.91	1.48	0.53	1.00	212.02	1.00	212.02	4.000	No	No	2.00
1014	61.56	754.78	1.48	0.52	1.00	213.05	1.00	213.05	4.000	No	No	2.00
1015	61.58	726.93	1.50	0.54	1.00	205.10	1.00	205.10	4.000	No	No	2.00
1016	61.59	702.39	1.52	0.55	1.00	198.13	1.00	198.13	0.803	No	No	2.00
1017	61.62	600.70	1.61	0.64	1.00	169.24	1.00	169.24	0.531	No	No	2.00
1018	61.63	595.30	1.61	0.64	1.00	167.67	1.00	167.67	0.518	No	No	2.00
1019	61.67	588.36	1.62	0.64	1.00	165.65	1.00	165.65	0.503	No	No	2.00
1020	61.71	662.66	1.55	0.57	1.00	186.61	1.00	186.61	0.684	No	No	2.00
1021	61.76	655.52	1.55	0.57	1.00	184.50	1.00	184.50	0.664	No	No	2.00
1022	61.81	634.02	1.54	0.53	1.00	178.32	1.00	178.32	0.607	No	No	2.00
1023	61.86	615.02	1.52	0.48	1.00	172.85	1.00	172.85	0.560	No	No	2.00
1024	61.87	600.83	1.48	0.38	1.00	168.83	1.00	168.83	0.528	No	No	2.00
1025	61.91	588.87	1.44	0.32	1.00	165.39	1.00	165.39	0.501	No	No	2.00
1026	61.95	578.02	1.42	0.27	1.00	162.25	1.00	162.25	0.477	No	No	2.00
1027	61.96	566.74	1.42	0.26	1.00	159.04	1.00	159.04	0.454	No	No	2.00
1028	62.00	553.70	1.45	0.29	1.00	155.30	1.00	155.30	0.428	No	No	2.00
1029	62.04	535.16	1.49	0.33	1.00	150.01	1.00	150.01	0.394	No	No	2.00
1030	62.06	510.97	1.55	0.41	1.00	143.15	1.00	143.15	0.353	No	No	1.86
1031	62.10	491.66	1.60	0.47	1.00	137.65	1.00	137.65	0.323	No	No	1.70
1032	62.14	475.52	1.64	0.51	1.00	133.04	1.00	133.04	0.299	No	No	1.58
1033	62.20	463.08	1.66	0.55	1.00	129.46	1.00	129.46	0.282	No	No	1.49
1034	62.22	439.20	1.71	0.60	1.00	122.70	1.00	122.70	0.252	No	No	1.33
1035	62.27	415.48	1.75	0.66	1.00	115.96	1.08	125.13	0.262	No	No	1.39
1036	62.29	396.37	1.78	0.71	1.00	110.55	1.13	125.44	0.264	No	No	1.39
1037	62.34	380.26	1.82	0.77	1.00	105.96	1.17	124.22	0.258	No	No	1.37
1038	62.39	366.62	1.86	0.86	1.00	102.08	1.21	123.46	0.255	No	No	1.35
1039	62.43	347.78	1.93	1.03	1.00	96.73	1.26	121.51	0.247	No	No	1.31
1040	62.49	340.13	1.97	1.16	1.00	94.52	1.28	121.38	0.246	No	No	1.30
1041	62.57	336.43	1.99	1.25	1.00	93.40	1.30	121.70	0.248	No	No	1.31
1042	62.68	357.18	1.98	1.25	1.00	99.12	1.29	127.79	0.274	No	No	1.45
1043	62.75	398.26	1.93	1.21	1.00	110.56	1.26	139.12	0.330	No	No	1.75
1044	62.87	426.23	1.91	1.20	1.00	118.25	1.24	146.86	0.375	No	No	1.99
1045	62.88	409.21	1.93	1.22	1.00	113.48	1.25	142.25	0.348	No	No	1.84
1046	62.89	424.34	1.86	1.01	1.00	117.70	1.21	142.29	0.348	No	No	1.84
1047	62.93	485.42	1.74	0.76	1.00	134.75	1.06	142.80	0.351	No	No	1.86
1048	62.98	571.92	1.61	0.59	1.00	158.87	1.00	158.87	0.453	No	No	2.00
1049	63.02	620.24	1.47	0.38	1.00	172.30	1.00	172.30	0.556	No	No	2.00
1050	63.07	658.55	1.31	0.19	1.00	182.93	1.00	182.93	0.649	No	No	2.00
1051	63.12	710.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1052	63.14	752.36	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1053	63.17	781.30	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1054	63.17	799.36	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1055	63.20	825.98	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1056	63.21	830.83	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	63.23	842.91	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1058	63.26	834.75	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1059	63.28	841.52	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1060	63.31	838.10	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1061	63.32	839.38	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1062	63.36	837.12	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1063	63.40	836.85	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.01	2.00	0.00	0.00	0.02	0.00	0.04	2.00	0.00	0.00	0.02	0.00
0.09	2.00	0.00	0.00	0.05	0.00	0.11	2.00	0.00	0.00	0.02	0.00
0.14	2.00	0.00	0.00	0.03	0.00	0.14	2.00	0.00	0.00	0.01	0.00
0.18	2.00	0.00	0.00	0.04	0.00	0.23	2.00	0.00	0.00	0.05	0.00
0.24	2.00	0.00	0.00	0.01	0.00	0.28	2.00	0.00	0.00	0.04	0.00
0.33	2.00	0.00	0.00	0.05	0.00	0.38	2.00	0.00	0.00	0.05	0.00
0.42	2.00	0.00	0.00	0.05	0.00	0.47	2.00	0.00	0.00	0.05	0.00
0.51	2.00	0.00	0.00	0.04	0.00	0.52	2.00	0.00	0.00	0.01	0.00
0.57	2.00	0.00	0.00	0.05	0.00	0.61	2.00	0.00	0.00	0.04	0.00
0.67	2.00	0.00	0.00	0.05	0.00	0.73	2.00	0.00	0.00	0.06	0.00
0.81	2.00	0.00	0.00	0.08	0.00	0.86	2.00	0.00	0.00	0.05	0.00
0.98	2.00	0.00	0.00	0.12	0.00	1.05	2.00	0.00	0.00	0.07	0.00
1.15	2.00	0.00	0.00	0.10	0.00	1.24	2.00	0.00	0.00	0.09	0.00
1.34	2.00	0.00	0.00	0.10	0.00	1.43	2.00	0.00	0.00	0.09	0.00
1.53	2.00	0.00	0.00	0.10	0.00	1.58	2.00	0.00	0.00	0.05	0.00
1.62	2.00	0.00	0.00	0.04	0.00	1.67	2.00	0.00	0.00	0.05	0.00
1.75	2.00	0.00	0.00	0.07	0.00	1.77	2.00	0.00	0.00	0.03	0.00
1.81	2.00	0.00	0.00	0.04	0.00	1.86	2.00	0.00	0.00	0.04	0.00
1.91	2.00	0.00	0.00	0.05	0.00	1.95	2.00	0.00	0.00	0.04	0.00
2.00	2.00	0.00	0.00	0.05	0.00	2.05	2.00	0.00	0.00	0.05	0.00
2.11	2.00	0.00	0.00	0.06	0.00	2.20	2.00	0.00	0.00	0.09	0.00
2.24	2.00	0.00	0.00	0.05	0.00	2.29	2.00	0.00	0.00	0.05	0.00
2.34	2.00	0.00	0.00	0.05	0.00	2.44	2.00	0.00	0.00	0.10	0.00
2.48	2.00	0.00	0.00	0.05	0.00	2.58	2.00	0.00	0.00	0.10	0.00
2.63	2.00	0.00	0.00	0.05	0.00	2.71	2.00	0.00	0.00	0.08	0.00
2.78	2.00	0.00	0.00	0.07	0.00	2.82	2.00	0.00	0.00	0.04	0.00
2.89	2.00	0.00	0.00	0.07	0.00	2.96	2.00	0.00	0.00	0.08	0.00
3.03	2.00	0.00	0.00	0.07	0.00	3.11	2.00	0.00	0.00	0.08	0.00
3.19	2.00	0.00	0.00	0.09	0.00	3.25	2.00	0.00	0.00	0.06	0.00
3.35	2.00	0.00	0.00	0.10	0.00	3.41	2.00	0.00	0.00	0.05	0.00
3.50	2.00	0.00	0.00	0.09	0.00	3.59	2.00	0.00	0.00	0.09	0.00
3.69	2.00	0.00	0.00	0.10	0.00	3.79	2.00	0.00	0.00	0.09	0.00
3.88	2.00	0.00	0.00	0.09	0.00	3.97	2.00	0.00	0.00	0.10	0.00
4.07	2.00	0.00	0.00	0.09	0.00	4.14	2.00	0.00	0.00	0.07	0.00
4.17	2.00	0.00	0.00	0.04	0.00	4.26	2.00	0.00	0.00	0.09	0.00
4.32	2.00	0.00	0.00	0.05	0.00	4.37	2.00	0.00	0.00	0.05	0.00
4.42	2.00	0.00	0.00	0.06	0.00	4.51	2.00	0.00	0.00	0.08	0.00
4.61	2.00	0.00	0.00	0.10	0.00	4.65	2.00	0.00	0.00	0.05	0.00
4.74	2.00	0.00	0.00	0.09	0.00	4.80	2.00	0.00	0.00	0.06	0.00
4.89	2.00	0.00	0.00	0.09	0.00	4.95	2.00	0.00	0.00	0.05	0.00
5.04	2.00	0.00	0.00	0.09	0.00	5.13	2.00	0.00	0.00	0.09	0.00
5.18	2.00	0.00	0.00	0.05	0.00	5.28	2.00	0.00	0.00	0.10	0.00
5.32	2.00	0.00	0.00	0.04	0.00	5.42	2.00	0.00	0.00	0.10	0.00
5.51	2.00	0.00	0.00	0.09	0.00	5.60	2.00	0.00	0.00	0.09	0.00
5.66	2.00	0.00	0.00	0.06	0.00	5.76	2.00	0.00	0.00	0.09	0.00
5.85	2.00	0.00	0.00	0.09	0.00	5.92	2.00	0.00	0.00	0.07	0.00
5.95	2.00	0.00	0.00	0.03	0.00	5.97	2.00	0.00	0.00	0.02	0.00
6.02	2.00	0.00	0.00	0.06	0.00	6.06	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
6.16	2.00	0.00	0.00	0.10	0.00	6.21	2.00	0.00	0.00	0.04	0.00
6.26	2.00	0.00	0.00	0.06	0.00	6.31	2.00	0.00	0.00	0.04	0.00
6.40	2.00	0.00	0.00	0.09	0.00	6.44	2.00	0.00	0.00	0.04	0.00
6.52	2.00	0.00	0.00	0.08	0.00	6.57	2.00	0.00	0.00	0.05	0.00
6.64	2.00	0.00	0.00	0.07	0.00	6.69	2.00	0.00	0.00	0.05	0.00
6.78	2.00	0.00	0.00	0.09	0.00	6.83	2.00	0.00	0.00	0.05	0.00
6.92	2.00	0.00	0.00	0.09	0.00	6.97	2.00	0.00	0.00	0.05	0.00
7.03	2.00	0.00	0.00	0.05	0.00	7.12	2.00	0.00	0.00	0.09	0.00
7.22	2.00	0.00	0.00	0.10	0.00	7.27	2.00	0.00	0.00	0.05	0.00
7.36	2.00	0.00	0.00	0.09	0.00	7.43	2.00	0.00	0.00	0.08	0.00
7.50	2.00	0.00	0.00	0.07	0.00	7.59	2.00	0.00	0.00	0.09	0.00
7.64	2.00	0.00	0.00	0.05	0.00	7.75	2.00	0.00	0.00	0.10	0.00
7.79	2.00	0.00	0.00	0.04	0.00	7.89	2.00	0.00	0.00	0.10	0.00
7.99	2.00	0.00	0.00	0.10	0.00	8.04	2.00	0.00	0.00	0.05	0.00
8.13	2.00	0.00	0.00	0.09	0.00	8.23	2.00	0.00	0.00	0.10	0.00
8.32	2.00	0.00	0.00	0.09	0.00	8.37	2.00	0.00	0.00	0.05	0.00
8.46	2.00	0.00	0.00	0.09	0.00	8.56	2.00	0.00	0.00	0.10	0.00
8.59	2.00	0.00	0.00	0.02	0.00	8.61	2.00	0.00	0.00	0.03	0.00
8.67	2.00	0.00	0.00	0.05	0.00	8.71	2.00	0.00	0.00	0.04	0.00
8.72	2.00	0.00	0.00	0.01	0.00	8.78	2.00	0.00	0.00	0.06	0.00
8.80	2.00	0.00	0.00	0.02	0.00	8.86	2.00	0.00	0.00	0.05	0.00
8.90	2.00	0.00	0.00	0.04	0.00	8.95	2.00	0.00	0.00	0.05	0.00
8.96	2.00	0.00	0.00	0.01	0.00	9.00	2.00	0.00	0.00	0.04	0.00
9.05	2.00	0.00	0.00	0.05	0.00	9.09	2.00	0.00	0.00	0.04	0.00
9.10	2.00	0.00	0.00	0.01	0.00	9.14	2.00	0.00	0.00	0.05	0.00
9.20	2.00	0.00	0.00	0.05	0.00	9.24	2.00	0.00	0.00	0.04	0.00
9.29	2.00	0.00	0.00	0.05	0.00	9.31	2.00	0.00	0.00	0.02	0.00
9.38	2.00	0.00	0.00	0.07	0.00	9.41	2.00	0.00	0.00	0.03	0.00
9.47	2.00	0.00	0.00	0.06	0.00	9.53	2.00	0.00	0.00	0.05	0.00
9.62	2.00	0.00	0.00	0.09	0.00	9.67	2.00	0.00	0.00	0.05	0.00
9.77	2.00	0.00	0.00	0.10	0.00	9.81	2.00	0.00	0.00	0.05	0.00
9.90	2.00	0.00	0.00	0.08	0.00	9.97	2.00	0.00	0.00	0.08	0.00
10.06	2.00	0.00	0.00	0.09	0.00	10.20	2.00	0.00	0.00	0.14	0.00
10.30	2.00	0.00	0.00	0.09	0.00	10.44	2.00	0.00	0.00	0.14	0.00
10.54	2.00	0.00	0.00	0.10	0.00	10.63	2.00	0.00	0.00	0.09	0.00
10.74	2.00	0.00	0.00	0.11	0.00	10.78	2.00	0.00	0.00	0.04	0.00
10.83	2.00	0.00	0.00	0.05	0.00	10.88	2.00	0.00	0.00	0.05	0.00
10.89	2.00	0.00	0.00	0.02	0.00	10.97	2.00	0.00	0.00	0.08	0.00
11.02	2.00	0.00	0.00	0.05	0.00	11.07	2.00	0.00	0.00	0.05	0.00
11.11	2.00	0.00	0.00	0.05	0.00	11.16	2.00	0.00	0.00	0.05	0.00
11.21	2.00	0.00	0.00	0.05	0.00	11.26	2.00	0.00	0.00	0.04	0.00
11.30	2.00	0.00	0.00	0.05	0.00	11.36	2.00	0.00	0.00	0.05	0.00
11.40	2.00	0.00	0.00	0.05	0.00	11.45	2.00	0.00	0.00	0.04	0.00
11.50	2.00	0.00	0.00	0.05	0.00	11.55	2.00	0.00	0.00	0.05	0.00
11.60	2.00	0.00	0.00	0.05	0.00	11.66	2.00	0.00	0.00	0.07	0.00
11.74	2.00	0.00	0.00	0.08	0.00	11.84	2.00	0.00	0.00	0.10	0.00
11.93	2.00	0.00	0.00	0.09	0.00	12.04	2.00	0.00	0.00	0.11	0.00
12.13	2.00	0.00	0.00	0.09	0.00	12.22	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
12.27	2.00	0.00	0.00	0.04	0.00	12.37	2.00	0.00	0.00	0.10	0.00
12.41	2.00	0.00	0.00	0.05	0.00	12.51	2.00	0.00	0.00	0.09	0.00
12.56	2.00	0.00	0.00	0.05	0.00	12.65	2.00	0.00	0.00	0.09	0.00
12.71	2.00	0.00	0.00	0.06	0.00	12.79	2.00	0.00	0.00	0.08	0.00
12.89	2.00	0.00	0.00	0.10	0.00	12.96	2.00	0.00	0.00	0.06	0.00
13.04	2.00	0.00	0.00	0.08	0.00	13.13	2.00	0.00	0.00	0.09	0.00
13.23	2.00	0.00	0.00	0.10	0.00	13.30	2.00	0.00	0.00	0.07	0.00
13.37	2.00	0.00	0.00	0.07	0.00	13.47	2.00	0.00	0.00	0.10	0.00
13.57	2.00	0.00	0.00	0.10	0.00	13.61	2.00	0.00	0.00	0.04	0.00
13.62	2.00	0.00	0.00	0.02	0.00	13.68	2.00	0.00	0.00	0.06	0.00
13.73	2.00	0.00	0.00	0.05	0.00	13.77	2.00	0.00	0.00	0.04	0.00
13.87	2.00	0.00	0.00	0.10	0.00	13.93	2.00	0.00	0.00	0.06	0.00
14.00	2.00	0.00	0.00	0.07	0.00	14.06	2.00	0.00	0.00	0.06	0.00
14.12	2.00	0.00	0.00	0.06	0.00	14.21	2.00	0.00	0.00	0.09	0.00
14.25	2.00	0.00	0.00	0.05	0.00	14.35	2.00	0.00	0.00	0.10	0.00
14.45	2.00	0.00	0.00	0.09	0.00	14.50	2.00	0.00	0.00	0.05	0.00
14.59	2.00	0.00	0.00	0.09	0.00	14.64	2.00	0.00	0.00	0.05	0.00
14.74	2.00	0.00	0.00	0.10	0.00	14.80	2.00	0.00	0.00	0.06	0.00
14.88	2.00	0.00	0.00	0.09	0.00	14.97	2.00	0.00	0.00	0.09	0.00
15.05	2.00	0.00	0.00	0.08	0.00	15.13	2.00	0.00	0.00	0.09	0.00
15.21	2.00	0.00	0.00	0.08	0.00	15.28	2.00	0.00	0.00	0.07	0.00
15.36	2.00	0.00	0.00	0.08	0.00	15.41	2.00	0.00	0.00	0.04	0.00
15.50	2.00	0.00	0.00	0.10	0.00	15.55	2.00	0.00	0.00	0.05	0.00
15.65	2.00	0.00	0.00	0.10	0.00	15.71	2.00	0.00	0.00	0.06	0.00
15.79	2.00	0.00	0.00	0.08	0.00	15.89	2.00	0.00	0.00	0.10	0.00
15.90	2.00	0.00	0.00	0.01	0.00	15.94	2.00	0.00	0.00	0.04	0.00
16.00	2.00	0.00	0.00	0.06	0.00	16.06	2.00	0.00	0.00	0.06	0.00
16.14	2.00	0.00	0.00	0.08	0.00	16.19	2.00	0.00	0.00	0.05	0.00
16.26	2.00	0.00	0.00	0.07	0.00	16.33	2.00	0.00	0.00	0.07	0.00
16.38	2.00	0.00	0.00	0.05	0.00	16.47	2.00	0.00	0.00	0.09	0.00
16.54	2.00	0.00	0.00	0.06	0.00	16.62	2.00	0.00	0.00	0.08	0.00
16.70	2.00	0.00	0.00	0.09	0.00	16.76	2.00	0.00	0.00	0.06	0.00
16.86	2.00	0.00	0.00	0.10	0.00	16.90	2.00	0.00	0.00	0.04	0.00
16.98	2.00	0.00	0.00	0.08	0.00	17.05	2.00	0.00	0.00	0.07	0.00
17.14	2.00	0.00	0.00	0.09	0.00	17.20	2.00	0.00	0.00	0.05	0.00
17.29	2.00	0.00	0.00	0.10	0.00	17.34	2.00	0.00	0.00	0.05	0.00
17.44	2.00	0.00	0.00	0.10	0.00	17.50	2.00	0.00	0.00	0.06	0.00
17.58	2.00	0.00	0.00	0.09	0.00	17.64	2.00	0.00	0.00	0.06	0.00
17.75	2.00	0.00	0.00	0.11	0.00	17.82	2.00	0.00	0.00	0.06	0.00
17.89	2.00	0.00	0.00	0.07	0.00	17.89	2.00	0.00	0.00	0.00	0.00
17.96	2.00	0.00	0.00	0.07	0.00	18.02	2.00	0.00	0.00	0.05	0.00
18.07	2.00	0.00	0.00	0.05	0.00	18.17	2.00	0.00	0.00	0.10	0.00
18.22	2.00	0.00	0.00	0.05	0.00	18.30	2.00	0.00	0.00	0.09	0.00
18.36	2.00	0.00	0.00	0.06	0.00	18.42	2.00	0.00	0.00	0.06	0.00
18.50	2.00	0.00	0.00	0.08	0.00	18.56	2.00	0.00	0.00	0.06	0.00
18.62	2.00	0.00	0.00	0.06	0.00	18.69	2.00	0.00	0.00	0.07	0.00
18.76	2.00	0.00	0.00	0.07	0.00	18.84	2.00	0.00	0.00	0.08	0.00
18.89	2.00	0.00	0.00	0.05	0.00	18.98	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
19.05	2.00	0.00	0.00	0.06	0.00	19.12	2.00	0.00	0.00	0.07	0.00
19.18	2.00	0.00	0.00	0.06	0.00	19.24	2.00	0.00	0.00	0.06	0.00
19.32	2.00	0.00	0.00	0.07	0.00	19.38	2.00	0.00	0.00	0.06	0.00
19.46	2.00	0.00	0.00	0.09	0.00	19.54	2.00	0.00	0.00	0.07	0.00
19.62	2.00	0.00	0.00	0.08	0.00	19.70	2.00	0.00	0.00	0.08	0.00
19.80	2.00	0.00	0.00	0.10	0.00	19.85	2.00	0.00	0.00	0.05	0.00
19.94	2.00	0.00	0.00	0.09	0.00	20.03	2.00	0.00	0.00	0.09	0.00
20.13	2.00	0.00	0.00	0.10	0.00	20.19	2.00	0.00	0.00	0.06	0.00
20.29	2.00	0.00	0.00	0.10	0.00	20.39	2.00	0.00	0.00	0.10	0.00
20.43	2.00	0.00	0.00	0.03	0.00	20.47	2.00	0.00	0.00	0.05	0.00
20.52	2.00	0.00	0.00	0.05	0.00	20.61	2.00	0.00	0.00	0.09	0.00
20.66	2.00	0.00	0.00	0.05	0.00	20.71	2.00	0.00	0.00	0.05	0.00
20.77	2.00	0.00	0.00	0.06	0.00	20.85	2.00	0.00	0.00	0.08	0.00
20.91	2.00	0.00	0.00	0.05	0.00	21.00	2.00	0.00	0.00	0.09	0.00
21.05	2.00	0.00	0.00	0.05	0.00	21.11	2.00	0.00	0.00	0.06	0.00
21.19	2.00	0.00	0.00	0.08	0.00	21.24	2.00	0.00	0.00	0.05	0.00
21.34	2.00	0.00	0.00	0.09	0.00	21.39	2.00	0.00	0.00	0.05	0.00
21.48	2.00	0.00	0.00	0.10	0.00	21.53	2.00	0.00	0.00	0.05	0.00
21.64	2.00	0.00	0.00	0.11	0.00	21.72	2.00	0.00	0.00	0.08	0.00
21.81	2.00	0.00	0.00	0.09	0.00	21.89	2.00	0.00	0.00	0.08	0.00
21.97	2.00	0.00	0.00	0.08	0.00	22.05	2.00	0.00	0.00	0.09	0.00
22.12	2.00	0.00	0.00	0.07	0.00	22.13	2.00	0.00	0.00	0.01	0.00
22.18	2.00	0.00	0.00	0.05	0.00	22.22	2.00	0.00	0.00	0.04	0.00
22.28	2.00	0.00	0.00	0.06	0.00	22.33	2.00	0.00	0.00	0.05	0.00
22.38	2.00	0.00	0.00	0.05	0.00	22.41	2.00	0.00	0.00	0.03	0.00
22.51	2.00	0.00	0.00	0.10	0.00	22.56	2.00	0.00	0.00	0.05	0.00
22.61	2.00	0.00	0.00	0.05	0.00	22.65	2.00	0.00	0.00	0.04	0.00
22.71	2.00	0.00	0.00	0.05	0.00	22.76	2.00	0.00	0.00	0.06	0.00
22.85	2.00	0.00	0.00	0.08	0.00	22.89	2.00	0.00	0.00	0.05	0.00
22.99	2.00	0.00	0.00	0.10	0.00	23.04	2.00	0.00	0.00	0.05	0.00
23.12	2.00	0.00	0.00	0.08	0.00	23.18	2.00	0.00	0.00	0.07	0.00
23.24	2.00	0.00	0.00	0.06	0.00	23.33	2.00	0.00	0.00	0.09	0.00
23.38	2.00	0.00	0.00	0.05	0.00	23.47	2.00	0.00	0.00	0.09	0.00
23.52	2.00	0.00	0.00	0.05	0.00	23.61	2.00	0.00	0.00	0.09	0.00
23.68	2.00	0.00	0.00	0.07	0.00	23.76	2.00	0.00	0.00	0.08	0.00
23.83	2.00	0.00	0.00	0.07	0.00	23.90	2.00	0.00	0.00	0.08	0.00
23.97	2.00	0.00	0.00	0.07	0.00	24.05	2.00	0.00	0.00	0.08	0.00
24.10	2.00	0.00	0.00	0.05	0.00	24.19	2.00	0.00	0.00	0.09	0.00
24.27	2.00	0.00	0.00	0.08	0.00	24.34	2.00	0.00	0.00	0.07	0.00
24.43	2.00	0.00	0.00	0.09	0.00	24.48	2.00	0.00	0.00	0.05	0.00
24.57	2.00	0.00	0.00	0.09	0.00	24.62	2.00	0.00	0.00	0.05	0.00
24.72	2.00	0.00	0.00	0.09	0.00	24.81	2.00	0.00	0.00	0.10	0.00
24.86	2.00	0.00	0.00	0.05	0.00	24.95	2.00	0.00	0.00	0.09	0.00
25.01	2.00	0.00	0.00	0.06	0.00	25.02	2.00	0.00	0.00	0.01	0.00
25.05	2.00	0.00	0.00	0.03	0.00	25.11	2.00	0.00	0.00	0.06	0.00
25.15	2.00	0.00	0.00	0.04	0.00	25.21	2.00	0.00	0.00	0.06	0.00
25.25	2.00	0.00	0.00	0.04	0.00	25.30	2.00	0.00	0.00	0.05	0.00
25.40	2.00	0.00	0.00	0.10	0.00	25.45	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
25.52	2.00	0.00	0.00	0.07	0.00	25.60	2.00	0.00	0.00	0.07	0.00
25.66	2.00	0.00	0.00	0.06	0.00	25.74	2.00	0.00	0.00	0.08	0.00
25.80	2.00	0.00	0.00	0.06	0.00	25.88	2.00	0.00	0.00	0.07	0.00
25.94	2.00	0.00	0.00	0.07	0.00	26.02	2.00	0.00	0.00	0.08	0.00
26.09	2.00	0.00	0.00	0.07	0.00	26.17	2.00	0.00	0.00	0.08	0.00
26.23	2.00	0.00	0.00	0.06	0.00	26.29	2.00	0.00	0.00	0.06	0.00
26.37	2.00	0.00	0.00	0.08	0.00	26.46	2.00	0.00	0.00	0.08	0.00
26.55	2.00	0.00	0.00	0.09	0.00	26.60	2.00	0.00	0.00	0.05	0.00
26.70	2.00	0.00	0.00	0.10	0.00	26.78	2.00	0.00	0.00	0.08	0.00
26.87	2.00	0.00	0.00	0.09	0.00	26.94	2.00	0.00	0.00	0.06	0.00
27.03	2.00	0.00	0.00	0.10	0.00	27.13	2.00	0.00	0.00	0.10	0.00
27.18	2.00	0.00	0.00	0.05	0.00	27.27	2.00	0.00	0.00	0.09	0.00
27.32	2.00	0.00	0.00	0.05	0.00	27.37	2.00	0.00	0.00	0.05	0.00
27.41	2.00	0.00	0.00	0.05	0.00	27.46	2.00	0.00	0.00	0.05	0.00
27.51	2.00	0.00	0.00	0.05	0.00	27.61	2.00	0.00	0.00	0.09	0.00
27.66	2.00	0.00	0.00	0.05	0.00	27.73	2.00	0.00	0.00	0.07	0.00
27.80	2.00	0.00	0.00	0.07	0.00	27.88	2.00	0.00	0.00	0.08	0.00
27.96	2.00	0.00	0.00	0.09	0.00	28.04	2.00	0.00	0.00	0.08	0.00
28.12	2.00	0.00	0.00	0.08	0.00	28.18	2.00	0.00	0.00	0.06	0.00
28.27	2.00	0.00	0.00	0.09	0.00	28.32	2.00	0.00	0.00	0.05	0.00
28.42	2.00	0.00	0.00	0.10	0.00	28.47	2.00	0.00	0.00	0.05	0.00
28.61	2.00	0.00	0.00	0.14	0.00	28.67	2.00	0.00	0.00	0.06	0.00
28.75	2.00	0.00	0.00	0.09	0.00	28.81	2.00	0.00	0.00	0.05	0.00
28.90	2.00	0.00	0.00	0.10	0.00	29.00	2.00	0.00	0.00	0.09	0.00
29.05	2.00	0.00	0.00	0.05	0.00	29.10	2.00	0.00	0.00	0.05	0.00
29.15	2.00	0.00	0.00	0.05	0.00	29.24	2.00	0.00	0.00	0.09	0.00
29.29	2.00	0.00	0.00	0.05	0.00	29.37	2.00	0.00	0.00	0.07	0.00
29.43	2.00	0.00	0.00	0.06	0.00	29.53	2.00	0.00	0.00	0.10	0.00
29.62	2.00	0.00	0.00	0.09	0.00	29.68	2.00	0.00	0.00	0.06	0.00
29.80	2.00	0.00	0.00	0.12	0.00	29.91	2.00	0.00	0.00	0.12	0.00
30.00	1.03	0.00	0.00	0.09	0.00	30.07	1.04	0.00	0.00	0.07	0.00
30.15	1.04	0.00	0.00	0.08	0.00	30.21	1.04	0.00	0.00	0.07	0.00
30.26	1.04	0.00	0.00	0.05	0.00	30.31	1.03	0.00	0.00	0.05	0.00
30.38	1.02	0.00	0.00	0.07	0.00	30.45	1.01	0.00	0.00	0.07	0.00
30.50	1.00	0.00	0.00	0.05	0.00	30.55	0.99	0.01	1521965149 4	0.05	0.00
30.64	0.97	0.03	956.57	0.09	0.00	30.70	0.94	0.06	33.53	0.05	0.00
30.79	0.93	0.07	12.83	0.09	0.01	30.84	0.91	0.09	8.56	0.05	0.01
30.93	0.91	0.09	7.83	0.09	0.01	30.98	0.91	0.09	7.97	0.05	0.01
31.05	0.92	0.08	11.40	0.06	0.01	31.13	0.94	0.06	32.36	0.08	0.01
31.17	0.98	0.02	54585.68	0.05	0.00	31.27	1.03	0.00	0.00	0.10	0.00
31.32	1.13	0.00	0.00	0.05	0.00	31.41	1.23	0.00	0.00	0.10	0.00
31.46	1.31	0.00	0.00	0.05	0.00	31.52	1.35	0.00	0.00	0.06	0.00
31.61	1.33	0.00	0.00	0.08	0.00	31.66	1.28	0.00	0.00	0.06	0.00
31.75	1.19	0.00	0.00	0.09	0.00	31.80	1.11	0.00	0.00	0.05	0.00
31.90	1.03	0.00	0.00	0.10	0.00	31.94	0.99	0.01	83727543. 34	0.05	0.00
32.04	0.99	0.01	2535344.1 6	0.10	0.00	32.09	1.04	0.00	0.00	0.04	0.00
32.20	1.07	0.00	0.00	0.11	0.00	32.24	1.09	0.00	0.00	0.04	0.00
32.28	1.09	0.00	0.00	0.04	0.00	32.29	1.11	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
32.30	1.12	0.00	0.00	0.01	0.00	32.40	1.13	0.00	0.00	0.10	0.00
32.45	1.14	0.00	0.00	0.04	0.00	32.55	1.13	0.00	0.00	0.10	0.00
32.59	1.13	0.00	0.00	0.05	0.00	32.69	1.13	0.00	0.00	0.10	0.00
32.76	1.14	0.00	0.00	0.07	0.00	32.84	1.16	0.00	0.00	0.08	0.00
32.90	1.17	0.00	0.00	0.07	0.00	32.98	1.19	0.00	0.00	0.08	0.00
33.06	1.19	0.00	0.00	0.08	0.00	33.12	1.20	0.00	0.00	0.06	0.00
33.22	1.21	0.00	0.00	0.10	0.00	33.31	1.21	0.00	0.00	0.09	0.00
33.37	1.21	0.00	0.00	0.05	0.00	33.46	1.20	0.00	0.00	0.09	0.00
33.55	1.20	0.00	0.00	0.09	0.00	33.65	1.20	0.00	0.00	0.10	0.00
33.70	1.20	0.00	0.00	0.05	0.00	33.79	1.20	0.00	0.00	0.09	0.00
33.89	1.19	0.00	0.00	0.10	0.00	33.99	1.18	0.00	0.00	0.09	0.00
34.04	1.16	0.00	0.00	0.05	0.00	34.13	1.15	0.00	0.00	0.09	0.00
34.23	1.13	0.00	0.00	0.10	0.00	34.32	1.12	0.00	0.00	0.09	0.00
34.37	1.11	0.00	0.00	0.05	0.00	34.47	1.11	0.00	0.00	0.10	0.00
34.55	2.00	0.00	0.00	0.08	0.00	34.63	2.00	0.00	0.00	0.08	0.00
34.73	2.00	0.00	0.00	0.10	0.00	34.80	2.00	0.00	0.00	0.08	0.00
34.90	2.00	0.00	0.00	0.09	0.00	35.00	2.00	0.00	0.00	0.10	0.00
35.12	2.00	0.00	0.00	0.13	0.00	35.20	2.00	0.00	0.00	0.07	0.00
35.33	2.00	0.00	0.00	0.13	0.00	35.41	2.00	0.00	0.00	0.07	0.00
35.44	2.00	0.00	0.00	0.03	0.00	35.48	2.00	0.00	0.00	0.05	0.00
35.57	2.00	0.00	0.00	0.09	0.00	35.62	2.00	0.00	0.00	0.05	0.00
35.67	2.00	0.00	0.00	0.05	0.00	35.71	2.00	0.00	0.00	0.04	0.00
35.82	2.00	0.00	0.00	0.10	0.00	35.86	2.00	0.00	0.00	0.05	0.00
35.93	2.00	0.00	0.00	0.07	0.00	36.01	2.00	0.00	0.00	0.08	0.00
36.06	2.00	0.00	0.00	0.05	0.00	36.12	2.00	0.00	0.00	0.06	0.00
36.18	2.00	0.00	0.00	0.06	0.00	36.25	2.00	0.00	0.00	0.07	0.00
36.30	2.00	0.00	0.00	0.05	0.00	36.39	2.00	0.00	0.00	0.10	0.00
36.44	2.00	0.00	0.00	0.05	0.00	36.53	2.00	0.00	0.00	0.09	0.00
36.59	2.00	0.00	0.00	0.05	0.00	36.68	2.00	0.00	0.00	0.09	0.00
36.75	2.00	0.00	0.00	0.07	0.00	36.83	2.00	0.00	0.00	0.08	0.00
36.90	2.00	0.00	0.00	0.07	0.00	36.97	2.00	0.00	0.00	0.07	0.00
37.02	2.00	0.00	0.00	0.05	0.00	37.04	2.00	0.00	0.00	0.02	0.00
37.08	1.93	0.00	0.00	0.04	0.00	37.17	1.96	0.00	0.00	0.09	0.00
37.27	1.85	0.00	0.00	0.10	0.00	37.37	1.72	0.00	0.00	0.09	0.00
37.42	1.62	0.00	0.00	0.05	0.00	37.51	1.57	0.00	0.00	0.09	0.00
37.58	1.56	0.00	0.00	0.07	0.00	37.66	1.57	0.00	0.00	0.07	0.00
37.76	1.59	0.00	0.00	0.10	0.00	37.85	1.62	0.00	0.00	0.09	0.00
37.93	1.64	0.00	0.00	0.08	0.00	38.04	1.66	0.00	0.00	0.11	0.00
38.13	1.67	0.00	0.00	0.09	0.00	38.18	1.67	0.00	0.00	0.05	0.00
38.28	1.65	0.00	0.00	0.10	0.00	38.37	1.61	0.00	0.00	0.09	0.00
38.47	1.57	0.00	0.00	0.09	0.00	38.57	1.53	0.00	0.00	0.10	0.00
38.62	1.49	0.00	0.00	0.04	0.00	38.72	1.37	0.00	0.00	0.10	0.00
38.78	1.29	0.00	0.00	0.06	0.00	38.81	1.24	0.00	0.00	0.02	0.00
38.86	1.24	0.00	0.00	0.05	0.00	38.91	1.22	0.00	0.00	0.05	0.00
38.95	1.18	0.00	0.00	0.05	0.00	39.05	1.15	0.00	0.00	0.10	0.00
39.09	1.12	0.00	0.00	0.05	0.00	39.14	1.11	0.00	0.00	0.05	0.00
39.24	1.10	0.00	0.00	0.10	0.00	39.29	1.09	0.00	0.00	0.05	0.00
39.39	1.10	0.00	0.00	0.10	0.00	39.43	1.10	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
39.53	1.09	0.00	0.00	0.10	0.00	39.57	1.08	0.00	0.00	0.04	0.00
39.68	1.09	0.00	0.00	0.10	0.00	39.73	1.08	0.00	0.00	0.05	0.00
39.81	1.06	0.00	0.00	0.08	0.00	39.89	1.01	0.00	0.00	0.08	0.00
39.96	0.95	0.05	61.50	0.07	0.00	40.06	0.91	0.09	7.89	0.10	0.01
40.15	0.90	0.10	5.93	0.09	0.01	40.20	0.89	0.11	5.36	0.06	0.01
40.24	0.90	0.10	6.39	0.04	0.00	40.26	0.91	0.09	8.01	0.01	0.00
40.27	0.91	0.09	8.48	0.02	0.00	40.37	0.92	0.08	10.34	0.09	0.01
40.42	0.93	0.07	17.38	0.05	0.00	40.52	0.94	0.06	31.57	0.10	0.01
40.56	0.96	0.04	178.66	0.04	0.00	40.66	0.99	0.01	470504.39	0.10	0.00
40.70	1.03	0.00	0.00	0.05	0.00	40.75	1.10	0.00	0.00	0.05	0.00
40.85	1.20	0.00	0.00	0.10	0.00	40.91	1.31	0.00	0.00	0.06	0.00
40.96	1.43	0.00	0.00	0.05	0.00	41.04	1.55	0.00	0.00	0.08	0.00
41.09	1.70	0.00	0.00	0.05	0.00	41.18	1.83	0.00	0.00	0.09	0.00
41.23	1.94	0.00	0.00	0.05	0.00	41.29	2.00	0.00	0.00	0.06	0.00
41.38	2.00	0.00	0.00	0.09	0.00	41.42	2.00	0.00	0.00	0.05	0.00
41.52	1.96	0.00	0.00	0.10	0.00	41.57	1.91	0.00	0.00	0.05	0.00
41.62	1.87	0.00	0.00	0.05	0.00	41.71	1.84	0.00	0.00	0.09	0.00
41.76	1.82	0.00	0.00	0.04	0.00	41.84	1.81	0.00	0.00	0.09	0.00
41.91	1.81	0.00	0.00	0.07	0.00	41.95	1.82	0.00	0.00	0.05	0.00
42.01	1.85	0.00	0.00	0.06	0.00	42.10	1.88	0.00	0.00	0.08	0.00
42.15	1.92	0.00	0.00	0.05	0.00	42.24	1.96	0.00	0.00	0.09	0.00
42.28	1.97	0.00	0.00	0.04	0.00	42.39	1.95	0.00	0.00	0.10	0.00
42.43	1.93	0.00	0.00	0.04	0.00	42.50	1.91	0.00	0.00	0.07	0.00
42.58	1.88	0.00	0.00	0.08	0.00	42.65	1.74	0.00	0.00	0.07	0.00
42.70	1.68	0.00	0.00	0.06	0.00	42.73	1.64	0.00	0.00	0.02	0.00
42.77	1.73	0.00	0.00	0.04	0.00	42.82	1.78	0.00	0.00	0.05	0.00
42.87	1.86	0.00	0.00	0.05	0.00	42.91	1.97	0.00	0.00	0.04	0.00
42.97	2.00	0.00	0.00	0.05	0.00	43.02	2.00	0.00	0.00	0.05	0.00
43.06	2.00	0.00	0.00	0.05	0.00	43.11	2.00	0.00	0.00	0.04	0.00
43.17	2.00	0.00	0.00	0.06	0.00	43.21	2.00	0.00	0.00	0.04	0.00
43.29	2.00	0.00	0.00	0.08	0.00	43.34	2.00	0.00	0.00	0.05	0.00
43.39	2.00	0.00	0.00	0.06	0.00	43.45	2.00	0.00	0.00	0.05	0.00
43.51	2.00	0.00	0.00	0.06	0.00	43.59	2.00	0.00	0.00	0.08	0.00
43.64	2.00	0.00	0.00	0.05	0.00	43.70	2.00	0.00	0.00	0.06	0.00
43.78	2.00	0.00	0.00	0.09	0.00	43.88	2.00	0.00	0.00	0.10	0.00
43.94	2.00	0.00	0.00	0.06	0.00	44.04	2.00	0.00	0.00	0.10	0.00
44.07	2.00	0.00	0.00	0.03	0.00	44.12	2.00	0.00	0.00	0.05	0.00
44.16	1.98	0.00	0.00	0.04	0.00	44.21	1.92	0.00	0.00	0.05	0.00
44.26	1.86	0.00	0.00	0.05	0.00	44.31	1.79	0.00	0.00	0.05	0.00
44.35	1.73	0.00	0.00	0.04	0.00	44.40	1.67	0.00	0.00	0.05	0.00
44.45	1.62	0.00	0.00	0.05	0.00	44.50	1.59	0.00	0.00	0.05	0.00
44.54	1.56	0.00	0.00	0.04	0.00	44.60	1.53	0.00	0.00	0.06	0.00
44.64	1.50	0.00	0.00	0.05	0.00	44.69	1.48	0.00	0.00	0.05	0.00
44.74	1.47	0.00	0.00	0.05	0.00	44.79	1.47	0.00	0.00	0.04	0.00
44.83	1.47	0.00	0.00	0.05	0.00	44.88	1.48	0.00	0.00	0.05	0.00
44.93	1.51	0.00	0.00	0.05	0.00	44.98	1.54	0.00	0.00	0.05	0.00
45.03	1.56	0.00	0.00	0.05	0.00	45.08	1.57	0.00	0.00	0.06	0.00
45.16	1.58	0.00	0.00	0.08	0.00	45.19	1.58	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
45.27	1.57	0.00	0.00	0.08	0.00	45.32	1.55	0.00	0.00	0.05	0.00
45.37	1.50	0.00	0.00	0.05	0.00	45.45	1.44	0.00	0.00	0.09	0.00
45.51	1.35	0.00	0.00	0.05	0.00	45.56	2.00	0.00	0.00	0.05	0.00
45.61	2.00	0.00	0.00	0.05	0.00	45.69	2.00	0.00	0.00	0.08	0.00
45.75	2.00	0.00	0.00	0.06	0.00	45.81	2.00	0.00	0.00	0.07	0.00
45.89	2.00	0.00	0.00	0.08	0.00	45.94	2.00	0.00	0.00	0.05	0.00
46.04	2.00	0.00	0.00	0.10	0.00	46.08	2.00	0.00	0.00	0.04	0.00
46.15	2.00	0.00	0.00	0.06	0.00	46.17	2.00	0.00	0.00	0.02	0.00
46.18	2.00	0.00	0.00	0.01	0.00	46.23	2.00	0.00	0.00	0.05	0.00
46.27	2.00	0.00	0.00	0.05	0.00	46.32	2.00	0.00	0.00	0.05	0.00
46.41	2.00	0.00	0.00	0.09	0.00	46.47	2.00	0.00	0.00	0.06	0.00
46.52	2.00	0.00	0.00	0.05	0.00	46.56	2.00	0.00	0.00	0.04	0.00
46.65	2.00	0.00	0.00	0.09	0.00	46.71	2.00	0.00	0.00	0.06	0.00
46.76	2.00	0.00	0.00	0.05	0.00	46.85	2.00	0.00	0.00	0.09	0.00
46.90	2.00	0.00	0.00	0.05	0.00	46.99	2.00	0.00	0.00	0.09	0.00
47.04	2.00	0.00	0.00	0.06	0.00	47.10	2.00	0.00	0.00	0.05	0.00
47.16	2.00	0.00	0.00	0.06	0.00	47.23	2.00	0.00	0.00	0.07	0.00
47.30	2.00	0.00	0.00	0.06	0.00	47.38	2.00	0.00	0.00	0.09	0.00
47.43	2.00	0.00	0.00	0.05	0.00	47.52	2.00	0.00	0.00	0.09	0.00
47.59	2.00	0.00	0.00	0.07	0.00	47.66	2.00	0.00	0.00	0.07	0.00
47.77	2.00	0.00	0.00	0.10	0.00	47.82	2.00	0.00	0.00	0.05	0.00
47.91	2.00	0.00	0.00	0.08	0.00	47.93	2.00	0.00	0.00	0.03	0.00
47.97	2.00	0.00	0.00	0.04	0.00	48.02	2.00	0.00	0.00	0.05	0.00
48.07	2.00	0.00	0.00	0.05	0.00	48.12	2.00	0.00	0.00	0.05	0.00
48.19	2.00	0.00	0.00	0.07	0.00	48.23	2.00	0.00	0.00	0.04	0.00
48.31	2.00	0.00	0.00	0.08	0.00	48.35	2.00	0.00	0.00	0.05	0.00
48.40	2.00	0.00	0.00	0.05	0.00	48.45	2.00	0.00	0.00	0.05	0.00
48.50	2.00	0.00	0.00	0.05	0.00	48.55	2.00	0.00	0.00	0.05	0.00
48.59	2.00	0.00	0.00	0.04	0.00	48.67	2.00	0.00	0.00	0.08	0.00
48.73	2.00	0.00	0.00	0.05	0.00	48.78	2.00	0.00	0.00	0.06	0.00
48.83	2.00	0.00	0.00	0.05	0.00	48.91	2.00	0.00	0.00	0.07	0.00
48.98	2.00	0.00	0.00	0.07	0.00	49.03	2.00	0.00	0.00	0.05	0.00
49.12	2.00	0.00	0.00	0.09	0.00	49.17	2.00	0.00	0.00	0.05	0.00
49.27	2.00	0.00	0.00	0.09	0.00	49.31	2.00	0.00	0.00	0.05	0.00
49.38	2.00	0.00	0.00	0.06	0.00	49.45	2.00	0.00	0.00	0.08	0.00
49.51	2.00	0.00	0.00	0.05	0.00	49.54	2.00	0.00	0.00	0.03	0.00
49.59	2.00	0.00	0.00	0.05	0.00	49.64	2.00	0.00	0.00	0.05	0.00
49.73	2.00	0.00	0.00	0.10	0.00	49.83	2.00	0.00	0.00	0.10	0.00
49.92	2.00	0.00	0.00	0.10	0.00	49.98	2.00	0.00	0.00	0.05	0.00
50.07	2.00	0.00	0.00	0.09	0.00	50.16	2.00	0.00	0.00	0.09	0.00
50.24	2.00	0.00	0.00	0.09	0.00	50.32	2.00	0.00	0.00	0.08	0.00
50.41	2.00	0.00	0.00	0.09	0.00	50.50	2.00	0.00	0.00	0.09	0.00
50.56	2.00	0.00	0.00	0.06	0.00	50.66	2.00	0.00	0.00	0.10	0.00
50.74	2.00	0.00	0.00	0.09	0.00	50.84	2.00	0.00	0.00	0.10	0.00
50.93	2.00	0.00	0.00	0.09	0.00	50.98	2.00	0.00	0.00	0.05	0.00
51.08	2.00	0.00	0.00	0.09	0.00	51.17	2.00	0.00	0.00	0.10	0.00
51.24	2.00	0.00	0.00	0.06	0.00	51.34	2.00	0.00	0.00	0.10	0.00
51.41	2.00	0.00	0.00	0.07	0.00	51.51	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
51.58	2.00	0.00	0.00	0.07	0.00	51.68	2.00	0.00	0.00	0.10	0.00
51.79	2.00	0.00	0.00	0.11	0.00	51.82	2.00	0.00	0.00	0.03	0.00
51.85	2.00	0.00	0.00	0.03	0.00	51.91	2.00	0.00	0.00	0.06	0.00
52.00	2.00	0.00	0.00	0.09	0.00	52.05	2.00	0.00	0.00	0.05	0.00
52.10	2.00	0.00	0.00	0.06	0.00	52.19	2.00	0.00	0.00	0.09	0.00
52.28	2.00	0.00	0.00	0.09	0.00	52.34	2.00	0.00	0.00	0.06	0.00
52.42	2.00	0.00	0.00	0.08	0.00	52.48	2.00	0.00	0.00	0.06	0.00
52.57	2.00	0.00	0.00	0.09	0.00	52.62	2.00	0.00	0.00	0.05	0.00
52.69	2.00	0.00	0.00	0.07	0.00	52.77	2.00	0.00	0.00	0.08	0.00
52.87	2.00	0.00	0.00	0.10	0.00	52.91	2.00	0.00	0.00	0.04	0.00
53.01	2.00	0.00	0.00	0.10	0.00	53.10	2.00	0.00	0.00	0.09	0.00
53.16	2.00	0.00	0.00	0.06	0.00	53.25	2.00	0.00	0.00	0.09	0.00
53.29	2.00	0.00	0.00	0.04	0.00	53.38	2.00	0.00	0.00	0.09	0.00
53.42	2.00	0.00	0.00	0.04	0.00	53.47	2.00	0.00	0.00	0.05	0.00
53.52	2.00	0.00	0.00	0.05	0.00	53.58	2.00	0.00	0.00	0.05	0.00
53.66	2.00	0.00	0.00	0.08	0.00	53.75	2.00	0.00	0.00	0.09	0.00
53.81	2.00	0.00	0.00	0.05	0.00	53.87	2.00	0.00	0.00	0.06	0.00
53.95	2.00	0.00	0.00	0.08	0.00	54.01	2.00	0.00	0.00	0.06	0.00
54.06	2.00	0.00	0.00	0.05	0.00	54.15	2.00	0.00	0.00	0.08	0.00
54.20	2.00	0.00	0.00	0.06	0.00	54.29	2.00	0.00	0.00	0.08	0.00
54.34	2.00	0.00	0.00	0.05	0.00	54.43	2.00	0.00	0.00	0.09	0.00
54.45	2.00	0.00	0.00	0.02	0.00	54.48	2.00	0.00	0.00	0.03	0.00
54.52	2.00	0.00	0.00	0.03	0.00	54.53	2.00	0.00	0.00	0.01	0.00
54.58	0.75	0.25	1.21	0.05	0.01	54.62	0.80	0.20	1.63	0.04	0.00
54.65	0.84	0.16	2.38	0.03	0.00	54.70	0.88	0.12	4.34	0.04	0.00
54.76	0.92	0.08	9.38	0.06	0.00	54.77	0.92	0.08	12.33	0.01	0.00
54.82	0.93	0.07	15.78	0.05	0.00	54.87	0.94	0.06	21.07	0.05	0.00
54.88	0.94	0.06	33.79	0.01	0.00	54.91	0.95	0.05	61.01	0.03	0.00
54.96	0.98	0.02	4897.12	0.05	0.00	54.97	1.04	0.00	0.00	0.01	0.00
55.03	1.14	0.00	0.00	0.06	0.00	55.09	1.25	0.00	0.00	0.06	0.00
55.15	1.26	0.00	0.00	0.06	0.00	55.20	1.28	0.00	0.00	0.05	0.00
55.25	1.26	0.00	0.00	0.05	0.00	55.30	1.44	0.00	0.00	0.05	0.00
55.34	1.57	0.00	0.00	0.05	0.00	55.39	1.89	0.00	0.00	0.04	0.00
55.40	2.00	0.00	0.00	0.01	0.00	55.44	2.00	0.00	0.00	0.04	0.00
55.44	2.00	0.00	0.00	0.01	0.00	55.49	2.00	0.00	0.00	0.05	0.00
55.54	2.00	0.00	0.00	0.05	0.00	55.59	2.00	0.00	0.00	0.05	0.00
55.63	2.00	0.00	0.00	0.04	0.00	55.64	2.00	0.00	0.00	0.01	0.00
55.68	2.00	0.00	0.00	0.04	0.00	55.69	2.00	0.00	0.00	0.01	0.00
55.69	2.00	0.00	0.00	0.01	0.00	55.71	2.00	0.00	0.00	0.02	0.00
55.76	2.00	0.00	0.00	0.05	0.00	55.78	2.00	0.00	0.00	0.02	0.00
55.81	2.00	0.00	0.00	0.04	0.00	55.85	2.00	0.00	0.00	0.04	0.00
55.86	2.00	0.00	0.00	0.01	0.00	55.91	2.00	0.00	0.00	0.05	0.00
55.92	2.00	0.00	0.00	0.01	0.00	55.96	2.00	0.00	0.00	0.04	0.00
55.97	2.00	0.00	0.00	0.01	0.00	56.00	2.00	0.00	0.00	0.03	0.00
56.01	2.00	0.00	0.00	0.01	0.00	56.03	2.00	0.00	0.00	0.02	0.00
56.05	2.00	0.00	0.00	0.02	0.00	56.10	2.00	0.00	0.00	0.05	0.00
56.12	2.00	0.00	0.00	0.02	0.00	56.16	2.00	0.00	0.00	0.04	0.00
56.17	2.00	0.00	0.00	0.02	0.00	56.20	2.00	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
56.22	2.00	0.00	0.00	0.02	0.00	56.24	2.00	0.00	0.00	0.03	0.00
56.30	2.00	0.00	0.00	0.06	0.00	56.31	2.00	0.00	0.00	0.01	0.00
56.34	2.00	0.00	0.00	0.03	0.00	56.39	2.00	0.00	0.00	0.05	0.00
56.45	2.00	0.00	0.00	0.06	0.00	56.48	2.00	0.00	0.00	0.03	0.00
56.49	2.00	0.00	0.00	0.01	0.00	56.53	2.00	0.00	0.00	0.04	0.00
56.58	2.00	0.00	0.00	0.05	0.00	56.63	2.00	0.00	0.00	0.05	0.00
56.68	2.00	0.00	0.00	0.04	0.00	56.73	2.00	0.00	0.00	0.05	0.00
56.78	2.00	0.00	0.00	0.05	0.00	56.83	2.00	0.00	0.00	0.05	0.00
56.89	2.00	0.00	0.00	0.07	0.00	56.95	2.00	0.00	0.00	0.06	0.00
56.99	2.00	0.00	0.00	0.04	0.00	57.01	2.00	0.00	0.00	0.01	0.00
57.04	2.00	0.00	0.00	0.04	0.00	57.09	2.00	0.00	0.00	0.05	0.00
57.11	2.00	0.00	0.00	0.02	0.00	57.13	2.00	0.00	0.00	0.03	0.00
57.18	2.00	0.00	0.00	0.04	0.00	57.19	2.00	0.00	0.00	0.01	0.00
57.21	2.00	0.00	0.00	0.03	0.00	57.24	2.00	0.00	0.00	0.02	0.00
57.28	2.00	0.00	0.00	0.05	0.00	57.32	2.00	0.00	0.00	0.04	0.00
57.35	2.00	0.00	0.00	0.04	0.00	57.38	2.00	0.00	0.00	0.03	0.00
57.43	2.00	0.00	0.00	0.04	0.00	57.48	2.00	0.00	0.00	0.05	0.00
57.52	1.85	0.00	0.00	0.05	0.00	57.57	1.80	0.00	0.00	0.05	0.00
57.62	1.93	0.00	0.00	0.05	0.00	57.68	2.00	0.00	0.00	0.06	0.00
57.76	2.00	0.00	0.00	0.08	0.00	57.81	2.00	0.00	0.00	0.05	0.00
57.86	2.00	0.00	0.00	0.05	0.00	57.89	2.00	0.00	0.00	0.03	0.00
57.91	2.00	0.00	0.00	0.02	0.00	57.92	2.00	0.00	0.00	0.01	0.00
57.95	2.00	0.00	0.00	0.03	0.00	57.99	2.00	0.00	0.00	0.04	0.00
58.01	2.00	0.00	0.00	0.02	0.00	58.05	2.00	0.00	0.00	0.04	0.00
58.05	2.00	0.00	0.00	0.01	0.00	58.10	2.00	0.00	0.00	0.05	0.00
58.13	2.00	0.00	0.00	0.03	0.00	58.15	2.00	0.00	0.00	0.01	0.00
58.17	2.00	0.00	0.00	0.03	0.00	58.20	2.00	0.00	0.00	0.02	0.00
58.21	2.00	0.00	0.00	0.01	0.00	58.21	2.00	0.00	0.00	0.00	0.00
58.23	2.00	0.00	0.00	0.02	0.00	58.24	2.00	0.00	0.00	0.01	0.00
58.25	2.00	0.00	0.00	0.01	0.00	58.29	2.00	0.00	0.00	0.04	0.00
58.31	2.00	0.00	0.00	0.02	0.00	58.33	2.00	0.00	0.00	0.02	0.00
58.38	2.00	0.00	0.00	0.05	0.00	58.39	2.00	0.00	0.00	0.01	0.00
58.43	2.00	0.00	0.00	0.04	0.00	58.43	2.00	0.00	0.00	0.01	0.00
58.48	2.00	0.00	0.00	0.05	0.00	58.53	2.00	0.00	0.00	0.05	0.00
58.56	2.00	0.00	0.00	0.02	0.00	58.58	2.00	0.00	0.00	0.03	0.00
58.59	2.00	0.00	0.00	0.01	0.00	58.63	2.00	0.00	0.00	0.03	0.00
58.63	2.00	0.00	0.00	0.00	0.00	58.63	2.00	0.00	0.00	0.01	0.00
58.68	2.00	0.00	0.00	0.04	0.00	58.69	2.00	0.00	0.00	0.01	0.00
58.72	2.00	0.00	0.00	0.03	0.00	58.73	2.00	0.00	0.00	0.01	0.00
58.74	2.00	0.00	0.00	0.01	0.00	58.77	2.00	0.00	0.00	0.03	0.00
58.81	2.00	0.00	0.00	0.04	0.00	58.82	2.00	0.00	0.00	0.01	0.00
58.83	2.00	0.00	0.00	0.01	0.00	58.87	2.00	0.00	0.00	0.04	0.00
58.91	2.00	0.00	0.00	0.04	0.00	58.92	2.00	0.00	0.00	0.01	0.00
58.93	2.00	0.00	0.00	0.01	0.00	58.96	2.00	0.00	0.00	0.03	0.00
59.01	2.00	0.00	0.00	0.05	0.00	59.06	2.00	0.00	0.00	0.05	0.00
59.08	2.00	0.00	0.00	0.02	0.00	59.11	2.00	0.00	0.00	0.03	0.00
59.15	2.00	0.00	0.00	0.04	0.00	59.21	2.00	0.00	0.00	0.05	0.00
59.26	2.00	0.00	0.00	0.05	0.00	59.30	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
59.35	2.00	0.00	0.00	0.05	0.00	59.40	2.00	0.00	0.00	0.05	0.00
59.42	2.00	0.00	0.00	0.02	0.00	59.47	2.00	0.00	0.00	0.05	0.00
59.51	2.00	0.00	0.00	0.05	0.00	59.56	2.00	0.00	0.00	0.05	0.00
59.61	2.00	0.00	0.00	0.05	0.00	59.67	2.00	0.00	0.00	0.05	0.00
59.71	2.00	0.00	0.00	0.04	0.00	59.80	2.00	0.00	0.00	0.09	0.00
59.85	2.00	0.00	0.00	0.05	0.00	59.90	2.00	0.00	0.00	0.05	0.00
60.00	2.00	0.00	0.00	0.10	0.00	60.04	2.00	0.00	0.00	0.05	0.00
60.10	2.00	0.00	0.00	0.06	0.00	60.15	1.91	0.00	0.00	0.05	0.00
60.19	1.73	0.00	0.00	0.03	0.00	60.23	1.70	0.00	0.00	0.05	0.00
60.28	1.69	0.00	0.00	0.05	0.00	60.33	1.74	0.00	0.00	0.05	0.00
60.38	1.77	0.00	0.00	0.04	0.00	60.42	1.78	0.00	0.00	0.04	0.00
60.44	1.76	0.00	0.00	0.02	0.00	60.47	1.93	0.00	0.00	0.02	0.00
60.52	2.00	0.00	0.00	0.05	0.00	60.56	2.00	0.00	0.00	0.04	0.00
60.57	2.00	0.00	0.00	0.01	0.00	60.61	2.00	0.00	0.00	0.04	0.00
60.66	2.00	0.00	0.00	0.05	0.00	60.71	2.00	0.00	0.00	0.05	0.00
60.76	2.00	0.00	0.00	0.05	0.00	60.81	2.00	0.00	0.00	0.05	0.00
60.86	2.00	0.00	0.00	0.05	0.00	60.91	2.00	0.00	0.00	0.05	0.00
60.95	2.00	0.00	0.00	0.04	0.00	61.00	2.00	0.00	0.00	0.05	0.00
61.02	2.00	0.00	0.00	0.02	0.00	61.05	2.00	0.00	0.00	0.03	0.00
61.08	2.00	0.00	0.00	0.03	0.00	61.09	2.00	0.00	0.00	0.02	0.00
61.13	2.00	0.00	0.00	0.03	0.00	61.14	2.00	0.00	0.00	0.02	0.00
61.16	2.00	0.00	0.00	0.02	0.00	61.20	2.00	0.00	0.00	0.03	0.00
61.23	2.00	0.00	0.00	0.04	0.00	61.24	2.00	0.00	0.00	0.01	0.00
61.29	2.00	0.00	0.00	0.05	0.00	61.30	2.00	0.00	0.00	0.01	0.00
61.33	2.00	0.00	0.00	0.04	0.00	61.38	2.00	0.00	0.00	0.05	0.00
61.43	2.00	0.00	0.00	0.05	0.00	61.48	2.00	0.00	0.00	0.04	0.00
61.53	2.00	0.00	0.00	0.05	0.00	61.56	2.00	0.00	0.00	0.03	0.00
61.58	2.00	0.00	0.00	0.02	0.00	61.59	2.00	0.00	0.00	0.01	0.00
61.62	2.00	0.00	0.00	0.03	0.00	61.63	2.00	0.00	0.00	0.02	0.00
61.67	2.00	0.00	0.00	0.03	0.00	61.71	2.00	0.00	0.00	0.05	0.00
61.76	2.00	0.00	0.00	0.05	0.00	61.81	2.00	0.00	0.00	0.05	0.00
61.86	2.00	0.00	0.00	0.05	0.00	61.87	2.00	0.00	0.00	0.01	0.00
61.91	2.00	0.00	0.00	0.04	0.00	61.95	2.00	0.00	0.00	0.04	0.00
61.96	2.00	0.00	0.00	0.01	0.00	62.00	2.00	0.00	0.00	0.04	0.00
62.04	2.00	0.00	0.00	0.04	0.00	62.06	1.86	0.00	0.00	0.02	0.00
62.10	1.70	0.00	0.00	0.04	0.00	62.14	1.58	0.00	0.00	0.04	0.00
62.20	1.49	0.00	0.00	0.05	0.00	62.22	1.33	0.00	0.00	0.02	0.00
62.27	1.39	0.00	0.00	0.05	0.00	62.29	1.39	0.00	0.00	0.02	0.00
62.34	1.37	0.00	0.00	0.05	0.00	62.39	1.35	0.00	0.00	0.04	0.00
62.43	1.31	0.00	0.00	0.05	0.00	62.49	1.30	0.00	0.00	0.06	0.00
62.57	1.31	0.00	0.00	0.08	0.00	62.68	1.45	0.00	0.00	0.10	0.00
62.75	1.75	0.00	0.00	0.08	0.00	62.87	1.99	0.00	0.00	0.12	0.00
62.88	1.84	0.00	0.00	0.01	0.00	62.89	1.84	0.00	0.00	0.01	0.00
62.93	1.86	0.00	0.00	0.04	0.00	62.98	2.00	0.00	0.00	0.05	0.00
63.02	2.00	0.00	0.00	0.05	0.00	63.07	2.00	0.00	0.00	0.05	0.00
63.12	2.00	0.00	0.00	0.05	0.00	63.14	2.00	0.00	0.00	0.02	0.00
63.17	2.00	0.00	0.00	0.03	0.00	63.17	2.00	0.00	0.00	0.01	0.00
63.20	2.00	0.00	0.00	0.02	0.00	63.21	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
63.23	2.00	0.00	0.00	0.02	0.00	63.26	2.00	0.00	0.00	0.03	0.00
63.28	2.00	0.00	0.00	0.02	0.00	63.31	2.00	0.00	0.00	0.03	0.00
63.32	2.00	0.00	0.00	0.01	0.00	63.36	2.00	0.00	0.00	0.04	0.00
63.40	2.00	0.00	0.00	0.04	0.00						

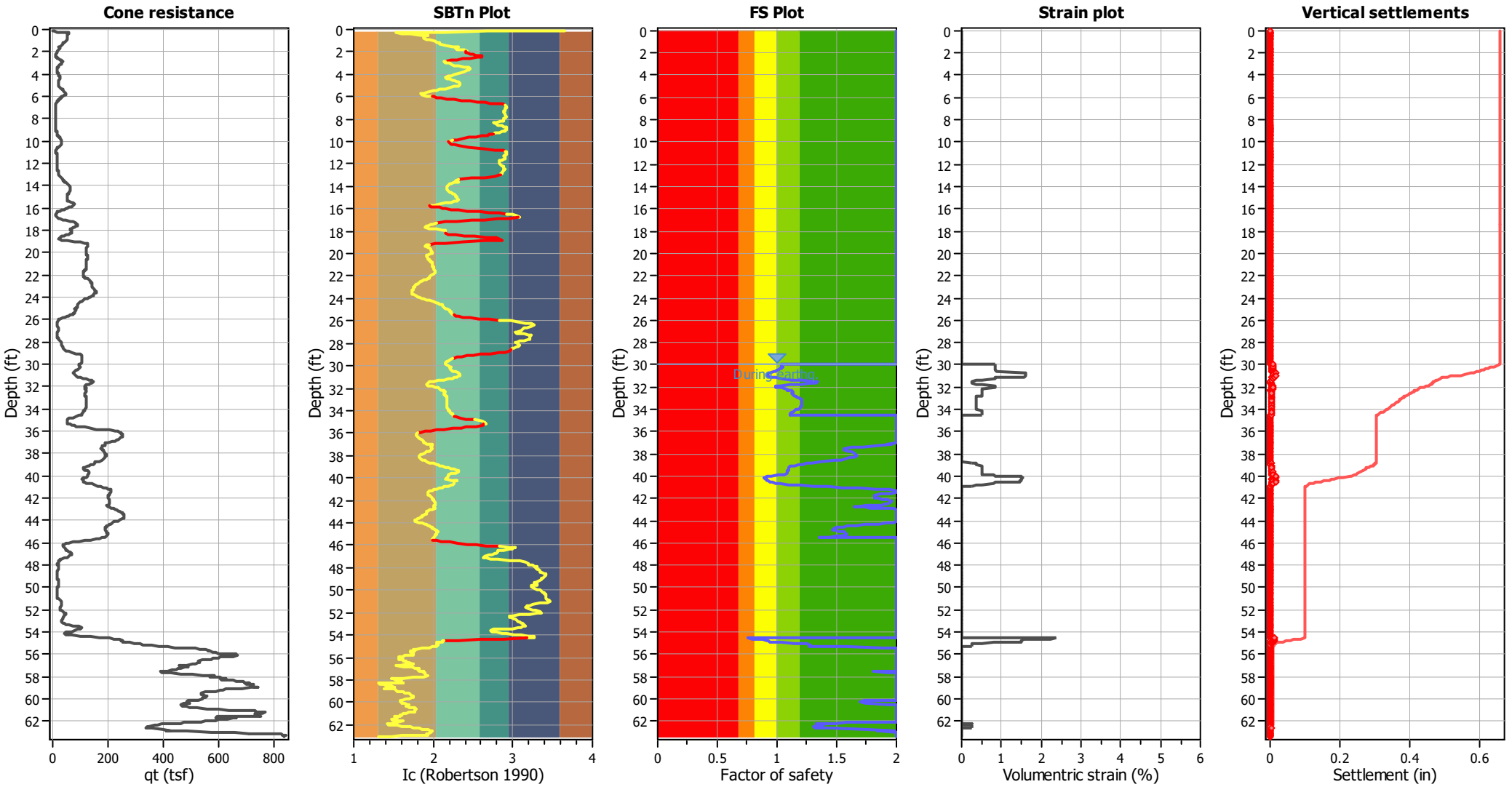
Overall liquefaction potential: 0.15

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.00	104.86	1.03	0.85	1.00	0.01	30.07	105.36	1.04	0.84	1.00	0.01
30.15	105.54	1.04	0.84	1.00	0.01	30.21	105.77	1.04	0.84	1.00	0.01
30.26	105.66	1.04	0.84	1.00	0.00	30.31	105.39	1.03	0.84	1.00	0.00
30.38	104.86	1.02	0.85	1.00	0.01	30.45	104.23	1.01	0.85	1.00	0.01
30.50	103.72	1.00	0.85	1.00	0.00	30.55	102.88	0.99	0.86	1.00	0.01
30.64	101.83	0.97	0.87	1.00	0.01	30.70	100.16	0.94	1.56	1.00	0.01
30.79	98.96	0.93	1.59	1.00	0.02	30.84	98.19	0.91	1.61	1.00	0.01
30.93	98.05	0.91	1.61	1.00	0.02	30.98	98.14	0.91	1.61	1.00	0.01
31.05	98.98	0.92	1.59	1.00	0.01	31.13	100.51	0.94	1.56	1.00	0.01
31.17	102.97	0.98	0.86	1.00	0.00	31.27	106.25	1.03	0.84	1.00	0.01
31.32	111.37	1.13	0.51	1.00	0.00	31.41	116.56	1.23	0.36	1.00	0.00
31.46	120.72	1.31	0.25	1.00	0.00	31.52	122.24	1.35	0.25	1.00	0.00
31.61	121.83	1.33	0.25	1.00	0.00	31.66	119.20	1.28	0.26	1.00	0.00
31.75	115.29	1.19	0.37	1.00	0.00	31.80	110.68	1.11	0.52	1.00	0.00
31.90	106.52	1.03	0.83	1.00	0.01	31.94	104.07	0.99	0.85	1.00	0.00
32.04	104.00	0.99	0.85	1.00	0.01	32.09	107.23	1.04	0.83	1.00	0.00
32.20	109.06	1.07	0.52	1.00	0.01	32.24	110.44	1.09	0.52	1.00	0.00
32.28	110.26	1.09	0.52	1.00	0.00	32.29	111.09	1.11	0.51	1.00	0.00
32.30	112.06	1.12	0.51	1.00	0.00	32.40	112.71	1.13	0.51	1.00	0.01
32.45	112.95	1.14	0.51	1.00	0.00	32.55	112.51	1.13	0.51	1.00	0.01
32.59	112.50	1.13	0.51	1.00	0.00	32.69	112.79	1.13	0.51	1.00	0.01
32.76	113.51	1.14	0.51	1.00	0.00	32.84	114.35	1.16	0.37	1.00	0.00
32.90	115.19	1.17	0.37	1.00	0.00	32.98	115.83	1.19	0.37	1.00	0.00
33.06	116.33	1.19	0.36	1.00	0.00	33.12	116.77	1.20	0.36	1.00	0.00
33.22	117.03	1.21	0.36	1.00	0.00	33.31	117.14	1.21	0.36	1.00	0.00
33.37	117.11	1.21	0.36	1.00	0.00	33.46	117.00	1.20	0.36	1.00	0.00
33.55	117.00	1.20	0.36	1.00	0.00	33.65	117.07	1.20	0.36	1.00	0.00
33.70	117.18	1.20	0.36	1.00	0.00	33.79	117.10	1.20	0.36	1.00	0.00
33.89	116.76	1.19	0.36	1.00	0.00	33.99	116.20	1.18	0.36	1.00	0.00
34.04	115.43	1.16	0.37	1.00	0.00	34.13	114.59	1.15	0.50	1.00	0.01
34.23	113.76	1.13	0.51	1.00	0.01	34.32	113.20	1.12	0.51	1.00	0.01
34.37	112.84	1.11	0.51	1.00	0.00	34.47	112.69	1.11	0.51	1.00	0.01
34.55	112.96	2.00	0.00	1.00	0.00	34.63	114.64	2.00	0.00	1.00	0.00
34.73	118.21	2.00	0.00	1.00	0.00	34.80	123.59	2.00	0.00	1.00	0.00
34.90	127.28	2.00	0.00	1.00	0.00	35.00	121.79	2.00	0.00	1.00	0.00
35.12	117.31	2.00	0.00	1.00	0.00	35.20	112.19	2.00	0.00	1.00	0.00
35.33	114.42	2.00	0.00	1.00	0.00	35.41	110.34	2.00	0.00	1.00	0.00
35.44	108.02	2.00	0.00	1.00	0.00	35.48	103.82	2.00	0.00	1.00	0.00
35.57	101.05	2.00	0.00	1.00	0.00	35.62	98.99	2.00	0.00	1.00	0.00
35.67	102.07	2.00	0.00	1.00	0.00	35.71	112.52	2.00	0.00	1.00	0.00
35.82	126.36	2.00	0.00	1.00	0.00	35.86	143.07	2.00	0.00	1.00	0.00
35.93	156.85	2.00	0.00	1.00	0.00	36.01	166.33	2.00	0.00	1.00	0.00
36.06	171.69	2.00	0.00	1.00	0.00	36.12	174.89	2.00	0.00	1.00	0.00
36.18	178.20	2.00	0.00	1.00	0.00	36.25	180.98	2.00	0.00	1.00	0.00
36.30	184.12	2.00	0.00	1.00	0.00	36.39	185.99	2.00	0.00	1.00	0.00
36.44	187.57	2.00	0.00	1.00	0.00	36.53	187.51	2.00	0.00	1.00	0.00
36.59	187.43	2.00	0.00	1.00	0.00	36.68	184.49	2.00	0.00	1.00	0.00
36.75	180.99	2.00	0.00	1.00	0.00	36.83	175.91	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
36.90	171.34	2.00	0.00	1.00	0.00	36.97	166.05	2.00	0.00	1.00	0.00
37.02	156.23	2.00	0.00	1.00	0.00	37.04	151.13	2.00	0.00	1.00	0.00
37.08	147.61	1.93	0.00	1.00	0.00	37.17	148.65	1.96	0.00	1.00	0.00
37.27	145.04	1.85	0.00	1.00	0.00	37.37	140.68	1.72	0.00	1.00	0.00
37.42	137.22	1.62	0.00	1.00	0.00	37.51	135.25	1.57	0.00	1.00	0.00
37.58	134.76	1.56	0.00	1.00	0.00	37.66	135.08	1.57	0.00	1.00	0.00
37.76	136.26	1.59	0.00	1.00	0.00	37.85	137.18	1.62	0.00	1.00	0.00
37.93	138.14	1.64	0.00	1.00	0.00	38.04	138.80	1.66	0.00	1.00	0.00
38.13	139.30	1.67	0.00	1.00	0.00	38.18	139.16	1.67	0.00	1.00	0.00
38.28	138.51	1.65	0.00	1.00	0.00	38.37	137.08	1.61	0.00	1.00	0.00
38.47	135.63	1.57	0.00	1.00	0.00	38.57	134.14	1.53	0.00	1.00	0.00
38.62	132.48	1.49	0.00	1.00	0.00	38.72	127.27	1.37	0.00	1.00	0.00
38.78	123.72	1.29	0.25	1.00	0.00	38.81	121.63	1.24	0.35	1.00	0.00
38.86	121.68	1.24	0.35	1.00	0.00	38.91	120.51	1.22	0.36	1.00	0.00
38.95	118.55	1.18	0.36	1.00	0.00	39.05	116.91	1.15	0.50	1.00	0.01
39.09	115.64	1.12	0.50	1.00	0.00	39.14	114.83	1.11	0.50	1.00	0.00
39.24	114.32	1.10	0.51	1.00	0.01	39.29	114.03	1.09	0.51	1.00	0.00
39.39	114.16	1.10	0.51	1.00	0.01	39.43	114.28	1.10	0.51	1.00	0.00
39.53	113.89	1.09	0.51	1.00	0.01	39.57	113.55	1.08	0.51	1.00	0.00
39.68	113.69	1.09	0.51	1.00	0.01	39.73	113.53	1.08	0.51	1.00	0.00
39.81	112.48	1.06	0.51	1.00	0.01	39.89	109.51	1.01	0.81	1.00	0.01
39.96	105.89	0.95	0.84	1.00	0.01	40.06	103.14	0.91	1.50	1.00	0.02
40.15	102.38	0.90	1.51	1.00	0.02	40.20	102.07	0.89	1.52	1.00	0.01
40.24	102.62	0.90	1.51	1.00	0.01	40.26	103.22	0.91	1.50	1.00	0.00
40.27	103.36	0.91	1.49	1.00	0.00	40.37	103.81	0.92	1.48	1.00	0.02
40.42	104.71	0.93	1.46	1.00	0.01	40.52	105.44	0.94	1.45	1.00	0.02
40.56	106.63	0.96	0.83	1.00	0.00	40.66	108.06	0.99	0.82	1.00	0.01
40.70	110.67	1.03	0.80	1.00	0.00	40.75	114.79	1.10	0.50	1.00	0.00
40.85	119.75	1.20	0.36	1.00	0.00	40.91	125.10	1.31	0.25	1.00	0.00
40.96	130.56	1.43	0.00	1.00	0.00	41.04	135.59	1.55	0.00	1.00	0.00
41.09	141.03	1.70	0.00	1.00	0.00	41.18	145.57	1.83	0.00	1.00	0.00
41.23	149.12	1.94	0.00	1.00	0.00	41.29	151.17	2.00	0.00	1.00	0.00
41.38	151.67	2.00	0.00	1.00	0.00	41.42	151.21	2.00	0.00	1.00	0.00
41.52	149.86	1.96	0.00	1.00	0.00	41.57	148.26	1.91	0.00	1.00	0.00
41.62	146.93	1.87	0.00	1.00	0.00	41.71	145.89	1.84	0.00	1.00	0.00
41.76	145.43	1.82	0.00	1.00	0.00	41.84	145.17	1.81	0.00	1.00	0.00
41.91	145.22	1.81	0.00	1.00	0.00	41.95	145.53	1.82	0.00	1.00	0.00
42.01	146.36	1.85	0.00	1.00	0.00	42.10	147.40	1.88	0.00	1.00	0.00
42.15	148.90	1.92	0.00	1.00	0.00	42.24	149.94	1.96	0.00	1.00	0.00
42.28	150.31	1.97	0.00	1.00	0.00	42.39	149.81	1.95	0.00	1.00	0.00
42.43	149.14	1.93	0.00	1.00	0.00	42.50	148.36	1.91	0.00	1.00	0.00
42.58	147.54	1.88	0.00	1.00	0.00	42.65	142.73	1.74	0.00	1.00	0.00
42.70	140.58	1.68	0.00	1.00	0.00	42.73	139.14	1.64	0.00	1.00	0.00
42.77	142.31	1.73	0.00	1.00	0.00	42.82	144.06	1.78	0.00	1.00	0.00
42.87	146.92	1.86	0.00	1.00	0.00	42.91	150.57	1.97	0.00	1.00	0.00
42.97	154.27	2.00	0.00	1.00	0.00	43.02	157.35	2.00	0.00	1.00	0.00
43.06	159.72	2.00	0.00	1.00	0.00	43.11	162.21	2.00	0.00	1.00	0.00
43.17	164.40	2.00	0.00	1.00	0.00	43.21	166.83	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
43.29	168.85	2.00	0.00	1.00	0.00	43.34	171.05	2.00	0.00	1.00	0.00
43.39	172.71	2.00	0.00	1.00	0.00	43.45	173.74	2.00	0.00	1.00	0.00
43.51	173.50	2.00	0.00	1.00	0.00	43.59	172.47	2.00	0.00	1.00	0.00
43.64	170.73	2.00	0.00	1.00	0.00	43.70	168.10	2.00	0.00	1.00	0.00
43.78	165.08	2.00	0.00	1.00	0.00	43.88	163.55	2.00	0.00	1.00	0.00
43.94	161.52	2.00	0.00	1.00	0.00	44.04	157.74	2.00	0.00	1.00	0.00
44.07	153.31	2.00	0.00	1.00	0.00	44.12	152.08	2.00	0.00	1.00	0.00
44.16	150.70	1.98	0.00	1.00	0.00	44.21	148.86	1.92	0.00	1.00	0.00
44.26	146.86	1.86	0.00	1.00	0.00	44.31	144.63	1.79	0.00	1.00	0.00
44.35	142.44	1.73	0.00	1.00	0.00	44.40	140.32	1.67	0.00	1.00	0.00
44.45	138.56	1.62	0.00	1.00	0.00	44.50	137.24	1.59	0.00	1.00	0.00
44.54	136.15	1.56	0.00	1.00	0.00	44.60	134.97	1.53	0.00	1.00	0.00
44.64	133.85	1.50	0.00	1.00	0.00	44.69	132.85	1.48	0.00	1.00	0.00
44.74	132.59	1.47	0.00	1.00	0.00	44.79	132.34	1.47	0.00	1.00	0.00
44.83	132.53	1.47	0.00	1.00	0.00	44.88	132.96	1.48	0.00	1.00	0.00
44.93	134.02	1.51	0.00	1.00	0.00	44.98	135.20	1.54	0.00	1.00	0.00
45.03	135.95	1.56	0.00	1.00	0.00	45.08	136.45	1.57	0.00	1.00	0.00
45.16	136.81	1.58	0.00	1.00	0.00	45.19	136.91	1.58	0.00	1.00	0.00
45.27	136.53	1.57	0.00	1.00	0.00	45.32	135.53	1.55	0.00	1.00	0.00
45.37	133.73	1.50	0.00	1.00	0.00	45.45	131.17	1.44	0.00	1.00	0.00
45.51	127.52	1.35	0.00	1.00	0.00	45.56	123.37	2.00	0.00	1.00	0.00
45.61	117.60	2.00	0.00	1.00	0.00	45.69	111.79	2.00	0.00	1.00	0.00
45.75	108.19	2.00	0.00	1.00	0.00	45.81	105.04	2.00	0.00	1.00	0.00
45.89	105.10	2.00	0.00	1.00	0.00	45.94	103.73	2.00	0.00	1.00	0.00
46.04	108.05	2.00	0.00	1.00	0.00	46.08	112.07	2.00	0.00	1.00	0.00
46.15	109.85	2.00	0.00	1.00	0.00	46.17	110.89	2.00	0.00	1.00	0.00
46.18	110.17	2.00	0.00	1.00	0.00	46.23	109.18	2.00	0.00	1.00	0.00
46.27	107.58	2.00	0.00	1.00	0.00	46.32	105.33	2.00	0.00	1.00	0.00
46.41	107.19	2.00	0.00	1.00	0.00	46.47	106.19	2.00	0.00	1.00	0.00
46.52	106.89	2.00	0.00	1.00	0.00	46.56	109.81	2.00	0.00	1.00	0.00
46.65	113.60	2.00	0.00	1.00	0.00	46.71	117.68	2.00	0.00	1.00	0.00
46.76	120.04	2.00	0.00	1.00	0.00	46.85	120.43	2.00	0.00	1.00	0.00
46.90	118.71	2.00	0.00	1.00	0.00	46.99	116.19	2.00	0.00	1.00	0.00
47.04	114.63	2.00	0.00	1.00	0.00	47.10	114.71	2.00	0.00	1.00	0.00
47.16	116.10	2.00	0.00	1.00	0.00	47.23	117.23	2.00	0.00	1.00	0.00
47.30	117.96	2.00	0.00	1.00	0.00	47.38	113.48	2.00	0.00	1.00	0.00
47.43	111.84	2.00	0.00	1.00	0.00	47.52	105.92	2.00	0.00	1.00	0.00
47.59	93.23	2.00	0.00	1.00	0.00	47.66	81.89	2.00	0.00	1.00	0.00
47.77	74.67	2.00	0.00	1.00	0.00	47.82	75.76	2.00	0.00	1.00	0.00
47.91	76.63	2.00	0.00	1.00	0.00	47.93	77.65	2.00	0.00	1.00	0.00
47.97	78.37	2.00	0.00	1.00	0.00	48.02	79.56	2.00	0.00	1.00	0.00
48.07	81.21	2.00	0.00	1.00	0.00	48.12	84.04	2.00	0.00	1.00	0.00
48.19	86.54	2.00	0.00	1.00	0.00	48.23	88.74	2.00	0.00	1.00	0.00
48.31	89.88	2.00	0.00	1.00	0.00	48.35	90.92	2.00	0.00	1.00	0.00
48.40	91.72	2.00	0.00	1.00	0.00	48.45	92.39	2.00	0.00	1.00	0.00
48.50	92.93	2.00	0.00	1.00	0.00	48.55	93.37	2.00	0.00	1.00	0.00
48.59	94.24	2.00	0.00	1.00	0.00	48.67	94.62	2.00	0.00	1.00	0.00
48.73	94.36	2.00	0.00	1.00	0.00	48.78	92.80	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
48.83	90.68	2.00	0.00	1.00	0.00	48.91	88.35	2.00	0.00	1.00	0.00
48.98	86.35	2.00	0.00	1.00	0.00	49.03	85.19	2.00	0.00	1.00	0.00
49.12	82.90	2.00	0.00	1.00	0.00	49.17	79.48	2.00	0.00	1.00	0.00
49.27	76.51	2.00	0.00	1.00	0.00	49.31	76.55	2.00	0.00	1.00	0.00
49.38	78.88	2.00	0.00	1.00	0.00	49.45	81.15	2.00	0.00	1.00	0.00
49.51	83.00	2.00	0.00	1.00	0.00	49.54	84.13	2.00	0.00	1.00	0.00
49.59	84.45	2.00	0.00	1.00	0.00	49.64	83.63	2.00	0.00	1.00	0.00
49.73	83.01	2.00	0.00	1.00	0.00	49.83	82.47	2.00	0.00	1.00	0.00
49.92	82.19	2.00	0.00	1.00	0.00	49.98	81.62	2.00	0.00	1.00	0.00
50.07	81.01	2.00	0.00	1.00	0.00	50.16	80.51	2.00	0.00	1.00	0.00
50.24	80.06	2.00	0.00	1.00	0.00	50.32	79.87	2.00	0.00	1.00	0.00
50.41	80.02	2.00	0.00	1.00	0.00	50.50	80.09	2.00	0.00	1.00	0.00
50.56	79.36	2.00	0.00	1.00	0.00	50.66	78.27	2.00	0.00	1.00	0.00
50.74	77.53	2.00	0.00	1.00	0.00	50.84	79.62	2.00	0.00	1.00	0.00
50.93	83.88	2.00	0.00	1.00	0.00	50.98	92.08	2.00	0.00	1.00	0.00
51.08	102.75	2.00	0.00	1.00	0.00	51.17	113.31	2.00	0.00	1.00	0.00
51.24	122.80	2.00	0.00	1.00	0.00	51.34	129.12	2.00	0.00	1.00	0.00
51.41	122.59	2.00	0.00	1.00	0.00	51.51	115.66	2.00	0.00	1.00	0.00
51.58	106.93	2.00	0.00	1.00	0.00	51.68	109.98	2.00	0.00	1.00	0.00
51.79	110.16	2.00	0.00	1.00	0.00	51.82	110.15	2.00	0.00	1.00	0.00
51.85	111.07	2.00	0.00	1.00	0.00	51.91	113.23	2.00	0.00	1.00	0.00
52.00	116.25	2.00	0.00	1.00	0.00	52.05	118.92	2.00	0.00	1.00	0.00
52.10	118.95	2.00	0.00	1.00	0.00	52.19	115.81	2.00	0.00	1.00	0.00
52.28	111.69	2.00	0.00	1.00	0.00	52.34	109.32	2.00	0.00	1.00	0.00
52.42	109.66	2.00	0.00	1.00	0.00	52.48	111.03	2.00	0.00	1.00	0.00
52.57	111.27	2.00	0.00	1.00	0.00	52.62	109.88	2.00	0.00	1.00	0.00
52.69	106.89	2.00	0.00	1.00	0.00	52.77	104.50	2.00	0.00	1.00	0.00
52.87	103.83	2.00	0.00	1.00	0.00	52.91	102.56	2.00	0.00	1.00	0.00
53.01	102.13	2.00	0.00	1.00	0.00	53.10	103.11	2.00	0.00	1.00	0.00
53.16	113.26	2.00	0.00	1.00	0.00	53.25	123.32	2.00	0.00	1.00	0.00
53.29	136.25	2.00	0.00	1.00	0.00	53.38	144.18	2.00	0.00	1.00	0.00
53.42	149.47	2.00	0.00	1.00	0.00	53.47	150.02	2.00	0.00	1.00	0.00
53.52	148.22	2.00	0.00	1.00	0.00	53.58	152.55	2.00	0.00	1.00	0.00
53.66	160.18	2.00	0.00	1.00	0.00	53.75	169.41	2.00	0.00	1.00	0.00
53.81	175.67	2.00	0.00	1.00	0.00	53.87	177.89	2.00	0.00	1.00	0.00
53.95	178.71	2.00	0.00	1.00	0.00	54.01	177.57	2.00	0.00	1.00	0.00
54.06	172.90	2.00	0.00	1.00	0.00	54.15	167.57	2.00	0.00	1.00	0.00
54.20	165.24	2.00	0.00	1.00	0.00	54.29	164.23	2.00	0.00	1.00	0.00
54.34	141.87	2.00	0.00	1.00	0.00	54.43	108.63	2.00	0.00	1.00	0.00
54.45	82.07	2.00	0.00	1.00	0.00	54.48	80.59	2.00	0.00	1.00	0.00
54.52	82.69	2.00	0.00	1.00	0.00	54.53	86.57	2.00	0.00	1.00	0.00
54.58	89.91	0.75	2.37	1.00	0.01	54.62	93.59	0.80	2.24	1.00	0.01
54.65	96.81	0.84	2.13	1.00	0.01	54.70	99.98	0.88	1.57	1.00	0.01
54.76	102.23	0.92	1.52	1.00	0.01	54.77	102.77	0.92	1.51	1.00	0.00
54.82	103.16	0.93	1.50	1.00	0.01	54.87	103.55	0.94	1.49	1.00	0.01
54.88	104.08	0.94	1.48	1.00	0.00	54.91	104.56	0.95	0.85	1.00	0.00
54.96	106.09	0.98	0.84	1.00	0.00	54.97	109.90	1.04	0.81	1.00	0.00
55.03	115.47	1.14	0.50	1.00	0.00	55.09	120.89	1.25	0.25	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
55.15	121.55	1.26	0.25	1.00	0.00	55.20	122.41	1.28	0.25	1.00	0.00
55.25	121.49	1.26	0.25	1.00	0.00	55.30	129.28	1.44	0.00	1.00	0.00
55.34	134.62	1.57	0.00	1.00	0.00	55.39	146.03	1.89	0.00	1.00	0.00
55.40	153.71	2.00	0.00	1.00	0.00	55.44	157.35	2.00	0.00	1.00	0.00
55.44	157.04	2.00	0.00	1.00	0.00	55.49	160.78	2.00	0.00	1.00	0.00
55.54	167.71	2.00	0.00	1.00	0.00	55.59	176.17	2.00	0.00	1.00	0.00
55.63	180.34	2.00	0.00	1.00	0.00	55.64	180.79	2.00	0.00	1.00	0.00
55.68	179.92	2.00	0.00	1.00	0.00	55.69	178.50	2.00	0.00	1.00	0.00
55.69	179.38	2.00	0.00	1.00	0.00	55.71	183.08	2.00	0.00	1.00	0.00
55.76	186.45	2.00	0.00	1.00	0.00	55.78	187.85	2.00	0.00	1.00	0.00
55.81	180.96	2.00	0.00	1.00	0.00	55.85	175.16	2.00	0.00	1.00	0.00
55.86	176.41	2.00	0.00	1.00	0.00	55.91	179.42	2.00	0.00	1.00	0.00
55.92	180.48	2.00	0.00	1.00	0.00	55.96	185.46	2.00	0.00	1.00	0.00
55.97	189.98	2.00	0.00	1.00	0.00	56.00	196.01	2.00	0.00	1.00	0.00
56.01	197.72	2.00	0.00	1.00	0.00	56.03	198.18	2.00	0.00	1.00	0.00
56.05	198.14	2.00	0.00	1.00	0.00	56.10	198.99	2.00	0.00	1.00	0.00
56.12	199.86	2.00	0.00	1.00	0.00	56.16	199.67	2.00	0.00	1.00	0.00
56.17	195.76	2.00	0.00	1.00	0.00	56.20	189.78	2.00	0.00	1.00	0.00
56.22	184.46	2.00	0.00	1.00	0.00	56.24	181.69	2.00	0.00	1.00	0.00
56.30	179.84	2.00	0.00	1.00	0.00	56.31	177.72	2.00	0.00	1.00	0.00
56.34	174.82	2.00	0.00	1.00	0.00	56.39	172.57	2.00	0.00	1.00	0.00
56.45	170.44	2.00	0.00	1.00	0.00	56.48	168.31	2.00	0.00	1.00	0.00
56.49	165.32	2.00	0.00	1.00	0.00	56.53	168.57	2.00	0.00	1.00	0.00
56.58	169.38	2.00	0.00	1.00	0.00	56.63	155.86	2.00	0.00	1.00	0.00
56.68	156.17	2.00	0.00	1.00	0.00	56.73	157.68	2.00	0.00	1.00	0.00
56.78	156.09	2.00	0.00	1.00	0.00	56.83	153.53	2.00	0.00	1.00	0.00
56.89	157.35	2.00	0.00	1.00	0.00	56.95	160.76	2.00	0.00	1.00	0.00
56.99	161.37	2.00	0.00	1.00	0.00	57.01	160.98	2.00	0.00	1.00	0.00
57.04	160.65	2.00	0.00	1.00	0.00	57.09	161.13	2.00	0.00	1.00	0.00
57.11	163.57	2.00	0.00	1.00	0.00	57.13	167.47	2.00	0.00	1.00	0.00
57.18	169.44	2.00	0.00	1.00	0.00	57.19	168.95	2.00	0.00	1.00	0.00
57.21	166.30	2.00	0.00	1.00	0.00	57.24	164.00	2.00	0.00	1.00	0.00
57.28	163.35	2.00	0.00	1.00	0.00	57.32	161.45	2.00	0.00	1.00	0.00
57.35	160.03	2.00	0.00	1.00	0.00	57.38	157.50	2.00	0.00	1.00	0.00
57.43	155.53	2.00	0.00	1.00	0.00	57.48	150.26	2.00	0.00	1.00	0.00
57.52	143.92	1.85	0.00	1.00	0.00	57.57	142.28	1.80	0.00	1.00	0.00
57.62	146.53	1.93	0.00	1.00	0.00	57.68	157.03	2.00	0.00	1.00	0.00
57.76	166.00	2.00	0.00	1.00	0.00	57.81	161.17	2.00	0.00	1.00	0.00
57.86	159.31	2.00	0.00	1.00	0.00	57.89	167.80	2.00	0.00	1.00	0.00
57.91	171.02	2.00	0.00	1.00	0.00	57.92	169.11	2.00	0.00	1.00	0.00
57.95	166.67	2.00	0.00	1.00	0.00	57.99	167.08	2.00	0.00	1.00	0.00
58.01	169.42	2.00	0.00	1.00	0.00	58.05	173.02	2.00	0.00	1.00	0.00
58.05	175.27	2.00	0.00	1.00	0.00	58.10	176.91	2.00	0.00	1.00	0.00
58.13	178.73	2.00	0.00	1.00	0.00	58.15	180.87	2.00	0.00	1.00	0.00
58.17	182.75	2.00	0.00	1.00	0.00	58.20	182.21	2.00	0.00	1.00	0.00
58.21	181.00	2.00	0.00	1.00	0.00	58.21	179.50	2.00	0.00	1.00	0.00
58.23	179.34	2.00	0.00	1.00	0.00	58.24	177.62	2.00	0.00	1.00	0.00
58.25	177.92	2.00	0.00	1.00	0.00	58.29	179.26	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
58.31	183.11	2.00	0.00	1.00	0.00	58.33	186.52	2.00	0.00	1.00	0.00
58.38	190.06	2.00	0.00	1.00	0.00	58.39	193.13	2.00	0.00	1.00	0.00
58.43	195.59	2.00	0.00	1.00	0.00	58.43	199.15	2.00	0.00	1.00	0.00
58.48	200.60	2.00	0.00	1.00	0.00	58.53	202.36	2.00	0.00	1.00	0.00
58.56	202.90	2.00	0.00	1.00	0.00	58.58	205.20	2.00	0.00	1.00	0.00
58.59	207.06	2.00	0.00	1.00	0.00	58.63	205.90	2.00	0.00	1.00	0.00
58.63	206.49	2.00	0.00	1.00	0.00	58.63	202.42	2.00	0.00	1.00	0.00
58.68	203.74	2.00	0.00	1.00	0.00	58.69	204.22	2.00	0.00	1.00	0.00
58.72	208.81	2.00	0.00	1.00	0.00	58.73	210.28	2.00	0.00	1.00	0.00
58.74	211.92	2.00	0.00	1.00	0.00	58.77	211.36	2.00	0.00	1.00	0.00
58.81	210.02	2.00	0.00	1.00	0.00	58.82	207.44	2.00	0.00	1.00	0.00
58.83	207.97	2.00	0.00	1.00	0.00	58.87	209.78	2.00	0.00	1.00	0.00
58.91	212.41	2.00	0.00	1.00	0.00	58.92	214.21	2.00	0.00	1.00	0.00
58.93	214.95	2.00	0.00	1.00	0.00	58.96	214.44	2.00	0.00	1.00	0.00
59.01	207.70	2.00	0.00	1.00	0.00	59.06	199.13	2.00	0.00	1.00	0.00
59.08	189.77	2.00	0.00	1.00	0.00	59.11	184.95	2.00	0.00	1.00	0.00
59.15	181.46	2.00	0.00	1.00	0.00	59.21	178.75	2.00	0.00	1.00	0.00
59.26	178.89	2.00	0.00	1.00	0.00	59.30	173.20	2.00	0.00	1.00	0.00
59.35	169.07	2.00	0.00	1.00	0.00	59.40	168.73	2.00	0.00	1.00	0.00
59.42	168.34	2.00	0.00	1.00	0.00	59.47	167.78	2.00	0.00	1.00	0.00
59.51	168.63	2.00	0.00	1.00	0.00	59.56	168.59	2.00	0.00	1.00	0.00
59.61	164.50	2.00	0.00	1.00	0.00	59.67	155.77	2.00	0.00	1.00	0.00
59.71	159.11	2.00	0.00	1.00	0.00	59.80	159.56	2.00	0.00	1.00	0.00
59.85	158.50	2.00	0.00	1.00	0.00	59.90	155.47	2.00	0.00	1.00	0.00
60.00	155.53	2.00	0.00	1.00	0.00	60.04	155.09	2.00	0.00	1.00	0.00
60.10	150.62	2.00	0.00	1.00	0.00	60.15	145.30	1.91	0.00	1.00	0.00
60.19	139.22	1.73	0.00	1.00	0.00	60.23	138.03	1.70	0.00	1.00	0.00
60.28	137.71	1.69	0.00	1.00	0.00	60.33	139.47	1.74	0.00	1.00	0.00
60.38	140.26	1.77	0.00	1.00	0.00	60.42	140.74	1.78	0.00	1.00	0.00
60.44	140.24	1.76	0.00	1.00	0.00	60.47	145.72	1.93	0.00	1.00	0.00
60.52	148.94	2.00	0.00	1.00	0.00	60.56	150.90	2.00	0.00	1.00	0.00
60.57	151.48	2.00	0.00	1.00	0.00	60.61	151.48	2.00	0.00	1.00	0.00
60.66	151.98	2.00	0.00	1.00	0.00	60.71	153.21	2.00	0.00	1.00	0.00
60.76	156.59	2.00	0.00	1.00	0.00	60.81	159.58	2.00	0.00	1.00	0.00
60.86	161.02	2.00	0.00	1.00	0.00	60.91	158.84	2.00	0.00	1.00	0.00
60.95	170.69	2.00	0.00	1.00	0.00	61.00	180.91	2.00	0.00	1.00	0.00
61.02	186.60	2.00	0.00	1.00	0.00	61.05	194.34	2.00	0.00	1.00	0.00
61.08	201.44	2.00	0.00	1.00	0.00	61.09	207.57	2.00	0.00	1.00	0.00
61.13	209.24	2.00	0.00	1.00	0.00	61.14	209.63	2.00	0.00	1.00	0.00
61.16	210.15	2.00	0.00	1.00	0.00	61.20	212.77	2.00	0.00	1.00	0.00
61.23	215.88	2.00	0.00	1.00	0.00	61.24	217.23	2.00	0.00	1.00	0.00
61.29	214.83	2.00	0.00	1.00	0.00	61.30	210.65	2.00	0.00	1.00	0.00
61.33	207.82	2.00	0.00	1.00	0.00	61.38	206.66	2.00	0.00	1.00	0.00
61.43	206.60	2.00	0.00	1.00	0.00	61.48	208.54	2.00	0.00	1.00	0.00
61.53	212.02	2.00	0.00	1.00	0.00	61.56	213.05	2.00	0.00	1.00	0.00
61.58	205.10	2.00	0.00	1.00	0.00	61.59	198.13	2.00	0.00	1.00	0.00
61.62	169.24	2.00	0.00	1.00	0.00	61.63	167.67	2.00	0.00	1.00	0.00
61.67	165.65	2.00	0.00	1.00	0.00	61.71	186.61	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
61.76	184.50	2.00	0.00	1.00	0.00	61.81	178.32	2.00	0.00	1.00	0.00
61.86	172.85	2.00	0.00	1.00	0.00	61.87	168.83	2.00	0.00	1.00	0.00
61.91	165.39	2.00	0.00	1.00	0.00	61.95	162.25	2.00	0.00	1.00	0.00
61.96	159.04	2.00	0.00	1.00	0.00	62.00	155.30	2.00	0.00	1.00	0.00
62.04	150.01	2.00	0.00	1.00	0.00	62.06	143.15	1.86	0.00	1.00	0.00
62.10	137.65	1.70	0.00	1.00	0.00	62.14	133.04	1.58	0.00	1.00	0.00
62.20	129.46	1.49	0.00	1.00	0.00	62.22	122.70	1.33	0.25	1.00	0.00
62.27	125.13	1.39	0.00	1.00	0.00	62.29	125.44	1.39	0.00	1.00	0.00
62.34	124.22	1.37	0.00	1.00	0.00	62.39	123.46	1.35	0.25	1.00	0.00
62.43	121.51	1.31	0.25	1.00	0.00	62.49	121.38	1.30	0.25	1.00	0.00
62.57	121.70	1.31	0.25	1.00	0.00	62.68	127.79	1.45	0.00	1.00	0.00
62.75	139.12	1.75	0.00	1.00	0.00	62.87	146.86	1.99	0.00	1.00	0.00
62.88	142.25	1.84	0.00	1.00	0.00	62.89	142.29	1.84	0.00	1.00	0.00
62.93	142.80	1.86	0.00	1.00	0.00	62.98	158.87	2.00	0.00	1.00	0.00
63.02	172.30	2.00	0.00	1.00	0.00	63.07	182.93	2.00	0.00	1.00	0.00
63.12	-1.00	2.00	0.00	1.00	0.00	63.14	-1.00	2.00	0.00	1.00	0.00
63.17	-1.00	2.00	0.00	1.00	0.00	63.17	-1.00	2.00	0.00	1.00	0.00
63.20	-1.00	2.00	0.00	1.00	0.00	63.21	-1.00	2.00	0.00	1.00	0.00
63.23	-1.00	2.00	0.00	1.00	0.00	63.26	-1.00	2.00	0.00	1.00	0.00
63.28	-1.00	2.00	0.00	1.00	0.00	63.31	-1.00	2.00	0.00	1.00	0.00
63.32	-1.00	2.00	0.00	1.00	0.00	63.36	-1.00	2.00	0.00	1.00	0.00
63.40	-1.00	2.00	0.00	1.00	0.00						

Total estimated settlement: 0.66

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.01	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.04	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.09	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.11	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.14	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.14	1.35	2.15	27.82	59.81	3.66	7.03	11.25
0.18	6.97	11.19	4.58	51.24	2.69	0.06	0.63
0.23	18.19	29.21	1.00	29.21	2.14	0.02	0.62
0.24	36.79	59.09	1.00	59.09	1.76	0.11	0.65
0.28	53.07	85.23	1.00	85.23	1.58	0.72	0.72
0.33	59.27	95.19	1.00	95.19	1.53	0.74	0.74
0.38	56.61	90.91	1.00	90.91	1.60	0.73	0.73
0.42	52.11	83.69	1.00	83.69	1.72	0.72	0.72
0.47	51.84	83.25	1.19	98.77	1.83	0.75	0.75
0.51	51.94	83.40	1.24	103.16	1.90	0.75	0.75
0.52	52.09	83.64	1.26	104.99	1.93	0.76	0.76
0.57	52.66	84.56	1.24	105.20	1.91	0.76	0.76
0.61	53.24	85.48	1.23	105.23	1.89	0.76	0.76
0.67	53.47	85.85	1.22	105.00	1.88	0.76	0.76
0.73	53.84	86.44	1.22	105.23	1.87	0.76	0.76
0.81	53.62	86.08	1.22	104.72	1.87	0.76	0.76
0.86	53.52	85.91	1.25	107.16	1.92	0.76	0.76
0.98	52.14	83.69	1.28	106.78	1.96	0.76	0.76
1.05	48.22	77.37	1.32	102.42	2.02	0.75	0.75
1.15	43.67	70.05	1.34	94.07	2.04	0.74	0.74
1.24	37.87	60.73	1.38	83.84	2.07	0.72	0.72
1.34	34.47	55.26	1.40	77.37	2.09	0.47	0.70
1.43	30.63	49.08	1.51	74.33	2.16	0.36	0.69
1.53	26.86	43.01	1.75	75.37	2.25	0.40	0.70
1.58	24.56	39.32	1.98	77.68	2.31	0.48	0.70
1.62	23.48	37.59	2.00	75.15	2.32	0.39	0.70
1.67	24.36	38.99	1.85	72.19	2.28	0.31	0.69
1.75	23.89	38.23	1.86	70.99	2.28	0.28	0.69
1.77	23.08	36.93	1.92	70.79	2.30	0.27	0.69
1.81	21.50	34.38	2.08	71.55	2.34	0.29	0.69
1.86	19.71	31.51	2.30	72.37	2.39	0.31	0.69
1.91	17.96	28.69	2.52	72.24	2.43	0.31	0.69
1.95	16.98	27.11	2.53	68.54	2.43	0.23	0.68
2.00	16.21	25.86	2.43	62.85	2.41	0.14	0.66
2.05	14.89	23.75	2.42	57.52	2.41	0.09	0.65
2.11	13.51	21.52	2.55	54.95	2.43	0.08	0.64
2.20	12.33	19.62	2.79	54.76	2.47	0.08	0.64
2.24	11.73	18.64	3.01	56.15	2.50	0.08	0.65
2.29	11.26	17.88	3.29	58.85	2.54	0.10	0.65
2.34	11.32	17.99	3.76	67.59	2.60	0.21	0.68
2.44	12.17	19.33	3.86	74.63	2.61	0.37	0.69
2.48	14.56	23.17	3.43	79.44	2.56	0.56	0.71
2.58	18.03	28.74	2.75	79.05	2.47	0.54	0.70

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
2.63	22.41	35.77	2.21	79.01	2.37	0.54	0.70
2.71	26.08	41.66	1.92	80.03	2.30	0.59	0.71
2.78	30.33	48.48	1.67	80.89	2.22	0.63	0.71
2.82	33.73	53.95	1.52	82.21	2.16	0.70	0.71
2.89	34.94	55.89	1.47	82.24	2.13	0.70	0.71
2.96	33.63	53.77	1.51	81.39	2.16	0.66	0.71
3.03	30.90	49.37	1.62	80.00	2.20	0.58	0.71
3.11	28.98	46.28	1.70	78.46	2.23	0.51	0.70
3.19	26.45	42.22	1.79	75.65	2.26	0.41	0.70
3.25	23.52	37.50	1.97	73.87	2.31	0.35	0.69
3.35	20.49	32.62	2.28	74.42	2.38	0.37	0.69
3.41	17.79	28.29	2.60	73.49	2.44	0.34	0.69
3.50	15.91	25.25	2.74	69.10	2.46	0.24	0.68
3.59	14.83	23.51	2.66	62.63	2.45	0.14	0.66
3.69	14.59	23.12	2.55	58.90	2.43	0.10	0.65
3.79	15.20	24.09	2.35	56.48	2.39	0.09	0.65
3.88	16.54	26.24	2.09	54.78	2.34	0.08	0.64
3.97	19.14	30.40	1.82	55.25	2.27	0.08	0.64
4.07	20.82	33.10	1.77	58.69	2.26	0.10	0.65
4.14	23.49	37.37	1.67	62.38	2.22	0.14	0.66
4.17	25.51	40.62	1.61	65.25	2.20	0.17	0.67
4.26	28.14	44.83	1.51	67.83	2.15	0.21	0.68
4.32	28.71	45.74	1.52	69.43	2.16	0.24	0.68
4.37	28.10	44.77	1.56	69.94	2.18	0.25	0.68
4.42	26.62	42.38	1.65	69.93	2.21	0.25	0.68
4.51	25.07	39.88	1.74	69.30	2.24	0.24	0.68
4.61	23.68	37.65	1.82	68.42	2.27	0.22	0.68
4.65	22.37	35.53	1.90	67.38	2.29	0.21	0.68
4.74	21.09	33.47	2.00	67.06	2.32	0.20	0.68
4.80	20.48	32.49	2.05	66.55	2.33	0.19	0.67
4.89	20.04	31.78	2.09	66.46	2.34	0.19	0.67
4.95	20.38	32.32	2.05	66.20	2.33	0.19	0.67
5.04	21.05	33.39	1.97	65.92	2.31	0.18	0.67
5.13	22.81	36.20	1.80	65.26	2.27	0.17	0.67
5.18	25.27	40.14	1.63	65.28	2.20	0.17	0.67
5.28	28.07	44.63	1.49	66.64	2.14	0.19	0.67
5.32	31.47	50.09	1.40	70.04	2.09	0.26	0.68
5.42	34.67	55.23	1.35	74.62	2.05	0.37	0.69
5.51	38.14	60.80	1.31	79.86	2.01	0.58	0.71
5.60	41.28	65.83	1.26	83.18	1.94	0.71	0.71
5.66	44.24	70.58	1.22	86.14	1.88	0.72	0.72
5.76	45.86	73.17	1.00	73.17	1.83	0.33	0.69
5.85	44.91	71.65	1.21	86.53	1.86	0.72	0.72
5.92	41.11	65.53	1.25	81.79	1.92	0.68	0.71
5.95	38.21	60.87	1.28	77.76	1.96	0.48	0.70
5.97	36.15	57.56	1.30	74.97	1.99	0.38	0.70
6.02	35.37	56.31	1.31	73.90	2.01	0.35	0.69
6.06	32.74	52.08	1.36	70.59	2.05	0.27	0.68

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.16	29.98	47.63	1.42	67.87	2.10	0.21	0.68
6.21	26.98	42.82	1.56	66.83	2.18	0.20	0.68
6.26	24.29	38.48	1.79	68.74	2.26	0.23	0.68
6.31	21.62	34.19	2.18	74.63	2.36	0.37	0.69
6.40	19.23	30.34	2.70	82.06	2.46	0.69	0.71
6.44	16.91	26.60	3.43	91.18	2.56	0.73	0.73
6.52	15.12	23.73	4.16	98.65	2.64	0.75	0.75
6.57	13.47	21.08	5.01	105.63	2.73	0.76	0.76
6.64	12.16	18.96	5.81	110.19	2.80	0.77	0.77
6.69	10.98	17.06	6.65	113.46	2.86	0.77	0.77
6.78	10.34	16.02	7.15	114.49	2.90	0.77	0.77
6.83	9.90	15.31	7.38	112.96	2.91	0.77	0.77
6.92	9.60	14.82	7.45	110.37	2.92	0.77	0.77
6.97	9.39	14.48	7.39	107.07	2.91	0.76	0.76
7.03	9.29	14.32	7.35	105.27	2.91	0.76	0.76
7.12	9.32	14.36	7.25	104.07	2.90	0.76	0.76
7.22	9.39	14.46	7.17	103.64	2.90	0.75	0.75
7.27	9.52	14.66	7.09	103.89	2.89	0.76	0.76
7.36	9.65	14.86	7.06	104.93	2.89	0.76	0.76
7.43	9.75	15.01	7.08	106.34	2.89	0.76	0.76
7.50	9.78	15.06	7.16	107.82	2.90	0.76	0.76
7.59	9.77	15.04	7.22	108.69	2.90	0.76	0.76
7.64	9.70	14.93	7.34	109.64	2.91	0.77	0.77
7.75	9.63	14.81	7.46	110.40	2.92	0.77	0.77
7.79	9.70	14.91	7.43	110.74	2.92	0.77	0.77
7.89	9.97	15.33	7.19	110.22	2.90	0.77	0.77
7.99	10.24	15.76	6.97	109.89	2.88	0.77	0.77
8.04	10.34	15.91	6.96	110.71	2.88	0.77	0.77
8.13	10.31	15.85	7.03	111.39	2.89	0.77	0.77
8.23	10.27	15.79	6.35	100.23	2.84	0.75	0.75
8.32	10.27	15.77	5.78	91.18	2.79	0.73	0.73
8.37	10.53	16.20	5.34	86.47	2.76	0.72	0.72
8.46	11.04	17.00	5.74	97.61	2.79	0.74	0.74
8.56	11.30	17.42	6.05	105.35	2.82	0.76	0.76
8.59	11.30	17.41	6.35	110.51	2.84	0.77	0.77
8.61	11.03	16.97	6.71	113.97	2.87	0.77	0.77
8.67	10.89	16.75	6.98	116.82	2.88	0.78	0.78
8.71	10.69	16.41	7.24	118.78	2.90	0.78	0.78
8.72	10.51	16.13	7.46	120.30	2.92	0.78	0.78
8.78	10.44	16.02	7.56	121.13	2.92	0.78	0.78
8.80	10.44	16.02	7.59	121.54	2.93	0.79	0.79
8.86	10.44	16.01	7.60	121.62	2.93	0.79	0.79
8.90	10.55	16.17	7.55	122.08	2.92	0.79	0.79
8.95	10.68	16.39	7.49	122.77	2.92	0.79	0.79
8.96	10.89	16.71	7.39	123.54	2.91	0.79	0.79
9.00	11.05	16.98	7.33	124.43	2.91	0.79	0.79
9.05	11.29	17.35	7.24	125.55	2.90	0.79	0.79
9.09	11.56	17.78	7.10	126.26	2.89	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.10	11.96	18.43	6.89	127.03	2.88	0.79	0.79
9.14	12.47	19.24	6.66	128.15	2.86	0.80	0.80
9.20	13.21	20.42	6.33	129.23	2.84	0.80	0.80
9.24	14.09	21.83	5.95	129.98	2.81	0.80	0.80
9.29	15.03	23.34	5.57	129.97	2.78	0.80	0.80
9.31	15.90	24.74	5.28	130.54	2.75	0.80	0.80
9.38	16.61	25.88	5.06	130.87	2.73	0.80	0.80
9.41	17.32	27.00	4.80	129.53	2.71	0.80	0.80
9.47	18.02	28.13	4.48	126.15	2.68	0.79	0.79
9.53	19.33	30.23	3.91	118.10	2.62	0.78	0.78
9.62	21.08	33.03	3.29	108.83	2.54	0.76	0.76
9.67	23.71	36.88	2.63	97.08	2.45	0.74	0.74
9.77	26.25	39.96	2.22	88.55	2.37	0.73	0.73
9.81	28.83	43.12	1.89	81.52	2.29	0.66	0.71
9.90	30.67	45.16	1.72	77.57	2.24	0.48	0.70
9.97	32.26	46.92	1.61	75.55	2.20	0.40	0.70
10.06	32.63	47.13	1.61	75.67	2.20	0.41	0.70
10.20	32.13	46.19	1.68	77.59	2.22	0.48	0.70
10.30	29.29	42.06	1.79	75.15	2.26	0.39	0.70
10.44	25.52	36.67	2.06	75.52	2.33	0.40	0.70
10.54	20.70	30.03	2.66	79.87	2.45	0.58	0.71
10.63	16.56	24.49	4.08	99.92	2.64	0.75	0.75
10.74	13.83	20.66	5.64	116.62	2.78	0.78	0.78
10.78	12.62	18.99	6.71	127.39	2.86	0.79	0.79
10.83	12.48	18.76	6.96	130.59	2.88	0.80	0.80
10.88	12.31	18.47	7.21	133.16	2.90	0.80	0.80
10.89	12.15	18.24	7.50	136.86	2.92	0.81	0.81
10.97	12.25	18.30	7.62	139.36	2.93	0.81	0.81
11.02	12.48	18.59	7.62	141.70	2.93	0.82	0.82
11.07	12.79	18.96	7.51	142.37	2.92	0.82	0.82
11.11	13.06	19.28	7.42	143.00	2.91	0.82	0.82
11.16	13.39	19.70	7.30	143.71	2.91	0.82	0.82
11.21	13.76	20.15	7.19	144.81	2.90	0.82	0.82
11.26	14.14	20.62	7.10	146.37	2.89	0.82	0.82
11.30	14.37	20.90	7.10	148.42	2.89	0.82	0.82
11.36	14.54	21.07	7.14	150.43	2.90	0.83	0.83
11.40	14.68	21.19	7.17	151.92	2.90	0.83	0.83
11.45	14.81	21.32	7.18	152.97	2.90	0.83	0.83
11.50	15.04	21.57	7.12	153.64	2.89	0.83	0.83
11.55	15.31	21.86	7.06	154.44	2.89	0.83	0.83
11.60	15.85	22.53	6.88	155.07	2.88	0.83	0.83
11.66	16.56	23.39	6.63	155.14	2.86	0.83	0.83
11.74	17.40	24.38	6.31	153.92	2.84	0.83	0.83
11.84	17.98	24.97	6.15	153.46	2.82	0.83	0.83
11.93	18.18	25.08	6.17	154.65	2.82	0.83	0.83
12.04	18.04	24.73	6.38	157.76	2.84	0.84	0.84
12.13	17.87	24.37	6.58	160.42	2.86	0.84	0.84
12.22	17.67	23.94	6.76	161.87	2.87	0.84	0.84

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.27	17.51	23.64	6.85	161.93	2.88	0.84	0.84
12.37	17.27	23.16	6.98	161.58	2.88	0.84	0.84
12.41	17.17	22.94	7.03	161.26	2.89	0.84	0.84
12.51	17.06	22.65	7.13	161.48	2.89	0.84	0.84
12.56	17.23	22.78	7.08	161.37	2.89	0.84	0.84
12.65	17.64	23.15	6.96	161.03	2.88	0.84	0.84
12.71	18.45	24.09	6.70	161.44	2.86	0.84	0.84
12.79	19.23	24.96	6.59	164.56	2.86	0.85	0.85
12.89	20.10	25.92	6.50	168.54	2.85	0.85	0.85
12.96	20.98	26.96	6.43	173.33	2.84	0.86	0.86
13.04	22.23	28.37	6.15	174.57	2.82	0.86	0.86
13.13	24.11	30.49	5.62	171.40	2.78	0.85	0.85
13.23	26.80	33.27	4.19	139.58	2.65	0.81	0.81
13.30	30.34	36.95	2.91	107.47	2.49	0.76	0.76
13.37	34.15	40.77	2.02	82.17	2.32	0.70	0.71
13.47	38.32	45.44	1.87	85.15	2.29	0.72	0.72
13.57	38.79	45.84	1.94	89.15	2.31	0.73	0.73
13.61	39.19	46.27	1.98	91.39	2.31	0.73	0.73
13.62	40.31	47.52	1.94	92.31	2.30	0.73	0.73
13.68	44.31	51.92	1.78	92.36	2.26	0.73	0.73
13.73	47.82	55.76	1.68	93.57	2.22	0.74	0.74
13.77	50.08	58.23	1.65	95.79	2.21	0.74	0.74
13.87	52.91	61.16	1.61	98.26	2.20	0.74	0.74
13.93	55.78	64.26	1.58	101.41	2.19	0.75	0.75
14.00	58.54	67.15	1.55	104.21	2.17	0.76	0.76
14.06	60.62	69.33	1.54	106.89	2.17	0.76	0.76
14.12	62.21	70.95	1.54	109.37	2.17	0.77	0.77
14.21	63.05	71.63	1.55	111.13	2.17	0.77	0.77
14.25	63.45	71.96	1.56	112.44	2.18	0.77	0.77
14.35	63.35	71.51	1.58	112.67	2.18	0.77	0.77
14.45	62.61	70.37	1.60	112.38	2.19	0.77	0.77
14.50	61.06	68.50	1.63	111.75	2.21	0.77	0.77
14.59	59.18	66.15	1.68	111.04	2.22	0.77	0.77
14.64	57.19	63.82	1.73	110.49	2.24	0.77	0.77
14.74	55.60	61.79	1.78	110.08	2.26	0.77	0.77
14.80	54.22	60.12	1.83	109.86	2.27	0.77	0.77
14.88	53.18	58.73	1.87	109.70	2.28	0.77	0.77
14.97	52.24	57.45	1.91	109.62	2.30	0.77	0.77
15.05	51.43	56.38	1.95	110.04	2.31	0.77	0.77
15.13	50.85	55.53	1.99	110.56	2.32	0.77	0.77
15.21	50.95	55.42	1.99	110.46	2.32	0.77	0.77
15.28	52.23	56.58	1.93	109.48	2.30	0.77	0.77
15.36	55.10	59.37	1.82	108.07	2.27	0.76	0.76
15.41	60.22	64.61	1.66	107.30	2.22	0.76	0.76
15.50	66.38	70.74	1.53	108.00	2.16	0.76	0.76
15.55	72.78	77.07	1.38	106.45	2.07	0.76	0.76
15.65	76.92	80.83	1.31	105.71	2.00	0.76	0.76
15.71	78.17	81.68	1.27	103.43	1.94	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.79	75.07	78.22	1.28	99.99	1.96	0.75	0.75
15.89	67.29	69.97	1.33	92.88	2.02	0.73	0.73
15.90	61.09	63.58	1.38	88.03	2.07	0.72	0.72
15.94	56.21	58.47	1.45	84.99	2.12	0.72	0.72
16.00	53.24	55.28	1.51	83.45	2.15	0.71	0.71
16.06	47.68	49.45	1.67	82.65	2.22	0.71	0.71
16.14	40.74	42.17	2.02	85.02	2.32	0.72	0.72
16.19	34.10	35.24	2.56	90.26	2.43	0.73	0.73
16.26	27.10	27.88	3.51	97.89	2.57	0.74	0.74
16.33	21.54	22.01	4.74	104.24	2.70	0.76	0.76
16.38	17.06	17.28	6.24	107.80	2.83	0.76	0.76
16.47	14.43	14.45	7.58	109.50	2.93	0.77	0.77
16.54	12.64	12.69	8.71	110.54	3.00	0.77	0.77
16.62	11.80	11.71	9.67	113.31	3.05	0.52	0.84
16.70	11.53	11.36	10.18	115.66	3.08	0.56	0.81
16.76	12.28	12.12	9.88	119.66	3.06	0.59	0.87
16.86	14.88	14.80	8.08	119.59	2.96	0.78	0.78
16.90	19.33	19.15	6.07	116.24	2.82	0.78	0.78
16.98	25.84	25.69	4.22	108.51	2.65	0.76	0.76
17.05	35.42	35.23	2.81	99.11	2.48	0.75	0.75
17.14	47.54	47.19	1.94	91.71	2.30	0.73	0.73
17.20	61.48	60.90	1.51	91.88	2.15	0.73	0.73
17.29	73.03	72.03	1.35	97.56	2.05	0.74	0.74
17.34	81.99	80.70	1.30	104.58	1.99	0.76	0.76
17.44	86.87	85.21	1.28	109.31	1.97	0.76	0.76
17.50	88.89	86.96	1.26	109.36	1.93	0.76	0.76
17.58	88.15	85.91	1.24	106.78	1.91	0.76	0.76
17.64	85.02	82.63	1.24	102.13	1.90	0.75	0.75
17.75	80.50	77.97	1.27	99.12	1.95	0.75	0.75
17.82	72.08	69.66	1.35	93.80	2.04	0.74	0.74
17.89	66.02	63.60	1.43	91.18	2.11	0.73	0.73
17.89	62.68	60.37	1.51	91.04	2.15	0.73	0.73
17.96	64.06	61.55	1.50	92.30	2.15	0.73	0.73
18.02	65.34	62.67	1.51	94.33	2.15	0.74	0.74
18.07	66.86	64.01	1.51	96.43	2.15	0.74	0.74
18.17	68.78	65.62	1.49	98.02	2.14	0.74	0.74
18.22	68.74	65.47	1.51	98.54	2.15	0.75	0.75
18.30	65.20	61.85	1.59	98.20	2.19	0.74	0.74
18.36	57.69	54.52	1.83	99.83	2.27	0.75	0.75
18.42	49.20	46.28	2.30	106.36	2.39	0.76	0.76
18.50	39.97	37.31	3.16	118.00	2.53	0.78	0.78
18.56	32.38	29.97	4.32	129.55	2.66	0.80	0.80
18.62	25.71	23.53	5.80	136.40	2.80	0.81	0.81
18.69	23.96	21.78	6.13	133.60	2.82	0.80	0.80
18.76	22.21	20.05	6.60	132.24	2.86	0.80	0.80
18.84	24.30	21.95	5.90	129.41	2.80	0.80	0.80
18.89	31.88	29.04	4.26	123.66	2.66	0.79	0.79
18.98	52.85	48.61	2.23	108.20	2.37	0.76	0.76

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
19.05	78.42	72.48	1.52	110.23	2.16	0.77	0.77
19.12	101.80	94.21	1.32	124.65	2.02	0.79	0.79
19.18	115.88	107.18	1.27	136.09	1.95	0.81	0.81
19.24	124.07	114.61	1.25	142.72	1.91	0.82	0.82
19.32	126.76	116.83	1.24	144.84	1.90	0.82	0.82
19.38	126.53	116.38	1.25	145.16	1.92	0.82	0.82
19.46	124.81	114.42	1.26	144.25	1.94	0.82	0.82
19.54	122.62	112.08	1.28	142.92	1.96	0.82	0.82
19.62	121.00	110.26	1.28	141.68	1.97	0.82	0.82
19.70	119.99	109.01	1.29	140.65	1.98	0.81	0.81
19.80	119.75	108.41	1.29	140.01	1.98	0.81	0.81
19.85	119.75	108.23	1.29	139.71	1.98	0.81	0.81
19.94	119.95	108.07	1.29	139.71	1.98	0.81	0.81
20.03	120.73	108.50	1.28	138.61	1.96	0.81	0.81
20.13	121.84	109.19	1.26	137.92	1.94	0.81	0.81
20.19	123.33	110.40	1.25	137.60	1.91	0.81	0.81
20.29	124.05	110.67	1.25	138.32	1.92	0.81	0.81
20.39	124.51	110.70	1.25	138.76	1.93	0.81	0.81
20.43	124.14	110.23	1.26	138.70	1.93	0.81	0.81
20.47	124.09	109.99	1.26	138.78	1.94	0.81	0.81
20.52	123.97	109.69	1.27	139.06	1.95	0.81	0.81
20.61	123.97	109.33	1.27	139.29	1.96	0.81	0.81
20.66	123.26	108.48	1.28	139.08	1.97	0.81	0.81
20.71	122.22	107.35	1.29	138.34	1.98	0.81	0.81
20.77	121.00	106.04	1.30	137.35	1.99	0.81	0.81
20.85	120.53	105.33	1.30	136.79	1.99	0.81	0.81
20.91	120.63	105.23	1.30	136.74	1.99	0.81	0.81
21.00	121.00	105.23	1.30	136.71	1.99	0.81	0.81
21.05	120.93	105.01	1.30	136.53	1.99	0.81	0.81
21.11	120.50	104.40	1.30	136.06	2.00	0.81	0.81
21.19	120.16	103.82	1.31	135.66	2.00	0.81	0.81
21.24	120.23	103.70	1.31	135.67	2.00	0.81	0.81
21.34	120.39	103.52	1.31	135.57	2.00	0.81	0.81
21.39	119.99	103.00	1.31	135.16	2.01	0.81	0.81
21.48	118.68	101.52	1.32	133.84	2.01	0.80	0.80
21.53	116.39	99.34	1.33	131.86	2.02	0.80	0.80
21.64	113.86	96.79	1.34	129.36	2.03	0.80	0.80
21.72	111.80	94.83	1.33	125.65	2.02	0.79	0.79
21.81	110.79	93.80	1.31	122.48	2.00	0.79	0.79
21.89	110.52	93.48	1.28	120.09	1.97	0.78	0.78
21.97	110.69	93.44	1.28	119.40	1.96	0.78	0.78
22.05	110.81	93.32	1.27	118.94	1.96	0.78	0.78
22.12	110.92	93.25	1.27	118.64	1.95	0.78	0.78
22.13	110.89	93.20	1.27	118.54	1.95	0.78	0.78
22.18	111.98	94.01	1.27	119.22	1.95	0.78	0.78
22.22	114.49	96.10	1.26	121.02	1.93	0.78	0.78
22.28	118.47	99.41	1.25	123.90	1.91	0.79	0.79
22.33	122.55	102.85	1.23	126.89	1.90	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.38	126.36	106.02	1.22	129.64	1.88	0.80	0.80
22.41	129.99	109.11	1.21	132.05	1.86	0.80	0.80
22.51	133.16	111.59	1.20	133.67	1.85	0.80	0.80
22.56	135.86	113.83	1.18	134.77	1.83	0.81	0.81
22.61	137.68	115.29	1.17	135.13	1.82	0.81	0.81
22.65	139.23	116.56	1.16	135.07	1.81	0.81	0.81
22.71	140.30	117.38	1.15	134.57	1.79	0.81	0.81
22.76	141.15	118.01	1.13	133.54	1.78	0.80	0.80
22.85	141.55	118.16	1.12	132.33	1.77	0.80	0.80
22.89	141.79	118.28	1.11	131.19	1.77	0.80	0.80
22.99	141.85	118.07	1.10	130.38	1.76	0.80	0.80
23.04	142.19	118.24	1.10	129.89	1.76	0.80	0.80
23.12	143.24	118.92	1.09	129.72	1.75	0.80	0.80
23.18	145.12	120.36	1.08	129.86	1.75	0.80	0.80
23.24	147.55	122.28	1.07	130.48	1.74	0.80	0.80
23.33	150.28	124.35	1.05	131.06	1.73	0.80	0.80
23.38	152.77	126.31	1.04	131.98	1.73	0.80	0.80
23.47	154.92	127.86	1.04	132.70	1.72	0.80	0.80
23.52	155.87	128.46	1.05	134.34	1.73	0.80	0.80
23.61	155.50	127.76	1.06	136.02	1.74	0.81	0.81
23.68	153.41	125.65	1.10	137.67	1.76	0.81	0.81
23.76	149.87	122.29	1.13	137.84	1.78	0.81	0.81
23.83	145.42	118.19	1.16	136.72	1.80	0.81	0.81
23.90	140.77	113.95	1.18	134.56	1.83	0.81	0.81
23.97	136.02	109.66	1.20	131.87	1.85	0.80	0.80
24.05	130.36	104.58	1.22	128.11	1.88	0.80	0.80
24.10	123.83	98.86	1.25	123.41	1.92	0.79	0.79
24.19	116.14	92.13	1.28	117.58	1.96	0.78	0.78
24.27	109.37	86.22	1.31	112.54	2.00	0.77	0.77
24.34	103.31	80.98	1.34	108.37	2.03	0.76	0.76
24.43	99.26	77.39	1.37	105.81	2.06	0.76	0.76
24.48	95.99	74.54	1.40	104.29	2.09	0.76	0.76
24.57	93.77	72.46	1.43	103.72	2.11	0.75	0.75
24.62	91.81	70.77	1.45	102.28	2.12	0.75	0.75
24.72	90.33	69.37	1.46	101.12	2.12	0.75	0.75
24.81	89.08	68.17	1.47	100.03	2.13	0.75	0.75
24.86	87.96	67.09	1.50	100.81	2.15	0.75	0.75
24.95	85.18	64.60	1.56	100.88	2.18	0.75	0.75
25.01	82.83	62.55	1.62	101.05	2.20	0.75	0.75
25.02	81.04	61.07	1.66	101.09	2.22	0.75	0.75
25.05	81.81	61.63	1.64	101.34	2.21	0.75	0.75
25.11	82.33	61.92	1.64	101.59	2.21	0.75	0.75
25.15	82.53	61.99	1.64	101.87	2.21	0.75	0.75
25.21	81.92	61.38	1.66	101.94	2.22	0.75	0.75
25.25	81.07	60.61	1.68	101.90	2.23	0.75	0.75
25.30	79.78	59.50	1.70	101.32	2.23	0.75	0.75
25.40	78.02	57.95	1.73	100.17	2.24	0.75	0.75
25.45	75.14	55.63	1.77	98.38	2.25	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.52	71.36	52.56	1.83	96.28	2.27	0.74	0.74
25.60	65.60	47.92	1.99	95.12	2.32	0.74	0.74
25.66	58.89	42.57	2.24	95.48	2.37	0.74	0.74
25.74	50.63	36.01	2.77	99.69	2.47	0.75	0.75
25.80	42.60	29.74	3.54	105.15	2.57	0.76	0.76
25.88	34.42	23.44	4.79	112.31	2.71	0.77	0.77
25.94	27.91	18.51	6.33	117.20	2.84	0.78	0.78
26.02	22.69	14.10	8.40	118.43	2.98	0.78	0.78
26.09	19.19	11.73	10.09	118.41	3.07	0.59	0.84
26.17	16.36	9.82	11.90	116.89	3.16	0.54	0.70
26.23	14.50	8.57	13.49	115.61	3.23	0.51	0.61
26.29	13.56	7.93	14.54	115.33	3.28	0.51	0.57
26.37	13.73	8.01	14.49	116.10	3.27	0.51	0.57
26.46	14.95	8.78	13.45	118.10	3.23	0.54	0.63
26.55	16.56	9.80	12.25	120.00	3.18	0.59	0.70
26.60	18.04	10.74	11.37	122.14	3.14	0.60	0.77
26.70	18.79	11.18	11.11	124.24	3.12	0.63	0.80
26.78	19.09	11.34	11.11	125.96	3.12	0.67	0.81
26.87	19.16	11.34	10.61	120.33	3.10	0.66	0.81
26.94	19.06	11.25	9.74	109.55	3.05	0.47	0.80
27.03	18.62	10.92	9.23	100.80	3.03	0.36	0.78
27.13	17.84	10.38	9.61	99.83	3.05	0.42	0.74
27.18	15.89	9.12	11.41	104.10	3.14	0.42	0.65
27.27	14.61	8.27	12.75	105.48	3.20	0.42	0.59
27.32	14.00	7.87	13.55	106.67	3.23	0.43	0.56
27.37	14.68	8.28	12.99	107.59	3.21	0.44	0.59
27.41	15.01	8.48	12.84	108.89	3.20	0.46	0.61
27.46	15.01	8.47	13.04	110.36	3.21	0.47	0.60
27.51	15.19	8.56	13.12	112.25	3.22	0.48	0.61
27.61	15.69	8.84	13.00	114.96	3.21	0.51	0.63
27.66	16.81	9.52	12.66	120.53	3.20	0.56	0.68
27.73	19.30	11.05	11.59	128.02	3.15	0.66	0.79
27.80	22.77	13.18	10.46	137.91	3.09	0.80	0.94
27.88	26.51	15.46	9.62	148.75	3.05	0.98	1.10
27.96	28.73	16.78	9.46	158.82	3.04	1.16	1.20
28.04	29.44	17.16	9.86	169.19	3.06	1.25	1.23
28.12	29.30	17.02	10.34	175.99	3.09	1.41	1.22
28.18	29.78	17.27	10.47	180.83	3.09	1.43	1.23
28.27	30.99	17.95	10.11	181.45	3.07	1.47	1.28
28.32	32.84	19.04	9.54	181.70	3.04	1.48	1.36
28.42	34.90	20.22	8.98	181.66	3.01	1.51	1.44
28.47	37.02	21.47	8.57	183.98	2.99	0.87	0.87
28.61	38.87	22.47	8.32	186.93	2.97	0.87	0.87
28.67	40.79	23.57	8.10	190.99	2.96	0.88	0.88
28.75	43.62	26.58	7.37	195.90	2.91	0.88	0.88
28.81	49.52	30.58	6.28	192.19	2.83	0.88	0.88
28.90	59.16	37.21	4.89	181.92	2.72	0.87	0.87
29.00	70.68	45.27	3.75	169.71	2.60	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
29.05	82.68	53.82	2.95	158.84	2.50	0.84	0.84
29.10	92.58	60.99	2.48	151.03	2.42	0.83	0.83
29.15	101.07	67.24	2.13	143.11	2.35	0.82	0.82
29.24	105.88	70.82	1.92	136.02	2.30	0.81	0.81
29.29	107.45	72.19	1.78	128.66	2.26	0.80	0.80
29.37	106.66	71.76	1.71	122.57	2.23	0.79	0.79
29.43	105.44	71.05	1.64	116.77	2.21	0.78	0.78
29.53	104.90	70.72	1.59	112.38	2.19	0.77	0.77
29.62	104.73	70.61	1.55	109.62	2.17	0.77	0.77
29.68	104.75	70.73	1.51	106.89	2.15	0.76	0.76
29.80	104.42	70.36	1.50	105.63	2.15	0.76	0.76
29.91	103.80	69.74	1.50	104.61	2.15	0.76	0.76
30.00	99.10	65.97	1.59	104.86	2.19	0.76	0.76
30.07	97.42	64.55	1.63	105.36	2.21	0.76	0.76
30.15	96.27	63.56	1.66	105.54	2.22	0.76	0.76
30.21	99.04	65.49	1.62	105.77	2.20	0.76	0.76
30.26	98.71	65.16	1.62	105.66	2.20	0.76	0.76
30.31	97.50	64.21	1.64	105.39	2.21	0.76	0.76
30.38	95.52	62.65	1.67	104.86	2.22	0.76	0.76
30.45	92.62	60.44	1.72	104.23	2.24	0.76	0.76
30.50	89.12	57.84	1.79	103.72	2.26	0.75	0.75
30.55	84.94	54.79	1.88	102.88	2.29	0.75	0.75
30.64	81.19	52.03	1.96	101.83	2.31	0.75	0.75
30.70	77.93	49.71	2.01	100.16	2.32	0.75	0.75
30.79	76.04	48.30	2.05	98.96	2.33	0.75	0.75
30.84	75.47	47.86	2.05	98.19	2.33	0.74	0.74
30.93	76.95	48.79	2.01	98.05	2.32	0.74	0.74
30.98	80.15	50.98	1.93	98.14	2.30	0.74	0.74
31.05	85.34	54.54	1.81	98.98	2.27	0.75	0.75
31.13	91.57	58.82	1.71	100.51	2.24	0.75	0.75
31.17	100.46	65.08	1.58	102.97	2.19	0.75	0.75
31.27	110.94	72.52	1.47	106.25	2.13	0.76	0.76
31.32	123.23	81.52	1.37	111.37	2.06	0.77	0.77
31.41	133.45	89.03	1.31	116.56	2.00	0.78	0.78
31.46	140.90	94.67	1.28	120.72	1.96	0.78	0.78
31.52	144.37	97.40	1.26	122.24	1.93	0.79	0.79
31.61	145.01	97.95	1.24	121.83	1.91	0.79	0.79
31.66	142.15	95.90	1.24	119.20	1.91	0.78	0.78
31.75	136.69	91.66	1.26	115.29	1.93	0.78	0.78
31.80	129.14	85.76	1.29	110.68	1.98	0.77	0.77
31.90	122.00	80.16	1.33	106.52	2.02	0.76	0.76
31.94	116.84	76.18	1.37	104.07	2.06	0.76	0.76
32.04	116.03	75.33	1.38	104.00	2.07	0.76	0.76
32.09	119.17	77.25	1.39	107.23	2.08	0.76	0.76
32.20	118.70	76.38	1.43	109.06	2.11	0.76	0.76
32.24	117.72	75.37	1.47	110.44	2.13	0.77	0.77
32.28	114.69	73.02	1.51	110.26	2.15	0.77	0.77
32.29	116.70	74.43	1.49	111.09	2.14	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
32.30	118.93	75.98	1.47	112.06	2.13	0.77	0.77
32.40	120.51	76.91	1.47	112.71	2.13	0.77	0.77
32.45	120.48	76.77	1.47	112.95	2.13	0.77	0.77
32.55	119.13	75.61	1.49	112.51	2.14	0.77	0.77
32.59	118.33	74.91	1.50	112.50	2.15	0.77	0.77
32.69	118.13	74.54	1.51	112.79	2.15	0.77	0.77
32.76	118.09	74.31	1.53	113.51	2.16	0.77	0.77
32.84	118.40	74.31	1.54	114.35	2.17	0.77	0.77
32.90	119.00	74.55	1.55	115.19	2.17	0.77	0.77
32.98	119.95	75.02	1.54	115.83	2.17	0.78	0.78
33.06	121.02	75.61	1.54	116.33	2.17	0.78	0.78
33.12	122.10	76.23	1.53	116.77	2.16	0.78	0.78
33.22	122.84	76.56	1.53	117.03	2.16	0.78	0.78
33.31	123.21	76.64	1.53	117.14	2.16	0.78	0.78
33.37	123.28	76.59	1.53	117.11	2.16	0.78	0.78
33.46	123.28	76.41	1.53	117.00	2.16	0.78	0.78
33.55	123.18	76.17	1.54	117.00	2.17	0.78	0.78
33.65	122.98	75.83	1.54	117.07	2.17	0.78	0.78
33.70	122.57	75.42	1.55	117.18	2.17	0.78	0.78
33.79	122.03	74.86	1.56	117.10	2.18	0.78	0.78
33.89	121.09	74.04	1.58	116.76	2.18	0.78	0.78
33.99	119.77	72.98	1.59	116.20	2.19	0.78	0.78
34.04	117.79	71.55	1.61	115.43	2.20	0.78	0.78
34.13	115.49	69.85	1.64	114.59	2.21	0.77	0.77
34.23	112.70	67.80	1.68	113.76	2.22	0.77	0.77
34.32	110.27	66.01	1.71	113.20	2.24	0.77	0.77
34.37	108.22	64.55	1.75	112.84	2.25	0.77	0.77
34.47	106.60	63.31	1.78	112.69	2.26	0.77	0.77
34.55	103.47	61.05	1.85	112.96	2.28	0.77	0.77
34.63	96.66	56.31	2.04	114.64	2.33	0.77	0.77
34.73	86.37	49.33	2.40	118.21	2.40	0.78	0.78
34.80	72.76	40.42	3.06	123.59	2.51	0.79	0.79
34.90	60.46	32.62	3.90	127.28	2.62	0.79	0.79
35.00	54.92	29.29	4.16	121.79	2.64	0.79	0.79
35.12	50.37	26.54	4.42	117.31	2.67	0.78	0.78
35.20	52.86	28.11	3.99	112.19	2.63	0.77	0.77
35.33	53.65	28.43	4.02	114.42	2.63	0.77	0.77
35.41	63.41	34.44	3.20	110.34	2.53	0.77	0.77
35.44	68.58	37.68	2.87	108.02	2.48	0.76	0.76
35.48	76.82	42.96	2.42	103.82	2.41	0.76	0.76
35.57	84.09	47.63	2.12	101.05	2.35	0.75	0.75
35.62	98.70	57.30	1.73	98.99	2.24	0.75	0.75
35.67	115.40	68.51	1.49	102.07	2.14	0.75	0.75
35.71	137.52	83.52	1.35	112.52	2.04	0.77	0.77
35.82	159.89	98.71	1.28	126.36	1.96	0.79	0.79
35.86	185.11	116.11	1.23	143.07	1.89	0.82	0.82
35.93	207.72	131.80	1.19	156.85	1.84	0.84	0.84
36.01	225.38	144.00	1.16	166.33	1.80	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
36.06	235.57	150.92	1.14	171.69	1.79	0.85	0.85
36.12	240.67	154.12	1.13	174.89	1.78	0.86	0.86
36.18	245.05	156.73	1.14	178.20	1.79	0.86	0.86
36.25	248.69	158.84	1.14	180.98	1.79	0.87	0.87
36.30	251.52	160.26	1.15	184.12	1.80	0.87	0.87
36.39	252.83	160.54	1.16	185.99	1.81	0.87	0.87
36.44	253.07	160.15	1.17	187.57	1.82	0.87	0.87
36.53	251.49	158.45	1.18	187.51	1.83	0.87	0.87
36.59	248.39	155.45	1.21	187.43	1.86	0.87	0.87
36.68	243.47	151.62	1.22	184.49	1.87	0.87	0.87
36.75	238.34	147.93	1.22	180.99	1.88	0.87	0.87
36.83	232.04	143.78	1.22	175.91	1.88	0.86	0.86
36.90	225.27	138.95	1.23	171.34	1.89	0.85	0.85
36.97	217.18	133.11	1.25	166.05	1.92	0.85	0.85
37.02	201.72	122.19	1.28	156.23	1.96	0.84	0.84
37.04	193.70	116.64	1.30	151.13	1.99	0.83	0.83
37.08	188.61	113.19	1.30	147.61	2.00	0.82	0.82
37.17	191.78	115.46	1.29	148.65	1.97	0.83	0.83
37.27	187.30	112.45	1.29	145.04	1.98	0.82	0.82
37.37	181.37	108.42	1.30	140.68	1.99	0.81	0.81
37.42	177.21	105.83	1.30	137.22	1.99	0.81	0.81
37.51	175.89	105.19	1.29	135.25	1.97	0.81	0.81
37.58	176.97	106.34	1.27	134.76	1.95	0.81	0.81
37.66	179.01	108.07	1.25	135.08	1.92	0.81	0.81
37.76	182.58	110.83	1.23	136.26	1.89	0.81	0.81
37.85	186.08	113.57	1.21	137.18	1.86	0.81	0.81
37.93	189.62	116.22	1.19	138.14	1.84	0.81	0.81
38.04	192.25	117.99	1.18	138.80	1.82	0.81	0.81
38.13	193.87	118.97	1.17	139.30	1.82	0.81	0.81
38.18	193.57	118.63	1.17	139.16	1.82	0.81	0.81
38.28	191.24	116.58	1.19	138.51	1.84	0.81	0.81
38.37	187.40	113.37	1.21	137.08	1.86	0.81	0.81
38.47	183.55	109.99	1.23	135.63	1.89	0.81	0.81
38.57	180.39	107.19	1.25	134.14	1.92	0.80	0.80
38.62	176.78	104.23	1.27	132.48	1.95	0.80	0.80
38.72	167.48	97.43	1.31	127.27	2.00	0.79	0.79
38.78	160.21	92.19	1.34	123.72	2.04	0.79	0.79
38.81	155.32	88.77	1.37	121.63	2.06	0.79	0.79
38.86	155.19	88.54	1.37	121.68	2.07	0.79	0.79
38.91	152.02	86.27	1.40	120.51	2.08	0.78	0.78
38.95	145.92	82.06	1.44	118.55	2.12	0.78	0.78
39.05	139.55	77.66	1.51	116.91	2.15	0.78	0.78
39.09	132.37	72.88	1.59	115.64	2.19	0.78	0.78
39.14	125.06	68.10	1.69	114.83	2.23	0.77	0.77
39.24	118.19	63.61	1.80	114.32	2.26	0.77	0.77
39.29	112.16	59.80	1.91	114.03	2.30	0.77	0.77
39.39	108.48	57.39	1.99	114.16	2.32	0.77	0.77
39.43	109.15	57.74	1.98	114.28	2.31	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.53	115.02	61.25	1.86	113.89	2.28	0.77	0.77
39.57	124.17	67.01	1.69	113.55	2.23	0.77	0.77
39.68	130.64	71.04	1.60	113.69	2.19	0.77	0.77
39.73	131.95	71.83	1.58	113.53	2.19	0.77	0.77
39.81	129.33	70.10	1.60	112.48	2.20	0.77	0.77
39.89	126.37	68.39	1.60	109.51	2.19	0.77	0.77
39.96	125.26	68.01	1.56	105.89	2.18	0.76	0.76
40.06	124.52	67.75	1.52	103.14	2.16	0.75	0.75
40.15	122.70	66.50	1.54	102.38	2.17	0.75	0.75
40.20	114.41	61.03	1.67	102.07	2.22	0.75	0.75
40.24	108.56	57.23	1.79	102.62	2.26	0.75	0.75
40.26	104.17	54.45	1.90	103.22	2.29	0.75	0.75
40.27	107.91	56.72	1.82	103.36	2.27	0.75	0.75
40.37	109.77	57.73	1.80	103.81	2.26	0.76	0.76
40.42	111.64	58.75	1.78	104.71	2.26	0.76	0.76
40.52	112.38	59.02	1.79	105.44	2.26	0.76	0.76
40.56	115.27	60.66	1.76	106.63	2.25	0.76	0.76
40.66	122.24	64.78	1.67	108.06	2.22	0.76	0.76
40.70	131.54	70.42	1.57	110.67	2.18	0.77	0.77
40.75	142.59	77.15	1.49	114.79	2.14	0.77	0.77
40.85	153.40	83.66	1.43	119.75	2.11	0.78	0.78
40.91	164.05	90.16	1.39	125.10	2.08	0.79	0.79
40.96	174.69	96.83	1.35	130.56	2.04	0.80	0.80
41.04	184.27	102.87	1.32	135.59	2.01	0.81	0.81
41.09	193.94	109.10	1.29	141.03	1.98	0.81	0.81
41.18	201.90	114.17	1.28	145.57	1.96	0.82	0.82
41.23	207.97	118.08	1.26	149.12	1.94	0.83	0.83
41.29	211.58	120.37	1.26	151.17	1.93	0.83	0.83
41.38	212.76	120.98	1.25	151.67	1.93	0.83	0.83
41.42	212.09	120.40	1.26	151.21	1.93	0.83	0.83
41.52	210.03	118.76	1.26	149.86	1.94	0.83	0.83
41.57	207.27	116.72	1.27	148.26	1.95	0.82	0.82
41.62	204.91	114.93	1.28	146.93	1.96	0.82	0.82
41.71	203.13	113.45	1.29	145.89	1.97	0.82	0.82
41.76	202.15	112.60	1.29	145.43	1.98	0.82	0.82
41.84	201.65	111.98	1.30	145.17	1.99	0.82	0.82
41.91	201.54	111.64	1.30	145.22	1.99	0.82	0.82
41.95	201.75	111.52	1.31	145.53	2.00	0.82	0.82
42.01	202.52	111.63	1.31	146.36	2.00	0.82	0.82
42.10	203.57	111.82	1.32	147.40	2.01	0.82	0.82
42.15	204.98	112.23	1.33	148.90	2.02	0.83	0.83
42.24	206.03	112.44	1.33	149.94	2.03	0.83	0.83
42.28	206.46	112.53	1.34	150.31	2.03	0.83	0.83
42.39	206.26	112.27	1.33	149.81	2.03	0.83	0.83
42.43	206.08	112.28	1.33	149.14	2.02	0.83	0.83
42.50	206.11	112.45	1.32	148.36	2.01	0.82	0.82
42.58	206.28	112.80	1.31	147.54	2.00	0.82	0.82
42.65	198.95	108.28	1.32	142.73	2.01	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.70	195.88	106.39	1.32	140.58	2.02	0.81	0.81
42.73	193.72	105.08	1.32	139.14	2.02	0.81	0.81
42.77	200.19	109.31	1.30	142.31	1.99	0.82	0.82
42.82	203.83	111.68	1.29	144.06	1.98	0.82	0.82
42.87	209.12	115.10	1.28	146.92	1.96	0.82	0.82
42.91	215.46	119.14	1.26	150.57	1.94	0.83	0.83
42.97	221.76	123.09	1.25	154.27	1.92	0.83	0.83
43.02	226.82	126.14	1.25	157.35	1.92	0.84	0.84
43.06	230.49	128.19	1.25	159.72	1.91	0.84	0.84
43.11	234.33	130.34	1.24	162.21	1.91	0.84	0.84
43.17	237.93	132.40	1.24	164.40	1.91	0.85	0.85
43.21	242.21	135.09	1.23	166.83	1.90	0.85	0.85
43.29	246.19	137.59	1.23	168.85	1.89	0.85	0.85
43.34	250.53	140.43	1.22	171.05	1.87	0.85	0.85
43.39	254.11	142.76	1.21	172.71	1.86	0.86	0.86
43.45	256.87	144.64	1.20	173.74	1.85	0.86	0.86
43.51	258.25	145.84	1.19	173.50	1.84	0.86	0.86
43.59	258.59	146.35	1.18	172.47	1.82	0.86	0.86
43.64	259.19	147.38	1.16	170.73	1.80	0.85	0.85
43.70	259.29	148.12	1.13	168.10	1.78	0.85	0.85
43.78	258.35	147.98	1.12	165.08	1.77	0.85	0.85
43.88	255.18	145.77	1.12	163.55	1.77	0.84	0.84
43.94	244.77	138.10	1.17	161.52	1.82	0.84	0.84
44.04	234.93	130.84	1.21	157.74	1.86	0.84	0.84
44.07	225.87	124.41	1.23	153.31	1.89	0.83	0.83
44.12	223.58	122.68	1.24	152.08	1.90	0.83	0.83
44.16	221.15	120.94	1.25	150.70	1.91	0.83	0.83
44.21	218.05	118.76	1.25	148.86	1.93	0.83	0.83
44.26	214.65	116.39	1.26	146.86	1.94	0.82	0.82
44.31	210.81	113.73	1.27	144.63	1.95	0.82	0.82
44.35	206.97	111.11	1.28	142.44	1.97	0.82	0.82
44.40	203.26	108.60	1.29	140.32	1.98	0.81	0.81
44.45	200.16	106.49	1.30	138.56	1.99	0.81	0.81
44.50	197.83	104.91	1.31	137.24	2.00	0.81	0.81
44.54	195.81	103.53	1.32	136.15	2.01	0.81	0.81
44.60	193.46	101.86	1.32	134.97	2.02	0.81	0.81
44.64	190.96	100.11	1.34	133.85	2.03	0.80	0.80
44.69	188.57	98.42	1.35	132.85	2.05	0.80	0.80
44.74	187.78	97.76	1.36	132.59	2.05	0.80	0.80
44.79	187.17	97.27	1.36	132.34	2.06	0.80	0.80
44.83	187.71	97.52	1.36	132.53	2.05	0.80	0.80
44.88	188.84	98.15	1.35	132.96	2.05	0.80	0.80
44.93	191.20	99.52	1.35	134.02	2.04	0.80	0.80
44.98	193.69	100.99	1.34	135.20	2.03	0.81	0.81
45.03	195.31	101.90	1.33	135.95	2.03	0.81	0.81
45.08	196.49	102.54	1.33	136.45	2.03	0.81	0.81
45.16	197.53	103.08	1.33	136.81	2.02	0.81	0.81
45.19	198.24	103.58	1.32	136.91	2.02	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
45.27	198.44	103.76	1.32	136.53	2.01	0.81	0.81
45.32	197.56	103.38	1.31	135.53	2.00	0.81	0.81
45.37	195.58	102.45	1.31	133.73	2.00	0.80	0.80
45.45	192.44	100.80	1.30	131.17	1.99	0.80	0.80
45.51	187.22	97.91	1.30	127.52	1.99	0.79	0.79
45.56	180.52	93.92	1.31	123.37	2.01	0.79	0.79
45.61	169.84	87.34	1.35	117.60	2.04	0.78	0.78
45.69	156.32	78.89	1.42	111.79	2.10	0.77	0.77
45.75	137.42	67.17	1.61	108.19	2.20	0.76	0.76
45.81	115.31	54.45	1.93	105.04	2.30	0.76	0.76
45.89	93.28	42.25	2.49	105.10	2.42	0.76	0.76
45.94	73.36	31.83	3.26	103.73	2.54	0.75	0.75
46.04	59.21	24.44	4.42	108.05	2.67	0.76	0.76
46.08	46.61	18.15	6.18	112.07	2.83	0.77	0.77
46.15	39.94	13.37	8.22	109.85	2.97	0.77	0.77
46.17	36.10	11.98	9.26	110.89	3.03	0.63	0.86
46.18	36.17	12.00	9.18	110.17	3.02	0.63	0.86
46.23	36.48	12.10	9.03	109.18	3.01	0.62	0.86
46.27	37.18	12.34	8.72	107.58	3.00	0.76	0.76
46.32	38.64	12.85	8.20	105.33	2.96	0.76	0.76
46.41	40.63	15.29	7.01	107.19	2.89	0.76	0.76
46.47	43.16	16.49	6.44	106.19	2.85	0.76	0.76
46.52	45.45	17.54	6.09	106.89	2.82	0.76	0.76
46.56	47.57	18.46	5.95	109.81	2.81	0.77	0.77
46.65	49.42	19.21	5.91	113.60	2.80	0.77	0.77
46.71	51.52	20.07	5.86	117.68	2.80	0.78	0.78
46.76	54.41	21.37	5.62	120.04	2.78	0.78	0.78
46.85	58.19	23.13	5.21	120.43	2.75	0.78	0.78
46.90	63.28	25.63	4.63	118.71	2.69	0.78	0.78
46.99	67.89	27.93	4.16	116.19	2.65	0.78	0.78
47.04	70.35	29.16	3.93	114.63	2.62	0.77	0.77
47.10	69.50	28.71	4.00	114.71	2.63	0.77	0.77
47.16	65.45	26.63	4.36	116.10	2.67	0.78	0.78
47.23	59.62	23.71	4.94	117.23	2.72	0.78	0.78
47.30	51.46	19.76	5.97	117.96	2.81	0.78	0.78
47.38	42.76	13.97	8.12	113.48	2.96	0.77	0.77
47.43	34.23	10.97	10.19	111.84	3.08	0.65	0.78
47.52	28.17	8.83	11.99	105.92	3.17	0.55	0.63
47.59	23.92	7.34	12.70	93.23	3.20	0.41	0.52
47.66	21.40	6.45	12.70	81.89	3.20	0.22	0.46
47.77	19.71	5.85	12.77	74.67	3.20	0.23	0.42
47.82	18.77	5.51	13.75	75.76	3.24	0.23	0.39
47.91	18.38	5.37	14.28	76.63	3.26	0.24	0.38
47.93	17.68	5.12	15.17	77.65	3.30	0.24	0.37
47.97	17.78	5.15	15.21	78.37	3.30	0.25	0.37
48.02	17.86	5.17	15.38	79.56	3.31	0.26	0.37
48.07	18.51	5.39	15.07	81.21	3.30	0.27	0.38
48.12	18.61	5.42	15.51	84.04	3.31	0.29	0.39

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
48.19	18.71	5.44	15.90	86.54	3.33	0.33	0.39
48.23	18.91	5.51	16.11	88.74	3.33	0.34	0.39
48.31	19.15	5.58	16.11	89.88	3.33	0.35	0.40
48.35	19.35	5.64	16.11	90.92	3.33	0.36	0.40
48.40	19.25	5.60	16.37	91.72	3.34	0.37	0.40
48.45	18.81	5.45	16.96	92.39	3.36	0.37	0.39
48.50	18.07	5.19	17.92	92.93	3.40	0.38	0.37
48.55	17.80	5.09	18.35	93.37	3.41	0.38	0.36
48.59	17.64	5.03	18.75	94.24	3.42	0.39	0.36
48.67	17.87	5.10	18.56	94.62	3.42	0.40	0.36
48.73	17.84	5.08	18.58	94.36	3.42	0.39	0.36
48.78	17.97	5.12	18.13	92.80	3.40	0.38	0.37
48.83	17.97	5.11	17.74	90.68	3.39	0.36	0.37
48.91	17.94	5.09	17.35	88.35	3.38	0.33	0.36
48.98	17.84	5.05	17.10	86.35	3.37	0.32	0.36
49.03	17.74	5.01	17.00	85.19	3.37	0.31	0.36
49.12	17.68	4.98	16.65	82.90	3.35	0.30	0.36
49.17	17.75	5.00	15.91	79.48	3.33	0.26	0.36
49.27	18.02	5.08	15.07	76.51	3.30	0.22	0.36
49.31	18.56	5.25	14.57	76.55	3.28	0.24	0.38
49.38	19.20	5.46	14.44	78.88	3.27	0.26	0.39
49.45	19.70	5.62	14.44	81.15	3.27	0.28	0.40
49.51	19.00	5.38	15.44	83.00	3.31	0.29	0.38
49.54	19.44	5.52	15.24	84.13	3.30	0.30	0.39
49.59	20.18	5.76	14.65	84.45	3.28	0.31	0.41
49.64	21.53	6.21	13.47	83.63	3.23	0.31	0.44
49.73	21.20	6.09	13.64	83.01	3.24	0.29	0.43
49.83	20.02	5.68	14.52	82.47	3.27	0.29	0.41
49.92	18.88	5.29	15.55	82.19	3.31	0.29	0.38
49.98	17.86	4.94	16.51	81.62	3.35	0.28	0.35
50.07	17.33	4.75	17.04	81.01	3.37	0.27	0.34
50.16	16.99	4.63	17.38	80.51	3.38	0.27	0.33
50.24	16.69	4.52	17.70	80.06	3.39	0.27	0.32
50.32	16.46	4.44	17.99	79.87	3.40	0.26	0.32
50.41	16.32	4.39	18.25	80.02	3.41	0.26	0.31
50.50	16.36	4.39	18.25	80.09	3.41	0.27	0.31
50.56	16.26	4.35	18.25	79.36	3.41	0.27	0.31
50.66	16.09	4.28	18.27	78.27	3.41	0.25	0.31
50.74	15.92	4.22	18.37	77.53	3.41	0.24	0.30
50.84	15.85	4.19	19.00	79.62	3.43	0.25	0.30
50.93	15.95	4.21	19.91	83.88	3.46	0.30	0.30
50.98	16.77	4.47	20.59	92.08	3.48	0.35	0.32
51.08	19.60	5.39	19.08	102.75	3.43	0.47	0.38
51.17	24.45	6.95	16.30	113.31	3.34	0.63	0.50
51.24	30.11	8.78	13.98	122.80	3.25	0.75	0.63
51.34	33.65	9.91	13.03	129.12	3.21	0.89	0.71
51.41	34.16	10.06	12.19	122.59	3.18	0.93	0.72
51.51	32.81	9.60	12.05	115.66	3.17	0.50	0.69

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
51.58	31.20	9.06	11.80	106.93	3.16	0.61	0.65
51.68	29.95	8.64	12.73	109.98	3.20	0.60	0.62
51.79	27.39	7.80	14.12	110.16	3.26	0.59	0.56
51.82	25.87	7.31	15.07	110.15	3.30	0.59	0.52
51.85	24.39	6.83	16.27	111.07	3.34	0.59	0.49
51.91	25.00	7.01	16.14	113.23	3.34	0.60	0.50
52.00	24.87	6.96	16.71	116.25	3.36	0.67	0.50
52.05	27.06	7.65	15.54	118.92	3.31	0.70	0.55
52.10	31.78	9.15	13.00	118.95	3.21	0.72	0.65
52.19	38.49	11.27	10.28	115.81	3.08	0.73	0.80
52.28	44.04	13.02	8.58	111.69	2.99	0.77	0.77
52.34	46.37	13.74	7.96	109.32	2.95	0.76	0.76
52.42	46.09	13.63	8.05	109.66	2.96	0.77	0.77
52.48	44.34	13.05	8.50	111.03	2.98	0.77	0.77
52.57	42.32	12.39	8.98	111.27	3.01	0.69	0.88
52.62	40.26	11.73	9.37	109.88	3.03	0.66	0.84
52.69	38.51	11.16	9.58	106.89	3.05	0.61	0.80
52.77	36.89	10.63	9.83	104.50	3.06	0.56	0.76
52.87	35.55	10.19	10.19	103.83	3.08	0.55	0.73
52.91	34.07	9.71	10.56	102.56	3.10	0.57	0.69
53.01	32.55	9.21	11.08	102.13	3.12	0.49	0.66
53.10	32.18	9.08	11.35	103.11	3.14	0.52	0.65
53.16	34.04	9.65	11.74	113.26	3.15	0.59	0.69
53.25	38.69	11.08	11.13	123.32	3.13	0.87	0.79
53.29	44.28	12.82	10.63	136.25	3.10	0.97	0.92
53.38	48.90	14.23	10.13	144.18	3.07	1.22	1.02
53.42	59.32	17.47	8.56	149.47	2.99	0.83	0.83
53.47	74.66	22.21	6.75	150.02	2.87	0.83	0.83
53.52	92.88	27.85	5.32	148.22	2.76	0.82	0.82
53.58	102.94	30.94	4.93	152.55	2.72	0.83	0.83
53.66	103.80	31.15	5.14	160.18	2.74	0.84	0.84
53.75	98.64	29.50	5.74	169.41	2.79	0.85	0.85
53.81	88.93	26.46	6.64	175.67	2.86	0.86	0.86
53.87	78.89	23.33	7.63	177.89	2.93	0.86	0.86
53.95	67.24	19.70	9.07	178.71	3.02	1.90	1.41
54.01	57.35	16.64	10.67	177.57	3.10	1.79	1.19
54.06	47.51	13.60	12.71	172.90	3.20	1.68	0.97
54.15	41.78	11.83	14.16	167.57	3.26	1.42	0.85
54.20	40.60	11.46	14.42	165.24	3.27	1.40	0.82
54.29	47.57	13.59	12.09	164.23	3.17	1.54	0.97
54.34	69.40	20.27	7.00	141.87	2.89	0.82	0.82
54.43	100.37	29.73	3.65	108.63	2.59	0.76	0.76
54.45	137.16	41.00	2.00	82.07	2.32	0.69	0.71
54.48	166.07	49.83	1.62	80.59	2.20	0.61	0.71
54.52	185.51	55.76	1.48	82.69	2.14	0.71	0.71
54.53	198.85	59.83	1.45	86.57	2.12	0.72	0.72
54.58	207.94	62.58	1.44	89.91	2.11	0.73	0.73
54.62	219.64	66.13	1.42	93.59	2.10	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
54.65	233.46	70.33	1.38	96.81	2.07	0.74	0.74
54.70	244.67	73.72	1.36	99.98	2.05	0.75	0.75
54.76	251.12	75.64	1.35	102.23	2.05	0.75	0.75
54.77	249.88	75.25	1.37	102.77	2.06	0.75	0.75
54.82	251.50	75.71	1.36	103.16	2.06	0.75	0.75
54.87	253.07	76.14	1.36	103.55	2.05	0.75	0.75
54.88	255.63	76.92	1.35	104.08	2.05	0.76	0.76
54.91	257.28	77.39	1.35	104.56	2.05	0.76	0.76
54.96	263.42	79.22	1.34	106.09	2.04	0.76	0.76
54.97	276.70	83.26	1.32	109.90	2.01	0.77	0.77
55.03	294.89	88.74	1.30	115.47	1.99	0.78	0.78
55.09	315.21	94.86	1.27	120.89	1.96	0.78	0.78
55.15	327.84	98.63	1.23	121.55	1.89	0.79	0.79
55.20	338.35	101.77	1.20	122.41	1.85	0.79	0.79
55.25	358.17	107.74	1.13	121.49	1.78	0.79	0.79
55.30	386.84	116.38	1.11	129.28	1.77	0.80	0.80
55.34	417.50	125.63	1.07	134.62	1.74	0.81	0.81
55.39	440.05	132.40	1.10	146.03	1.76	0.82	0.82
55.40	462.28	139.13	1.10	153.71	1.76	0.83	0.83
55.44	482.80	145.29	1.08	157.35	1.75	0.84	0.84
55.44	511.21	153.88	1.02	157.04	1.72	0.84	0.84
55.49	517.76	155.78	1.03	160.78	1.72	0.84	0.84
55.54	533.43	160.44	1.05	167.71	1.73	0.85	0.85
55.59	534.98	160.82	1.10	176.17	1.76	0.86	0.86
55.63	551.08	165.61	1.09	180.34	1.75	0.86	0.86
55.64	553.47	166.31	1.09	180.79	1.75	0.87	0.87
55.68	566.94	170.31	1.06	179.92	1.73	0.86	0.86
55.69	570.38	171.33	1.04	178.50	1.73	0.86	0.86
55.69	566.17	170.04	1.05	179.38	1.73	0.86	0.86
55.71	561.62	168.63	1.09	183.08	1.75	0.87	0.87
55.76	567.28	170.25	1.10	186.45	1.76	0.87	0.87
55.78	580.19	174.11	1.08	187.85	1.75	0.87	0.87
55.81	581.23	174.36	1.04	180.96	1.72	0.87	0.87
55.85	584.16	175.16	1.00	175.16	1.69	0.86	0.86
55.86	588.34	176.41	1.00	176.41	1.65	0.86	0.86
55.91	598.65	179.42	1.00	179.42	1.62	0.86	0.86
55.92	602.25	180.48	1.00	180.48	1.60	0.87	0.87
55.96	619.03	185.46	1.00	185.46	1.58	0.87	0.87
55.97	634.09	189.98	1.00	189.98	1.57	0.88	0.88
56.00	654.37	196.01	1.00	196.01	1.56	0.88	0.88
56.01	660.12	197.72	1.00	197.72	1.58	0.88	0.88
56.03	661.79	198.18	1.00	198.18	1.59	0.88	0.88
56.05	661.82	198.14	1.00	198.14	1.60	0.88	0.88
56.10	665.04	198.99	1.00	198.99	1.60	0.89	0.89
56.12	668.02	199.86	1.00	199.86	1.58	0.89	0.89
56.16	667.69	199.67	1.00	199.67	1.57	0.89	0.89
56.17	654.78	195.76	1.00	195.76	1.57	0.88	0.88
56.20	635.11	189.78	1.00	189.78	1.59	0.88	0.88

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
56.22	617.48	184.46	1.00	184.46	1.61	0.87	0.87
56.24	608.45	181.69	1.00	181.69	1.61	0.87	0.87
56.30	602.69	179.84	1.00	179.84	1.62	0.86	0.86
56.31	595.69	177.72	1.00	177.72	1.63	0.86	0.86
56.34	586.22	174.82	1.00	174.82	1.65	0.86	0.86
56.39	579.04	172.57	1.00	172.57	1.66	0.86	0.86
56.45	572.30	170.44	1.00	170.44	1.67	0.85	0.85
56.48	565.39	168.31	1.00	168.31	1.67	0.85	0.85
56.49	555.45	165.32	1.00	165.32	1.70	0.85	0.85
56.53	542.15	161.25	1.05	168.57	1.73	0.85	0.85
56.58	529.04	157.24	1.08	169.38	1.75	0.85	0.85
56.63	524.73	155.86	1.00	155.86	1.67	0.83	0.83
56.68	526.01	156.17	1.00	156.17	1.58	0.84	0.84
56.73	531.33	157.68	1.00	157.68	1.53	0.84	0.84
56.78	526.31	156.09	1.00	156.09	1.62	0.84	0.84
56.83	517.99	153.53	1.00	153.53	1.69	0.83	0.83
56.89	503.37	149.05	1.06	157.35	1.73	0.84	0.84
56.95	485.04	143.50	1.12	160.76	1.77	0.84	0.84
56.99	470.25	139.02	1.16	161.37	1.81	0.84	0.84
57.01	460.92	136.23	1.18	160.98	1.83	0.84	0.84
57.04	461.73	136.41	1.18	160.65	1.82	0.84	0.84
57.09	468.20	138.26	1.17	161.13	1.81	0.84	0.84
57.11	477.43	140.98	1.16	163.57	1.81	0.84	0.84
57.13	488.62	144.26	1.16	167.47	1.81	0.85	0.85
57.18	488.78	144.24	1.17	169.44	1.82	0.85	0.85
57.19	477.80	140.96	1.20	168.95	1.85	0.85	0.85
57.21	464.47	136.96	1.21	166.30	1.87	0.85	0.85
57.24	456.12	134.45	1.22	164.00	1.88	0.85	0.85
57.28	456.72	134.56	1.21	163.35	1.87	0.84	0.84
57.32	450.91	132.78	1.22	161.45	1.87	0.84	0.84
57.35	445.39	131.08	1.22	160.03	1.88	0.84	0.84
57.38	435.59	128.14	1.23	157.50	1.89	0.84	0.84
57.43	430.50	126.56	1.23	155.53	1.89	0.83	0.83
57.48	414.66	121.80	1.23	150.26	1.90	0.83	0.83
57.52	398.59	116.98	1.23	143.92	1.89	0.82	0.82
57.57	389.56	114.25	1.25	142.28	1.91	0.82	0.82
57.62	396.66	116.29	1.26	146.53	1.94	0.82	0.82
57.68	427.50	125.32	1.25	157.03	1.92	0.84	0.84
57.76	462.23	135.46	1.23	166.00	1.88	0.85	0.85
57.81	505.50	148.16	1.09	161.17	1.75	0.84	0.84
57.86	543.58	159.31	1.00	159.31	1.63	0.84	0.84
57.89	572.52	167.80	1.00	167.80	1.49	0.85	0.85
57.91	583.54	171.02	1.00	171.02	1.48	0.85	0.85
57.92	577.13	169.11	1.00	169.11	1.50	0.85	0.85
57.95	569.05	166.67	1.00	166.67	1.54	0.85	0.85
57.99	570.66	167.08	1.00	167.08	1.56	0.85	0.85
58.01	578.72	169.42	1.00	169.42	1.57	0.85	0.85
58.05	591.19	173.02	1.00	173.02	1.58	0.86	0.86

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
58.05	598.87	175.27	1.00	175.27	1.59	0.86	0.86
58.10	604.77	176.91	1.00	176.91	1.60	0.86	0.86
58.13	611.17	178.73	1.00	178.73	1.60	0.86	0.86
58.15	618.51	180.87	1.00	180.87	1.60	0.87	0.87
58.17	625.12	182.75	1.00	182.75	1.59	0.87	0.87
58.20	623.43	182.21	1.00	182.21	1.59	0.87	0.87
58.21	619.40	181.00	1.00	181.00	1.60	0.87	0.87
58.21	614.30	179.50	1.00	179.50	1.61	0.86	0.86
58.23	613.93	179.34	1.00	179.34	1.61	0.86	0.86
58.24	608.11	177.62	1.00	177.62	1.62	0.86	0.86
58.25	609.21	177.92	1.00	177.92	1.54	0.86	0.86
58.29	613.99	179.26	1.00	179.26	1.44	0.86	0.86
58.31	627.24	183.11	1.00	183.11	1.32	0.87	0.87
58.33	639.00	186.52	1.00	186.52	1.34	0.87	0.87
58.38	651.36	190.06	1.00	190.06	1.37	0.88	0.88
58.39	661.87	193.13	1.00	193.13	1.39	0.88	0.88
58.43	670.53	195.59	1.00	195.59	1.40	0.88	0.88
58.43	682.73	199.15	1.00	199.15	1.39	0.89	0.89
58.48	688.02	200.60	1.00	200.60	1.40	0.89	0.89
58.53	694.39	202.36	1.00	202.36	1.41	0.89	0.89
58.56	696.37	202.90	1.00	202.90	1.46	0.89	0.89
58.58	704.43	205.20	1.00	205.20	1.47	0.89	0.89
58.59	710.90	207.06	1.00	207.06	1.49	0.89	0.89
58.63	707.18	205.90	1.00	205.90	1.49	0.89	0.89
58.63	709.20	206.49	1.00	206.49	1.50	0.89	0.89
58.63	695.36	202.42	1.00	202.42	1.51	0.89	0.89
58.68	700.19	203.74	1.00	203.74	1.49	0.89	0.89
58.69	701.88	204.22	1.00	204.22	1.45	0.89	0.89
58.72	717.85	208.81	1.00	208.81	1.40	0.90	0.90
58.73	722.94	210.28	1.00	210.28	1.38	0.90	0.90
58.74	728.64	211.92	1.00	211.92	1.41	0.90	0.90
58.77	726.96	211.36	1.00	211.36	1.44	0.90	0.90
58.81	722.67	210.02	1.00	210.02	1.47	0.90	0.90
58.82	713.94	207.44	1.00	207.44	1.49	0.89	0.89
58.83	715.80	207.97	1.00	207.97	1.51	0.90	0.90
58.87	722.33	209.78	1.00	209.78	1.52	0.90	0.90
58.91	731.67	212.41	1.00	212.41	1.53	0.90	0.90
58.92	737.87	214.21	1.00	214.21	1.54	0.90	0.90
58.93	740.53	214.95	1.00	214.95	1.53	0.90	0.90
58.96	739.05	214.44	1.00	214.44	1.53	0.90	0.90
59.01	716.31	207.70	1.00	207.70	1.56	0.89	0.89
59.06	687.29	199.13	1.00	199.13	1.59	0.89	0.89
59.08	655.28	189.77	1.00	189.77	1.63	0.88	0.88
59.11	638.94	184.95	1.00	184.95	1.65	0.87	0.87
59.15	627.21	181.46	1.00	181.46	1.68	0.87	0.87
59.21	618.28	178.75	1.00	178.75	1.70	0.86	0.86
59.26	606.09	175.11	1.02	178.89	1.72	0.86	0.86
59.30	592.31	171.02	1.01	173.20	1.71	0.86	0.86

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.35	579.87	167.32	1.01	169.07	1.71	0.85	0.85
59.40	562.76	162.26	1.04	168.73	1.73	0.85	0.85
59.42	550.96	158.81	1.06	168.34	1.74	0.85	0.85
59.47	539.34	155.35	1.08	167.78	1.75	0.85	0.85
59.51	539.41	155.29	1.09	168.63	1.75	0.85	0.85
59.56	537.97	154.79	1.09	168.59	1.75	0.85	0.85
59.61	537.36	154.53	1.06	164.50	1.74	0.85	0.85
59.67	541.98	155.77	1.00	155.77	1.70	0.83	0.83
59.71	553.73	159.11	1.00	159.11	1.65	0.84	0.84
59.80	555.82	159.56	1.00	159.56	1.61	0.84	0.84
59.85	552.45	158.50	1.00	158.50	1.59	0.84	0.84
59.90	542.21	155.47	1.00	155.47	1.59	0.83	0.83
60.00	542.99	155.53	1.00	155.53	1.59	0.83	0.83
60.04	541.71	155.09	1.00	155.09	1.60	0.83	0.83
60.10	526.52	150.62	1.00	150.62	1.63	0.83	0.83
60.15	508.32	145.30	1.00	145.30	1.67	0.82	0.82
60.19	487.40	139.22	1.00	139.22	1.70	0.81	0.81
60.23	483.49	138.03	1.00	138.03	1.69	0.81	0.81
60.28	482.61	137.71	1.00	137.71	1.68	0.81	0.81
60.33	488.98	139.47	1.00	139.47	1.67	0.81	0.81
60.38	491.97	140.26	1.00	140.26	1.67	0.81	0.81
60.42	493.85	140.74	1.00	140.74	1.69	0.81	0.81
60.44	487.18	138.79	1.01	140.24	1.71	0.81	0.81
60.47	475.94	135.53	1.08	145.72	1.74	0.82	0.82
60.52	465.53	132.47	1.12	148.94	1.78	0.83	0.83
60.56	462.70	131.60	1.15	150.90	1.79	0.83	0.83
60.57	465.03	132.25	1.15	151.48	1.79	0.83	0.83
60.61	470.62	133.80	1.13	151.48	1.78	0.83	0.83
60.66	477.29	135.64	1.12	151.98	1.77	0.83	0.83
60.71	486.66	138.25	1.11	153.21	1.77	0.83	0.83
60.76	495.25	140.63	1.11	156.59	1.77	0.84	0.84
60.81	504.76	143.27	1.11	159.58	1.77	0.84	0.84
60.86	523.05	148.43	1.08	161.02	1.75	0.84	0.84
60.91	559.78	158.84	1.00	158.84	1.70	0.84	0.84
60.95	601.50	170.69	1.00	170.69	1.66	0.85	0.85
61.00	637.66	180.91	1.00	180.91	1.64	0.87	0.87
61.02	657.74	186.60	1.00	186.60	1.64	0.87	0.87
61.05	685.10	194.34	1.00	194.34	1.62	0.88	0.88
61.08	710.24	201.44	1.00	201.44	1.61	0.89	0.89
61.09	731.84	207.57	1.00	207.57	1.59	0.89	0.89
61.13	737.94	209.24	1.00	209.24	1.59	0.90	0.90
61.14	739.46	209.63	1.00	209.63	1.60	0.90	0.90
61.16	741.44	210.15	1.00	210.15	1.60	0.90	0.90
61.20	750.88	212.77	1.00	212.77	1.58	0.90	0.90
61.23	762.13	215.88	1.00	215.88	1.56	0.90	0.90
61.24	766.92	217.23	1.00	217.23	1.52	0.90	0.90
61.29	758.86	214.83	1.00	214.83	1.51	0.90	0.90
61.30	744.24	210.65	1.00	210.65	1.52	0.90	0.90

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
61.33	734.57	207.82	1.00	207.82	1.55	0.90	0.90
61.38	730.90	206.66	1.00	206.66	1.55	0.89	0.89
61.43	731.07	206.60	1.00	206.60	1.53	0.89	0.89
61.48	738.25	208.54	1.00	208.54	1.50	0.90	0.90
61.53	750.91	212.02	1.00	212.02	1.48	0.90	0.90
61.56	754.78	213.05	1.00	213.05	1.48	0.90	0.90
61.58	726.93	205.10	1.00	205.10	1.50	0.89	0.89
61.59	702.39	198.13	1.00	198.13	1.52	0.88	0.88
61.62	600.70	169.24	1.00	169.24	1.61	0.85	0.85
61.63	595.30	167.67	1.00	167.67	1.61	0.85	0.85
61.67	588.36	165.65	1.00	165.65	1.62	0.85	0.85
61.71	662.66	186.61	1.00	186.61	1.55	0.87	0.87
61.76	655.52	184.50	1.00	184.50	1.55	0.87	0.87
61.81	634.02	178.32	1.00	178.32	1.54	0.86	0.86
61.86	615.02	172.85	1.00	172.85	1.52	0.86	0.86
61.87	600.83	168.83	1.00	168.83	1.48	0.85	0.85
61.91	588.87	165.39	1.00	165.39	1.44	0.85	0.85
61.95	578.02	162.25	1.00	162.25	1.42	0.84	0.84
61.96	566.74	159.04	1.00	159.04	1.42	0.84	0.84
62.00	553.70	155.30	1.00	155.30	1.45	0.83	0.83
62.04	535.16	150.01	1.00	150.01	1.49	0.83	0.83
62.06	510.97	143.15	1.00	143.15	1.55	0.82	0.82
62.10	491.66	137.65	1.00	137.65	1.60	0.81	0.81
62.14	475.52	133.04	1.00	133.04	1.64	0.80	0.80
62.20	463.08	129.46	1.00	129.46	1.66	0.80	0.80
62.22	439.20	122.70	1.00	122.70	1.71	0.79	0.79
62.27	415.48	115.96	1.08	125.13	1.75	0.79	0.79
62.29	396.37	110.55	1.13	125.44	1.78	0.79	0.79
62.34	380.26	105.96	1.17	124.22	1.82	0.79	0.79
62.39	366.62	102.08	1.21	123.46	1.86	0.79	0.79
62.43	347.78	96.73	1.26	121.51	1.93	0.79	0.79
62.49	340.13	94.52	1.28	121.38	1.97	0.79	0.79
62.57	336.43	93.40	1.30	121.70	1.99	0.79	0.79
62.68	357.18	99.12	1.29	127.79	1.98	0.80	0.80
62.75	398.26	110.56	1.26	139.12	1.93	0.81	0.81
62.87	426.23	118.25	1.24	146.86	1.91	0.82	0.82
62.88	409.21	113.48	1.25	142.25	1.93	0.82	0.82
62.89	424.34	117.70	1.21	142.29	1.86	0.82	0.82
62.93	485.42	134.75	1.06	142.80	1.74	0.82	0.82
62.98	571.92	158.87	1.00	158.87	1.61	0.84	0.84
63.02	620.24	172.30	1.00	172.30	1.47	0.86	0.86
63.07	658.55	182.93	1.00	182.93	1.31	0.87	0.87
63.12	710.78	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.14	752.36	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.17	781.30	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.17	799.36	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.20	825.98	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.21	830.83	-1.00	1.00	-1.00	-1.00	0.00	0.00

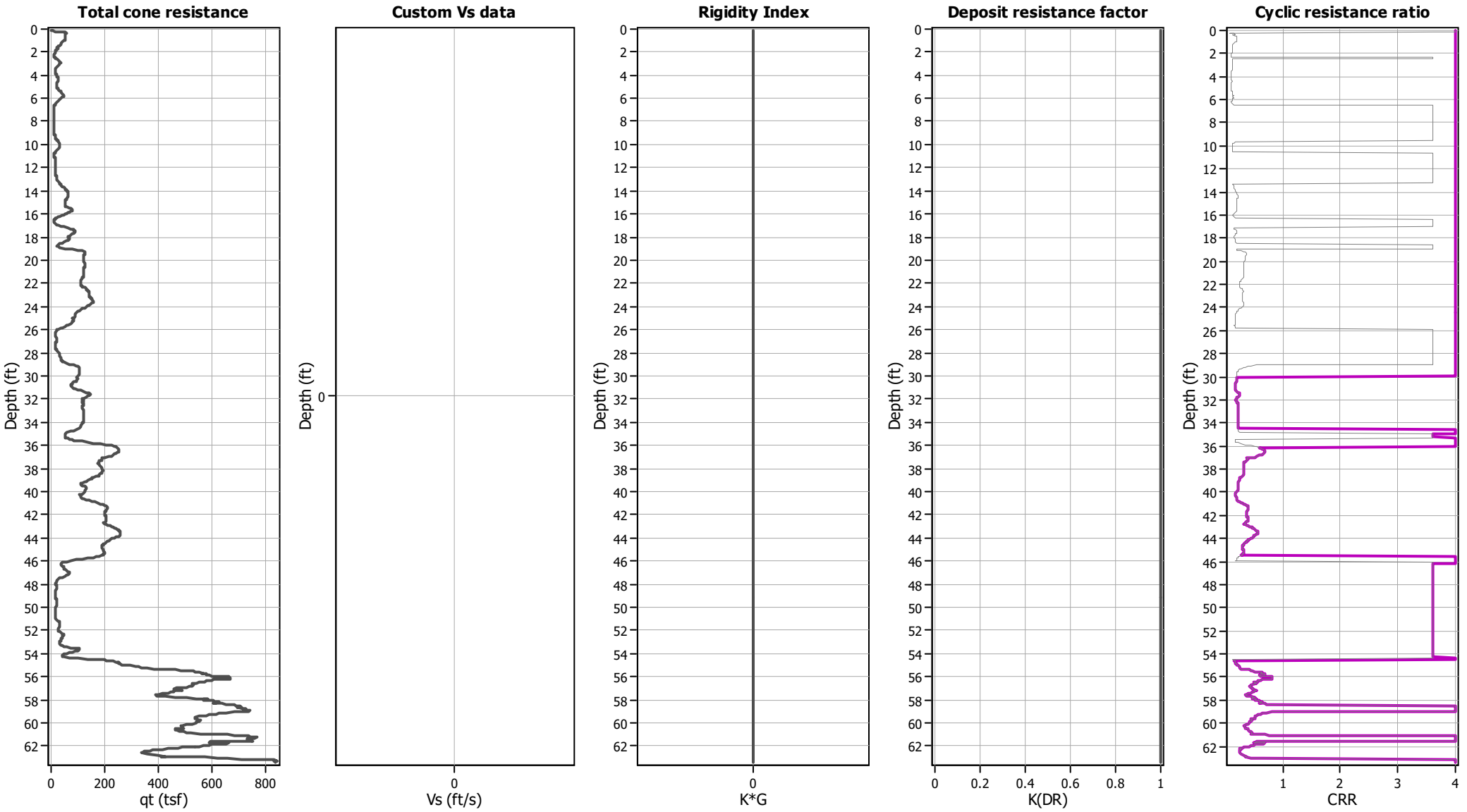
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.23	842.91	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.26	834.75	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.28	841.52	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.31	838.10	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.32	839.38	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.36	837.12	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.40	836.85	-1.00	1.00	-1.00	-1.00	0.00	0.00

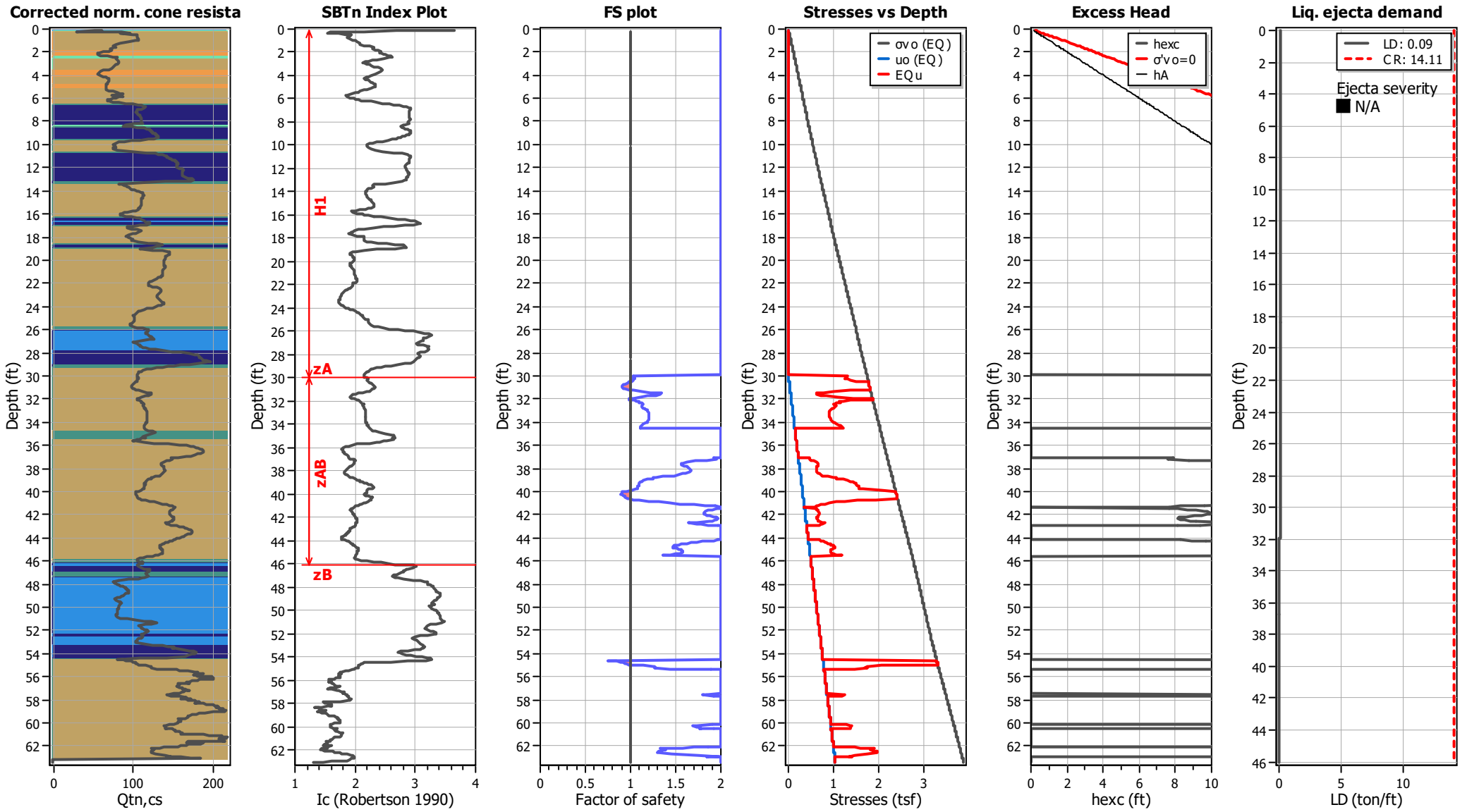
Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Aging Calculation Estimation



Ejecta Severity Estimation



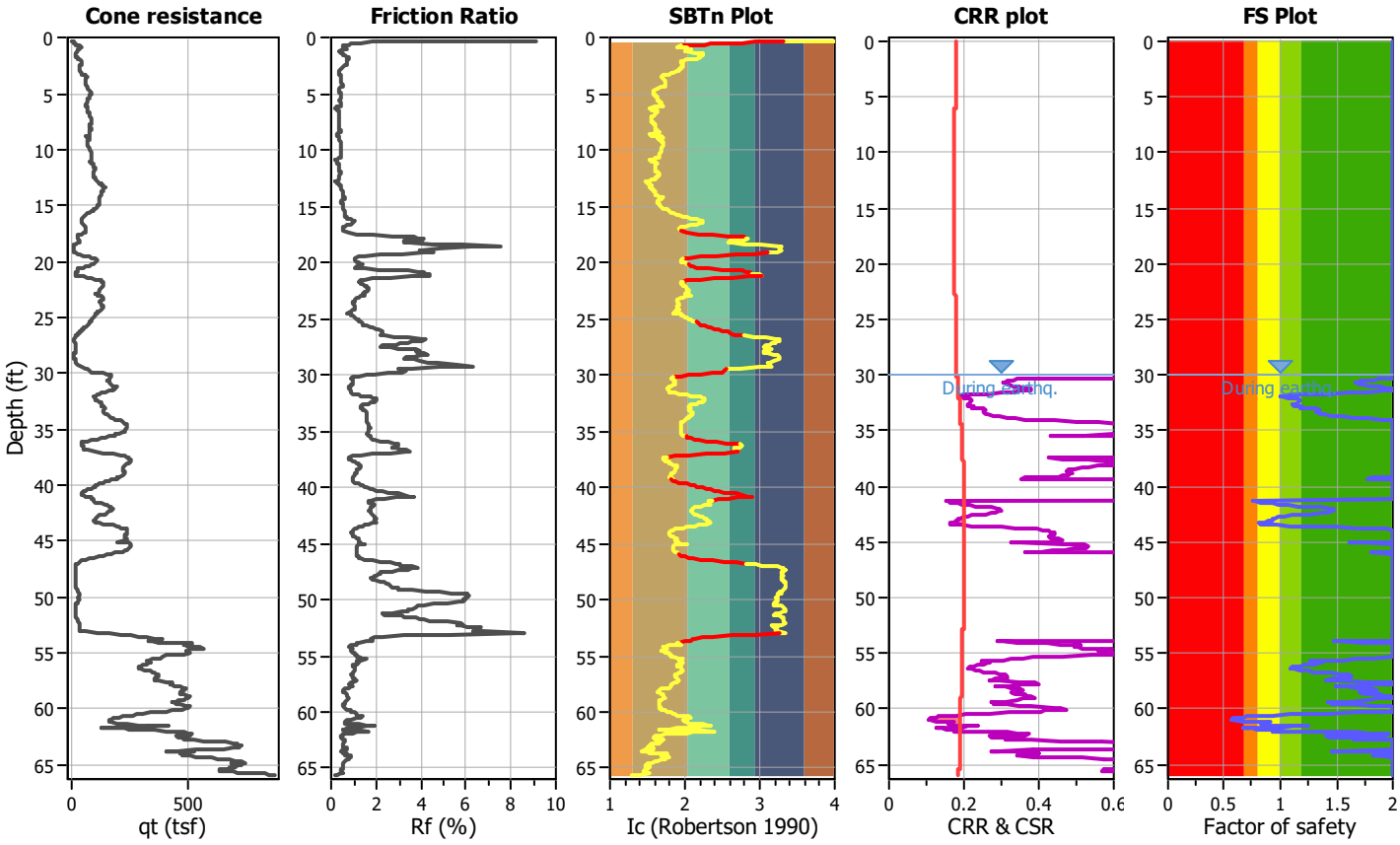
LIQUEFACTION ANALYSIS REPORT

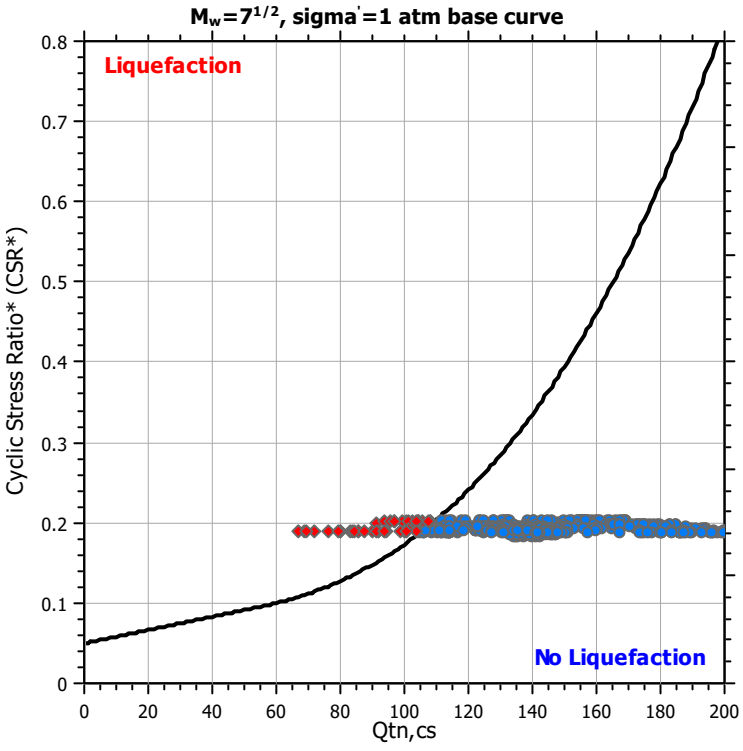
Project title : W1857-88-01 **Location : 331 The City Drive S**

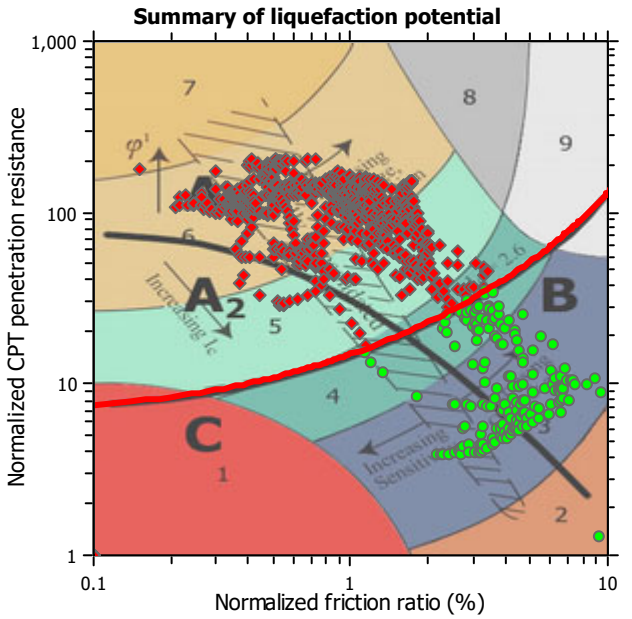
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.12	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

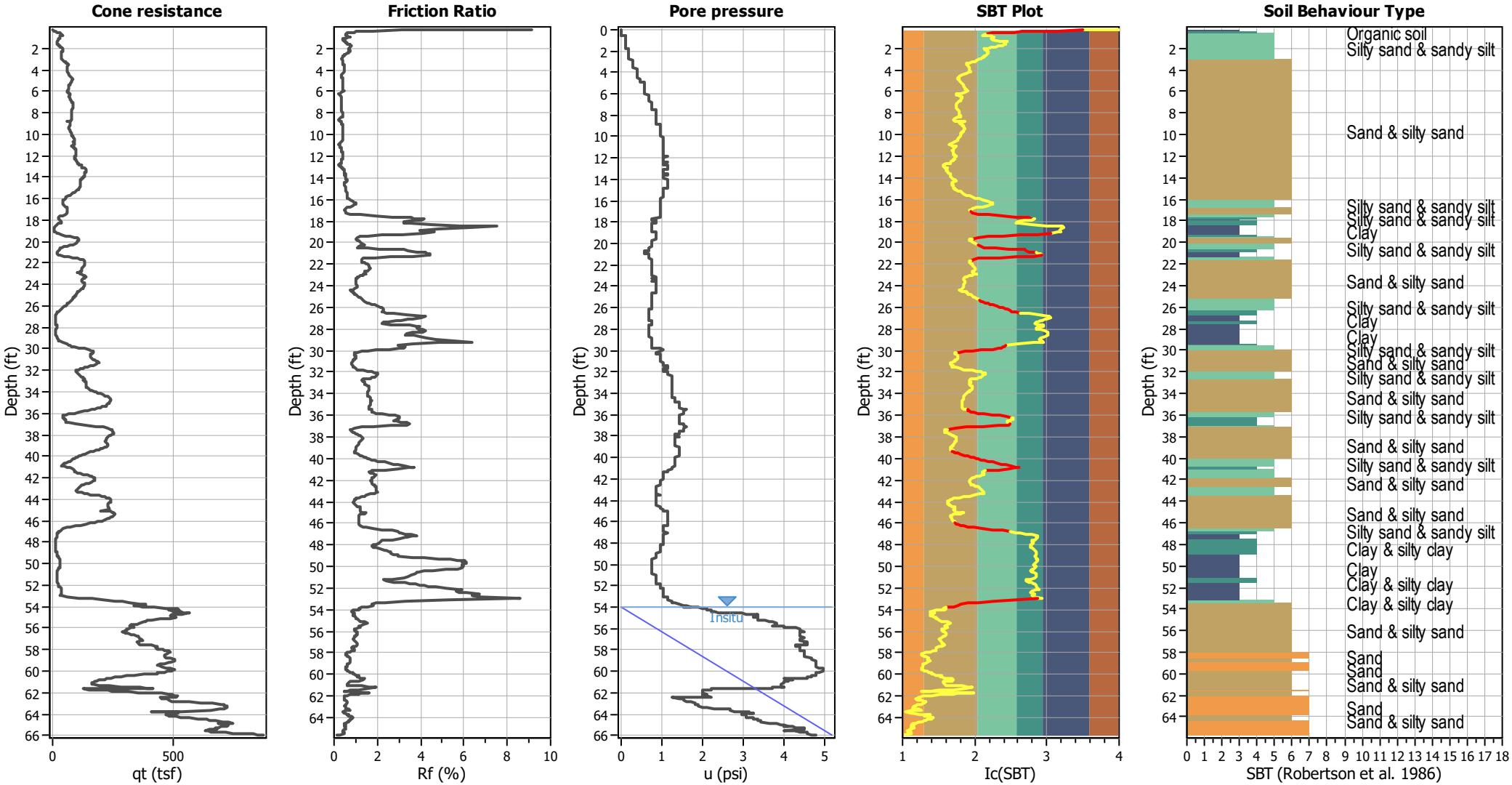






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



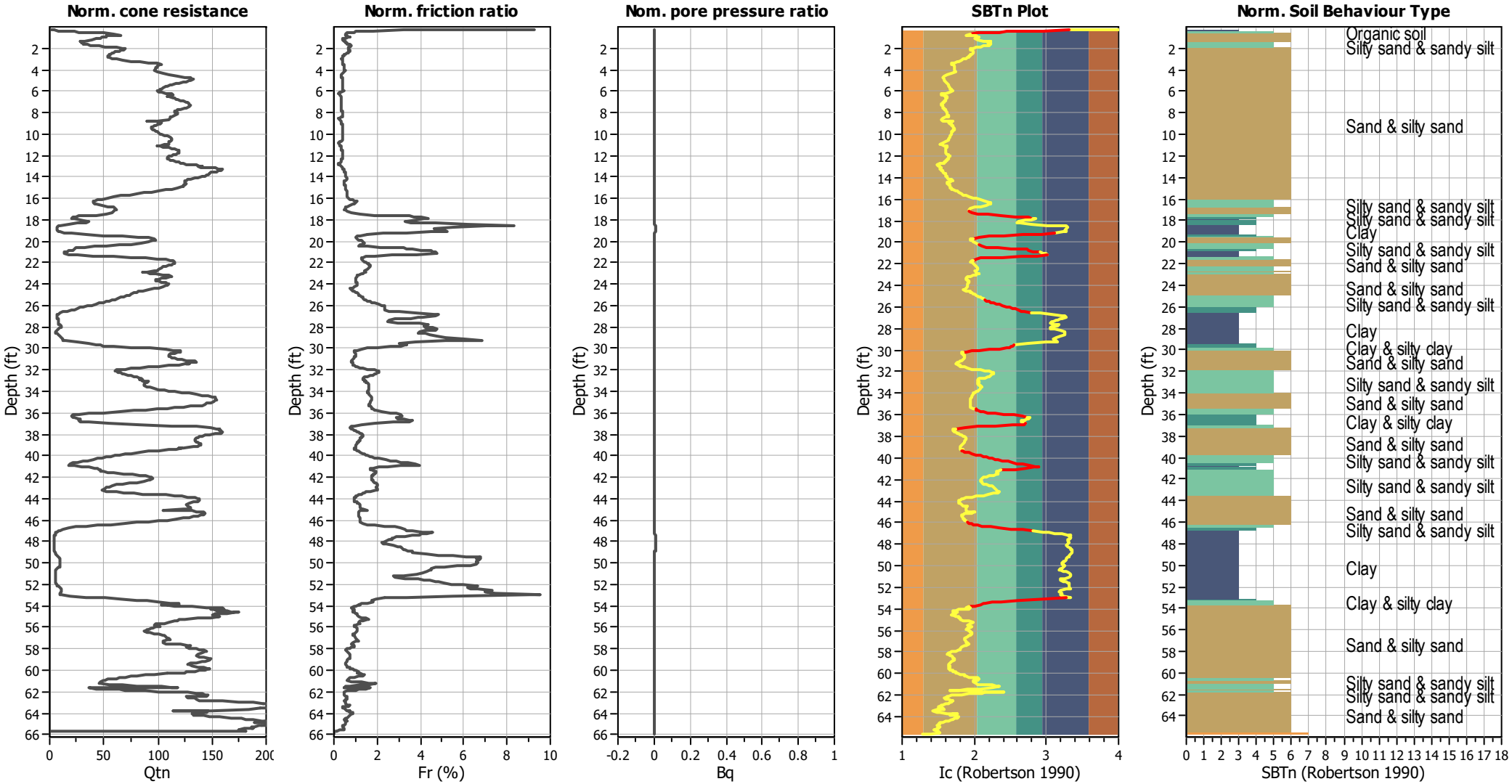
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



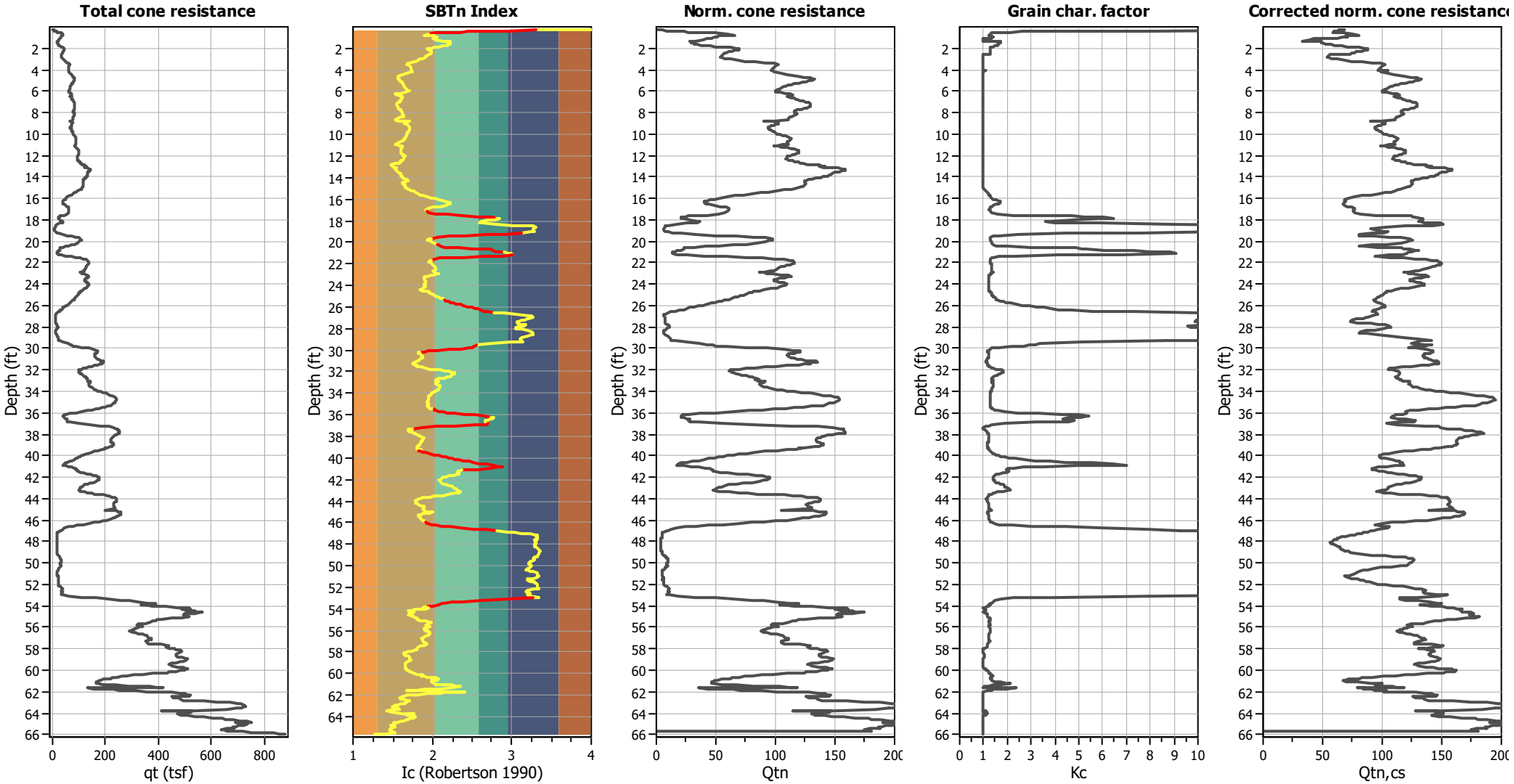
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

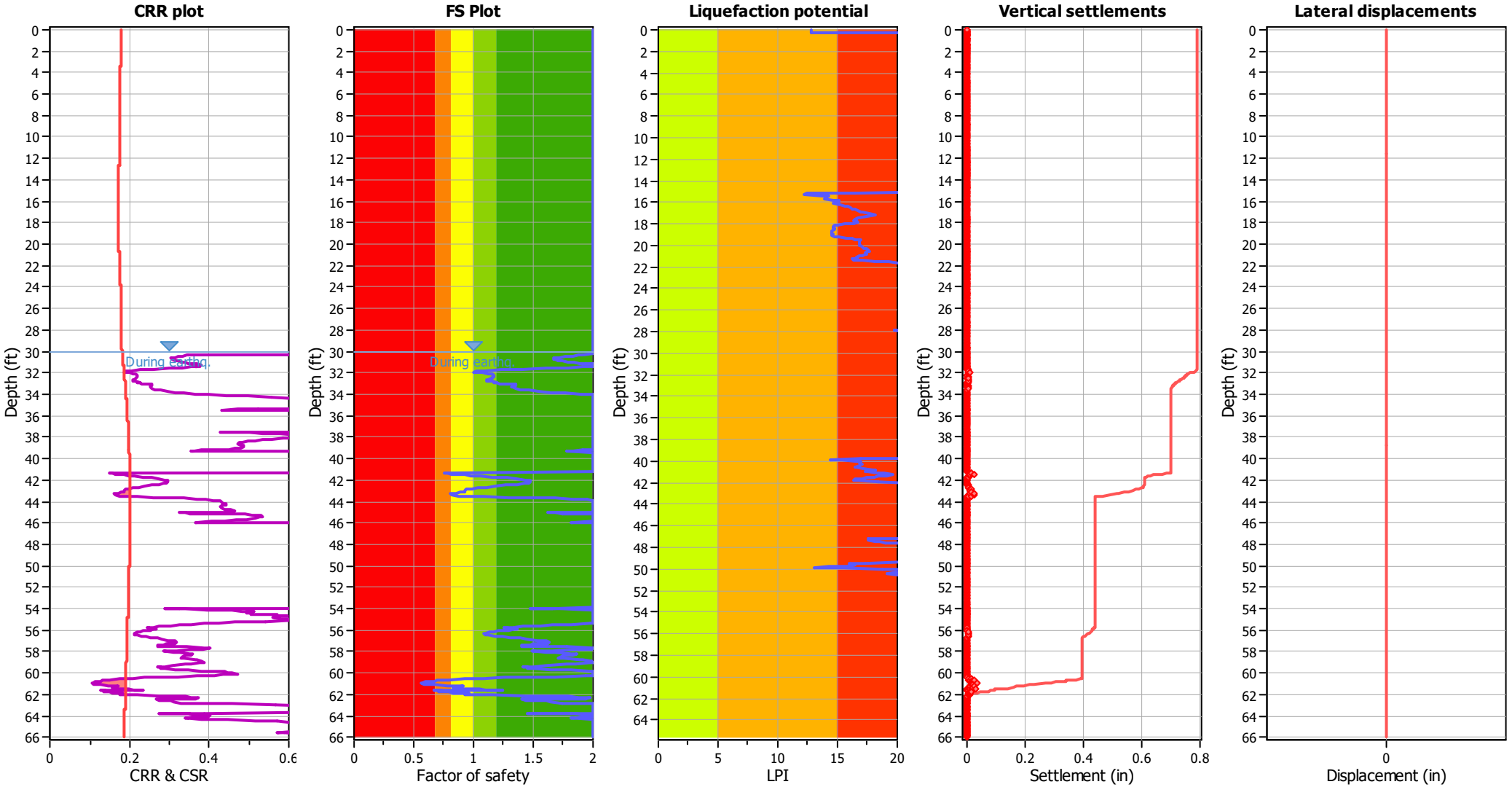
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

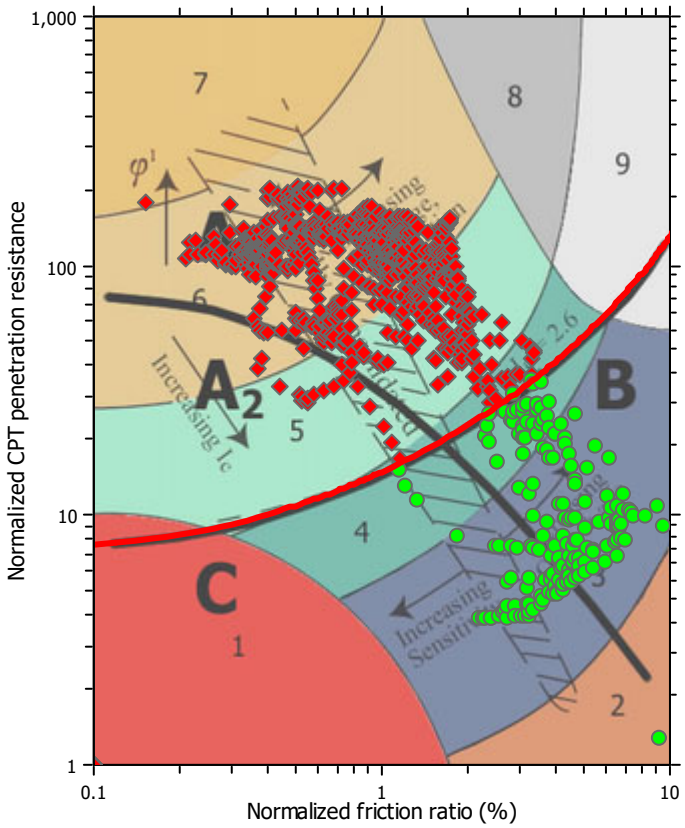
F.S. color scheme

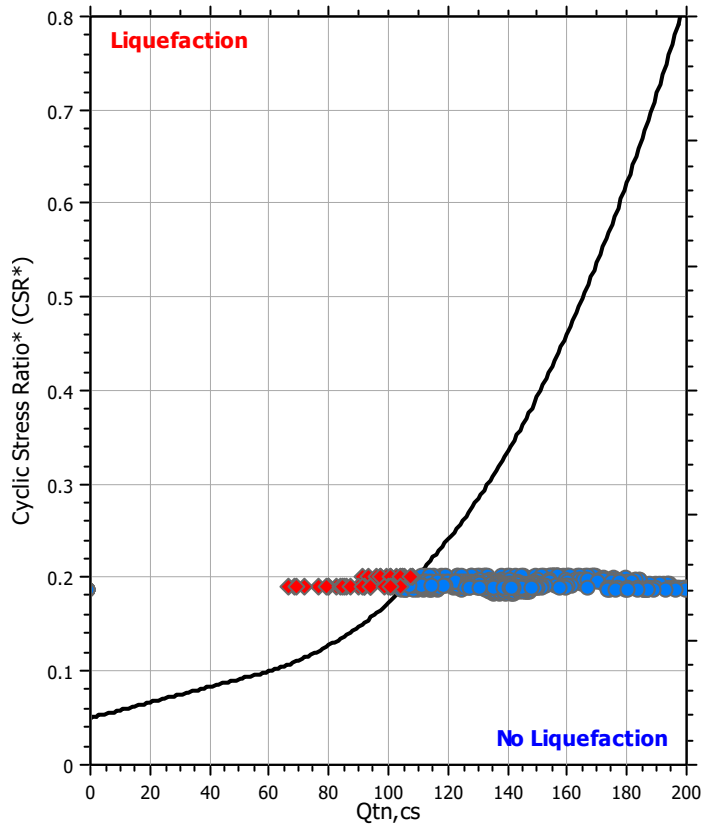
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

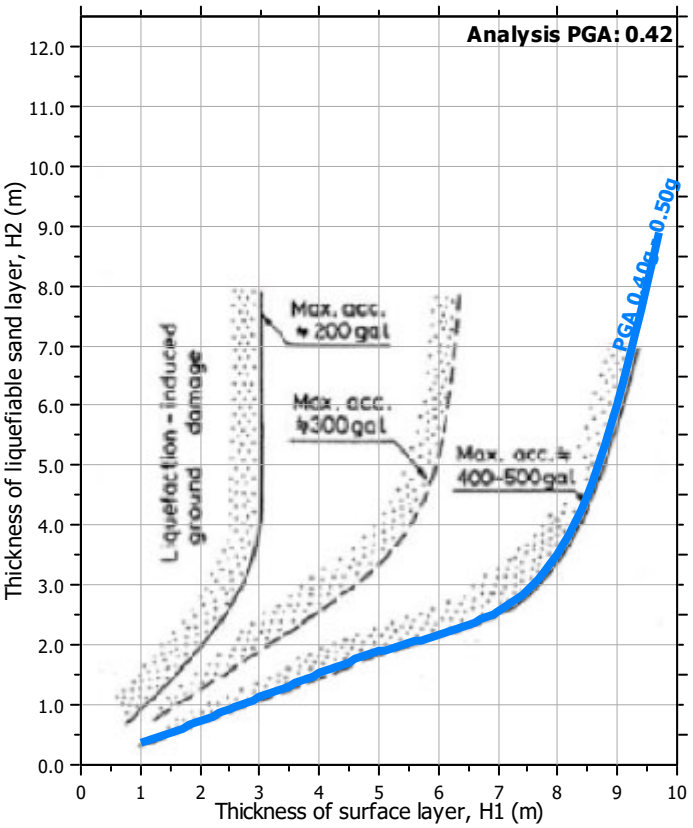
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



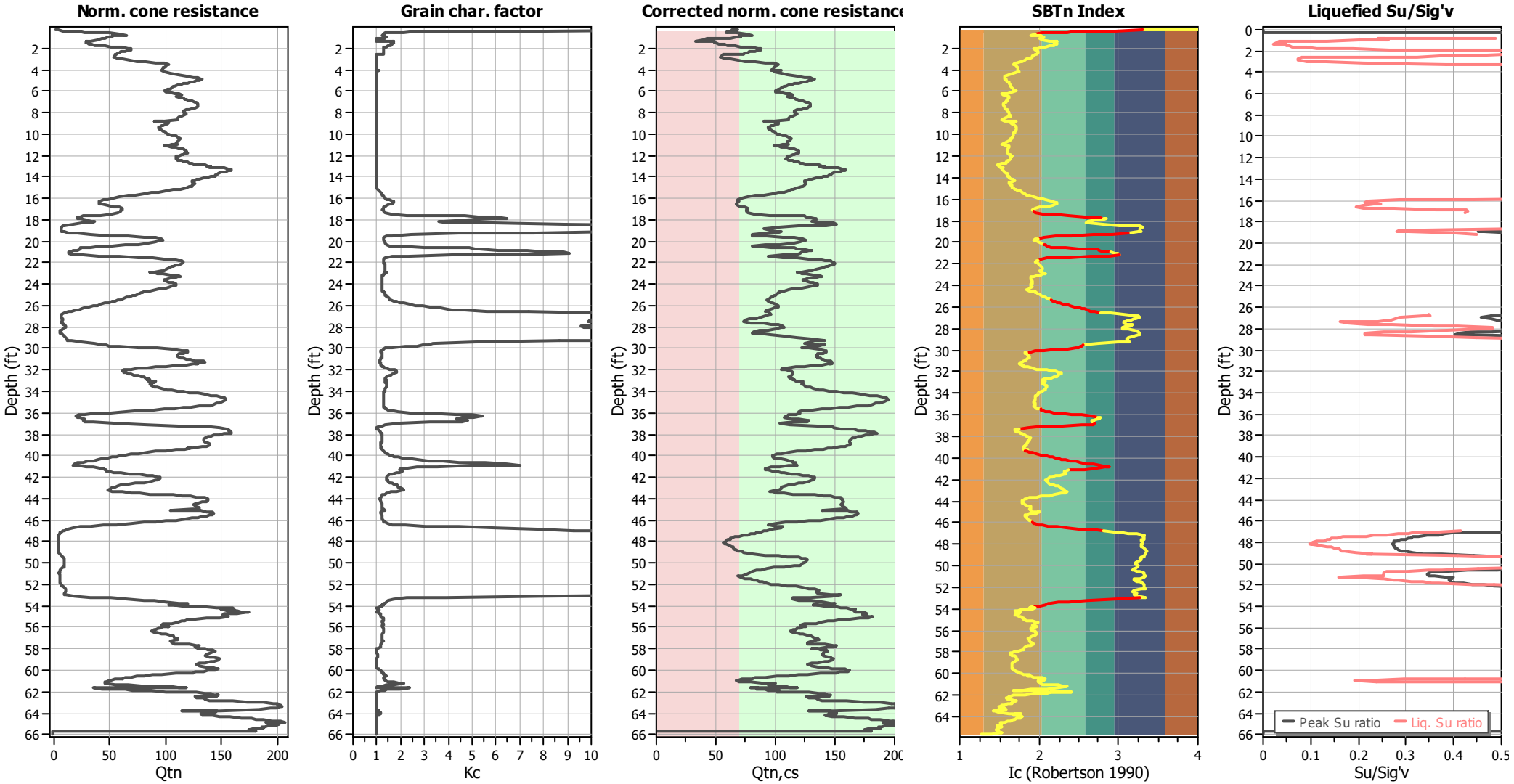




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

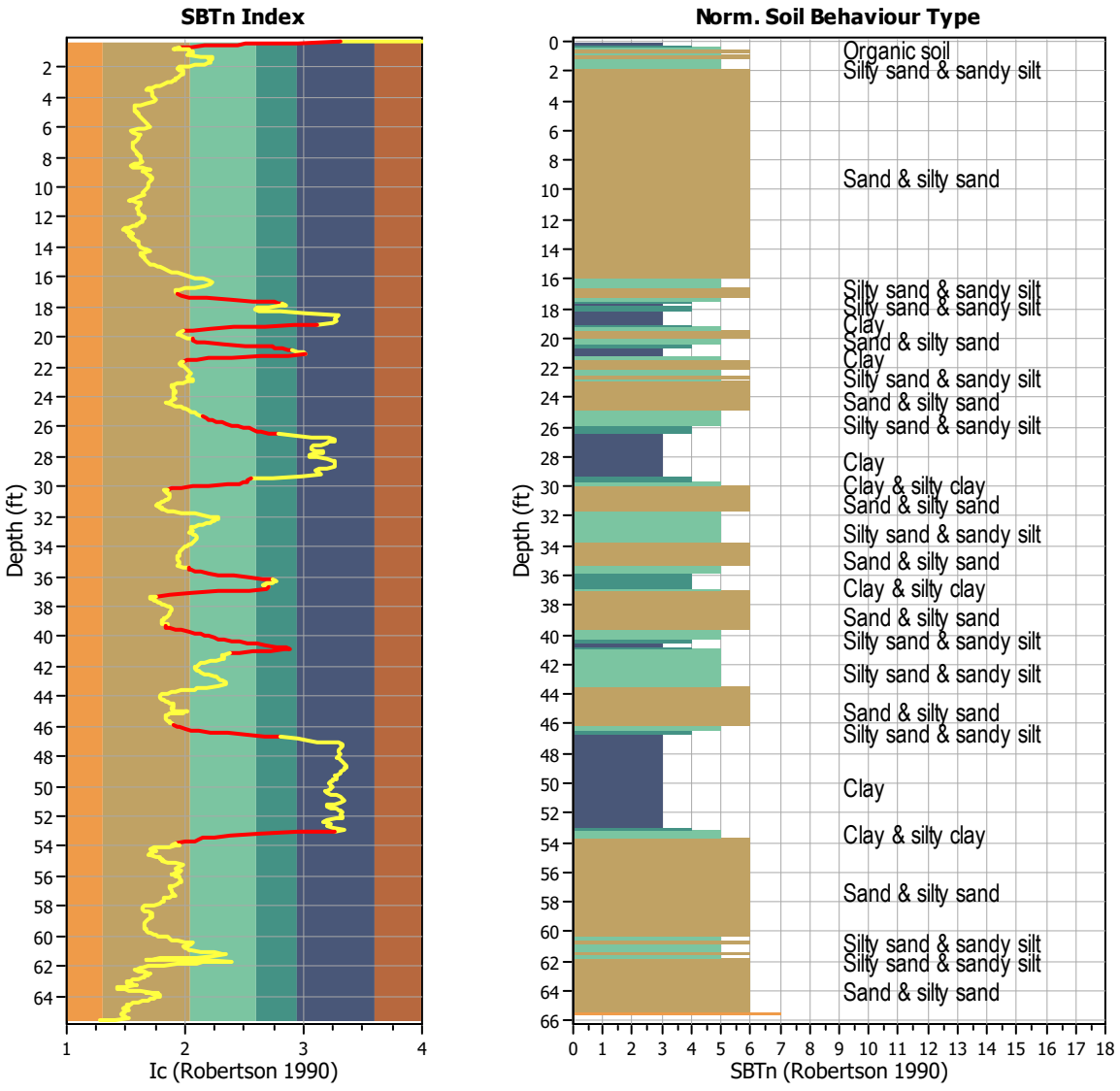
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1012
I_c maximum check value:	3.00	Total points excluded:	145
I_c change ratio value:	0.0250	Exclusion percentage:	14.33%
Minimum number of points in layer:	4	Number of layers detected:	13

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	13	Start depth: 0.36 (ft)	3	Clay
		End depth: 0.76 (ft)	6	Sand & silty sand
Transition layer 2	10	Start depth: 17.22 (ft)	6	Sand & silty sand
		End depth: 17.85 (ft)	3	Clay
Transition layer 3	7	Start depth: 19.22 (ft)	3	Clay
		End depth: 19.69 (ft)	6	Sand & silty sand
Transition layer 4	13	Start depth: 20.26 (ft)	5	Silty sand & sandy silt
		End depth: 20.96 (ft)	3	Clay
Transition layer 5	8	Start depth: 21.25 (ft)	3	Clay
		End depth: 21.69 (ft)	6	Sand & silty sand
Transition layer 6	16	Start depth: 25.41 (ft)	5	Silty sand & sandy silt
		End depth: 26.61 (ft)	3	Clay
Transition layer 7	12	Start depth: 29.63 (ft)	4	Clay & silty clay
		End depth: 30.24 (ft)	6	Sand & silty sand
Transition layer 8	11	Start depth: 35.51 (ft)	5	Silty sand & sandy silt
		End depth: 36.28 (ft)	4	Clay & silty clay
Transition layer 9	7	Start depth: 36.86 (ft)	4	Clay & silty clay
		End depth: 37.39 (ft)	6	Sand & silty sand
Transition layer 10	20	Start depth: 39.39 (ft)	6	Sand & silty sand
		End depth: 40.84 (ft)	3	Clay
Transition layer 11	7	Start depth: 40.84 (ft)	3	Clay
		End depth: 41.22 (ft)	5	Silty sand & sandy silt
Transition layer 12	11	Start depth: 46.02 (ft)	6	Sand & silty sand
		End depth: 46.84 (ft)	3	Clay
Transition layer 13	10	Start depth: 53.10 (ft)	3	Clay
		End depth: 53.92 (ft)	6	Sand & silty sand

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.01	0.00	0.00	0.00	N/A	120.90
2	0.04	-0.10	0.01	0.00	N/A	120.90
3	0.08	0.00	0.01	0.00	N/A	120.90
4	0.10	-0.10	0.01	0.00	N/A	120.90
5	0.13	0.00	0.02	0.00	N/A	120.90
6	0.18	0.00	0.03	0.00	N/A	120.90
7	0.22	0.00	0.05	0.00	N/A	120.90
8	0.27	0.00	0.08	0.00	100.00	90.68
9	0.33	2.43	0.09	0.00	81.96	94.98
10	0.36	5.87	0.09	0.00	55.30	96.98
11	0.37	7.19	0.09	0.00	43.87	97.82
12	0.38	8.30	0.10	0.00	39.79	98.46
13	0.42	9.11	0.11	0.00	36.64	99.41
14	0.44	10.73	0.12	0.00	34.37	100.58
15	0.47	11.94	0.14	0.00	31.37	101.55
16	0.47	13.87	0.14	0.00	28.15	102.58
17	0.52	16.90	0.16	0.00	24.51	103.55
18	0.56	20.24	0.17	0.00	21.06	104.60
19	0.58	24.29	0.18	0.00	17.61	105.59
20	0.61	30.26	0.19	0.10	14.26	106.54
21	0.66	37.55	0.20	0.10	11.58	107.34
22	0.76	43.02	0.21	0.10	10.25	107.74
23	0.80	41.80	0.21	0.10	11.05	107.65
24	0.81	31.17	0.21	0.10	12.33	107.41
25	0.85	33.50	0.20	0.10	13.76	107.15
26	0.86	32.59	0.20	0.10	13.66	107.29
27	0.90	32.29	0.22	0.10	14.33	107.68
28	0.95	31.78	0.24	0.10	14.92	108.07
29	1.00	31.38	0.24	0.10	14.72	106.94
30	1.05	28.44	0.12	0.10	14.03	104.83
31	1.14	26.82	0.10	0.10	5.00	101.56
32	1.24	24.39	0.08	0.10	5.00	100.45
33	1.31	21.66	0.09	0.10	5.00	100.02
34	1.36	15.49	0.10	0.10	19.77	100.07
35	1.37	16.65	0.10	0.10	20.16	100.28
36	1.39	21.17	0.10	0.10	19.32	100.40
37	1.43	17.81	0.10	0.10	18.80	100.44
38	1.44	18.12	0.10	0.10	19.86	100.33
39	1.49	18.22	0.10	0.10	19.73	100.60
40	1.53	18.72	0.11	0.10	19.64	101.22
41	1.58	19.74	0.12	0.10	19.61	102.17
42	1.63	20.55	0.14	0.10	19.60	103.26
43	1.68	21.56	0.16	0.10	19.49	104.34
44	1.72	22.98	0.18	0.10	18.93	105.39
45	1.77	25.40	0.20	0.10	17.98	106.40
46	1.82	28.04	0.22	0.19	16.68	107.38
47	1.86	31.48	0.24	0.19	15.32	108.26
48	1.92	35.02	0.26	0.19	13.84	108.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	1.97	38.77	0.26	0.19	12.52	109.50
50	2.01	42.21	0.27	0.19	11.75	110.13
51	2.09	43.83	0.31	0.19	11.40	110.51
52	2.16	43.62	0.30	0.19	11.59	110.65
53	2.20	41.70	0.29	0.19	12.00	110.35
54	2.25	39.07	0.28	0.19	12.39	109.98
55	2.31	38.77	0.27	0.19	12.55	109.49
56	2.37	37.96	0.25	0.19	12.51	108.98
57	2.40	36.64	0.24	0.19	12.56	108.51
58	2.46	36.03	0.23	0.19	12.53	107.92
59	2.54	35.22	0.20	0.19	12.28	107.21
60	2.59	34.82	0.18	0.19	5.00	106.07
61	2.69	34.01	0.14	0.19	5.00	105.12
62	2.74	33.91	0.14	0.19	5.00	104.27
63	2.83	33.91	0.13	0.29	5.00	104.04
64	2.88	33.81	0.13	0.29	5.00	103.96
65	2.98	35.32	0.13	0.29	5.00	104.13
66	3.03	37.96	0.13	0.29	5.00	104.69
67	3.12	42.41	0.15	0.29	5.00	105.94
68	3.21	46.56	0.19	0.29	5.00	107.29
69	3.27	51.52	0.21	0.29	5.00	108.51
70	3.34	56.88	0.23	0.29	5.00	109.32
71	3.41	62.75	0.24	0.29	5.00	110.12
72	3.51	66.09	0.27	0.29	5.00	110.66
73	3.55	63.76	0.28	0.29	5.00	111.08
74	3.65	61.03	0.29	0.38	5.00	111.24
75	3.75	62.45	0.30	0.38	5.00	111.31
76	3.83	61.64	0.29	0.38	5.00	111.22
77	3.94	60.22	0.28	0.38	5.00	111.12
78	4.04	61.44	0.28	0.38	5.00	111.07
79	4.13	59.21	0.29	0.38	7.02	111.59
80	4.24	61.23	0.34	0.38	5.00	111.65
81	4.38	64.57	0.29	0.38	5.00	110.97
82	4.50	69.64	0.19	0.38	4.69	110.20
83	4.62	72.57	0.25	0.48	3.95	110.29
84	4.71	80.16	0.28	0.48	3.93	111.40
85	4.75	80.92	0.29	0.48	3.90	112.19
86	4.84	81.68	0.33	0.48	3.97	112.65
87	4.89	83.70	0.33	0.57	4.02	112.99
88	4.94	83.40	0.33	0.57	4.04	113.02
89	4.98	81.68	0.33	0.57	4.17	112.97
90	5.07	80.06	0.33	0.57	4.33	112.85
91	5.13	78.54	0.33	0.57	4.49	112.71
92	5.17	76.82	0.32	0.57	4.57	112.40
93	5.27	75.00	0.30	0.57	4.72	112.10
94	5.32	72.47	0.30	0.57	4.84	111.72
95	5.42	70.75	0.28	0.57	4.99	111.41
96	5.46	69.33	0.27	0.57	5.00	111.08

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	5.56	67.91	0.26	0.57	5.00	110.88
98	5.61	66.80	0.26	0.57	5.00	110.75
99	5.71	65.89	0.26	0.57	5.00	110.68
100	5.78	64.88	0.26	0.57	5.00	110.63
101	5.85	63.97	0.26	0.57	5.00	110.57
102	5.95	62.65	0.26	0.57	5.00	110.53
103	6.00	61.84	0.26	0.57	5.00	110.86
104	6.09	62.45	0.30	0.67	5.00	109.42
105	6.14	64.47	0.11	0.67	4.43	108.06
106	6.24	67.31	0.14	0.67	3.33	106.15
107	6.30	70.75	0.17	0.67	3.46	107.71
108	6.38	73.18	0.20	0.67	3.76	108.87
109	6.46	70.24	0.23	0.67	4.34	109.63
110	6.50	65.28	0.24	0.67	4.73	110.08
111	6.56	69.74	0.25	0.67	4.82	110.41
112	6.63	71.46	0.26	0.67	4.59	110.75
113	6.68	72.67	0.26	0.67	4.51	110.97
114	6.76	73.38	0.27	0.76	4.44	111.12
115	6.82	74.39	0.27	0.76	4.37	111.23
116	6.88	75.81	0.27	0.76	4.21	111.32
117	6.96	78.34	0.27	0.76	3.98	111.40
118	7.03	80.97	0.27	0.76	3.77	111.49
119	7.11	82.29	0.27	0.76	3.64	111.55
120	7.16	82.89	0.27	0.76	3.60	111.70
121	7.26	83.91	0.29	0.76	3.62	111.86
122	7.31	84.62	0.29	0.76	3.65	112.04
123	7.40	84.72	0.29	0.76	3.70	112.13
124	7.45	84.51	0.30	0.76	3.76	112.18
125	7.54	84.31	0.30	0.86	3.86	112.16
126	7.60	83.00	0.30	0.86	3.98	112.07
127	7.68	81.17	0.29	0.86	4.16	111.94
128	7.74	79.45	0.29	0.86	4.33	111.82
129	7.83	78.44	0.29	0.86	4.51	111.77
130	7.90	77.73	0.29	0.86	4.60	111.85
131	7.98	78.85	0.30	0.86	4.65	112.09
132	8.05	80.67	0.31	0.86	4.62	112.42
133	8.12	82.29	0.32	0.86	4.65	112.70
134	8.19	82.08	0.33	0.86	4.77	112.88
135	8.27	80.57	0.34	0.86	5.03	113.00
136	8.36	78.74	0.34	0.86	5.00	112.80
137	8.41	78.04	0.31	0.86	4.51	111.23
138	8.50	78.24	0.15	0.86	3.85	109.61
139	8.60	78.95	0.18	0.86	3.40	108.40
140	8.70	79.15	0.21	0.86	3.76	109.30
141	8.74	78.14	0.22	0.86	4.96	109.52
142	8.78	55.57	0.22	0.86	5.00	109.55
143	8.81	62.96	0.23	0.96	5.00	109.69
144	8.86	72.17	0.24	0.96	5.00	110.13

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	8.91	74.09	0.25	0.96	5.00	110.49
146	8.94	75.00	0.25	0.96	5.00	110.79
147	9.02	73.89	0.27	0.96	5.00	111.08
148	9.10	72.47	0.28	0.96	5.00	111.34
149	9.17	71.15	0.28	0.96	5.00	111.44
150	9.22	69.84	0.28	0.96	5.00	111.44
151	9.31	68.83	0.28	0.96	5.00	111.41
152	9.37	68.32	0.28	0.96	5.00	111.39
153	9.42	68.32	0.28	0.96	5.00	111.39
154	9.52	69.13	0.28	0.96	5.00	111.41
155	9.60	70.04	0.28	0.96	5.00	111.49
156	9.66	71.36	0.29	0.96	5.00	111.61
157	9.74	73.18	0.29	0.96	5.00	111.74
158	9.81	74.80	0.29	0.96	5.00	111.88
159	9.89	75.71	0.30	0.96	5.00	112.10
160	9.98	76.82	0.32	0.96	5.00	112.42
161	10.03	78.54	0.33	1.05	5.00	112.78
162	10.13	80.97	0.34	1.05	5.00	113.14
163	10.23	84.21	0.35	1.05	5.00	113.45
164	10.32	86.94	0.36	1.05	5.00	113.68
165	10.38	88.16	0.36	1.05	5.00	113.80
166	10.47	89.17	0.37	1.05	5.00	113.83
167	10.57	88.66	0.36	1.05	5.00	113.81
168	10.66	87.45	0.36	1.05	4.50	112.22
169	10.76	87.65	0.16	1.05	3.90	110.65
170	10.85	87.85	0.19	1.05	3.30	108.99
171	10.92	88.46	0.22	1.05	3.57	109.92
172	11.00	89.27	0.23	1.05	4.11	110.26
173	11.07	77.73	0.23	1.05	4.54	110.35
174	11.10	79.45	0.23	1.05	4.87	110.48
175	11.15	83.40	0.25	1.05	4.71	110.88
176	11.19	85.53	0.26	1.05	4.61	111.40
177	11.24	87.25	0.28	1.05	4.59	111.90
178	11.29	89.47	0.30	1.05	4.51	112.30
179	11.34	92.21	0.31	1.05	4.40	112.73
180	11.40	95.14	0.33	1.05	4.33	113.17
181	11.47	97.27	0.35	1.05	4.32	113.59
182	11.53	97.98	0.36	1.05	4.38	113.88
183	11.58	97.87	0.36	1.05	4.42	114.06
184	11.65	98.78	0.37	1.05	4.46	114.22
185	11.72	99.39	0.38	1.05	4.50	114.36
186	11.77	99.29	0.38	1.05	4.57	114.43
187	11.82	98.28	0.38	1.05	4.67	114.45
188	11.88	97.47	0.38	1.15	5.03	114.87
189	11.97	95.95	0.45	1.05	5.00	114.84
190	12.02	94.84	0.38	1.05	5.00	114.75
191	12.06	93.42	0.38	1.05	5.00	114.18
192	12.11	92.31	0.37	1.05	5.00	114.03

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	12.21	93.32	0.36	1.05	5.00	113.85
194	12.25	92.21	0.35	1.05	5.00	113.70
195	12.30	93.22	0.35	1.05	5.01	113.58
196	12.31	93.52	0.35	1.05	4.95	113.56
197	12.32	93.52	0.35	1.05	4.93	113.57
198	12.35	93.83	0.35	1.05	4.77	113.38
199	12.40	95.24	0.32	1.05	4.60	113.25
200	12.45	96.66	0.32	1.15	4.38	113.11
201	12.52	98.38	0.32	1.05	4.29	113.28
202	12.56	100.20	0.33	1.05	4.25	113.61
203	12.62	102.33	0.36	1.05	4.25	113.99
204	12.65	103.54	0.37	1.05	3.77	113.26
205	12.71	105.16	0.23	1.15	3.23	112.19
206	12.76	106.68	0.23	1.15	2.62	110.90
207	12.83	110.12	0.23	1.15	2.60	111.55
208	12.88	114.17	0.28	1.15	2.77	112.94
209	12.93	118.52	0.37	1.15	2.90	114.26
210	12.98	124.09	0.40	1.15	3.08	115.17
211	13.03	121.66	0.41	1.15	3.06	115.51
212	13.04	125.50	0.42	1.15	3.47	115.78
213	13.07	113.26	0.46	1.05	3.50	116.29
214	13.13	129.35	0.50	1.05	3.58	116.95
215	13.17	134.31	0.54	1.05	3.26	117.70
216	13.22	139.37	0.58	1.05	3.29	118.28
217	13.27	139.88	0.62	1.05	3.36	118.74
218	13.32	141.09	0.64	1.05	3.46	119.07
219	13.37	142.31	0.66	1.05	3.56	119.26
220	13.41	140.38	0.67	1.05	3.64	119.30
221	13.46	139.27	0.66	1.05	3.75	119.26
222	13.51	137.45	0.66	1.15	3.85	119.23
223	13.56	136.13	0.66	1.15	4.04	119.31
224	13.60	134.31	0.69	1.05	4.26	119.44
225	13.66	132.39	0.70	1.05	4.38	119.40
226	13.75	131.68	0.66	1.05	4.42	119.28
227	13.80	131.27	0.66	1.05	4.39	119.11
228	13.89	130.57	0.66	1.05	4.46	119.13
229	13.94	130.36	0.67	1.05	4.60	119.22
230	13.99	128.44	0.69	1.15	4.88	119.41
231	14.09	125.71	0.72	1.15	5.27	119.59
232	14.14	121.96	0.73	1.15	5.70	119.79
233	14.23	119.13	0.76	1.15	6.08	119.87
234	14.28	117.00	0.76	1.15	5.80	119.04
235	14.38	115.38	0.51	1.15	5.31	118.06
236	14.42	116.85	0.51	1.15	4.82	116.96
237	14.52	113.76	0.52	1.15	4.88	117.10
238	14.57	116.70	0.53	1.15	4.95	117.39
239	14.67	119.74	0.57	1.15	5.03	117.62
240	14.68	116.09	0.57	1.15	5.00	117.81

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	14.70	117.61	0.58	1.15	5.00	117.84
242	14.75	115.48	0.58	1.15	5.31	117.93
243	14.80	116.60	0.59	1.15	5.43	118.05
244	14.89	116.40	0.61	1.05	5.52	118.17
245	14.94	115.59	0.61	1.05	5.70	118.20
246	15.04	112.25	0.60	1.05	5.96	118.05
247	15.13	107.59	0.59	1.05	6.34	117.77
248	15.21	101.82	0.57	1.05	6.81	117.40
249	15.28	95.75	0.55	1.05	7.34	116.95
250	15.38	89.98	0.52	1.05	7.88	116.40
251	15.47	84.21	0.48	1.05	8.48	115.75
252	15.57	77.33	0.45	1.05	9.19	115.05
253	15.67	71.05	0.42	1.05	10.08	114.27
254	15.77	63.87	0.38	0.96	11.15	113.43
255	15.86	56.78	0.35	0.96	12.43	112.60
256	15.96	51.11	0.33	0.96	13.84	112.03
257	16.05	47.27	0.34	0.96	15.41	111.80
258	16.15	43.52	0.35	0.96	17.50	112.16
259	16.25	39.98	0.42	0.96	19.14	112.43
260	16.31	39.78	0.40	0.96	20.17	112.68
261	16.39	39.78	0.40	0.96	20.08	112.48
262	16.48	39.57	0.38	0.96	19.41	112.23
263	16.59	42.10	0.35	0.96	17.84	112.02
264	16.68	47.47	0.35	0.96	15.50	111.89
265	16.76	54.25	0.33	0.96	13.16	111.73
266	16.86	59.92	0.29	0.96	11.62	111.63
267	16.92	61.94	0.31	0.96	10.95	111.65
268	17.02	61.84	0.32	0.96	10.86	111.63
269	17.11	61.13	0.29	0.96	11.26	111.95
270	17.22	60.42	0.35	0.96	11.88	112.47
271	17.35	59.61	0.39	0.96	14.04	114.30
272	17.45	55.47	0.60	0.96	18.38	116.52
273	17.55	44.33	0.88	0.96	25.48	117.93
274	17.61	30.36	0.95	0.96	33.75	118.25
275	17.64	27.02	0.93	0.76	40.43	117.69
276	17.70	24.80	0.87	0.76	43.23	117.15
277	17.75	22.67	0.84	0.76	45.31	116.73
278	17.80	21.86	0.84	0.76	46.98	116.55
279	17.85	21.56	0.84	0.86	48.89	116.96
280	17.94	21.26	1.00	0.86	45.90	117.91
281	17.99	30.26	1.09	0.86	40.69	119.19
282	18.09	37.65	1.19	0.86	35.41	120.26
283	18.15	41.30	1.27	0.76	34.54	120.72
284	18.23	36.03	1.26	0.76	36.66	120.67
285	18.33	30.87	1.23	0.76	46.11	119.75
286	18.43	14.17	1.16	0.76	59.31	117.89
287	18.52	10.22	0.82	0.76	78.74	114.99
288	18.59	9.41	0.56	0.76	81.21	111.71

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	18.72	8.10	0.35	0.76	78.82	108.87
290	18.81	7.79	0.30	0.76	77.80	106.89
291	18.87	7.69	0.30	0.76	78.37	106.65
292	18.95	7.69	0.32	0.86	79.72	107.66
293	19.05	8.40	0.43	0.86	76.48	109.13
294	19.14	10.73	0.48	0.86	66.73	110.57
295	19.22	14.78	0.48	0.86	53.52	111.65
296	19.29	20.75	0.49	0.86	39.10	113.06
297	19.38	34.31	0.56	0.86	26.85	114.86
298	19.44	55.26	0.63	0.86	19.18	117.03
299	19.53	74.70	0.80	0.86	14.77	118.92
300	19.62	90.89	0.91	0.86	12.57	120.49
301	19.69	102.43	1.00	0.76	11.54	121.67
302	19.79	108.50	1.15	0.76	11.36	122.57
303	19.86	109.41	1.24	0.76	11.84	123.28
304	19.97	106.58	1.33	0.76	12.61	123.60
305	20.07	101.72	1.35	0.76	13.52	123.57
306	20.16	94.94	1.29	0.76	14.68	123.29
307	20.26	85.73	1.27	0.76	14.95	121.49
308	20.34	72.77	0.61	0.67	15.95	119.48
309	20.43	59.51	0.65	0.67	17.67	117.13
310	20.50	47.17	0.70	0.67	23.52	117.36
311	20.60	37.15	0.83	0.67	30.86	117.42
312	20.62	28.74	0.85	0.67	38.22	117.36
313	20.63	25.51	0.86	0.57	41.38	117.35
314	20.68	29.96	0.89	0.57	42.41	117.60
315	20.73	27.73	0.95	0.57	43.48	118.01
316	20.82	25.20	1.01	0.57	47.06	118.03
317	20.87	23.48	0.98	0.57	50.17	117.77
318	20.91	21.66	0.93	0.57	52.49	117.09
319	20.96	19.53	0.83	0.67	55.24	116.20
320	21.05	17.51	0.75	0.67	58.65	115.41
321	21.11	15.69	0.75	0.67	59.61	115.06
322	21.17	17.71	0.75	0.67	59.41	115.10
323	21.25	17.91	0.76	0.67	50.49	115.80
324	21.30	28.04	0.80	0.67	37.44	117.17
325	21.37	47.77	0.89	0.67	25.95	118.97
326	21.45	69.84	1.01	0.76	19.10	120.73
327	21.49	88.87	1.16	0.76	15.54	122.37
328	21.58	104.65	1.36	0.76	13.61	123.67
329	21.64	116.80	1.47	0.76	12.50	124.67
330	21.69	125.61	1.57	0.76	11.91	125.41
331	21.78	131.07	1.71	0.76	11.69	126.01
332	21.83	134.51	1.80	0.76	11.79	126.54
333	21.89	135.73	1.90	0.76	12.04	126.96
334	21.98	136.03	2.02	0.76	12.40	127.34
335	22.03	136.23	2.09	0.76	12.75	127.63
336	22.12	135.42	2.15	0.76	13.09	127.77

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	22.22	132.99	2.16	0.76	13.41	127.81
338	22.26	131.17	2.15	0.76	13.69	127.73
339	22.36	128.44	2.12	0.76	13.97	127.61
340	22.41	125.51	2.10	0.76	14.35	127.56
341	22.51	123.38	2.14	0.76	14.15	127.06
342	22.60	121.66	1.74	0.76	13.83	126.45
343	22.70	118.93	1.65	0.76	13.30	125.68
344	22.75	117.41	1.61	0.76	13.43	125.41
345	22.84	114.27	1.59	0.76	14.48	125.10
346	22.89	96.25	1.56	0.76	14.75	124.96
347	22.90	110.88	1.55	0.76	15.01	124.78
348	22.94	107.49	1.51	0.76	13.97	124.76
349	23.00	111.94	1.47	0.76	13.47	124.67
350	23.08	117.61	1.47	0.86	12.40	124.71
351	23.13	127.23	1.45	0.86	11.31	124.84
352	23.20	136.23	1.45	0.86	10.47	124.96
353	23.27	138.66	1.46	0.86	10.12	124.97
354	23.33	136.23	1.43	0.76	10.11	124.75
355	23.42	131.78	1.34	0.86	10.24	124.32
356	23.48	126.62	1.25	0.76	10.39	123.80
357	23.57	122.37	1.20	0.86	10.62	123.46
358	23.61	120.44	1.20	0.86	10.81	123.34
359	23.66	120.75	1.21	0.86	10.87	123.44
360	23.73	123.28	1.25	0.86	10.80	123.73
361	23.80	128.04	1.32	0.86	10.61	124.10
362	23.85	132.49	1.37	0.86	10.45	124.49
363	23.94	135.32	1.42	0.86	10.34	124.75
364	24.00	136.54	1.44	0.86	10.35	124.89
365	24.09	135.73	1.44	0.86	10.44	124.90
366	24.16	133.80	1.43	0.86	10.68	124.85
367	24.24	130.46	1.43	0.86	10.08	123.73
368	24.33	125.81	0.86	0.86	9.54	122.48
369	24.43	121.05	0.88	0.86	8.99	121.06
370	24.52	116.40	0.91	0.86	9.98	121.07
371	24.58	105.36	0.92	0.86	10.82	121.05
372	24.59	104.91	0.92	0.86	11.52	121.00
373	24.63	103.24	0.93	0.76	11.65	121.07
374	24.68	104.45	0.95	0.76	11.99	121.27
375	24.77	102.63	1.00	0.76	12.42	121.51
376	24.82	100.30	1.03	0.76	13.12	121.77
377	24.92	97.98	1.08	0.76	13.83	121.94
378	25.01	95.24	1.10	0.76	14.55	122.06
379	25.06	92.41	1.11	0.76	15.23	122.08
380	25.16	89.47	1.12	0.76	15.90	122.02
381	25.25	86.54	1.11	0.76	16.59	121.94
382	25.30	83.50	1.11	0.76	17.28	121.83
383	25.41	80.57	1.11	0.76	18.09	121.73
384	25.49	77.23	1.11	0.76	18.98	121.65

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	25.55	73.99	1.11	0.76	20.07	121.62
386	25.64	70.65	1.15	0.76	21.32	121.62
387	25.70	67.11	1.16	0.76	22.79	121.64
388	25.79	63.26	1.19	0.76	24.37	121.58
389	25.89	59.31	1.18	0.76	26.26	121.42
390	25.94	54.15	1.17	0.76	28.33	121.11
391	26.02	49.29	1.13	0.76	30.48	120.54
392	26.12	44.64	1.03	0.76	32.30	119.79
393	26.17	41.19	0.94	0.67	34.00	118.80
394	26.28	36.64	0.83	0.67	35.82	117.81
395	26.36	33.20	0.76	0.67	37.65	116.64
396	26.45	30.06	0.64	0.67	40.39	115.51
397	26.50	25.00	0.59	0.67	44.96	114.33
398	26.61	19.74	0.56	0.67	52.70	113.36
399	26.70	15.69	0.53	0.67	63.56	112.54
400	26.77	12.45	0.54	0.67	73.76	111.85
401	26.85	10.73	0.52	0.67	77.64	111.21
402	26.94	12.35	0.44	0.67	78.19	110.57
403	27.04	11.23	0.43	0.67	74.40	110.13
404	27.14	12.25	0.42	0.67	72.81	110.00
405	27.23	13.16	0.41	0.76	69.26	109.81
406	27.28	13.26	0.38	0.76	67.37	109.59
407	27.29	13.21	0.37	0.76	64.60	108.54
408	27.38	13.36	0.25	0.76	63.04	107.81
409	27.48	13.26	0.28	0.76	62.75	107.60
410	27.57	13.16	0.35	0.76	65.67	108.83
411	27.64	13.36	0.41	0.76	68.02	109.83
412	27.65	13.36	0.43	0.67	70.74	111.13
413	27.74	13.56	0.57	0.67	69.81	112.46
414	27.80	16.60	0.65	0.67	65.76	114.19
415	27.90	20.55	0.77	0.67	61.65	115.18
416	27.99	20.34	0.77	0.67	61.92	115.44
417	28.07	17.11	0.72	0.67	66.57	114.64
418	28.16	13.87	0.62	0.67	72.64	113.23
419	28.25	12.35	0.50	0.67	76.77	111.52
420	28.34	11.34	0.41	0.67	77.68	109.88
421	28.44	10.83	0.35	0.67	77.85	108.83
422	28.53	10.83	0.35	0.67	78.14	108.53
423	28.62	10.83	0.37	0.67	77.38	110.10
424	28.76	13.56	0.57	0.67	72.35	112.51
425	28.86	18.22	0.74	0.76	67.30	115.27
426	28.96	21.15	0.97	0.76	65.09	117.31
427	29.08	21.56	1.17	0.76	67.25	119.00
428	29.19	21.15	1.43	0.76	69.03	120.29
429	29.29	23.48	1.60	0.76	57.91	120.47
430	29.39	37.85	0.97	0.76	42.67	122.13
431	29.50	60.73	1.83	0.76	33.13	124.03
432	29.63	74.39	2.28	0.76	32.04	126.13

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	29.65	65.49	2.34	0.76	31.66	126.80
434	29.66	70.75	2.34	0.76	31.48	126.90
435	29.72	76.72	2.35	0.76	30.48	126.99
436	29.80	73.08	2.34	0.76	28.82	127.09
437	29.85	83.60	2.30	0.96	24.74	127.25
438	29.94	111.74	2.18	1.05	19.12	127.53
439	30.00	139.37	2.11	0.96	14.70	127.66
440	30.05	155.36	1.99	0.96	11.90	127.40
441	30.14	164.17	1.72	0.86	10.16	126.80
442	30.19	168.22	1.55	0.86	9.10	126.23
443	30.24	170.24	1.55	0.86	8.70	126.01
444	30.29	170.34	1.56	0.86	8.77	126.09
445	30.38	168.42	1.60	0.96	9.02	126.13
446	30.43	164.37	1.60	0.96	9.33	126.13
447	30.48	161.54	1.59	0.96	9.59	126.05
448	30.54	158.91	1.58	0.96	9.78	125.95
449	30.62	156.98	1.55	0.96	9.79	125.86
450	30.67	159.11	1.54	0.96	9.79	125.78
451	30.72	157.18	1.54	0.96	9.69	125.76
452	30.76	159.31	1.53	0.96	9.55	125.70
453	30.86	161.84	1.49	0.96	9.23	125.64
454	30.91	164.98	1.48	0.96	8.91	125.62
455	30.95	168.42	1.49	0.96	8.55	125.64
456	31.03	173.38	1.47	0.96	8.12	125.67
457	31.10	179.65	1.45	1.05	7.69	125.73
458	31.15	185.02	1.48	1.05	7.34	125.89
459	31.20	190.38	1.52	1.05	7.18	126.13
460	31.26	193.52	1.57	1.05	7.15	126.36
461	31.34	193.62	1.60	1.05	7.71	126.40
462	31.37	171.46	1.60	1.05	7.87	126.43
463	31.38	188.76	1.60	1.15	8.09	126.36
464	31.43	183.91	1.58	1.15	7.77	126.31
465	31.47	181.17	1.53	1.15	8.03	126.07
466	31.55	172.87	1.49	1.15	8.51	125.78
467	31.59	160.83	1.47	1.15	9.39	125.48
468	31.66	147.27	1.45	1.15	10.59	125.21
469	31.73	135.12	1.45	1.05	12.03	125.03
470	31.78	124.80	1.48	1.05	13.62	124.95
471	31.84	115.28	1.53	1.05	15.49	125.08
472	31.93	106.78	1.65	1.05	17.52	125.26
473	31.98	99.59	1.73	1.15	19.53	125.52
474	32.02	94.84	1.82	1.15	20.69	125.90
475	32.09	100.05	1.96	1.15	21.58	126.26
476	32.16	96.05	2.03	1.15	21.57	126.59
477	32.22	100.51	2.04	1.15	21.42	126.73
478	32.27	104.25	2.05	1.15	20.75	126.84
479	32.34	105.67	2.06	1.24	20.20	126.90
480	32.42	108.10	2.04	1.24	19.56	126.93

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	32.46	112.85	2.02	1.24	18.55	126.88
482	32.54	118.12	1.95	1.24	17.41	126.77
483	32.60	122.16	1.87	1.24	16.07	126.34
484	32.67	124.90	1.62	1.24	15.05	125.97
485	32.75	127.33	1.63	1.24	14.32	125.74
486	32.81	130.26	1.68	1.24	14.20	126.03
487	32.89	133.50	1.79	1.24	14.12	126.37
488	32.94	136.34	1.83	1.24	14.96	126.52
489	32.95	118.52	1.84	1.24	14.91	126.69
490	33.00	138.16	1.90	1.24	14.89	126.92
491	33.06	141.90	1.98	1.24	14.05	127.30
492	33.11	143.12	2.03	1.24	14.18	127.55
493	33.20	141.70	2.09	1.24	14.56	127.71
494	33.25	138.76	2.13	1.24	15.10	127.86
495	33.34	136.54	2.19	1.24	15.55	127.94
496	33.38	135.73	2.19	1.24	15.74	128.03
497	33.48	137.75	2.22	1.24	15.68	128.19
498	33.58	141.70	2.30	1.24	15.42	128.42
499	33.63	146.25	2.34	1.24	15.06	128.72
500	33.73	152.23	2.43	1.24	14.62	129.02
501	33.82	158.70	2.51	1.24	14.13	129.36
502	33.87	165.89	2.57	1.24	13.67	129.70
503	33.96	172.57	2.69	1.24	13.23	130.04
504	34.02	179.65	2.77	1.24	12.84	130.48
505	34.11	189.47	2.95	1.24	12.43	131.00
506	34.18	200.91	3.15	1.24	12.08	131.61
507	34.26	211.03	3.36	1.24	11.89	132.25
508	34.35	219.33	3.65	1.24	11.82	132.88
509	34.44	227.93	3.92	1.34	11.72	133.37
510	34.49	235.22	3.98	1.34	11.56	133.69
511	34.59	238.66	4.05	1.34	11.45	133.86
512	34.69	239.88	4.13	1.34	11.44	133.98
513	34.76	241.39	4.15	1.34	11.40	134.01
514	34.83	241.50	4.07	1.43	11.43	134.00
515	34.93	238.86	4.12	1.43	11.44	133.81
516	35.02	233.50	3.89	1.43	11.54	133.60
517	35.12	229.05	3.79	1.43	11.46	133.22
518	35.22	226.72	3.60	1.43	11.42	132.94
519	35.30	223.58	3.51	1.43	11.44	132.63
520	35.38	216.29	3.41	1.43	12.34	132.31
521	35.43	185.73	3.36	1.43	13.07	132.03
522	35.46	192.21	3.30	1.53	13.71	131.78
523	35.51	190.18	3.21	1.62	13.68	131.56
524	35.56	179.15	3.11	1.62	14.30	131.05
525	35.66	160.93	2.83	1.53	15.30	130.47
526	35.70	150.40	2.73	1.53	16.62	129.73
527	35.80	133.20	2.53	1.53	18.63	129.08
528	35.89	111.94	2.45	1.53	21.97	128.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	35.96	88.76	2.31	1.53	26.84	127.15
530	36.04	66.50	1.99	1.43	32.56	125.33
531	36.14	49.39	1.45	1.43	38.50	123.16
532	36.19	40.49	1.23	1.43	42.06	121.28
533	36.28	40.49	1.16	1.43	44.05	120.76
534	36.33	40.49	1.27	1.43	43.63	120.56
535	36.42	40.49	1.14	1.43	42.36	120.82
536	36.48	45.85	1.23	1.43	39.85	121.28
537	36.52	51.52	1.40	1.43	38.41	122.62
538	36.62	55.67	1.74	1.43	38.39	123.71
539	36.68	55.06	1.84	1.43	39.88	124.37
540	36.77	51.42	1.88	1.43	40.89	124.37
541	36.86	51.92	1.78	1.43	39.71	124.46
542	36.90	60.53	1.84	1.53	32.23	124.83
543	37.00	90.49	1.76	1.53	21.98	125.79
544	37.10	143.32	1.82	1.62	14.18	126.63
545	37.20	187.14	1.82	1.53	9.48	127.07
546	37.29	217.10	1.62	1.53	7.15	127.31
547	37.39	234.82	1.72	1.53	6.16	127.69
548	37.49	245.04	1.93	1.53	6.15	128.39
549	37.53	245.80	2.08	1.53	6.43	129.01
550	37.58	245.80	2.19	1.43	6.79	129.47
551	37.62	246.56	2.33	1.43	7.05	129.90
552	37.69	251.11	2.46	1.43	7.41	130.49
553	37.77	253.95	2.76	1.43	7.74	131.04
554	37.82	255.46	2.89	1.34	8.12	131.53
555	37.87	255.46	3.00	1.34	8.40	131.80
556	37.91	253.54	3.09	1.34	8.73	131.98
557	37.97	249.09	3.14	1.34	9.14	132.07
558	38.06	242.00	3.17	1.43	9.58	132.05
559	38.10	234.61	3.14	1.34	9.96	131.95
560	38.17	230.06	3.08	1.34	10.09	131.72
561	38.25	227.93	2.95	1.34	9.95	131.37
562	38.35	226.21	2.75	1.34	9.74	130.98
563	38.40	223.18	2.65	1.34	9.59	130.66
564	38.46	220.85	2.61	1.34	9.55	130.46
565	38.54	220.85	2.57	1.34	9.50	130.34
566	38.60	220.85	2.53	1.34	9.36	130.20
567	38.69	220.85	2.46	1.34	9.14	130.07
568	38.74	224.90	2.42	1.34	8.84	129.97
569	38.83	228.95	2.40	1.34	8.66	130.01
570	38.88	229.65	2.47	1.34	8.43	129.87
571	38.97	228.95	2.27	1.43	8.33	129.71
572	39.02	227.63	2.26	1.43	8.17	129.42
573	39.11	225.10	2.21	1.43	8.23	129.25
574	39.16	220.54	2.14	1.43	8.40	128.95
575	39.23	209.82	2.04	1.43	9.12	128.58
576	39.24	186.03	2.02	1.43	9.26	128.31

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	39.28	206.53	1.96	1.43	9.26	128.10
578	39.32	203.24	1.90	1.43	8.75	127.86
579	39.39	195.95	1.80	1.43	9.08	127.52
580	39.47	184.41	1.77	1.43	9.80	127.22
581	39.54	171.46	1.78	1.43	10.93	127.03
582	39.62	158.50	1.78	1.43	12.28	126.82
583	39.71	145.24	1.76	1.43	13.78	126.57
584	39.76	133.40	1.75	1.43	15.25	126.29
585	39.85	124.80	1.72	1.43	16.63	126.05
586	39.90	117.71	1.71	1.43	17.85	125.82
587	40.00	111.03	1.69	1.34	19.15	125.63
588	40.06	104.35	1.69	1.34	20.49	125.46
589	40.15	98.68	1.69	1.34	21.96	125.31
590	40.21	92.91	1.69	1.34	23.70	125.27
591	40.29	86.84	1.76	1.34	25.91	125.29
592	40.35	79.96	1.83	1.34	28.93	125.45
593	40.43	72.17	1.95	1.34	31.85	125.15
594	40.52	64.47	1.72	1.34	35.38	124.58
595	40.58	54.86	1.64	1.34	39.26	123.64
596	40.67	46.25	1.54	1.34	44.53	122.80
597	40.77	39.47	1.43	1.34	48.71	122.20
598	40.84	39.12	1.45	1.34	51.09	121.91
599	40.89	38.77	1.46	1.24	47.89	122.14
600	40.94	48.89	1.45	1.24	41.53	122.58
601	41.03	61.54	1.47	1.24	34.10	123.11
602	41.08	73.89	1.47	1.24	28.70	123.52
603	41.14	83.60	1.45	1.15	25.34	123.76
604	41.22	88.56	1.45	1.15	23.58	123.93
605	41.28	90.89	1.47	1.15	23.00	124.13
606	41.33	91.80	1.53	1.05	23.16	124.56
607	41.42	93.22	1.69	1.05	23.59	125.16
608	41.47	95.85	1.84	1.05	23.66	125.86
609	41.52	101.92	1.97	1.05	22.91	126.69
610	41.62	114.27	2.20	1.05	21.31	127.57
611	41.67	130.16	2.38	1.05	19.54	128.55
612	41.76	145.55	2.62	1.05	17.95	129.34
613	41.82	157.59	2.74	1.05	16.90	130.00
614	41.90	165.99	2.90	1.05	16.15	130.44
615	41.99	172.67	2.96	1.05	15.70	130.73
616	42.05	176.01	2.98	1.05	15.44	130.86
617	42.15	175.71	3.00	0.96	15.47	130.91
618	42.23	173.89	3.02	0.96	15.76	130.92
619	42.30	170.34	3.03	0.96	16.20	130.85
620	42.38	164.37	2.97	0.96	16.79	130.64
621	42.48	156.17	2.87	0.96	17.75	130.21
622	42.57	140.79	2.70	0.96	19.03	129.66
623	42.64	128.95	2.56	0.86	20.48	129.02
624	42.72	120.14	2.42	0.86	21.44	128.37

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	42.82	114.47	2.21	0.86	22.03	127.72
626	42.90	109.51	2.08	0.86	22.42	127.19
627	42.97	106.07	2.04	0.86	23.04	126.89
628	43.06	102.53	2.03	0.86	23.94	126.76
629	43.15	98.28	2.05	0.86	24.28	126.30
630	43.20	95.44	1.73	0.86	23.92	125.87
631	43.30	99.49	1.72	0.86	21.66	125.62
632	43.40	117.61	1.75	0.86	18.56	126.10
633	43.48	142.51	1.83	0.96	16.70	126.59
634	43.51	137.14	1.89	0.96	15.94	126.91
635	43.52	137.65	1.91	0.86	15.16	127.23
636	43.56	163.87	1.98	0.86	13.67	127.68
637	43.61	178.84	2.08	0.86	11.96	128.22
638	43.67	193.82	2.13	0.86	10.83	128.59
639	43.72	206.98	2.13	0.86	9.87	128.82
640	43.80	217.20	2.15	0.86	9.14	128.98
641	43.85	225.30	2.16	0.86	8.63	129.13
642	43.90	231.68	2.18	0.86	8.26	129.25
643	43.94	236.74	2.19	0.86	7.97	129.33
644	43.99	240.69	2.18	0.86	7.76	129.35
645	44.08	242.00	2.18	0.86	7.68	129.38
646	44.14	241.90	2.20	0.86	7.83	129.54
647	44.22	240.59	2.33	0.86	8.11	129.75
648	44.28	238.66	2.39	0.86	8.47	129.97
649	44.33	235.63	2.43	0.86	8.80	130.11
650	44.40	232.69	2.50	0.86	9.29	130.33
651	44.48	228.44	2.64	0.86	9.67	130.62
652	44.52	232.74	2.75	0.86	10.35	131.05
653	44.61	224.49	3.00	0.96	10.26	131.06
654	44.72	232.79	2.65	0.96	10.27	131.18
655	44.77	237.24	2.86	0.96	9.91	131.18
656	44.91	238.36	2.94	1.05	10.09	131.47
657	44.95	237.95	2.96	1.05	10.63	131.50
658	45.02	218.72	2.98	1.05	10.98	131.47
659	45.04	225.50	2.97	1.15	13.35	131.14
660	45.06	152.63	2.96	1.15	12.86	131.13
661	45.11	232.29	2.89	1.15	12.30	131.08
662	45.15	240.38	2.84	1.15	9.78	131.30
663	45.21	247.16	2.81	1.15	9.27	131.31
664	45.25	253.14	2.82	1.15	8.95	131.37
665	45.30	256.98	2.86	1.15	8.80	131.48
666	45.35	258.70	2.90	1.15	8.79	131.59
667	45.41	258.40	2.92	1.15	8.84	131.65
668	45.49	258.10	2.93	1.15	8.94	131.65
669	45.55	254.45	2.91	1.15	9.06	131.57
670	45.63	249.80	2.86	1.15	9.25	131.42
671	45.69	244.23	2.81	1.15	9.48	131.22
672	45.78	236.94	2.74	1.15	9.80	131.01

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	45.84	228.64	2.69	1.15	10.17	130.69
674	45.93	218.52	2.57	1.15	10.59	130.25
675	46.02	205.87	2.39	1.15	11.15	129.68
676	46.08	190.89	2.26	1.15	11.83	128.94
677	46.16	174.39	2.03	1.15	12.80	128.17
678	46.24	157.89	1.90	1.15	14.14	127.35
679	46.31	139.07	1.81	1.15	16.32	126.66
680	46.41	117.21	1.75	1.05	19.70	126.05
681	46.48	95.75	1.74	1.05	24.72	125.44
682	46.56	74.29	1.72	1.05	31.32	124.66
683	46.65	57.08	1.60	1.05	39.23	123.40
684	46.75	42.81	1.33	1.05	46.43	121.67
685	46.84	36.34	1.06	1.05	55.36	119.83
686	46.94	30.67	0.95	1.05	60.33	118.19
687	47.02	25.20	0.82	1.15	66.74	116.92
688	47.08	21.46	0.75	1.15	74.89	115.79
689	47.12	17.41	0.72	1.15	81.21	115.04
690	47.16	17.36	0.69	1.05	83.23	114.56
691	47.21	18.72	0.65	1.05	82.03	114.08
692	47.27	17.31	0.59	1.05	81.52	113.39
693	47.35	16.30	0.53	1.05	83.53	112.58
694	47.40	15.59	0.49	1.05	83.45	111.48
695	47.50	15.28	0.39	1.05	82.43	110.45
696	47.55	15.18	0.36	1.05	80.62	109.38
697	47.61	14.98	0.33	1.05	80.14	108.87
698	47.69	14.78	0.32	1.05	80.47	108.49
699	47.76	14.37	0.31	1.05	81.28	108.16
700	47.83	13.97	0.29	1.05	81.76	107.60
701	47.93	13.66	0.26	1.05	81.12	106.97
702	48.02	13.87	0.24	1.05	80.49	106.61
703	48.09	13.87	0.26	1.05	79.44	106.28
704	48.18	13.87	0.22	0.96	80.27	106.53
705	48.27	13.76	0.27	0.96	81.39	107.03
706	48.37	13.97	0.31	0.96	83.22	107.94
707	48.46	14.17	0.33	0.96	84.23	108.58
708	48.52	14.17	0.35	0.96	85.01	108.99
709	48.60	14.17	0.36	0.96	85.57	109.30
710	48.70	14.37	0.37	0.96	85.68	109.56
711	48.79	14.57	0.38	0.96	85.16	109.83
712	48.85	14.98	0.40	0.96	84.80	110.40
713	48.94	15.59	0.45	0.86	84.36	111.35
714	49.04	16.60	0.53	0.86	82.26	112.03
715	49.13	17.81	0.50	0.86	82.44	114.35
716	49.23	20.45	0.95	0.86	79.90	116.80
717	49.33	25.10	1.19	0.86	78.26	119.08
718	49.38	26.52	1.32	0.86	79.49	120.23
719	49.42	22.98	1.49	0.86	79.52	121.11
720	49.48	28.24	1.64	0.76	79.69	121.78

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	49.53	28.85	1.70	0.76	76.78	122.38
722	49.58	29.25	1.78	0.76	76.54	122.73
723	49.63	30.16	1.86	0.76	76.14	123.06
724	49.72	30.87	1.90	0.76	75.17	123.25
725	49.77	31.68	1.88	0.76	74.33	123.29
726	49.83	31.68	1.86	0.76	74.18	123.23
727	49.92	30.87	1.85	0.76	75.14	123.07
728	49.97	29.55	1.80	0.76	75.30	122.90
729	50.04	30.72	1.75	0.76	76.58	122.68
730	50.11	28.14	1.74	0.76	75.95	122.69
731	50.20	30.57	1.79	0.76	74.75	122.53
732	50.27	31.88	1.62	0.76	72.22	122.03
733	50.34	29.86	1.37	0.76	71.16	120.74
734	50.45	26.72	1.07	0.76	72.38	119.07
735	50.54	23.68	0.89	0.76	75.35	117.45
736	50.59	20.75	0.82	0.76	79.17	116.17
737	50.68	18.93	0.71	0.76	82.34	115.07
738	50.79	18.02	0.62	0.76	83.79	114.12
739	50.88	17.41	0.60	0.76	83.70	113.63
740	50.98	17.97	0.60	0.86	84.20	113.54
741	51.07	17.51	0.60	0.86	82.59	113.17
742	51.17	17.91	0.50	0.86	77.88	112.22
743	51.24	19.84	0.38	0.86	73.04	111.69
744	51.33	20.75	0.47	0.86	72.41	112.26
745	51.46	19.94	0.60	0.86	75.43	113.32
746	51.46	19.53	0.60	0.86	78.27	114.06
747	51.51	19.89	0.66	0.86	79.25	114.37
748	51.56	19.84	0.68	0.86	80.43	114.92
749	51.65	19.84	0.75	0.86	81.58	115.41
750	51.71	20.14	0.80	0.86	82.75	115.96
751	51.79	20.24	0.85	0.86	82.76	116.41
752	51.85	21.05	0.88	0.96	82.60	117.17
753	51.94	22.37	1.05	0.96	82.55	118.05
754	51.99	22.87	1.16	0.96	82.91	119.26
755	52.09	24.39	1.38	0.96	83.97	120.45
756	52.19	25.20	1.63	0.96	79.61	121.96
757	52.28	33.60	1.89	1.05	72.62	123.41
758	52.35	41.19	2.10	1.05	70.52	124.45
759	52.43	34.41	2.30	1.05	71.21	125.03
760	52.52	35.53	2.36	1.05	74.91	125.21
761	52.62	35.53	2.39	1.05	74.30	125.23
762	52.72	35.73	2.30	1.05	73.23	125.06
763	52.81	36.64	2.18	1.05	76.25	125.06
764	52.91	30.36	2.50	1.05	84.74	125.89
765	53.00	26.92	3.37	1.05	78.34	127.32
766	53.10	54.35	3.37	1.15	54.98	129.03
767	53.20	105.77	3.09	1.15	36.28	130.96
768	53.29	164.47	4.18	1.15	25.56	132.47

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	53.38	221.05	4.12	1.24	20.37	133.80
770	53.46	256.07	4.20	1.24	17.07	134.82
771	53.53	303.03	5.14	1.24	16.36	136.29
772	53.63	317.00	6.49	1.34	15.39	137.26
773	53.73	349.49	5.84	1.43	13.15	137.28
774	53.82	418.82	4.63	1.53	10.93	136.47
775	53.92	396.66	4.29	1.62	10.04	135.51
776	53.94	347.57	4.04	1.72	10.76	134.94
777	53.96	336.23	3.96	1.53	11.60	134.54
778	53.97	324.90	3.90	1.82	10.87	134.48
779	54.05	386.03	3.80	1.91	9.65	134.60
780	54.08	421.76	3.84	2.01	7.98	134.88
781	54.13	470.95	3.88	2.01	6.82	135.32
782	54.19	526.82	4.09	2.10	6.18	136.15
783	54.25	558.50	4.85	2.10	6.33	136.53
784	54.28	487.24	4.52	2.20	6.83	136.70
785	54.29	486.79	4.52	2.20	7.28	136.40
786	54.34	486.33	4.52	2.20	7.28	136.41
787	54.35	487.45	4.52	2.20	7.16	136.45
788	54.40	502.73	4.55	2.29	6.91	136.58
789	54.44	524.39	4.66	2.29	6.59	136.78
790	54.49	539.67	4.74	2.39	6.33	136.88
791	54.53	542.71	4.62	2.39	6.16	137.00
792	54.57	556.27	4.81	2.68	6.01	137.19
793	54.58	575.70	5.00	2.96	6.08	137.28
794	54.63	571.25	5.32	3.06	6.35	137.28
795	54.68	535.62	5.13	3.15	7.02	137.28
796	54.73	501.92	5.33	3.35	7.61	137.28
797	54.78	493.82	5.24	3.25	7.81	137.28
798	54.83	503.13	4.96	3.35	8.02	137.28
799	54.88	483.80	5.42	3.25	8.15	137.28
800	54.92	504.35	5.80	3.35	8.44	137.28
801	54.97	513.76	5.91	3.35	8.28	137.28
802	55.02	514.17	5.71	3.35	8.29	137.28
803	55.12	512.24	5.99	3.35	9.19	137.28
804	55.17	437.14	6.44	3.35	10.90	137.28
805	55.25	397.97	6.94	3.54	12.33	137.28
806	55.31	396.35	6.00	3.63	12.48	137.28
807	55.36	388.16	5.24	3.73	11.51	136.87
808	55.45	379.86	4.35	3.82	10.76	135.80
809	55.50	375.10	3.96	3.82	10.78	135.09
810	55.60	342.61	4.16	3.82	11.41	134.98
811	55.65	335.83	4.33	3.82	12.01	134.55
812	55.71	318.11	3.48	3.73	11.81	133.90
813	55.75	318.32	3.23	4.01	11.15	133.00
814	55.79	324.59	3.09	4.01	10.75	132.84
815	55.84	332.28	3.22	4.01	10.43	132.92
816	55.89	340.38	3.26	4.11	10.29	133.07

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	55.90	341.19	3.24	4.30	10.16	133.10
818	55.94	341.70	3.23	4.30	10.40	133.09
819	55.99	325.71	3.29	4.40	10.86	133.10
820	56.03	315.28	3.33	4.40	11.37	133.06
821	56.08	312.45	3.28	4.40	11.60	132.92
822	56.14	307.08	3.17	4.40	11.73	132.73
823	56.22	299.39	3.13	4.40	11.94	132.53
824	56.28	293.01	3.09	4.49	12.14	132.38
825	56.33	290.28	3.03	4.40	12.22	132.35
826	56.38	294.23	3.11	4.40	12.04	132.26
827	56.45	297.47	2.97	4.40	11.65	132.30
828	56.52	312.14	3.01	4.40	11.06	132.37
829	56.62	327.93	3.08	4.40	10.51	132.50
830	56.66	335.32	3.02	4.40	9.79	132.45
831	56.73	351.82	2.83	4.40	9.62	132.89
832	56.81	362.85	3.53	4.49	9.77	133.43
833	56.95	356.47	3.65	4.40	10.06	134.06
834	57.00	370.75	3.68	4.40	10.03	134.48
835	57.09	389.98	4.06	4.40	10.22	134.71
836	57.19	358.40	4.02	4.59	10.60	134.88
837	57.27	357.18	4.00	4.49	11.00	134.55
838	57.35	346.35	3.69	4.59	10.13	133.80
839	57.44	369.23	2.85	4.49	9.47	132.97
840	57.50	352.73	2.88	4.59	8.69	132.46
841	57.52	370.95	2.99	4.30	8.68	133.16
842	57.58	410.42	3.60	4.30	8.49	134.41
843	57.63	446.56	4.36	4.30	8.42	135.32
844	57.72	439.07	4.21	4.40	8.40	135.58
845	57.77	431.17	3.97	4.40	8.22	135.14
846	57.82	430.77	3.67	4.40	7.74	134.36
847	57.91	426.51	3.05	4.40	6.86	133.51
848	57.96	452.73	2.75	4.40	6.01	132.56
849	58.02	449.09	2.48	4.40	5.35	132.23
850	58.09	474.69	2.59	4.49	5.13	132.30
851	58.16	483.80	2.77	4.49	4.92	132.61
852	58.25	495.95	2.73	4.49	5.00	132.98
853	58.30	493.42	2.98	4.49	5.44	133.54
854	58.40	473.38	3.46	4.49	5.94	133.95
855	58.50	471.86	3.32	4.49	6.39	134.14
856	58.56	460.12	3.32	4.49	6.35	134.03
857	58.64	470.34	3.32	4.49	6.52	134.15
858	58.73	463.76	3.50	4.68	6.66	134.73
859	58.78	490.08	4.08	4.68	6.43	134.94
860	58.88	510.42	3.53	4.68	6.01	135.03
861	58.97	519.43	3.50	4.78	5.46	134.39
862	59.07	503.03	3.11	4.78	5.31	133.97
863	59.13	496.05	2.99	4.78	5.28	133.42
864	59.23	481.47	2.88	4.78	5.21	132.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	59.31	476.41	2.60	4.78	5.30	132.24
866	59.38	435.32	2.31	4.78	5.27	131.56
867	59.41	439.12	2.27	4.78	5.38	131.23
868	59.46	442.91	2.34	4.78	5.29	131.28
869	59.51	448.48	2.34	4.78	5.27	131.25
870	59.57	439.07	2.23	4.78	5.63	132.20
871	59.66	467.91	3.25	4.87	5.58	132.94
872	59.75	505.97	3.06	4.97	6.03	134.45
873	59.80	502.83	4.04	4.97	6.32	135.37
874	59.85	510.42	4.53	4.97	6.89	136.20
875	59.91	512.45	4.44	4.97	7.09	136.30
876	59.99	489.57	4.24	4.97	7.40	136.48
877	60.05	494.33	4.91	4.87	8.36	136.97
878	60.09	458.80	5.56	4.78	9.17	137.25
879	60.14	440.99	5.00	4.78	9.81	137.14
880	60.19	433.30	4.90	4.78	9.70	136.76
881	60.22	439.07	4.84	4.78	9.61	136.51
882	60.28	430.16	4.56	4.78	10.15	136.19
883	60.33	369.53	4.52	4.78	11.14	135.77
884	60.38	343.82	4.41	4.78	12.93	135.37
885	60.42	303.34	4.35	4.68	14.24	134.92
886	60.48	281.88	4.12	4.68	14.94	133.83
887	60.57	260.63	2.98	4.59	14.40	131.99
888	60.66	244.74	2.02	4.59	13.41	129.58
889	60.68	226.11	1.72	4.49	12.77	127.88
890	60.69	225.45	1.67	4.01	12.50	126.95
891	60.74	224.80	1.43	4.11	12.59	126.30
892	60.79	202.83	1.36	4.21	12.85	125.42
893	60.84	190.99	1.24	4.11	13.42	124.52
894	60.89	182.49	1.05	4.11	13.76	123.73
895	60.98	173.38	1.04	4.01	14.35	123.40
896	61.03	167.00	1.14	4.01	16.66	125.09
897	61.08	163.66	1.94	4.01	20.32	128.00
898	61.18	163.76	3.09	3.92	22.76	129.84
899	61.23	166.29	2.90	3.92	24.31	131.32
900	61.31	174.39	3.66	3.92	20.35	131.18
901	61.42	241.39	2.47	3.92	15.65	131.06
902	61.47	293.32	2.18	4.01	10.48	129.51
903	61.51	326.62	1.66	3.92	7.95	129.12
904	61.54	373.78	1.86	3.73	6.66	129.28
905	61.57	397.87	2.12	3.73	6.17	130.14
906	61.58	415.68	2.20	3.54	5.00	130.33
907	61.61	442.20	1.90	3.54	6.02	129.76
908	61.63	322.26	1.78	2.77	6.49	129.08
909	61.63	338.36	1.80	2.77	11.34	128.31
910	61.66	112.95	1.97	2.20	16.91	128.00
911	61.67	122.67	2.10	2.20	26.40	127.65
912	61.70	152.93	2.30	2.20	22.91	128.46

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	61.71	183.20	2.33	2.20	19.72	129.29
914	61.76	206.48	2.50	2.10	17.47	129.99
915	61.80	229.45	2.69	2.01	15.78	130.50
916	61.84	250.50	2.60	2.01	13.82	130.39
917	61.86	271.15	2.16	2.01	11.07	129.64
918	61.93	317.51	1.72	2.01	8.65	128.83
919	61.98	348.28	1.71	2.01	5.00	128.76
920	62.04	407.39	1.86	2.01	5.00	130.00
921	62.09	460.93	2.44	2.10	5.00	130.94
922	62.14	486.94	2.29	2.01	4.65	131.59
923	62.19	497.77	2.32	2.01	4.30	131.67
924	62.24	512.55	2.43	2.01	4.19	131.86
925	62.26	516.39	2.43	2.01	4.03	131.99
926	62.29	528.94	2.40	2.10	4.03	131.96
927	62.38	511.74	2.40	2.20	4.39	132.48
928	62.44	506.37	2.97	2.10	5.19	132.83
929	62.46	452.63	2.92	2.10	5.89	133.06
930	62.47	448.12	2.80	1.24	6.21	132.63
931	62.51	443.62	2.61	1.43	5.98	132.52
932	62.56	469.23	2.76	1.53	5.91	132.86
933	62.60	479.04	3.12	1.53	5.80	133.25
934	62.65	484.51	2.99	1.53	5.69	133.25
935	62.70	481.58	2.73	1.53	5.44	132.87
936	62.75	480.87	2.67	1.53	5.25	132.60
937	62.80	486.64	2.68	1.62	4.98	132.62
938	62.85	516.90	2.69	1.62	4.37	132.78
939	62.89	572.26	2.69	1.72	3.80	133.35
940	62.97	618.32	3.10	1.82	3.40	134.28
941	63.04	668.31	3.58	1.82	3.09	135.14
942	63.09	716.80	3.59	1.82	2.87	135.70
943	63.13	724.18	3.74	1.91	2.94	136.16
944	63.19	705.46	4.21	1.91	3.36	136.94
945	63.23	719.83	4.89	1.91	3.84	137.28
946	63.28	735.32	5.37	1.91	4.17	137.28
947	63.32	725.10	5.58	2.01	3.85	137.28
948	63.38	727.02	3.92	2.10	2.64	135.83
949	63.44	724.79	1.47	2.10	1.89	134.28
950	63.52	728.13	3.49	2.29	1.92	134.03
951	63.57	693.42	3.66	2.68	2.71	135.18
952	63.66	670.44	3.03	2.68	3.13	134.92
953	63.73	614.77	3.31	2.77	4.81	133.80
954	63.76	319.53	2.86	3.15	6.52	133.28
955	63.76	432.39	2.88	3.15	7.53	132.72
956	63.78	483.50	2.92	3.15	6.10	133.35
957	63.81	499.59	3.22	3.15	5.61	134.22
958	63.85	555.36	3.75	3.15	5.72	134.88
959	63.86	524.19	3.76	3.15	6.14	135.34
960	63.91	488.05	3.95	3.25	6.96	135.56

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	63.94	481.37	4.28	3.06	7.58	135.81
962	63.95	481.78	4.31	2.96	7.84	136.00
963	64.00	477.73	4.30	2.96	7.92	135.94
964	64.02	469.13	4.22	2.96	7.88	135.77
965	64.05	472.67	4.05	2.96	7.62	135.55
966	64.09	485.42	3.89	2.96	7.39	135.35
967	64.11	476.31	3.87	3.06	7.15	135.11
968	64.15	478.34	3.65	3.06	6.89	134.84
969	64.20	492.00	3.47	3.06	6.53	134.82
970	64.25	512.45	3.75	3.06	6.14	134.94
971	64.29	533.19	3.70	3.06	5.78	135.26
972	64.34	561.33	3.79	3.25	5.01	135.28
973	64.43	616.49	3.54	3.25	4.34	135.35
974	64.48	639.47	3.59	3.35	3.80	135.20
975	64.53	636.74	3.43	3.35	3.33	134.70
976	64.58	651.72	2.78	3.35	3.10	134.64
977	64.63	676.61	3.45	3.44	2.91	135.01
978	64.68	713.46	3.79	3.44	3.16	136.27
979	64.73	738.66	4.50	3.44	3.23	136.63
980	64.77	703.94	3.99	3.44	3.00	136.64
981	64.82	764.06	3.71	3.63	2.55	136.18
982	64.87	785.42	3.67	3.63	2.65	135.90
983	64.89	648.27	3.66	3.82	2.87	135.82
984	64.93	708.09	3.69	3.82	3.20	135.78
985	64.94	712.24	3.73	3.92	2.93	135.98
986	64.98	726.92	3.83	3.92	2.86	136.11
987	64.99	737.75	3.84	4.01	2.79	136.19
988	65.03	737.24	3.82	4.01	2.77	136.10
989	65.08	721.96	3.70	4.11	2.68	135.79
990	65.13	721.76	3.39	4.01	2.53	135.18
991	65.17	702.63	3.00	4.21	2.31	134.38
992	65.22	686.23	2.70	4.30	2.22	133.76
993	65.23	678.84	2.70	4.30	2.19	133.47
994	65.28	679.40	2.71	4.40	2.24	133.50
995	65.32	679.40	2.75	4.49	2.48	134.03
996	65.37	679.95	3.32	4.49	2.63	134.36
997	65.42	680.97	3.11	4.49	2.78	134.78
998	65.47	692.71	3.26	4.49	2.89	134.63
999	65.48	641.09	3.19	4.40	3.08	134.58
1000	65.49	637.65	3.11	4.01	3.14	134.13
1001	65.52	637.65	2.79	4.40	3.09	133.95
1002	65.57	634.21	2.97	4.30	1.61	130.82
1003	65.62	664.97	0.00	4.40	0.17	126.03
1004	65.67	684.10	0.00	4.49	N/A	87.36
1005	65.69	698.07	0.00	4.59	N/A	87.36
1006	65.72	709.31	0.00	4.59	N/A	87.36
1007	65.77	749.49	0.00	4.59	N/A	87.36
1008	65.82	797.77	0.00	4.59	N/A	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	65.86	824.89	0.00	4.59	N/A	87.36
1010	65.86	813.05	0.00	4.59	N/A	87.36
1011	65.91	862.75	0.00	4.68	N/A	87.36
1012	65.96	886.13	0.00	4.78	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.01	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
2	0.04	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
3	0.08	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
4	0.10	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
5	0.13	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
6	0.18	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
7	0.22	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
8	0.27	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
9	0.33	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
10	0.36	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
11	0.37	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
12	0.38	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
13	0.42	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
14	0.44	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
15	0.47	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
16	0.47	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
17	0.52	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
18	0.56	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
19	0.58	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
20	0.61	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
21	0.66	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
22	0.76	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
23	0.80	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
24	0.81	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
25	0.85	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
26	0.86	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
27	0.90	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
28	0.95	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
29	1.00	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
30	1.05	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
31	1.14	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
32	1.24	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
33	1.31	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
34	1.36	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
35	1.37	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
36	1.39	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
37	1.43	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
38	1.44	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
39	1.49	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
40	1.53	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
41	1.58	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
42	1.63	0.09	0.00	0.09	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
43	1.68	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
44	1.72	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
45	1.77	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
46	1.82	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
47	1.86	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
48	1.92	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	1.97	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
50	2.01	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
51	2.09	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
52	2.16	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
53	2.20	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
54	2.25	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
55	2.31	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
56	2.37	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
57	2.40	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
58	2.46	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
59	2.54	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
60	2.59	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
61	2.69	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
62	2.74	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
63	2.83	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
64	2.88	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
65	2.98	0.16	0.00	0.16	1.00	0.272	1.68	0.161	1.00	1.10	2.000	No
66	3.03	0.16	0.00	0.16	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
67	3.12	0.17	0.00	0.17	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
68	3.21	0.17	0.00	0.17	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
69	3.27	0.17	0.00	0.17	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
70	3.34	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
71	3.41	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
72	3.51	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
73	3.55	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
74	3.65	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
75	3.75	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
76	3.83	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
77	3.94	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
78	4.04	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
79	4.13	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
80	4.24	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
81	4.38	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
82	4.50	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
83	4.62	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
84	4.71	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
85	4.75	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
86	4.84	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
87	4.89	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
88	4.94	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
89	4.98	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
90	5.07	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
91	5.13	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
92	5.17	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
93	5.27	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
94	5.32	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
95	5.42	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
96	5.46	0.30	0.00	0.30	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	5.56	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
98	5.61	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
99	5.71	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
100	5.78	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
101	5.85	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
102	5.95	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
103	6.00	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
104	6.09	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
105	6.14	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
106	6.24	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
107	6.30	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
108	6.38	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
109	6.46	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
110	6.50	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
111	6.56	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
112	6.63	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
113	6.68	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
114	6.76	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
115	6.82	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
116	6.88	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
117	6.96	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
118	7.03	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
119	7.11	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
120	7.16	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
121	7.26	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
122	7.31	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
123	7.40	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
124	7.45	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
125	7.54	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
126	7.60	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
127	7.68	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
128	7.74	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
129	7.83	0.43	0.00	0.43	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
130	7.90	0.43	0.00	0.43	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
131	7.98	0.43	0.00	0.43	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
132	8.05	0.44	0.00	0.44	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
133	8.12	0.44	0.00	0.44	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
134	8.19	0.45	0.00	0.45	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
135	8.27	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
136	8.36	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
137	8.41	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
138	8.50	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
139	8.60	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
140	8.70	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
141	8.74	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
142	8.78	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
143	8.81	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
144	8.86	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	8.91	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
146	8.94	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
147	9.02	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
148	9.10	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
149	9.17	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
150	9.22	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
151	9.31	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
152	9.37	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
153	9.42	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
154	9.52	0.52	0.00	0.52	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
155	9.60	0.53	0.00	0.53	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
156	9.66	0.53	0.00	0.53	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
157	9.74	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
158	9.81	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
159	9.89	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
160	9.98	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
161	10.03	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
162	10.13	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
163	10.23	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
164	10.32	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
165	10.38	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
166	10.47	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
167	10.57	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
168	10.66	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
169	10.76	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
170	10.85	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
171	10.92	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
172	11.00	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
173	11.07	0.61	0.00	0.61	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
174	11.10	0.61	0.00	0.61	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
175	11.15	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
176	11.19	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
177	11.24	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
178	11.29	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
179	11.34	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
180	11.40	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
181	11.47	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
182	11.53	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
183	11.58	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
184	11.65	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
185	11.72	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
186	11.77	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
187	11.82	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
188	11.88	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
189	11.97	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
190	12.02	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
191	12.06	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
192	12.11	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	12.21	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
194	12.25	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
195	12.30	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
196	12.31	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
197	12.32	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
198	12.35	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
199	12.40	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
200	12.45	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
201	12.52	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
202	12.56	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
203	12.62	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
204	12.65	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
205	12.71	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
206	12.76	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
207	12.83	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
208	12.88	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
209	12.93	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
210	12.98	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
211	13.03	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
212	13.04	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
213	13.07	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
214	13.13	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
215	13.17	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
216	13.22	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
217	13.27	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
218	13.32	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
219	13.37	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
220	13.41	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
221	13.46	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
222	13.51	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
223	13.56	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
224	13.60	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
225	13.66	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
226	13.75	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
227	13.80	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
228	13.89	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
229	13.94	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
230	13.99	0.78	0.00	0.78	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
231	14.09	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
232	14.14	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
233	14.23	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
234	14.28	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
235	14.38	0.80	0.00	0.80	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
236	14.42	0.80	0.00	0.80	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
237	14.52	0.81	0.00	0.81	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
238	14.57	0.81	0.00	0.81	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
239	14.67	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
240	14.68	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	14.70	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
242	14.75	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
243	14.80	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
244	14.89	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
245	14.94	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
246	15.04	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
247	15.13	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
248	15.21	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
249	15.28	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
250	15.38	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
251	15.47	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
252	15.57	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
253	15.67	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
254	15.77	0.88	0.00	0.88	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
255	15.86	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
256	15.96	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
257	16.05	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
258	16.15	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
259	16.25	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
260	16.31	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
261	16.39	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
262	16.48	0.92	0.00	0.92	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
263	16.59	0.93	0.00	0.93	0.97	0.263	1.68	0.157	1.00	1.10	2.000	No
264	16.68	0.93	0.00	0.93	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
265	16.76	0.94	0.00	0.94	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
266	16.86	0.94	0.00	0.94	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
267	16.92	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
268	17.02	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
269	17.11	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
270	17.22	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
271	17.35	0.97	0.00	0.97	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
272	17.45	0.97	0.00	0.97	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
273	17.55	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
274	17.61	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
275	17.64	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
276	17.70	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
277	17.75	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
278	17.80	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
279	17.85	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
280	17.94	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
281	17.99	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
282	18.09	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
283	18.15	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
284	18.23	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
285	18.33	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
286	18.43	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
287	18.52	1.04	0.00	1.04	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
288	18.59	1.04	0.00	1.04	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	18.72	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
290	18.81	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
291	18.87	1.06	0.00	1.06	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
292	18.95	1.06	0.00	1.06	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
293	19.05	1.07	0.00	1.07	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
294	19.14	1.07	0.00	1.07	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
295	19.22	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
296	19.29	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
297	19.38	1.09	0.00	1.09	0.96	0.262	1.68	0.156	0.99	1.10	2.000	Yes
298	19.44	1.09	0.00	1.09	0.96	0.262	1.68	0.156	0.99	1.10	2.000	Yes
299	19.53	1.09	0.00	1.09	0.96	0.262	1.68	0.155	0.99	1.10	2.000	Yes
300	19.62	1.10	0.00	1.10	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
301	19.69	1.10	0.00	1.10	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
302	19.79	1.11	0.00	1.11	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
303	19.86	1.11	0.00	1.11	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
304	19.97	1.12	0.00	1.12	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
305	20.07	1.13	0.00	1.13	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
306	20.16	1.13	0.00	1.13	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
307	20.26	1.14	0.00	1.14	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
308	20.34	1.14	0.00	1.14	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
309	20.43	1.15	0.00	1.15	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
310	20.50	1.15	0.00	1.15	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
311	20.60	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
312	20.62	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
313	20.63	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
314	20.68	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
315	20.73	1.17	0.00	1.17	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
316	20.82	1.17	0.00	1.17	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
317	20.87	1.17	0.00	1.17	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
318	20.91	1.18	0.00	1.18	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
319	20.96	1.18	0.00	1.18	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
320	21.05	1.19	0.00	1.19	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
321	21.11	1.19	0.00	1.19	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
322	21.17	1.19	0.00	1.19	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
323	21.25	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.98	1.10	2.000	Yes
324	21.30	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.98	1.10	2.000	Yes
325	21.37	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
326	21.45	1.21	0.00	1.21	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
327	21.49	1.21	0.00	1.21	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
328	21.58	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
329	21.64	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
330	21.69	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
331	21.78	1.23	0.00	1.23	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
332	21.83	1.23	0.00	1.23	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
333	21.89	1.24	0.00	1.24	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
334	21.98	1.24	0.00	1.24	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
335	22.03	1.25	0.00	1.25	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
336	22.12	1.25	0.00	1.25	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	22.22	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
338	22.26	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
339	22.36	1.27	0.00	1.27	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
340	22.41	1.27	0.00	1.27	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
341	22.51	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
342	22.60	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
343	22.70	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
344	22.75	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
345	22.84	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
346	22.89	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
347	22.90	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
348	22.94	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
349	23.00	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
350	23.08	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
351	23.13	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
352	23.20	1.32	0.00	1.32	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
353	23.27	1.32	0.00	1.32	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
354	23.33	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
355	23.42	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
356	23.48	1.34	0.00	1.34	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
357	23.57	1.34	0.00	1.34	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
358	23.61	1.34	0.00	1.34	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
359	23.66	1.35	0.00	1.35	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
360	23.73	1.35	0.00	1.35	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
361	23.80	1.36	0.00	1.36	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
362	23.85	1.36	0.00	1.36	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
363	23.94	1.36	0.00	1.36	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
364	24.00	1.37	0.00	1.37	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
365	24.09	1.37	0.00	1.37	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
366	24.16	1.38	0.00	1.38	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
367	24.24	1.38	0.00	1.38	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
368	24.33	1.39	0.00	1.39	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
369	24.43	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
370	24.52	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
371	24.58	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
372	24.59	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
373	24.63	1.41	0.00	1.41	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
374	24.68	1.41	0.00	1.41	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
375	24.77	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
376	24.82	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
377	24.92	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
378	25.01	1.43	0.00	1.43	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
379	25.06	1.43	0.00	1.43	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
380	25.16	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
381	25.25	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
382	25.30	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
383	25.41	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	Yes
384	25.49	1.46	0.00	1.46	0.94	0.257	1.68	0.153	0.94	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	25.55	1.46	0.00	1.46	0.94	0.257	1.68	0.153	0.94	1.10	2.000	Yes
386	25.64	1.47	0.00	1.47	0.94	0.256	1.68	0.152	0.94	1.10	2.000	Yes
387	25.70	1.47	0.00	1.47	0.94	0.256	1.68	0.152	0.94	1.10	2.000	Yes
388	25.79	1.48	0.00	1.48	0.94	0.256	1.68	0.152	0.94	1.10	2.000	Yes
389	25.89	1.48	0.00	1.48	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
390	25.94	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
391	26.02	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
392	26.12	1.50	0.00	1.50	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
393	26.17	1.50	0.00	1.50	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
394	26.28	1.51	0.00	1.51	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
395	26.36	1.51	0.00	1.51	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
396	26.45	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
397	26.50	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
398	26.61	1.53	0.00	1.53	0.94	0.255	1.68	0.152	0.93	1.10	2.000	Yes
399	26.70	1.53	0.00	1.53	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
400	26.77	1.54	0.00	1.54	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
401	26.85	1.54	0.00	1.54	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
402	26.94	1.54	0.00	1.54	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
403	27.04	1.55	0.00	1.55	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
404	27.14	1.56	0.00	1.56	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
405	27.23	1.56	0.00	1.56	0.93	0.255	1.68	0.151	0.93	1.10	2.000	No
406	27.28	1.56	0.00	1.56	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
407	27.29	1.56	0.00	1.56	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
408	27.38	1.57	0.00	1.57	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
409	27.48	1.57	0.00	1.57	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
410	27.57	1.58	0.00	1.58	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
411	27.64	1.58	0.00	1.58	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
412	27.65	1.58	0.00	1.58	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
413	27.74	1.59	0.00	1.59	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
414	27.80	1.59	0.00	1.59	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
415	27.90	1.60	0.00	1.60	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
416	27.99	1.60	0.00	1.60	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
417	28.07	1.61	0.00	1.61	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
418	28.16	1.61	0.00	1.61	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
419	28.25	1.62	0.00	1.62	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
420	28.34	1.62	0.00	1.62	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
421	28.44	1.63	0.00	1.63	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
422	28.53	1.63	0.00	1.63	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
423	28.62	1.64	0.00	1.64	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
424	28.76	1.65	0.00	1.65	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
425	28.86	1.65	0.00	1.65	0.93	0.253	1.68	0.150	0.91	1.10	2.000	No
426	28.96	1.66	0.00	1.66	0.93	0.253	1.68	0.150	0.91	1.10	2.000	No
427	29.08	1.66	0.00	1.66	0.93	0.253	1.68	0.150	0.91	1.10	2.000	No
428	29.19	1.67	0.00	1.67	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
429	29.29	1.68	0.00	1.68	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
430	29.39	1.68	0.00	1.68	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
431	29.50	1.69	0.00	1.69	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
432	29.63	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	29.65	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
434	29.66	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
435	29.72	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
436	29.80	1.71	0.00	1.71	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
437	29.85	1.71	0.00	1.71	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
438	29.94	1.72	0.00	1.72	0.92	0.251	1.68	0.149	0.91	1.10	2.000	Yes
439	30.00	1.72	0.00	1.72	0.92	0.251	1.68	0.149	0.91	1.10	2.000	Yes
440	30.05	1.72	0.00	1.72	0.92	0.251	1.68	0.149	0.91	1.10	2.000	Yes
441	30.14	1.73	0.00	1.73	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
442	30.19	1.73	0.01	1.73	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
443	30.24	1.74	0.01	1.73	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
444	30.29	1.74	0.01	1.73	0.92	0.252	1.68	0.150	0.91	1.10	0.182	No
445	30.38	1.75	0.01	1.73	0.92	0.252	1.68	0.150	0.91	1.10	0.182	No
446	30.43	1.75	0.01	1.74	0.92	0.253	1.68	0.150	0.91	1.10	0.182	No
447	30.48	1.75	0.01	1.74	0.92	0.253	1.68	0.150	0.91	1.10	0.183	No
448	30.54	1.76	0.02	1.74	0.92	0.253	1.68	0.150	0.91	1.10	0.183	No
449	30.62	1.76	0.02	1.74	0.92	0.253	1.68	0.151	0.91	1.10	0.183	No
450	30.67	1.76	0.02	1.74	0.92	0.253	1.68	0.151	0.91	1.10	0.183	No
451	30.72	1.77	0.02	1.74	0.92	0.254	1.68	0.151	0.90	1.10	0.183	No
452	30.76	1.77	0.02	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.183	No
453	30.86	1.78	0.03	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
454	30.91	1.78	0.03	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
455	30.95	1.78	0.03	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
456	31.03	1.79	0.03	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
457	31.10	1.79	0.03	1.76	0.91	0.255	1.68	0.151	0.90	1.10	0.184	No
458	31.15	1.79	0.04	1.76	0.91	0.255	1.68	0.151	0.90	1.10	0.184	No
459	31.20	1.80	0.04	1.76	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
460	31.26	1.80	0.04	1.76	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
461	31.34	1.81	0.04	1.76	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
462	31.37	1.81	0.04	1.77	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
463	31.38	1.81	0.04	1.77	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
464	31.43	1.81	0.04	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.185	No
465	31.47	1.81	0.05	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.185	No
466	31.55	1.82	0.05	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.185	No
467	31.59	1.82	0.05	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
468	31.66	1.83	0.05	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
469	31.73	1.83	0.05	1.78	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
470	31.78	1.83	0.06	1.78	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
471	31.84	1.84	0.06	1.78	0.91	0.257	1.68	0.153	0.90	1.10	0.186	No
472	31.93	1.84	0.06	1.78	0.91	0.257	1.68	0.153	0.90	1.10	0.186	No
473	31.98	1.85	0.06	1.78	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
474	32.02	1.85	0.06	1.79	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
475	32.09	1.85	0.07	1.79	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
476	32.16	1.86	0.07	1.79	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
477	32.22	1.86	0.07	1.79	0.91	0.258	1.68	0.153	0.90	1.10	0.187	No
478	32.27	1.86	0.07	1.79	0.91	0.258	1.68	0.153	0.90	1.10	0.187	No
479	32.34	1.87	0.07	1.80	0.91	0.258	1.68	0.153	0.90	1.10	0.187	No
480	32.42	1.87	0.08	1.80	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	32.46	1.88	0.08	1.80	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
482	32.54	1.88	0.08	1.80	0.91	0.258	1.68	0.154	0.90	1.10	0.188	No
483	32.60	1.89	0.08	1.80	0.91	0.259	1.68	0.154	0.90	1.10	0.188	No
484	32.67	1.89	0.08	1.81	0.91	0.259	1.68	0.154	0.90	1.10	0.188	No
485	32.75	1.89	0.09	1.81	0.91	0.259	1.68	0.154	0.90	1.10	0.188	No
486	32.81	1.90	0.09	1.81	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
487	32.89	1.90	0.09	1.81	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
488	32.94	1.91	0.09	1.82	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
489	32.95	1.91	0.09	1.82	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
490	33.00	1.91	0.09	1.82	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
491	33.06	1.91	0.10	1.82	0.90	0.260	1.68	0.154	0.90	1.10	0.189	No
492	33.11	1.92	0.10	1.82	0.90	0.260	1.68	0.154	0.90	1.10	0.189	No
493	33.20	1.92	0.10	1.82	0.90	0.260	1.68	0.154	0.90	1.10	0.189	No
494	33.25	1.93	0.10	1.83	0.90	0.260	1.68	0.155	0.90	1.10	0.190	No
495	33.34	1.93	0.10	1.83	0.90	0.260	1.68	0.155	0.90	1.10	0.190	No
496	33.38	1.94	0.11	1.83	0.90	0.260	1.68	0.155	0.90	1.10	0.190	No
497	33.48	1.94	0.11	1.83	0.90	0.260	1.68	0.155	0.90	1.10	0.190	No
498	33.58	1.95	0.11	1.84	0.90	0.261	1.68	0.155	0.90	1.10	0.190	No
499	33.63	1.95	0.11	1.84	0.90	0.261	1.68	0.155	0.90	1.10	0.190	No
500	33.73	1.96	0.12	1.84	0.90	0.261	1.68	0.155	0.90	1.10	0.191	No
501	33.82	1.96	0.12	1.84	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
502	33.87	1.97	0.12	1.85	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
503	33.96	1.97	0.12	1.85	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
504	34.02	1.98	0.13	1.85	0.90	0.262	1.68	0.155	0.89	1.10	0.191	No
505	34.11	1.98	0.13	1.85	0.90	0.262	1.68	0.156	0.89	1.10	0.191	No
506	34.18	1.99	0.13	1.86	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
507	34.26	1.99	0.13	1.86	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
508	34.35	2.00	0.14	1.86	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
509	34.44	2.00	0.14	1.87	0.89	0.262	1.68	0.156	0.89	1.10	0.192	No
510	34.49	2.01	0.14	1.87	0.89	0.262	1.68	0.156	0.89	1.10	0.192	No
511	34.59	2.01	0.14	1.87	0.89	0.263	1.68	0.156	0.89	1.10	0.192	No
512	34.69	2.02	0.15	1.87	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
513	34.76	2.03	0.15	1.88	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
514	34.83	2.03	0.15	1.88	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
515	34.93	2.04	0.15	1.88	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
516	35.02	2.04	0.16	1.89	0.89	0.263	1.68	0.157	0.89	1.10	0.193	No
517	35.12	2.05	0.16	1.89	0.89	0.263	1.68	0.157	0.89	1.10	0.193	No
518	35.22	2.06	0.16	1.89	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
519	35.30	2.06	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
520	35.38	2.07	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
521	35.43	2.07	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
522	35.46	2.07	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
523	35.51	2.08	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
524	35.56	2.08	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
525	35.66	2.08	0.18	1.91	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
526	35.70	2.09	0.18	1.91	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
527	35.80	2.09	0.18	1.91	0.88	0.264	1.68	0.157	0.89	1.10	2.000	Yes
528	35.89	2.10	0.18	1.92	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	35.96	2.10	0.19	1.92	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
530	36.04	2.11	0.19	1.92	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
531	36.14	2.12	0.19	1.92	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
532	36.19	2.12	0.19	1.93	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
533	36.28	2.12	0.20	1.93	0.88	0.265	1.68	0.158	0.89	1.10	2.000	Yes
534	36.33	2.13	0.20	1.93	0.88	0.265	1.68	0.158	0.89	1.10	0.195	No
535	36.42	2.13	0.20	1.93	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
536	36.48	2.14	0.20	1.93	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
537	36.52	2.14	0.20	1.94	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
538	36.62	2.14	0.21	1.94	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
539	36.68	2.15	0.21	1.94	0.88	0.266	1.68	0.158	0.89	1.10	0.196	No
540	36.77	2.15	0.21	1.94	0.88	0.266	1.68	0.158	0.89	1.10	0.196	No
541	36.86	2.16	0.21	1.95	0.88	0.266	1.68	0.158	0.89	1.10	2.000	Yes
542	36.90	2.16	0.22	1.95	0.88	0.266	1.68	0.158	0.89	1.10	2.000	Yes
543	37.00	2.17	0.22	1.95	0.88	0.266	1.68	0.158	0.88	1.10	2.000	Yes
544	37.10	2.17	0.22	1.95	0.88	0.266	1.68	0.158	0.88	1.10	2.000	Yes
545	37.20	2.18	0.22	1.96	0.87	0.266	1.68	0.158	0.88	1.10	2.000	Yes
546	37.29	2.19	0.23	1.96	0.87	0.266	1.68	0.158	0.88	1.10	2.000	Yes
547	37.39	2.19	0.23	1.96	0.87	0.266	1.68	0.158	0.88	1.10	2.000	Yes
548	37.49	2.20	0.23	1.97	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
549	37.53	2.20	0.24	1.97	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
550	37.58	2.21	0.24	1.97	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
551	37.62	2.21	0.24	1.97	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
552	37.69	2.21	0.24	1.97	0.87	0.267	1.68	0.158	0.88	1.10	0.197	No
553	37.77	2.22	0.24	1.98	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
554	37.82	2.22	0.24	1.98	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
555	37.87	2.22	0.25	1.98	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
556	37.91	2.23	0.25	1.98	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
557	37.97	2.23	0.25	1.98	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
558	38.06	2.24	0.25	1.99	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
559	38.10	2.24	0.25	1.99	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
560	38.17	2.24	0.25	1.99	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
561	38.25	2.25	0.26	1.99	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
562	38.35	2.26	0.26	2.00	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
563	38.40	2.26	0.26	2.00	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
564	38.46	2.26	0.26	2.00	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
565	38.54	2.27	0.27	2.00	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
566	38.60	2.27	0.27	2.00	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
567	38.69	2.28	0.27	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
568	38.74	2.28	0.27	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
569	38.83	2.29	0.28	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
570	38.88	2.29	0.28	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
571	38.97	2.30	0.28	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
572	39.02	2.30	0.28	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
573	39.11	2.31	0.28	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
574	39.16	2.31	0.29	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
575	39.23	2.31	0.29	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
576	39.24	2.31	0.29	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	39.28	2.32	0.29	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
578	39.32	2.32	0.29	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
579	39.39	2.32	0.29	2.03	0.86	0.268	1.68	0.159	0.88	1.10	2.000	Yes
580	39.47	2.33	0.30	2.03	0.86	0.268	1.68	0.159	0.88	1.10	2.000	Yes
581	39.54	2.33	0.30	2.04	0.86	0.268	1.68	0.159	0.88	1.10	2.000	Yes
582	39.62	2.34	0.30	2.04	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
583	39.71	2.34	0.30	2.04	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
584	39.76	2.35	0.30	2.04	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
585	39.85	2.35	0.31	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
586	39.90	2.36	0.31	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
587	40.00	2.36	0.31	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
588	40.06	2.37	0.31	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
589	40.15	2.37	0.32	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
590	40.21	2.38	0.32	2.06	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
591	40.29	2.38	0.32	2.06	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
592	40.35	2.38	0.32	2.06	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
593	40.43	2.39	0.33	2.06	0.85	0.268	1.68	0.159	0.87	1.10	2.000	Yes
594	40.52	2.39	0.33	2.07	0.85	0.268	1.68	0.159	0.87	1.10	2.000	Yes
595	40.58	2.40	0.33	2.07	0.85	0.268	1.68	0.159	0.87	1.10	2.000	Yes
596	40.67	2.40	0.33	2.07	0.85	0.268	1.68	0.159	0.87	1.10	2.000	Yes
597	40.77	2.41	0.34	2.07	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
598	40.84	2.41	0.34	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
599	40.89	2.42	0.34	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
600	40.94	2.42	0.34	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
601	41.03	2.43	0.34	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
602	41.08	2.43	0.35	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
603	41.14	2.43	0.35	2.09	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
604	41.22	2.44	0.35	2.09	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
605	41.28	2.44	0.35	2.09	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
606	41.33	2.44	0.35	2.09	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
607	41.42	2.45	0.36	2.09	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
608	41.47	2.45	0.36	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
609	41.52	2.46	0.36	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
610	41.62	2.46	0.36	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
611	41.67	2.47	0.36	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
612	41.76	2.47	0.37	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
613	41.82	2.48	0.37	2.11	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
614	41.90	2.48	0.37	2.11	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
615	41.99	2.49	0.37	2.11	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
616	42.05	2.49	0.38	2.11	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
617	42.15	2.50	0.38	2.12	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
618	42.23	2.50	0.38	2.12	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
619	42.30	2.51	0.38	2.12	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
620	42.38	2.51	0.39	2.13	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
621	42.48	2.52	0.39	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
622	42.57	2.52	0.39	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
623	42.64	2.53	0.39	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
624	42.72	2.53	0.40	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	42.82	2.54	0.40	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
626	42.90	2.55	0.40	2.14	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
627	42.97	2.55	0.40	2.15	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
628	43.06	2.56	0.41	2.15	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
629	43.15	2.56	0.41	2.15	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
630	43.20	2.56	0.41	2.15	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
631	43.30	2.57	0.41	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
632	43.40	2.58	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
633	43.48	2.58	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
634	43.51	2.58	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
635	43.52	2.58	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
636	43.56	2.59	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
637	43.61	2.59	0.42	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
638	43.67	2.59	0.43	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
639	43.72	2.60	0.43	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
640	43.80	2.60	0.43	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
641	43.85	2.61	0.43	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
642	43.90	2.61	0.43	2.18	0.81	0.267	1.68	0.159	0.87	1.10	0.201	No
643	43.94	2.61	0.43	2.18	0.81	0.267	1.68	0.159	0.87	1.10	0.201	No
644	43.99	2.62	0.44	2.18	0.81	0.267	1.68	0.158	0.87	1.10	0.201	No
645	44.08	2.62	0.44	2.18	0.81	0.267	1.68	0.158	0.87	1.10	0.201	No
646	44.14	2.62	0.44	2.18	0.81	0.267	1.68	0.158	0.87	1.10	0.201	No
647	44.22	2.63	0.44	2.19	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
648	44.28	2.63	0.45	2.19	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
649	44.33	2.64	0.45	2.19	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
650	44.40	2.64	0.45	2.19	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
651	44.48	2.65	0.45	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
652	44.52	2.65	0.45	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
653	44.61	2.66	0.46	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
654	44.72	2.66	0.46	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
655	44.77	2.67	0.46	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
656	44.91	2.67	0.47	2.21	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
657	44.95	2.68	0.47	2.21	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
658	45.02	2.68	0.47	2.21	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
659	45.04	2.68	0.47	2.21	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
660	45.06	2.69	0.47	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
661	45.11	2.69	0.47	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
662	45.15	2.69	0.47	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
663	45.21	2.69	0.47	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
664	45.25	2.70	0.48	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
665	45.30	2.70	0.48	2.22	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
666	45.35	2.70	0.48	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
667	45.41	2.71	0.48	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
668	45.49	2.71	0.48	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
669	45.55	2.72	0.49	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
670	45.63	2.72	0.49	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
671	45.69	2.73	0.49	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
672	45.78	2.73	0.49	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	45.84	2.74	0.49	2.24	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
674	45.93	2.74	0.50	2.25	0.79	0.265	1.68	0.157	0.86	1.10	0.201	No
675	46.02	2.75	0.50	2.25	0.79	0.265	1.68	0.157	0.86	1.10	2.000	Yes
676	46.08	2.75	0.50	2.25	0.79	0.265	1.68	0.157	0.86	1.10	2.000	Yes
677	46.16	2.76	0.50	2.25	0.79	0.265	1.68	0.157	0.86	1.10	2.000	Yes
678	46.24	2.76	0.51	2.26	0.79	0.265	1.68	0.157	0.86	1.10	2.000	Yes
679	46.31	2.77	0.51	2.26	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
680	46.41	2.77	0.51	2.26	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
681	46.48	2.78	0.51	2.26	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
682	46.56	2.78	0.52	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
683	46.65	2.79	0.52	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
684	46.75	2.79	0.52	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
685	46.84	2.80	0.53	2.27	0.78	0.264	1.68	0.157	0.86	1.10	2.000	Yes
686	46.94	2.81	0.53	2.28	0.78	0.264	1.68	0.157	0.86	1.10	0.201	No
687	47.02	2.81	0.53	2.28	0.78	0.264	1.68	0.157	0.86	1.10	0.201	No
688	47.08	2.81	0.53	2.28	0.78	0.264	1.68	0.157	0.86	1.10	0.201	No
689	47.12	2.82	0.53	2.28	0.78	0.264	1.68	0.157	0.86	1.10	0.201	No
690	47.16	2.82	0.54	2.28	0.78	0.263	1.68	0.157	0.86	1.10	0.201	No
691	47.21	2.82	0.54	2.28	0.78	0.263	1.68	0.157	0.86	1.10	0.201	No
692	47.27	2.82	0.54	2.29	0.78	0.263	1.68	0.157	0.86	1.10	0.201	No
693	47.35	2.83	0.54	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
694	47.40	2.83	0.54	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
695	47.50	2.84	0.55	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
696	47.55	2.84	0.55	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
697	47.61	2.84	0.55	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
698	47.69	2.85	0.55	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
699	47.76	2.85	0.55	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
700	47.83	2.85	0.56	2.30	0.77	0.263	1.68	0.156	0.86	1.10	0.201	No
701	47.93	2.86	0.56	2.30	0.77	0.263	1.68	0.156	0.86	1.10	0.201	No
702	48.02	2.87	0.56	2.30	0.77	0.263	1.68	0.156	0.86	1.10	0.201	No
703	48.09	2.87	0.56	2.30	0.77	0.262	1.68	0.156	0.86	1.10	0.201	No
704	48.18	2.87	0.57	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
705	48.27	2.88	0.57	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
706	48.37	2.88	0.57	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
707	48.46	2.89	0.58	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
708	48.52	2.89	0.58	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
709	48.60	2.90	0.58	2.32	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
710	48.70	2.90	0.58	2.32	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
711	48.79	2.91	0.59	2.32	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
712	48.85	2.91	0.59	2.32	0.76	0.262	1.68	0.155	0.85	1.10	0.200	No
713	48.94	2.92	0.59	2.32	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
714	49.04	2.92	0.59	2.33	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
715	49.13	2.93	0.60	2.33	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
716	49.23	2.93	0.60	2.33	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
717	49.33	2.94	0.60	2.33	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
718	49.38	2.94	0.60	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
719	49.42	2.94	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
720	49.48	2.95	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	49.53	2.95	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
722	49.58	2.95	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
723	49.63	2.96	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
724	49.72	2.96	0.62	2.35	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
725	49.77	2.96	0.62	2.35	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
726	49.83	2.97	0.62	2.35	0.75	0.260	1.68	0.155	0.85	1.10	0.200	No
727	49.92	2.97	0.62	2.35	0.75	0.260	1.68	0.155	0.85	1.10	0.200	No
728	49.97	2.98	0.62	2.35	0.75	0.260	1.68	0.155	0.85	1.10	0.199	No
729	50.04	2.98	0.63	2.36	0.75	0.260	1.68	0.154	0.85	1.10	0.199	No
730	50.11	2.99	0.63	2.36	0.75	0.260	1.68	0.154	0.85	1.10	0.199	No
731	50.20	2.99	0.63	2.36	0.75	0.260	1.68	0.154	0.85	1.10	0.199	No
732	50.27	3.00	0.63	2.36	0.75	0.260	1.68	0.154	0.85	1.10	0.199	No
733	50.34	3.00	0.63	2.36	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
734	50.45	3.01	0.64	2.37	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
735	50.54	3.01	0.64	2.37	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
736	50.59	3.01	0.64	2.37	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
737	50.68	3.02	0.65	2.37	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
738	50.79	3.03	0.65	2.38	0.74	0.259	1.68	0.154	0.85	1.10	0.199	No
739	50.88	3.03	0.65	2.38	0.74	0.259	1.68	0.154	0.85	1.10	0.199	No
740	50.98	3.04	0.65	2.38	0.74	0.259	1.68	0.154	0.85	1.10	0.199	No
741	51.07	3.04	0.66	2.38	0.74	0.258	1.68	0.154	0.85	1.10	0.199	No
742	51.17	3.05	0.66	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
743	51.24	3.05	0.66	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
744	51.33	3.06	0.67	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
745	51.46	3.06	0.67	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
746	51.46	3.06	0.67	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
747	51.51	3.07	0.67	2.40	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
748	51.56	3.07	0.67	2.40	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
749	51.65	3.07	0.68	2.40	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
750	51.71	3.08	0.68	2.40	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No
751	51.79	3.08	0.68	2.40	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
752	51.85	3.09	0.68	2.40	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
753	51.94	3.09	0.68	2.41	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
754	51.99	3.09	0.69	2.41	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
755	52.09	3.10	0.69	2.41	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
756	52.19	3.11	0.69	2.41	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
757	52.28	3.11	0.70	2.42	0.73	0.257	1.68	0.152	0.85	1.10	0.198	No
758	52.35	3.12	0.70	2.42	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
759	52.43	3.12	0.70	2.42	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
760	52.52	3.13	0.70	2.42	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
761	52.62	3.13	0.71	2.43	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
762	52.72	3.14	0.71	2.43	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
763	52.81	3.14	0.71	2.43	0.72	0.256	1.68	0.152	0.85	1.10	0.197	No
764	52.91	3.15	0.71	2.44	0.72	0.255	1.68	0.152	0.85	1.10	0.197	No
765	53.00	3.16	0.72	2.44	0.72	0.255	1.68	0.152	0.85	1.10	0.197	No
766	53.10	3.16	0.72	2.44	0.72	0.255	1.68	0.152	0.85	1.10	2.000	Yes
767	53.20	3.17	0.72	2.45	0.72	0.255	1.68	0.152	0.85	1.10	2.000	Yes
768	53.29	3.18	0.73	2.45	0.72	0.255	1.68	0.151	0.85	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	53.38	3.18	0.73	2.45	0.72	0.255	1.68	0.151	0.85	1.10	2.000	Yes
770	53.46	3.19	0.73	2.46	0.72	0.254	1.68	0.151	0.85	1.10	2.000	Yes
771	53.53	3.19	0.73	2.46	0.72	0.254	1.68	0.151	0.84	1.10	2.000	Yes
772	53.63	3.20	0.74	2.46	0.72	0.254	1.68	0.151	0.84	1.10	2.000	Yes
773	53.73	3.21	0.74	2.47	0.72	0.254	1.68	0.151	0.84	1.10	2.000	Yes
774	53.82	3.21	0.74	2.47	0.71	0.254	1.68	0.151	0.84	1.10	2.000	Yes
775	53.92	3.22	0.75	2.47	0.71	0.254	1.68	0.151	0.84	1.10	2.000	Yes
776	53.94	3.22	0.75	2.47	0.71	0.254	1.68	0.151	0.84	1.10	0.196	No
777	53.96	3.22	0.75	2.47	0.71	0.254	1.68	0.151	0.84	1.10	0.196	No
778	53.97	3.22	0.75	2.47	0.71	0.254	1.68	0.151	0.84	1.10	0.196	No
779	54.05	3.23	0.75	2.48	0.71	0.253	1.68	0.151	0.84	1.10	0.196	No
780	54.08	3.23	0.75	2.48	0.71	0.253	1.68	0.151	0.84	1.10	0.196	No
781	54.13	3.23	0.75	2.48	0.71	0.253	1.68	0.151	0.84	1.10	0.196	No
782	54.19	3.24	0.75	2.48	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
783	54.25	3.24	0.76	2.48	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
784	54.28	3.24	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
785	54.29	3.24	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
786	54.34	3.25	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
787	54.35	3.25	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
788	54.40	3.25	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
789	54.44	3.25	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
790	54.49	3.26	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
791	54.53	3.26	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
792	54.57	3.26	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
793	54.58	3.26	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
794	54.63	3.27	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
795	54.68	3.27	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
796	54.73	3.27	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
797	54.78	3.28	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
798	54.83	3.28	0.77	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
799	54.88	3.28	0.78	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
800	54.92	3.29	0.78	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
801	54.97	3.29	0.78	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
802	55.02	3.29	0.78	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
803	55.12	3.30	0.78	2.52	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
804	55.17	3.30	0.79	2.52	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
805	55.25	3.31	0.79	2.52	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
806	55.31	3.31	0.79	2.52	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
807	55.36	3.32	0.79	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
808	55.45	3.32	0.79	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
809	55.50	3.33	0.80	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
810	55.60	3.33	0.80	2.53	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
811	55.65	3.34	0.80	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
812	55.71	3.34	0.80	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
813	55.75	3.34	0.80	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
814	55.79	3.35	0.80	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
815	55.84	3.35	0.81	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
816	55.89	3.35	0.81	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	55.90	3.35	0.81	2.55	0.69	0.250	1.68	0.149	0.84	1.10	0.195	No
818	55.94	3.36	0.81	2.55	0.69	0.250	1.68	0.149	0.84	1.10	0.195	No
819	55.99	3.36	0.81	2.55	0.69	0.250	1.68	0.148	0.84	1.10	0.195	No
820	56.03	3.36	0.81	2.55	0.69	0.250	1.68	0.148	0.84	1.10	0.195	No
821	56.08	3.37	0.81	2.55	0.69	0.250	1.68	0.148	0.84	1.10	0.195	No
822	56.14	3.37	0.82	2.55	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
823	56.22	3.38	0.82	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
824	56.28	3.38	0.82	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
825	56.33	3.38	0.82	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
826	56.38	3.39	0.82	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
827	56.45	3.39	0.83	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
828	56.52	3.39	0.83	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
829	56.62	3.40	0.83	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
830	56.66	3.40	0.83	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
831	56.73	3.41	0.83	2.57	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
832	56.81	3.41	0.84	2.58	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
833	56.95	3.42	0.84	2.58	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
834	57.00	3.43	0.84	2.58	0.68	0.248	1.68	0.147	0.84	1.10	0.194	No
835	57.09	3.43	0.85	2.59	0.68	0.248	1.68	0.147	0.84	1.10	0.194	No
836	57.19	3.44	0.85	2.59	0.68	0.248	1.68	0.147	0.84	1.10	0.194	No
837	57.27	3.45	0.85	2.59	0.68	0.247	1.68	0.147	0.84	1.10	0.194	No
838	57.35	3.45	0.85	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
839	57.44	3.46	0.86	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
840	57.50	3.46	0.86	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
841	57.52	3.46	0.86	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
842	57.58	3.47	0.86	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
843	57.63	3.47	0.86	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
844	57.72	3.48	0.86	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
845	57.77	3.48	0.87	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
846	57.82	3.48	0.87	2.61	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
847	57.91	3.49	0.87	2.62	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
848	57.96	3.49	0.87	2.62	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
849	58.02	3.49	0.87	2.62	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
850	58.09	3.50	0.88	2.62	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
851	58.16	3.50	0.88	2.63	0.67	0.246	1.68	0.146	0.83	1.10	0.193	No
852	58.25	3.51	0.88	2.63	0.67	0.246	1.68	0.146	0.83	1.10	0.193	No
853	58.30	3.51	0.88	2.63	0.67	0.246	1.68	0.146	0.83	1.10	0.193	No
854	58.40	3.52	0.89	2.63	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
855	58.50	3.53	0.89	2.64	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
856	58.56	3.53	0.89	2.64	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
857	58.64	3.54	0.89	2.64	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
858	58.73	3.54	0.90	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
859	58.78	3.55	0.90	2.65	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
860	58.88	3.55	0.90	2.65	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
861	58.97	3.56	0.90	2.65	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
862	59.07	3.57	0.91	2.66	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
863	59.13	3.57	0.91	2.66	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
864	59.23	3.58	0.91	2.66	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	59.31	3.58	0.91	2.67	0.66	0.244	1.68	0.145	0.83	1.10	0.192	No
866	59.38	3.59	0.92	2.67	0.66	0.244	1.68	0.145	0.83	1.10	0.192	No
867	59.41	3.59	0.92	2.67	0.66	0.244	1.68	0.145	0.83	1.10	0.192	No
868	59.46	3.59	0.92	2.67	0.66	0.244	1.68	0.145	0.83	1.10	0.192	No
869	59.51	3.59	0.92	2.67	0.66	0.243	1.68	0.145	0.83	1.10	0.192	No
870	59.57	3.60	0.92	2.68	0.66	0.243	1.68	0.145	0.83	1.10	0.192	No
871	59.66	3.60	0.93	2.68	0.66	0.243	1.68	0.145	0.83	1.10	0.191	No
872	59.75	3.61	0.93	2.68	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
873	59.80	3.61	0.93	2.68	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
874	59.85	3.62	0.93	2.69	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
875	59.91	3.62	0.93	2.69	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
876	59.99	3.63	0.94	2.69	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
877	60.05	3.63	0.94	2.69	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
878	60.09	3.63	0.94	2.69	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
879	60.14	3.64	0.94	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
880	60.19	3.64	0.94	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
881	60.22	3.64	0.94	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
882	60.28	3.65	0.94	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
883	60.33	3.65	0.95	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
884	60.38	3.65	0.95	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
885	60.42	3.66	0.95	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
886	60.48	3.66	0.95	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
887	60.57	3.67	0.95	2.71	0.65	0.242	1.68	0.144	0.83	1.10	0.191	No
888	60.66	3.67	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
889	60.68	3.67	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
890	60.69	3.67	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
891	60.74	3.68	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
892	60.79	3.68	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
893	60.84	3.68	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
894	60.89	3.69	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
895	60.98	3.69	0.97	2.73	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
896	61.03	3.69	0.97	2.73	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
897	61.08	3.70	0.97	2.73	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
898	61.18	3.70	0.97	2.73	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
899	61.23	3.71	0.97	2.73	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
900	61.31	3.71	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
901	61.42	3.72	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
902	61.47	3.72	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
903	61.51	3.73	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
904	61.54	3.73	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
905	61.57	3.73	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
906	61.58	3.73	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
907	61.61	3.73	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
908	61.63	3.73	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
909	61.63	3.73	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
910	61.66	3.74	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
911	61.67	3.74	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
912	61.70	3.74	0.99	2.75	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	61.71	3.74	0.99	2.75	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
914	61.76	3.74	0.99	2.75	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
915	61.80	3.75	0.99	2.75	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
916	61.84	3.75	0.99	2.75	0.64	0.239	1.68	0.142	0.83	1.10	0.190	No
917	61.86	3.75	0.99	2.75	0.64	0.239	1.68	0.142	0.83	1.10	0.190	No
918	61.93	3.75	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.190	No
919	61.98	3.76	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
920	62.04	3.76	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
921	62.09	3.76	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
922	62.14	3.77	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
923	62.19	3.77	1.00	2.77	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
924	62.24	3.77	1.01	2.77	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
925	62.26	3.77	1.01	2.77	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
926	62.29	3.78	1.01	2.77	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
927	62.38	3.78	1.01	2.77	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
928	62.44	3.79	1.01	2.77	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
929	62.46	3.79	1.01	2.78	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
930	62.47	3.79	1.01	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
931	62.51	3.79	1.01	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
932	62.56	3.79	1.02	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
933	62.60	3.80	1.02	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
934	62.65	3.80	1.02	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
935	62.70	3.80	1.02	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
936	62.75	3.81	1.02	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
937	62.80	3.81	1.02	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
938	62.85	3.81	1.02	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
939	62.89	3.82	1.03	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
940	62.97	3.82	1.03	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
941	63.04	3.83	1.03	2.80	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
942	63.09	3.83	1.03	2.80	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
943	63.13	3.83	1.03	2.80	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
944	63.19	3.84	1.04	2.80	0.63	0.237	1.68	0.141	0.82	1.10	0.189	No
945	63.23	3.84	1.04	2.80	0.63	0.237	1.68	0.141	0.82	1.10	0.189	No
946	63.28	3.84	1.04	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
947	63.32	3.85	1.04	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
948	63.38	3.85	1.04	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
949	63.44	3.85	1.04	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
950	63.52	3.86	1.05	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
951	63.57	3.86	1.05	2.82	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
952	63.66	3.87	1.05	2.82	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
953	63.73	3.87	1.05	2.82	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
954	63.76	3.88	1.05	2.82	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
955	63.76	3.88	1.05	2.82	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
956	63.78	3.88	1.05	2.82	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
957	63.81	3.88	1.05	2.82	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
958	63.85	3.88	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
959	63.86	3.88	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
960	63.91	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	63.94	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
962	63.95	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
963	64.00	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
964	64.02	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
965	64.05	3.90	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
966	64.09	3.90	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
967	64.11	3.90	1.06	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
968	64.15	3.90	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
969	64.20	3.91	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
970	64.25	3.91	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
971	64.29	3.91	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
972	64.34	3.92	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
973	64.43	3.92	1.07	2.85	0.63	0.235	1.68	0.140	0.82	1.10	0.188	No
974	64.48	3.92	1.08	2.85	0.63	0.235	1.68	0.140	0.82	1.10	0.188	No
975	64.53	3.93	1.08	2.85	0.63	0.235	1.68	0.140	0.82	1.10	0.188	No
976	64.58	3.93	1.08	2.85	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
977	64.63	3.93	1.08	2.85	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
978	64.68	3.94	1.08	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
979	64.73	3.94	1.08	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
980	64.77	3.94	1.08	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
981	64.82	3.95	1.09	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
982	64.87	3.95	1.09	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
983	64.89	3.95	1.09	2.86	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
984	64.93	3.95	1.09	2.86	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
985	64.94	3.96	1.09	2.87	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
986	64.98	3.96	1.09	2.87	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
987	64.99	3.96	1.09	2.87	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
988	65.03	3.96	1.09	2.87	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
989	65.08	3.96	1.09	2.87	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
990	65.13	3.97	1.10	2.87	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
991	65.17	3.97	1.10	2.87	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
992	65.22	3.97	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
993	65.23	3.98	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
994	65.28	3.98	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
995	65.32	3.98	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
996	65.37	3.98	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
997	65.42	3.99	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
998	65.47	3.99	1.11	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
999	65.48	3.99	1.11	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1000	65.49	3.99	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1001	65.52	3.99	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1002	65.57	4.00	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1003	65.62	4.00	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1004	65.67	4.00	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1005	65.69	4.00	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1006	65.72	4.01	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1007	65.77	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No
1008	65.82	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	65.86	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No
1010	65.86	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No
1011	65.91	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No
1012	65.96	4.02	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.01	-0.03	N/A	-11.45	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
2	0.04	-0.03	N/A	-18.30	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
3	0.08	-0.07	N/A	-13.93	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
4	0.10	-0.03	N/A	-40.02	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
5	0.13	-0.03	N/A	-55.83	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
6	0.18	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
7	0.22	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
8	0.27	0.81	4.01	9.28	1.00	1.28	50.14	63.98	4.000	No	Yes	2.00
9	0.33	2.77	3.31	3.21	1.00	4.42	15.47	68.30	4.000	No	Yes	2.00
10	0.36	5.16	2.95	1.83	1.00	8.26	7.99	66.07	4.000	Yes	Yes	2.00
11	0.37	7.12	2.76	1.34	0.84	11.41	5.40	61.61	4.000	Yes	Yes	2.00
12	0.38	8.20	2.69	1.21	0.81	13.14	4.58	60.15	4.000	Yes	Yes	2.00
13	0.42	9.38	2.63	1.15	0.80	15.03	3.98	59.88	4.000	Yes	Yes	2.00
14	0.44	10.59	2.58	1.15	0.78	16.98	3.58	60.79	4.000	Yes	No	2.00
15	0.47	12.18	2.52	1.09	0.76	19.53	3.09	60.26	4.000	Yes	No	2.00
16	0.47	14.24	2.44	1.01	0.74	22.83	2.61	59.51	4.000	Yes	No	2.00
17	0.52	17.00	2.35	0.91	0.71	27.27	2.14	58.39	4.000	Yes	No	2.00
18	0.56	20.48	2.26	0.82	0.69	32.85	1.78	58.60	4.000	Yes	No	2.00
19	0.58	24.93	2.16	0.72	0.66	40.00	1.52	60.77	4.000	Yes	No	2.00
20	0.61	30.70	2.05	0.62	0.62	49.27	1.35	66.61	4.000	Yes	No	2.00
21	0.66	36.94	1.95	0.54	0.59	59.30	1.27	75.22	4.000	Yes	No	2.00
22	0.76	40.79	1.89	0.50	0.58	65.47	1.23	80.72	4.000	Yes	No	2.00
23	0.80	38.66	1.93	0.54	0.59	62.05	1.25	77.85	4.000	No	No	2.00
24	0.81	35.49	1.98	0.58	0.60	56.95	1.29	73.41	4.000	No	No	2.00
25	0.85	32.42	2.03	0.63	0.62	52.02	1.33	69.37	4.000	No	No	2.00
26	0.86	32.79	2.03	0.63	0.62	52.62	1.33	69.99	4.000	No	No	2.00
27	0.90	32.22	2.05	0.69	0.62	51.69	1.35	70.01	4.000	No	No	2.00
28	0.95	31.82	2.07	0.73	0.63	51.04	1.38	70.34	4.000	No	No	2.00
29	1.00	30.53	2.06	0.67	0.63	48.97	1.37	67.09	4.000	No	No	2.00
30	1.05	28.88	2.04	0.54	0.62	46.31	1.34	62.22	4.000	No	No	2.00
31	1.14	26.55	2.01	0.38	0.61	42.56	1.00	42.56	4.000	No	No	2.00
32	1.24	24.29	2.04	0.37	0.62	38.92	1.00	38.92	4.000	No	No	2.00
33	1.31	20.51	2.14	0.44	0.65	32.85	1.00	32.85	4.000	No	No	2.00
34	1.36	17.93	2.22	0.53	0.67	28.70	1.67	48.03	4.000	No	No	2.00
35	1.37	17.77	2.23	0.55	0.68	28.44	1.71	48.50	4.000	No	No	2.00
36	1.39	18.54	2.21	0.53	0.67	29.68	1.64	48.64	4.000	No	No	2.00
37	1.43	19.03	2.19	0.52	0.67	30.46	1.60	48.73	4.000	No	No	2.00
38	1.44	18.05	2.23	0.54	0.68	28.88	1.68	48.54	4.000	No	No	2.00
39	1.49	18.35	2.22	0.55	0.67	29.36	1.67	49.05	4.000	No	No	2.00
40	1.53	18.89	2.22	0.58	0.67	30.23	1.66	50.30	4.000	No	No	2.00
41	1.58	19.67	2.22	0.62	0.67	31.47	1.66	52.29	4.000	No	No	2.00
42	1.63	20.62	2.22	0.68	0.67	32.99	1.66	54.77	4.000	No	No	2.00
43	1.68	21.70	2.21	0.74	0.67	34.72	1.65	57.36	4.000	No	No	2.00
44	1.72	23.31	2.20	0.77	0.67	37.31	1.61	60.04	4.000	No	No	2.00
45	1.77	25.48	2.17	0.79	0.66	40.78	1.54	62.93	4.000	No	No	2.00
46	1.82	28.31	2.13	0.78	0.65	45.33	1.46	66.36	4.000	No	No	2.00
47	1.86	31.52	2.08	0.77	0.63	50.48	1.40	70.45	4.000	No	No	2.00
48	1.92	35.09	2.03	0.73	0.62	56.22	1.34	75.14	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	1.97	38.67	1.98	0.69	0.60	61.96	1.29	80.21	4.000	No	No	2.00
50	2.01	41.61	1.95	0.68	0.59	66.68	1.27	84.88	4.000	No	No	2.00
51	2.09	43.22	1.94	0.68	0.59	69.27	1.26	87.55	4.000	No	No	2.00
52	2.16	43.05	1.95	0.70	0.59	68.99	1.27	87.53	4.000	No	No	2.00
53	2.20	41.47	1.96	0.71	0.60	66.43	1.28	85.02	4.000	No	No	2.00
54	2.25	39.85	1.98	0.71	0.60	63.83	1.29	82.39	4.000	No	No	2.00
55	2.31	38.60	1.99	0.69	0.60	61.82	1.30	80.09	4.000	No	No	2.00
56	2.37	37.79	1.98	0.66	0.60	60.52	1.29	78.32	4.000	No	No	2.00
57	2.40	36.88	1.99	0.64	0.60	59.05	1.30	76.51	4.000	No	No	2.00
58	2.46	35.97	1.98	0.61	0.60	57.57	1.29	74.55	4.000	No	No	2.00
59	2.54	35.36	1.97	0.57	0.60	56.59	1.29	72.87	4.000	No	No	2.00
60	2.59	34.69	1.96	0.50	0.59	55.51	1.00	55.51	4.000	No	No	2.00
61	2.69	34.25	1.94	0.45	0.59	54.80	1.00	54.80	4.000	No	No	2.00
62	2.74	33.95	1.92	0.40	0.58	54.31	1.00	54.31	4.000	No	No	2.00
63	2.83	33.88	1.92	0.39	0.58	54.19	1.00	54.19	4.000	No	No	2.00
64	2.88	34.35	1.91	0.38	0.58	54.94	1.00	54.94	4.000	No	No	2.00
65	2.98	35.70	1.89	0.37	0.57	57.10	1.00	57.10	4.000	No	No	2.00
66	3.03	38.57	1.85	0.36	0.56	61.71	1.00	61.71	4.000	No	No	2.00
67	3.12	42.31	1.82	0.38	0.55	67.72	1.00	67.72	4.000	No	No	2.00
68	3.21	46.83	1.79	0.40	0.55	74.97	1.00	74.97	4.000	No	No	2.00
69	3.27	51.66	1.76	0.41	0.54	82.72	1.00	82.72	4.000	No	No	2.00
70	3.34	57.05	1.72	0.40	0.52	91.38	1.00	91.38	4.000	No	No	2.00
71	3.41	61.91	1.69	0.40	0.51	99.18	1.00	99.18	4.000	No	No	2.00
72	3.51	64.20	1.68	0.41	0.51	102.85	1.00	102.85	4.000	No	No	2.00
73	3.55	63.63	1.70	0.44	0.52	101.93	1.00	101.93	4.000	No	No	2.00
74	3.65	62.42	1.72	0.46	0.52	99.97	1.00	99.97	4.000	No	No	2.00
75	3.75	61.71	1.73	0.47	0.53	98.83	1.00	98.83	4.000	No	No	2.00
76	3.83	61.44	1.73	0.47	0.53	98.39	1.00	98.39	4.000	No	No	2.00
77	3.94	61.11	1.73	0.47	0.53	97.84	1.00	97.84	4.000	No	No	2.00
78	4.04	60.30	1.73	0.47	0.53	96.53	1.00	96.53	4.000	No	No	2.00
79	4.13	60.63	1.75	0.50	0.53	97.06	1.08	104.72	4.000	No	No	2.00
80	4.24	61.68	1.74	0.50	0.53	98.73	1.00	98.73	4.000	No	No	2.00
81	4.38	65.15	1.68	0.42	0.51	104.30	1.00	104.30	4.000	No	No	2.00
82	4.50	68.93	1.62	0.35	0.50	110.36	1.00	110.36	4.000	No	No	2.00
83	4.62	74.13	1.57	0.32	0.50	118.70	1.00	118.70	4.000	No	No	2.00
84	4.71	77.89	1.57	0.35	0.50	124.73	1.00	124.73	4.000	No	No	2.00
85	4.75	80.93	1.57	0.37	0.50	129.61	1.00	129.61	4.000	No	No	2.00
86	4.84	82.11	1.58	0.39	0.50	131.50	1.00	131.50	4.000	No	No	2.00
87	4.89	82.93	1.58	0.40	0.50	132.82	1.00	132.82	4.000	No	No	2.00
88	4.94	82.93	1.58	0.40	0.50	132.82	1.00	132.82	4.000	No	No	2.00
89	4.98	81.72	1.59	0.41	0.50	130.87	1.00	130.87	4.000	No	No	2.00
90	5.07	80.10	1.60	0.41	0.50	128.25	1.00	128.25	4.000	No	No	2.00
91	5.13	78.48	1.61	0.42	0.50	125.65	1.00	125.65	4.000	No	No	2.00
92	5.17	76.79	1.61	0.41	0.50	122.93	1.00	122.93	4.000	No	No	2.00
93	5.27	74.77	1.62	0.41	0.50	119.67	1.00	119.67	4.000	No	No	2.00
94	5.32	72.75	1.63	0.40	0.50	116.42	1.00	116.42	4.000	No	No	2.00
95	5.42	70.86	1.64	0.40	0.50	113.37	1.00	113.37	4.000	No	No	2.00
96	5.46	69.34	1.64	0.39	0.50	110.93	1.00	110.93	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	5.56	68.02	1.65	0.39	0.50	108.80	1.00	108.80	4.000	No	No	2.00
98	5.61	66.87	1.66	0.39	0.50	106.96	1.00	106.96	4.000	No	No	2.00
99	5.71	65.86	1.66	0.40	0.51	105.32	1.00	105.32	4.000	No	No	2.00
100	5.78	64.92	1.67	0.40	0.51	103.80	1.00	103.80	4.000	No	No	2.00
101	5.85	63.84	1.68	0.41	0.51	102.06	1.00	102.06	4.000	No	No	2.00
102	5.95	62.83	1.69	0.42	0.52	100.42	1.00	100.42	4.000	No	No	2.00
103	6.00	62.32	1.71	0.44	0.52	99.61	1.00	99.61	4.000	No	No	2.00
104	6.09	62.93	1.66	0.36	0.51	100.57	1.00	100.57	4.000	No	No	2.00
105	6.14	64.75	1.60	0.29	0.50	103.50	1.00	103.50	4.000	No	No	2.00
106	6.24	67.52	1.53	0.21	0.50	107.94	1.00	107.94	4.000	No	No	2.00
107	6.30	70.42	1.54	0.24	0.50	112.60	1.00	112.60	4.000	No	No	2.00
108	6.38	71.40	1.56	0.28	0.50	114.16	1.00	114.16	4.000	No	No	2.00
109	6.46	69.58	1.60	0.32	0.50	111.22	1.00	111.22	4.000	No	No	2.00
110	6.50	68.43	1.62	0.35	0.50	109.38	1.00	109.38	4.000	No	No	2.00
111	6.56	68.84	1.63	0.36	0.50	110.02	1.00	110.02	4.000	No	No	2.00
112	6.63	71.30	1.61	0.36	0.50	113.98	1.00	113.98	4.000	No	No	2.00
113	6.68	72.51	1.61	0.37	0.50	115.92	1.00	115.92	4.000	No	No	2.00
114	6.76	73.49	1.61	0.37	0.50	117.34	1.00	117.34	4.000	No	No	2.00
115	6.82	74.54	1.60	0.37	0.50	118.51	1.00	118.51	4.000	No	No	2.00
116	6.88	76.19	1.59	0.36	0.50	120.59	1.00	120.59	4.000	No	No	2.00
117	6.96	78.38	1.58	0.35	0.50	123.33	1.00	123.33	4.000	No	No	2.00
118	7.03	80.54	1.56	0.34	0.50	126.09	1.00	126.09	4.000	No	No	2.00
119	7.11	82.06	1.55	0.34	0.50	127.75	1.00	127.75	4.000	No	No	2.00
120	7.16	83.04	1.55	0.34	0.50	128.83	1.00	128.83	4.000	No	No	2.00
121	7.26	83.82	1.55	0.34	0.50	129.11	1.00	129.11	4.000	No	No	2.00
122	7.31	84.43	1.56	0.35	0.50	129.55	1.00	129.55	4.000	No	No	2.00
123	7.40	84.63	1.56	0.35	0.50	129.06	1.00	129.06	4.000	No	No	2.00
124	7.45	84.52	1.56	0.35	0.50	128.43	1.00	128.43	4.000	No	No	2.00
125	7.54	83.95	1.57	0.35	0.50	126.75	1.00	126.75	4.000	No	No	2.00
126	7.60	82.84	1.58	0.36	0.50	124.58	1.00	124.58	4.000	No	No	2.00
127	7.68	81.22	1.59	0.36	0.50	121.42	1.00	121.42	4.000	No	No	2.00
128	7.74	79.70	1.60	0.36	0.50	118.70	1.00	118.70	4.000	No	No	2.00
129	7.83	78.55	1.61	0.37	0.50	116.27	1.00	116.27	4.000	No	No	2.00
130	7.90	78.35	1.61	0.37	0.50	115.47	1.00	115.47	4.000	No	No	2.00
131	7.98	79.10	1.62	0.38	0.50	115.95	1.00	115.95	4.000	No	No	2.00
132	8.05	80.62	1.62	0.39	0.50	117.66	1.00	117.66	4.000	No	No	2.00
133	8.12	81.69	1.62	0.40	0.50	118.66	1.00	118.66	4.000	No	No	2.00
134	8.19	81.66	1.62	0.41	0.50	118.08	1.00	118.08	4.000	No	No	2.00
135	8.27	80.48	1.64	0.42	0.50	115.81	1.00	115.81	4.000	No	No	2.00
136	8.36	79.13	1.65	0.42	0.50	113.39	1.00	113.39	4.000	No	No	2.00
137	8.41	78.35	1.61	0.34	0.50	111.75	1.00	111.75	4.000	No	No	2.00
138	8.50	78.42	1.57	0.27	0.50	111.21	1.00	111.21	4.000	No	No	2.00
139	8.60	78.79	1.54	0.23	0.50	111.10	1.00	111.10	4.000	No	No	2.00
140	8.70	78.76	1.56	0.26	0.50	110.43	1.00	110.43	4.000	No	No	2.00
141	8.74	70.97	1.64	0.31	0.50	99.16	1.00	99.16	4.000	No	No	2.00
142	8.78	65.57	1.68	0.35	0.51	92.36	1.00	92.36	4.000	No	No	2.00
143	8.81	63.58	1.71	0.37	0.52	89.84	1.00	89.84	4.000	No	No	2.00
144	8.86	69.75	1.66	0.34	0.51	97.38	1.00	97.38	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	8.91	73.77	1.64	0.34	0.50	102.14	1.00	102.14	4.000	No	No	2.00
146	8.94	74.34	1.64	0.35	0.50	102.81	1.00	102.81	4.000	No	No	2.00
147	9.02	73.80	1.66	0.36	0.51	101.95	1.00	101.95	4.000	No	No	2.00
148	9.10	72.52	1.68	0.39	0.51	100.12	1.00	100.12	4.000	No	No	2.00
149	9.17	71.17	1.69	0.40	0.52	98.18	1.00	98.18	4.000	No	No	2.00
150	9.22	69.95	1.70	0.41	0.52	96.47	1.00	96.47	4.000	No	No	2.00
151	9.31	69.01	1.71	0.42	0.52	94.84	1.00	94.84	4.000	No	No	2.00
152	9.37	68.50	1.72	0.42	0.52	93.92	1.00	93.92	4.000	No	No	2.00
153	9.42	68.60	1.72	0.42	0.52	93.81	1.00	93.81	4.000	No	No	2.00
154	9.52	69.18	1.72	0.41	0.52	94.01	1.00	94.01	4.000	No	No	2.00
155	9.60	70.19	1.71	0.41	0.52	94.84	1.00	94.84	4.000	No	No	2.00
156	9.66	71.54	1.70	0.41	0.52	96.20	1.00	96.20	4.000	No	No	2.00
157	9.74	73.13	1.69	0.40	0.52	97.75	1.00	97.75	4.000	No	No	2.00
158	9.81	74.58	1.69	0.40	0.51	99.20	1.00	99.20	4.000	No	No	2.00
159	9.89	75.79	1.68	0.40	0.51	100.34	1.00	100.34	4.000	No	No	2.00
160	9.98	77.04	1.68	0.41	0.51	101.50	1.00	101.50	4.000	No	No	2.00
161	10.03	78.79	1.68	0.42	0.51	103.47	1.00	103.47	4.000	No	No	2.00
162	10.13	81.26	1.67	0.42	0.51	106.04	1.00	106.04	4.000	No	No	2.00
163	10.23	84.06	1.66	0.42	0.51	108.97	1.00	108.97	4.000	No	No	2.00
164	10.32	86.45	1.65	0.42	0.50	111.33	1.00	111.33	4.000	No	No	2.00
165	10.38	88.11	1.65	0.42	0.50	112.97	1.00	112.97	4.000	No	No	2.00
166	10.47	88.68	1.65	0.41	0.50	113.17	1.00	113.17	4.000	No	No	2.00
167	10.57	88.44	1.65	0.41	0.50	112.36	1.00	112.36	4.000	No	No	2.00
168	10.66	87.94	1.61	0.34	0.50	111.05	1.00	111.05	4.000	No	No	2.00
169	10.76	87.67	1.57	0.27	0.50	110.18	1.00	110.18	4.000	No	No	2.00
170	10.85	88.00	1.53	0.22	0.50	110.11	1.00	110.11	4.000	No	No	2.00
171	10.92	88.54	1.55	0.24	0.50	110.44	1.00	110.44	4.000	No	No	2.00
172	11.00	85.17	1.58	0.27	0.50	105.80	1.00	105.80	4.000	No	No	2.00
173	11.07	82.17	1.61	0.29	0.50	101.74	1.00	101.74	4.000	No	No	2.00
174	11.10	80.21	1.63	0.30	0.50	99.18	1.00	99.18	4.000	No	No	2.00
175	11.15	82.81	1.62	0.30	0.50	102.16	1.00	102.16	4.000	No	No	2.00
176	11.19	85.41	1.61	0.31	0.50	105.18	1.00	105.18	4.000	No	No	2.00
177	11.24	87.43	1.61	0.32	0.50	107.45	1.00	107.45	4.000	No	No	2.00
178	11.29	89.66	1.61	0.33	0.50	109.95	1.00	109.95	4.000	No	No	2.00
179	11.34	92.29	1.60	0.34	0.50	112.96	1.00	112.96	4.000	No	No	2.00
180	11.40	94.89	1.60	0.35	0.50	115.81	1.00	115.81	4.000	No	No	2.00
181	11.47	96.81	1.60	0.36	0.50	117.83	1.00	117.83	4.000	No	No	2.00
182	11.53	97.72	1.60	0.37	0.50	118.60	1.00	118.60	4.000	No	No	2.00
183	11.58	98.23	1.60	0.37	0.50	118.97	1.00	118.97	4.000	No	No	2.00
184	11.65	98.70	1.61	0.38	0.50	119.16	1.00	119.16	4.000	No	No	2.00
185	11.72	99.17	1.61	0.38	0.50	119.34	1.00	119.34	4.000	No	No	2.00
186	11.77	99.00	1.61	0.39	0.50	118.88	1.00	118.88	4.000	No	No	2.00
187	11.82	98.36	1.62	0.39	0.50	117.83	1.00	117.83	4.000	No	No	2.00
188	11.88	97.25	1.64	0.42	0.50	116.19	1.00	116.19	4.000	No	No	2.00
189	11.97	96.10	1.65	0.43	0.50	114.49	1.00	114.49	4.000	No	No	2.00
190	12.02	94.75	1.65	0.43	0.50	112.75	1.00	112.75	4.000	No	No	2.00
191	12.06	93.54	1.65	0.40	0.50	110.95	1.00	110.95	4.000	No	No	2.00
192	12.11	93.03	1.65	0.40	0.50	110.11	1.00	110.11	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	12.21	92.63	1.65	0.39	0.50	109.15	1.00	109.15	4.000	No	No	2.00
194	12.25	92.93	1.64	0.38	0.50	109.21	1.00	109.21	4.000	No	No	2.00
195	12.30	93.00	1.64	0.38	0.50	109.05	1.00	109.05	4.000	No	No	2.00
196	12.31	93.44	1.63	0.37	0.50	109.51	1.00	109.51	4.000	No	No	2.00
197	12.32	93.64	1.63	0.37	0.50	109.72	1.00	109.72	4.000	No	No	2.00
198	12.35	94.21	1.62	0.36	0.50	110.25	1.00	110.25	4.000	No	No	2.00
199	12.40	95.26	1.61	0.35	0.50	111.26	1.00	111.26	4.000	No	No	2.00
200	12.45	96.78	1.60	0.33	0.50	112.82	1.00	112.82	4.000	No	No	2.00
201	12.52	98.43	1.60	0.33	0.50	114.40	1.00	114.40	4.000	No	No	2.00
202	12.56	100.32	1.59	0.34	0.50	116.43	1.00	116.43	4.000	No	No	2.00
203	12.62	102.04	1.59	0.35	0.50	118.16	1.00	118.16	4.000	No	No	2.00
204	12.65	103.69	1.56	0.31	0.50	119.90	1.00	119.90	4.000	No	No	2.00
205	12.71	105.14	1.53	0.26	0.50	121.32	1.00	121.32	4.000	No	No	2.00
206	12.76	107.34	1.48	0.22	0.50	123.61	1.00	123.61	4.000	No	No	2.00
207	12.83	110.34	1.48	0.23	0.50	126.74	1.00	126.74	4.000	No	No	2.00
208	12.88	114.29	1.50	0.26	0.50	131.03	1.00	131.03	4.000	No	No	2.00
209	12.93	118.94	1.50	0.30	0.50	136.14	1.00	136.14	4.000	No	No	2.00
210	12.98	121.44	1.52	0.33	0.50	138.73	1.00	138.73	4.000	No	No	2.00
211	13.03	123.77	1.52	0.33	0.50	141.10	1.00	141.10	4.000	No	No	2.00
212	13.04	120.16	1.54	0.36	0.50	136.93	1.00	136.93	4.000	No	No	2.00
213	13.07	122.72	1.54	0.38	0.50	139.66	1.00	139.66	4.000	No	No	2.00
214	13.13	125.66	1.55	0.40	0.50	142.70	1.00	142.70	4.000	No	No	2.00
215	13.17	134.36	1.53	0.40	0.50	152.37	1.00	152.37	4.000	No	No	2.00
216	13.22	137.87	1.53	0.42	0.50	156.08	1.00	156.08	4.000	No	No	2.00
217	13.27	140.13	1.54	0.44	0.50	158.31	1.00	158.31	4.000	No	No	2.00
218	13.32	141.11	1.54	0.46	0.50	159.12	1.00	159.12	4.000	No	No	2.00
219	13.37	141.28	1.55	0.47	0.50	159.00	1.00	159.00	4.000	No	No	2.00
220	13.41	140.67	1.55	0.47	0.50	158.02	1.00	158.02	4.000	No	No	2.00
221	13.46	139.05	1.56	0.48	0.50	155.85	1.00	155.85	4.000	No	No	2.00
222	13.51	137.63	1.57	0.48	0.50	153.98	1.00	153.98	4.000	No	No	2.00
223	13.56	135.98	1.58	0.49	0.50	151.81	1.00	151.81	4.000	No	No	2.00
224	13.60	134.29	1.59	0.51	0.50	149.65	1.00	149.65	4.000	No	No	2.00
225	13.66	132.81	1.60	0.52	0.50	147.65	1.00	147.65	4.000	No	No	2.00
226	13.75	131.80	1.60	0.51	0.50	145.98	1.00	145.98	4.000	No	No	2.00
227	13.80	131.19	1.60	0.51	0.50	145.02	1.00	145.02	4.000	No	No	2.00
228	13.89	130.75	1.61	0.51	0.50	144.01	1.00	144.01	4.000	No	No	2.00
229	13.94	129.81	1.61	0.52	0.50	142.69	1.00	142.69	4.000	No	No	2.00
230	13.99	128.19	1.63	0.54	0.50	140.62	1.00	140.62	4.000	No	No	2.00
231	14.09	125.39	1.65	0.57	0.50	137.21	1.00	137.21	4.000	No	No	2.00
232	14.14	122.28	1.68	0.61	0.51	133.79	1.00	133.79	4.000	No	No	2.00
233	14.23	119.38	1.70	0.64	0.52	130.35	1.00	130.35	4.000	No	No	2.00
234	14.28	117.19	1.68	0.58	0.51	127.54	1.00	127.54	4.000	No	No	2.00
235	14.38	116.43	1.66	0.51	0.50	125.95	1.00	125.95	4.000	No	No	2.00
236	14.42	115.35	1.63	0.45	0.50	124.40	1.00	124.40	4.000	No	No	2.00
237	14.52	115.79	1.63	0.45	0.50	124.40	1.00	124.40	4.000	No	No	2.00
238	14.57	116.75	1.64	0.47	0.50	125.23	1.00	125.23	4.000	No	No	2.00
239	14.67	117.53	1.64	0.48	0.50	125.60	1.00	125.60	4.000	No	No	2.00
240	14.68	117.83	1.64	0.49	0.50	125.93	1.00	125.93	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	14.70	116.41	1.65	0.50	0.50	124.39	1.00	124.39	4.000	No	No	2.00
242	14.75	116.58	1.66	0.50	0.50	124.38	1.00	124.38	4.000	No	No	2.00
243	14.80	116.18	1.66	0.51	0.51	123.80	1.00	123.80	4.000	No	No	2.00
244	14.89	116.21	1.67	0.52	0.51	123.45	1.00	123.45	4.000	No	No	2.00
245	14.94	114.76	1.68	0.53	0.51	121.75	1.00	121.75	4.000	No	No	2.00
246	15.04	111.83	1.69	0.54	0.52	118.29	1.00	118.29	4.000	No	No	2.00
247	15.13	107.24	1.71	0.55	0.52	113.18	1.01	114.51	4.000	No	No	2.00
248	15.21	101.74	1.74	0.56	0.53	107.19	1.06	113.68	4.000	No	No	2.00
249	15.28	95.87	1.76	0.57	0.54	100.87	1.10	111.36	4.000	No	No	2.00
250	15.38	90.00	1.79	0.58	0.54	94.46	1.14	107.63	4.000	No	No	2.00
251	15.47	83.86	1.82	0.58	0.55	87.79	1.17	102.77	4.000	No	No	2.00
252	15.57	77.55	1.85	0.59	0.56	80.97	1.20	97.12	4.000	No	No	2.00
253	15.67	70.76	1.89	0.60	0.57	73.71	1.23	90.52	4.000	No	No	2.00
254	15.77	63.91	1.93	0.61	0.59	66.40	1.26	83.47	4.000	No	No	2.00
255	15.86	57.27	1.98	0.63	0.60	59.33	1.29	76.63	4.000	No	No	2.00
256	15.96	51.73	2.03	0.67	0.62	53.45	1.34	71.45	4.000	No	No	2.00
257	16.05	47.31	2.09	0.73	0.63	48.75	1.40	68.25	4.000	No	No	2.00
258	16.15	43.60	2.15	0.86	0.65	44.83	1.51	67.79	4.000	No	No	2.00
259	16.25	41.11	2.20	0.97	0.67	42.13	1.63	68.47	4.000	No	No	2.00
260	16.31	39.86	2.23	1.04	0.68	40.76	1.71	69.57	4.000	No	No	2.00
261	16.39	39.72	2.23	1.02	0.68	40.48	1.70	68.78	4.000	No	No	2.00
262	16.48	40.50	2.21	0.96	0.67	41.08	1.65	67.59	4.000	No	No	2.00
263	16.59	43.06	2.17	0.86	0.66	43.47	1.53	66.70	4.000	No	No	2.00
264	16.68	47.95	2.09	0.73	0.64	48.20	1.40	67.68	4.000	No	No	2.00
265	16.76	53.89	2.01	0.61	0.61	53.96	1.31	70.90	4.000	No	No	2.00
266	16.86	58.72	1.95	0.54	0.59	58.53	1.27	74.31	4.000	No	No	2.00
267	16.92	61.25	1.92	0.51	0.58	60.90	1.25	76.25	4.000	No	No	2.00
268	17.02	61.65	1.92	0.50	0.58	61.10	1.25	76.36	4.000	No	No	2.00
269	17.11	61.14	1.94	0.53	0.59	60.41	1.26	76.12	4.000	No	No	2.00
270	17.22	60.40	1.96	0.58	0.60	59.48	1.28	75.94	4.000	Yes	No	2.00
271	17.35	58.51	2.04	0.78	0.62	57.44	1.34	77.19	4.000	Yes	No	2.00
272	17.45	53.15	2.18	1.20	0.66	52.07	1.57	81.76	4.000	Yes	No	2.00
273	17.55	43.40	2.38	1.91	0.72	42.36	2.26	95.58	4.000	Yes	No	2.00
274	17.61	33.92	2.57	2.79	0.78	32.93	3.48	114.42	4.000	Yes	No	2.00
275	17.64	27.41	2.70	3.46	0.82	26.45	4.70	124.38	4.000	Yes	Yes	2.00
276	17.70	24.84	2.75	3.68	0.83	23.84	5.27	125.58	4.000	Yes	Yes	2.00
277	17.75	23.12	2.79	3.84	0.84	22.09	5.71	126.01	4.000	Yes	Yes	2.00
278	17.80	22.04	2.82	4.00	0.85	20.96	6.07	127.17	4.000	Yes	Yes	2.00
279	17.85	21.57	2.85	4.36	0.86	20.45	6.49	132.79	4.000	Yes	Yes	2.00
280	17.94	24.37	2.80	4.19	0.85	23.10	5.83	134.72	4.000	No	Yes	2.00
281	17.99	29.74	2.70	3.80	0.82	28.29	4.75	134.51	4.000	No	Yes	2.00
282	18.09	36.42	2.60	3.34	0.79	34.65	3.76	130.35	4.000	No	Yes	2.00
283	18.15	38.34	2.58	3.31	0.78	36.42	3.61	131.44	4.000	No	No	2.00
284	18.23	36.08	2.63	3.58	0.80	34.09	3.99	135.89	4.000	No	Yes	2.00
285	18.33	27.03	2.80	4.68	0.85	25.22	5.88	148.20	4.000	No	Yes	2.00
286	18.43	18.43	3.01	6.17	1.00	16.85	8.99	151.54	4.000	No	Yes	2.00
287	18.52	11.28	3.27	8.30	1.00	9.87	14.46	142.66	4.000	No	Yes	2.00
288	18.59	9.25	3.30	7.06	1.00	7.88	15.23	120.07	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	18.72	8.44	3.27	5.49	1.00	7.05	14.48	102.14	4.000	No	Yes	2.00
290	18.81	7.87	3.26	4.64	1.00	6.47	14.17	91.69	4.000	No	Yes	2.00
291	18.87	7.73	3.27	4.61	1.00	6.32	14.34	90.62	4.000	No	Yes	2.00
292	18.95	7.94	3.28	5.10	1.00	6.48	14.76	95.67	4.000	No	Yes	2.00
293	19.05	8.95	3.24	5.23	1.00	7.39	13.77	101.75	4.000	No	Yes	2.00
294	19.14	11.32	3.12	4.53	1.00	9.56	10.96	104.74	4.000	No	Yes	2.00
295	19.22	15.43	2.92	3.38	0.89	13.37	7.56	101.14	4.000	Yes	Yes	2.00
296	19.29	23.29	2.67	2.31	0.81	20.64	4.44	91.70	4.000	Yes	Yes	2.00
297	19.38	36.79	2.41	1.58	0.73	33.12	2.43	80.52	4.000	Yes	No	2.00
298	19.44	54.77	2.21	1.24	0.67	49.78	1.63	81.04	4.000	Yes	No	2.00
299	19.53	73.63	2.06	1.07	0.63	67.13	1.37	92.11	4.000	Yes	No	2.00
300	19.62	89.35	1.99	1.02	0.60	81.50	1.30	105.61	4.000	Yes	No	2.00
301	19.69	100.62	1.95	1.03	0.59	91.73	1.27	116.28	4.000	Yes	No	2.00
302	19.79	106.79	1.94	1.07	0.59	97.11	1.26	122.62	4.000	No	No	2.00
303	19.86	108.17	1.96	1.16	0.60	98.11	1.28	125.15	4.000	No	No	2.00
304	19.97	105.91	1.99	1.25	0.60	95.65	1.30	124.06	4.000	No	No	2.00
305	20.07	101.09	2.02	1.32	0.61	90.89	1.33	120.48	4.000	No	No	2.00
306	20.16	94.14	2.06	1.40	0.63	84.23	1.37	115.28	4.000	No	No	2.00
307	20.26	84.49	2.07	1.27	0.63	75.23	1.38	103.79	4.000	Yes	No	2.00
308	20.34	72.68	2.10	1.18	0.64	64.34	1.43	91.71	4.000	Yes	No	2.00
309	20.43	59.83	2.16	1.11	0.66	52.55	1.52	80.02	4.000	Yes	No	2.00
310	20.50	47.95	2.33	1.55	0.71	41.63	2.03	84.51	4.000	Yes	No	2.00
311	20.60	37.70	2.50	2.17	0.76	32.23	3.01	96.91	4.000	Yes	No	2.00
312	20.62	30.48	2.66	2.88	0.81	25.73	4.28	110.02	4.000	Yes	Yes	2.00
313	20.63	28.08	2.72	3.22	0.82	23.58	4.89	115.31	4.000	Yes	Yes	2.00
314	20.68	27.74	2.74	3.38	0.83	23.22	5.10	118.43	4.000	Yes	Yes	2.00
315	20.73	27.64	2.76	3.60	0.83	23.06	5.32	122.67	4.000	Yes	Yes	2.00
316	20.82	25.48	2.82	4.04	0.85	21.06	6.08	128.12	4.000	Yes	Yes	2.00
317	20.87	23.45	2.87	4.37	0.87	19.23	6.78	130.45	4.000	Yes	Yes	2.00
318	20.91	21.57	2.91	4.48	0.88	17.54	7.32	128.42	4.000	Yes	Yes	2.00
319	20.96	19.58	2.95	4.54	1.00	15.59	7.98	124.40	4.000	Yes	Yes	2.00
320	21.05	17.59	3.00	4.73	1.00	13.84	8.82	122.12	4.000	No	Yes	2.00
321	21.11	16.98	3.02	4.74	1.00	13.29	9.07	120.49	4.000	No	Yes	2.00
322	21.17	17.11	3.01	4.72	1.00	13.36	9.02	120.44	4.000	No	Yes	2.00
323	21.25	21.23	2.88	3.84	0.87	17.01	6.86	116.62	4.000	Yes	Yes	2.00
324	21.30	31.25	2.64	2.71	0.80	25.68	4.13	106.03	4.000	Yes	Yes	2.00
325	21.37	48.56	2.39	1.90	0.72	40.77	2.31	94.37	4.000	Yes	No	2.00
326	21.45	68.84	2.20	1.51	0.67	58.49	1.62	94.86	4.000	Yes	No	2.00
327	21.49	87.80	2.09	1.36	0.64	75.10	1.41	105.59	4.000	Yes	No	2.00
328	21.58	103.45	2.02	1.30	0.62	88.68	1.33	117.80	4.000	Yes	No	2.00
329	21.64	115.70	1.98	1.28	0.60	99.28	1.29	128.46	4.000	Yes	No	2.00
330	21.69	124.50	1.96	1.29	0.60	106.86	1.28	136.49	4.000	Yes	No	2.00
331	21.78	130.41	1.95	1.31	0.59	111.69	1.27	142.03	4.000	No	No	2.00
332	21.83	133.78	1.96	1.36	0.59	114.42	1.27	145.79	4.000	No	No	2.00
333	21.89	135.43	1.97	1.42	0.60	115.57	1.28	148.03	4.000	No	No	2.00
334	21.98	136.01	1.98	1.49	0.60	115.67	1.29	149.32	4.000	No	No	2.00
335	22.03	135.90	1.99	1.55	0.61	115.31	1.30	150.06	4.000	No	No	2.00
336	22.12	134.89	2.01	1.60	0.61	114.06	1.31	149.60	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	22.22	133.20	2.02	1.63	0.61	112.20	1.32	148.31	4.000	No	No	2.00
338	22.26	130.88	2.03	1.65	0.62	110.01	1.33	146.45	4.000	No	No	2.00
339	22.36	128.38	2.04	1.67	0.62	107.52	1.34	144.21	4.000	No	No	2.00
340	22.41	125.79	2.05	1.70	0.62	105.07	1.36	142.38	4.000	No	No	2.00
341	22.51	123.53	2.04	1.63	0.62	102.88	1.35	138.65	4.000	No	No	2.00
342	22.60	121.33	2.03	1.54	0.62	100.82	1.34	134.71	4.000	No	No	2.00
343	22.70	119.34	2.01	1.41	0.61	98.95	1.32	130.43	4.000	No	No	2.00
344	22.75	116.88	2.02	1.40	0.61	96.72	1.32	127.90	4.000	No	No	2.00
345	22.84	109.32	2.05	1.47	0.62	89.92	1.36	122.31	4.000	No	No	2.00
346	22.89	107.14	2.06	1.48	0.63	87.93	1.37	120.57	4.000	No	No	2.00
347	22.90	104.88	2.07	1.49	0.63	85.98	1.38	118.82	4.000	No	No	2.00
348	22.94	110.11	2.04	1.39	0.62	90.42	1.34	121.26	4.000	No	No	2.00
349	23.00	112.36	2.02	1.34	0.61	92.21	1.32	122.07	4.000	No	No	2.00
350	23.08	118.94	1.98	1.24	0.60	97.70	1.29	126.15	4.000	No	No	2.00
351	23.13	127.04	1.94	1.16	0.59	104.57	1.26	131.91	4.000	No	No	2.00
352	23.20	134.05	1.90	1.10	0.58	110.43	1.24	136.83	4.000	No	No	2.00
353	23.27	137.05	1.89	1.07	0.57	112.81	1.23	138.66	4.000	No	No	2.00
354	23.33	135.57	1.89	1.05	0.57	111.40	1.23	136.90	4.000	No	No	2.00
355	23.42	131.55	1.89	1.03	0.58	107.76	1.23	132.83	4.000	No	No	2.00
356	23.48	126.94	1.90	1.01	0.58	103.73	1.24	128.30	4.000	No	No	2.00
357	23.57	123.16	1.91	1.00	0.58	100.30	1.24	124.68	4.000	No	No	2.00
358	23.61	121.20	1.92	1.01	0.58	98.52	1.25	122.97	4.000	No	No	2.00
359	23.66	121.50	1.92	1.02	0.58	98.62	1.25	123.25	4.000	No	No	2.00
360	23.73	124.04	1.92	1.03	0.58	100.52	1.25	125.44	4.000	No	No	2.00
361	23.80	127.95	1.91	1.04	0.58	103.59	1.24	128.73	4.000	No	No	2.00
362	23.85	131.96	1.90	1.05	0.58	106.79	1.24	132.25	4.000	No	No	2.00
363	23.94	134.80	1.90	1.06	0.58	108.87	1.24	134.50	4.000	No	No	2.00
364	24.00	135.88	1.90	1.07	0.58	109.59	1.24	135.41	4.000	No	No	2.00
365	24.09	135.37	1.90	1.07	0.58	108.86	1.24	134.81	4.000	No	No	2.00
366	24.16	133.34	1.91	1.09	0.58	106.93	1.24	133.09	4.000	No	No	2.00
367	24.24	130.04	1.89	0.97	0.57	104.25	1.23	128.02	4.000	No	No	2.00
368	24.33	125.79	1.86	0.85	0.57	100.75	1.21	122.05	4.000	No	No	2.00
369	24.43	121.10	1.84	0.74	0.56	96.90	1.19	115.53	4.000	No	No	2.00
370	24.52	114.28	1.88	0.80	0.57	90.85	1.23	111.31	4.000	No	No	2.00
371	24.58	108.90	1.92	0.85	0.58	86.13	1.25	107.54	4.000	No	No	2.00
372	24.59	104.52	1.95	0.89	0.59	82.40	1.27	104.41	4.000	No	No	2.00
373	24.63	104.21	1.95	0.90	0.59	82.05	1.27	104.24	4.000	No	No	2.00
374	24.68	103.45	1.96	0.94	0.60	81.24	1.28	103.96	4.000	No	No	2.00
375	24.77	102.47	1.98	0.98	0.60	80.14	1.29	103.52	4.000	No	No	2.00
376	24.82	100.31	2.01	1.05	0.61	78.15	1.31	102.59	4.000	No	No	2.00
377	24.92	97.85	2.03	1.11	0.62	75.83	1.34	101.32	4.000	No	No	2.00
378	25.01	95.22	2.06	1.17	0.63	73.42	1.36	100.09	4.000	No	No	2.00
379	25.06	92.38	2.08	1.22	0.63	70.94	1.39	98.75	4.000	No	No	2.00
380	25.16	89.48	2.10	1.27	0.64	68.36	1.42	97.29	4.000	No	No	2.00
381	25.25	86.51	2.13	1.31	0.65	65.75	1.46	95.92	4.000	No	No	2.00
382	25.30	83.55	2.15	1.35	0.65	63.24	1.50	94.77	4.000	No	No	2.00
383	25.41	80.44	2.17	1.40	0.66	60.52	1.55	93.81	4.000	Yes	No	2.00
384	25.49	77.27	2.20	1.47	0.67	57.80	1.61	93.24	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	25.55	73.97	2.23	1.55	0.68	55.02	1.70	93.42	4.000	Yes	No	2.00
386	25.64	70.59	2.27	1.65	0.69	52.13	1.81	94.24	4.000	Yes	No	2.00
387	25.70	67.02	2.31	1.78	0.70	49.15	1.95	95.94	4.000	Yes	No	2.00
388	25.79	63.24	2.35	1.91	0.71	46.00	2.13	97.75	4.000	Yes	No	2.00
389	25.89	58.92	2.40	2.05	0.73	42.45	2.35	99.94	4.000	Yes	No	2.00
390	25.94	54.26	2.45	2.20	0.74	38.75	2.63	101.97	4.000	Yes	No	2.00
391	26.02	49.37	2.50	2.32	0.76	34.89	2.95	102.81	4.000	Yes	No	2.00
392	26.12	45.05	2.54	2.37	0.77	31.51	3.23	101.92	4.000	Yes	No	2.00
393	26.17	40.83	2.57	2.37	0.78	28.31	3.52	99.58	4.000	Yes	No	2.00
394	26.28	37.02	2.61	2.37	0.79	25.37	3.84	97.30	4.000	Yes	Yes	2.00
395	26.36	33.31	2.65	2.33	0.80	22.57	4.17	94.10	4.000	Yes	Yes	2.00
396	26.45	29.43	2.70	2.37	0.82	19.65	4.69	92.22	4.000	Yes	Yes	2.00
397	26.50	24.94	2.78	2.55	0.84	16.31	5.63	91.86	4.000	Yes	Yes	2.00
398	26.61	20.15	2.91	3.01	0.88	12.75	7.37	93.95	4.000	Yes	Yes	2.00
399	26.70	15.97	3.07	3.75	1.00	9.43	10.10	95.23	4.000	No	Yes	2.00
400	26.77	12.97	3.21	4.62	1.00	7.45	12.95	96.46	4.000	No	Yes	2.00
401	26.85	11.85	3.26	4.83	1.00	6.70	14.12	94.58	4.000	No	Yes	2.00
402	26.94	11.45	3.27	4.67	1.00	6.41	14.29	91.60	4.000	No	Yes	2.00
403	27.04	11.95	3.22	4.13	1.00	6.71	13.15	88.25	4.000	No	Yes	2.00
404	27.14	12.22	3.20	3.92	1.00	6.86	12.68	86.95	4.000	No	Yes	2.00
405	27.23	12.90	3.15	3.53	1.00	7.27	11.66	84.75	4.000	No	Yes	2.00
406	27.28	13.22	3.13	3.30	1.00	7.46	11.13	83.02	4.000	No	Yes	2.00
407	27.29	13.29	3.09	2.84	1.00	7.50	10.38	77.81	4.000	No	Yes	2.00
408	27.38	13.29	3.07	2.57	1.00	7.47	9.96	74.44	4.000	No	Yes	2.00
409	27.48	13.27	3.06	2.51	1.00	7.43	9.89	73.48	4.000	No	Yes	2.00
410	27.57	13.27	3.10	2.97	1.00	7.41	10.67	79.00	4.000	No	Yes	2.00
411	27.64	13.30	3.13	3.39	1.00	7.41	11.31	83.76	4.000	No	Yes	2.00
412	27.65	13.44	3.17	3.99	1.00	7.49	12.08	90.43	4.000	No	Yes	2.00
413	27.74	14.52	3.16	4.27	1.00	8.14	11.82	96.17	4.000	No	Yes	2.00
414	27.80	16.91	3.10	4.34	1.00	9.63	10.69	102.90	4.000	No	Yes	2.00
415	27.90	19.17	3.05	4.16	1.00	11.00	9.59	105.58	4.000	No	Yes	2.00
416	27.99	19.34	3.05	4.25	1.00	11.07	9.67	106.99	4.000	No	Yes	2.00
417	28.07	17.12	3.11	4.55	1.00	9.65	10.91	105.31	4.000	No	Yes	2.00
418	28.16	14.45	3.20	4.79	1.00	7.96	12.63	100.58	4.000	No	Yes	2.00
419	28.25	12.53	3.25	4.68	1.00	6.75	13.86	93.48	4.000	No	Yes	2.00
420	28.34	11.52	3.26	4.24	1.00	6.10	14.13	86.20	4.000	No	Yes	2.00
421	28.44	11.01	3.26	3.94	1.00	5.76	14.19	81.77	4.000	No	Yes	2.00
422	28.53	10.84	3.26	3.87	1.00	5.64	14.27	80.51	4.000	No	Yes	2.00
423	28.62	11.75	3.26	4.25	1.00	6.17	14.04	86.70	4.000	No	Yes	2.00
424	28.76	14.21	3.19	4.46	1.00	7.64	12.54	95.81	4.000	No	Yes	2.00
425	28.86	17.65	3.12	4.75	1.00	9.69	11.11	107.72	4.000	No	Yes	2.00
426	28.96	20.32	3.09	5.14	1.00	11.26	10.51	118.36	4.000	No	Yes	2.00
427	29.08	21.30	3.12	6.06	1.00	11.80	11.10	130.98	4.000	No	Yes	2.00
428	29.19	22.07	3.15	6.87	1.00	12.21	11.60	141.58	4.000	No	Yes	2.00
429	29.29	27.50	2.99	5.17	1.00	15.40	8.64	133.06	4.000	No	Yes	2.00
430	29.39	40.70	2.74	3.77	0.83	25.08	5.15	129.21	4.000	No	Yes	2.00
431	29.50	57.67	2.55	3.03	0.77	36.81	3.37	124.06	4.000	No	No	2.00
432	29.63	66.88	2.53	3.30	0.77	42.86	3.19	136.79	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	29.65	70.22	2.52	3.39	0.76	45.09	3.13	141.18	4.000	Yes	No	2.00
434	29.66	71.00	2.52	3.38	0.76	45.61	3.10	141.50	4.000	Yes	No	2.00
435	29.72	73.53	2.50	3.27	0.76	47.34	2.95	139.57	4.000	Yes	No	2.00
436	29.80	77.81	2.46	3.07	0.75	50.31	2.70	135.94	4.000	Yes	No	2.00
437	29.85	89.49	2.36	2.59	0.72	58.79	2.17	127.49	4.000	Yes	No	2.00
438	29.94	111.58	2.20	2.00	0.67	75.08	1.62	121.89	4.000	Yes	No	2.00
439	30.00	135.50	2.06	1.57	0.63	93.20	1.37	127.60	4.000	Yes	No	2.00
440	30.05	152.98	1.96	1.28	0.60	106.83	1.28	136.43	4.000	Yes	No	2.00
441	30.14	162.60	1.89	1.09	0.58	114.57	1.23	140.95	4.000	Yes	No	2.00
442	30.19	167.56	1.84	0.97	0.56	118.78	1.20	142.08	4.000	Yes	No	2.00
443	30.24	169.61	1.83	0.93	0.56	120.45	1.18	142.19	4.000	Yes	No	2.00
444	30.29	169.68	1.83	0.93	0.56	120.31	1.18	142.38	0.348	No	No	1.91
445	30.38	167.72	1.84	0.95	0.56	118.51	1.19	141.39	0.343	No	No	1.88
446	30.43	164.79	1.85	0.98	0.56	116.05	1.20	139.76	0.334	No	No	1.83
447	30.48	161.62	1.87	0.99	0.57	113.47	1.21	137.67	0.323	No	No	1.77
448	30.54	159.16	1.87	1.00	0.57	111.46	1.22	135.86	0.313	No	No	1.71
449	30.62	158.35	1.87	0.99	0.57	110.69	1.22	134.98	0.309	No	No	1.69
450	30.67	157.77	1.87	0.99	0.57	110.16	1.22	134.34	0.305	No	No	1.67
451	30.72	158.55	1.87	0.98	0.57	110.67	1.22	134.61	0.307	No	No	1.67
452	30.76	159.46	1.86	0.96	0.57	111.32	1.21	134.89	0.308	No	No	1.68
453	30.86	162.06	1.85	0.94	0.56	113.16	1.20	135.92	0.314	No	No	1.71
454	30.91	165.09	1.84	0.91	0.56	115.46	1.19	137.26	0.321	No	No	1.74
455	30.95	168.94	1.82	0.88	0.55	118.37	1.17	138.94	0.329	No	No	1.79
456	31.03	173.83	1.80	0.85	0.55	122.03	1.15	140.71	0.339	No	No	1.84
457	31.10	179.36	1.78	0.83	0.54	126.19	1.13	142.33	0.348	No	No	1.89
458	31.15	185.03	1.76	0.81	0.54	130.44	1.10	144.07	0.358	No	No	1.94
459	31.20	189.66	1.75	0.81	0.53	133.76	1.09	146.05	0.370	No	No	2.00
460	31.26	192.52	1.75	0.82	0.53	135.69	1.09	147.81	0.380	No	No	2.00
461	31.34	186.22	1.78	0.86	0.54	130.42	1.13	147.23	0.377	No	No	2.00
462	31.37	184.63	1.79	0.87	0.54	129.08	1.14	146.99	0.375	No	No	2.00
463	31.38	181.39	1.80	0.89	0.55	126.56	1.15	145.70	0.368	No	No	1.99
464	31.43	184.63	1.78	0.86	0.54	129.02	1.13	146.17	0.370	No	No	2.00
465	31.47	179.33	1.80	0.87	0.55	124.92	1.15	143.44	0.354	No	No	1.91
466	31.55	171.64	1.82	0.88	0.55	118.91	1.17	139.35	0.332	No	No	1.79
467	31.59	160.34	1.86	0.93	0.57	110.19	1.21	132.93	0.298	No	No	1.61
468	31.66	147.76	1.91	1.00	0.58	100.47	1.24	124.83	0.261	No	No	1.40
469	31.73	135.75	1.97	1.09	0.60	91.20	1.28	116.80	0.228	No	No	1.23
470	31.78	125.08	2.02	1.21	0.62	83.04	1.33	110.36	0.205	No	No	1.10
471	31.84	115.64	2.09	1.36	0.63	75.76	1.40	106.34	0.192	No	No	1.03
472	31.93	107.23	2.16	1.55	0.65	69.27	1.51	104.84	0.187	No	No	1.00
473	31.98	100.42	2.22	1.75	0.67	64.06	1.66	106.04	0.191	No	No	1.02
474	32.02	98.18	2.25	1.90	0.68	62.19	1.75	108.88	0.200	No	No	1.07
475	32.09	97.00	2.27	2.03	0.69	61.07	1.83	111.87	0.210	No	No	1.13
476	32.16	98.89	2.27	2.07	0.69	62.18	1.83	113.86	0.217	No	No	1.16
477	32.22	100.29	2.27	2.07	0.69	63.04	1.82	114.52	0.220	No	No	1.17
478	32.27	103.49	2.25	2.02	0.68	65.22	1.76	114.53	0.220	No	No	1.17
479	32.34	106.02	2.24	1.97	0.68	66.91	1.71	114.38	0.219	No	No	1.17
480	32.42	108.89	2.22	1.91	0.67	68.85	1.66	114.11	0.218	No	No	1.16

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	32.46	113.04	2.19	1.80	0.66	71.82	1.58	113.62	0.216	No	No	1.15
482	32.54	117.73	2.15	1.68	0.65	75.15	1.51	113.25	0.215	No	No	1.14
483	32.60	121.74	2.11	1.51	0.64	78.23	1.43	112.00	0.211	No	No	1.12
484	32.67	124.81	2.07	1.39	0.63	80.60	1.38	111.53	0.209	No	No	1.11
485	32.75	127.51	2.05	1.31	0.62	82.59	1.35	111.85	0.210	No	No	1.12
486	32.81	130.38	2.05	1.32	0.62	84.43	1.35	113.95	0.218	No	No	1.15
487	32.89	133.38	2.04	1.34	0.62	86.29	1.35	116.21	0.226	No	No	1.20
488	32.94	129.47	2.07	1.43	0.63	83.21	1.38	114.84	0.221	No	No	1.17
489	32.95	131.02	2.07	1.44	0.63	84.23	1.38	116.07	0.225	No	No	1.19
490	33.00	132.88	2.07	1.46	0.63	85.36	1.38	117.56	0.231	No	No	1.22
491	33.06	141.08	2.04	1.42	0.62	91.06	1.34	122.40	0.251	No	No	1.32
492	33.11	142.26	2.04	1.45	0.62	91.66	1.35	123.66	0.256	No	No	1.35
493	33.20	141.21	2.06	1.50	0.63	90.60	1.36	123.53	0.255	No	No	1.35
494	33.25	139.02	2.08	1.56	0.63	88.78	1.39	123.06	0.253	No	No	1.34
495	33.34	137.03	2.09	1.61	0.64	87.07	1.41	122.48	0.251	No	No	1.32
496	33.38	136.69	2.10	1.63	0.64	86.68	1.42	122.68	0.252	No	No	1.33
497	33.48	138.41	2.10	1.64	0.64	87.63	1.41	123.78	0.256	No	No	1.35
498	33.58	141.92	2.09	1.64	0.63	89.83	1.40	125.79	0.265	No	No	1.39
499	33.63	146.74	2.07	1.63	0.63	93.05	1.38	128.81	0.279	No	No	1.46
500	33.73	152.41	2.06	1.61	0.63	96.75	1.37	132.15	0.295	No	No	1.55
501	33.82	158.96	2.04	1.60	0.62	101.09	1.35	136.16	0.315	No	No	1.65
502	33.87	165.74	2.03	1.58	0.62	105.66	1.33	140.58	0.338	No	No	1.77
503	33.96	172.72	2.01	1.57	0.61	110.29	1.32	145.13	0.364	No	No	1.91
504	34.02	180.58	2.00	1.57	0.61	115.54	1.30	150.66	0.398	No	No	2.00
505	34.11	190.03	1.98	1.57	0.60	121.77	1.29	157.32	0.442	No	No	2.00
506	34.18	200.49	1.97	1.59	0.60	128.68	1.28	164.99	0.498	No	No	2.00
507	34.26	210.44	1.96	1.63	0.60	135.11	1.28	172.52	0.558	No	No	2.00
508	34.35	219.45	1.96	1.68	0.60	140.77	1.28	179.50	0.618	No	No	2.00
509	34.44	227.51	1.95	1.71	0.59	145.83	1.27	185.53	0.674	No	No	2.00
510	34.49	233.96	1.95	1.72	0.59	150.02	1.27	190.23	0.720	No	No	2.00
511	34.59	237.94	1.94	1.72	0.59	152.42	1.27	192.83	0.747	No	No	2.00
512	34.69	240.00	1.94	1.73	0.59	153.47	1.26	194.12	0.760	No	No	2.00
513	34.76	240.94	1.94	1.72	0.59	153.92	1.26	194.53	0.765	No	No	2.00
514	34.83	240.60	1.94	1.72	0.59	153.43	1.26	194.02	0.759	No	No	2.00
515	34.93	237.97	1.94	1.71	0.59	151.43	1.26	191.54	0.733	No	No	2.00
516	35.02	233.82	1.95	1.70	0.59	148.39	1.27	188.08	0.699	No	No	2.00
517	35.12	229.78	1.94	1.65	0.59	145.60	1.27	184.23	0.662	No	No	2.00
518	35.22	226.47	1.94	1.62	0.59	143.26	1.26	181.13	0.633	No	No	2.00
519	35.30	222.22	1.94	1.59	0.59	140.29	1.26	177.46	0.600	No	No	2.00
520	35.38	208.55	1.98	1.66	0.60	130.48	1.29	168.21	0.523	No	No	2.00
521	35.43	198.10	2.00	1.71	0.61	123.09	1.31	161.35	0.471	No	No	2.00
522	35.46	189.40	2.03	1.76	0.62	116.99	1.33	155.80	0.432	No	No	2.00
523	35.51	187.20	2.03	1.73	0.62	115.53	1.33	153.78	4.000	Yes	No	2.00
524	35.56	176.78	2.05	1.75	0.62	108.45	1.35	146.76	4.000	Yes	No	2.00
525	35.66	163.52	2.08	1.79	0.63	99.31	1.39	138.53	4.000	Yes	No	2.00
526	35.70	148.20	2.13	1.85	0.65	89.01	1.46	130.03	4.000	Yes	No	2.00
527	35.80	131.87	2.19	1.98	0.66	77.90	1.59	123.66	4.000	Yes	No	2.00
528	35.89	111.32	2.28	2.22	0.69	64.17	1.87	119.95	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	35.96	89.09	2.41	2.59	0.73	49.72	2.43	120.81	4.000	Yes	No	2.00
530	36.04	68.24	2.54	2.90	0.77	36.73	3.28	120.37	4.000	Yes	No	2.00
531	36.14	52.15	2.66	3.11	0.81	27.04	4.33	117.01	4.000	Yes	Yes	2.00
532	36.19	43.48	2.73	3.10	0.83	22.01	5.03	110.69	4.000	Yes	Yes	2.00
533	36.28	40.51	2.77	3.18	0.84	20.23	5.44	110.05	4.000	Yes	Yes	2.00
534	36.33	40.51	2.76	3.10	0.84	20.24	5.35	108.32	3.600	No	Yes	2.00
535	36.42	42.30	2.74	3.02	0.83	21.24	5.09	108.08	3.600	No	Yes	2.00
536	36.48	45.97	2.69	2.87	0.81	23.38	4.59	107.27	3.600	No	Yes	2.00
537	36.52	51.03	2.66	2.98	0.81	26.20	4.31	112.95	3.600	No	Yes	2.00
538	36.62	54.10	2.66	3.19	0.81	27.78	4.31	119.67	3.600	No	Yes	2.00
539	36.68	54.07	2.69	3.50	0.81	27.55	4.59	126.59	3.600	No	Yes	2.00
540	36.77	52.82	2.71	3.61	0.82	26.73	4.79	128.11	3.600	No	Yes	2.00
541	36.86	54.64	2.69	3.49	0.81	27.76	4.56	126.60	4.000	Yes	Yes	2.00
542	36.90	67.67	2.53	2.74	0.77	35.75	3.22	115.19	4.000	Yes	No	2.00
543	37.00	98.14	2.29	1.88	0.69	55.13	1.87	103.13	4.000	Yes	No	2.00
544	37.10	140.34	2.04	1.30	0.62	83.45	1.35	112.56	4.000	Yes	No	2.00
545	37.20	182.54	1.86	0.97	0.57	113.15	1.21	136.84	4.000	Yes	No	2.00
546	37.29	213.04	1.75	0.82	0.53	135.23	1.09	147.30	4.000	Yes	No	2.00
547	37.39	232.34	1.70	0.76	0.52	149.01	1.00	149.01	4.000	Yes	No	2.00
548	37.49	241.91	1.70	0.80	0.52	155.00	1.00	155.00	0.426	No	No	2.00
549	37.53	245.57	1.72	0.85	0.52	156.74	1.02	160.20	0.462	No	No	2.00
550	37.58	246.07	1.73	0.90	0.53	156.33	1.06	165.44	0.501	No	No	2.00
551	37.62	247.84	1.75	0.95	0.53	156.88	1.08	169.66	0.534	No	No	2.00
552	37.69	250.56	1.77	1.01	0.54	157.82	1.11	175.10	0.579	No	No	2.00
553	37.77	253.53	1.78	1.07	0.54	158.95	1.13	179.78	0.620	No	No	2.00
554	37.82	254.98	1.80	1.14	0.55	159.10	1.15	183.39	0.654	No	No	2.00
555	37.87	254.84	1.81	1.18	0.55	158.42	1.17	184.85	0.667	No	No	2.00
556	37.91	252.72	1.83	1.23	0.56	156.44	1.18	184.82	0.667	No	No	2.00
557	37.97	248.23	1.85	1.27	0.56	152.87	1.20	183.06	0.650	No	No	2.00
558	38.06	241.92	1.87	1.31	0.57	148.07	1.21	179.59	0.619	No	No	2.00
559	38.10	235.58	1.88	1.34	0.57	143.53	1.22	175.74	0.585	No	No	2.00
560	38.17	230.89	1.89	1.34	0.57	140.30	1.23	172.34	0.556	No	No	2.00
561	38.25	228.09	1.88	1.30	0.57	138.57	1.22	169.66	0.534	No	No	2.00
562	38.35	225.79	1.87	1.25	0.57	137.24	1.22	167.11	0.514	No	No	2.00
563	38.40	223.43	1.87	1.21	0.57	135.86	1.21	164.83	0.496	No	No	2.00
564	38.46	221.65	1.86	1.19	0.57	134.68	1.21	163.21	0.484	No	No	2.00
565	38.54	220.87	1.86	1.18	0.57	134.09	1.21	162.26	0.477	No	No	2.00
566	38.60	220.87	1.86	1.15	0.56	134.14	1.21	161.69	0.473	No	No	2.00
567	38.69	222.22	1.85	1.12	0.56	135.09	1.20	161.77	0.474	No	No	2.00
568	38.74	224.92	1.83	1.09	0.56	137.05	1.19	162.53	0.479	No	No	2.00
569	38.83	227.85	1.82	1.08	0.56	138.91	1.18	163.73	0.488	No	No	2.00
570	38.88	229.20	1.81	1.05	0.55	139.97	1.17	163.54	0.487	No	No	2.00
571	38.97	228.76	1.81	1.03	0.55	139.65	1.16	162.47	0.479	No	No	2.00
572	39.02	227.25	1.80	1.00	0.55	138.83	1.16	160.45	0.464	No	No	2.00
573	39.11	224.44	1.81	0.99	0.55	136.82	1.16	158.54	0.451	No	No	2.00
574	39.16	218.51	1.81	0.99	0.55	132.80	1.17	154.99	0.426	No	No	2.00
575	39.23	205.48	1.85	1.02	0.56	123.73	1.20	148.10	0.382	No	No	1.92
576	39.24	200.81	1.85	1.01	0.56	120.69	1.20	145.08	0.364	No	No	1.83

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	39.28	198.62	1.85	1.00	0.56	119.29	1.20	143.39	0.354	No	No	1.78
578	39.32	201.93	1.83	0.94	0.56	121.86	1.18	144.08	0.358	No	No	1.80
579	39.39	194.55	1.84	0.95	0.56	116.84	1.20	139.67	4.000	Yes	No	2.00
580	39.47	183.96	1.88	0.98	0.57	109.44	1.22	133.48	4.000	Yes	No	2.00
581	39.54	171.48	1.92	1.05	0.58	100.68	1.25	125.99	4.000	Yes	No	2.00
582	39.62	158.42	1.98	1.14	0.60	91.63	1.29	117.99	4.000	Yes	No	2.00
583	39.71	145.73	2.03	1.23	0.62	82.95	1.33	110.70	4.000	Yes	No	2.00
584	39.76	134.50	2.08	1.32	0.63	75.46	1.39	105.08	4.000	Yes	No	2.00
585	39.85	125.32	2.13	1.40	0.65	69.36	1.46	101.34	4.000	Yes	No	2.00
586	39.90	117.87	2.17	1.48	0.66	64.48	1.53	98.95	4.000	Yes	No	2.00
587	40.00	111.05	2.20	1.56	0.67	60.00	1.63	97.53	4.000	Yes	No	2.00
588	40.06	104.71	2.24	1.65	0.68	55.91	1.73	96.96	4.000	Yes	No	2.00
589	40.15	98.67	2.28	1.75	0.69	52.00	1.87	97.18	4.000	Yes	No	2.00
590	40.21	92.83	2.33	1.90	0.71	48.24	2.05	98.86	4.000	Yes	No	2.00
591	40.29	86.59	2.39	2.09	0.72	44.24	2.31	102.19	4.000	Yes	No	2.00
592	40.35	79.68	2.46	2.39	0.75	39.85	2.72	108.27	4.000	Yes	No	2.00
593	40.43	72.22	2.53	2.63	0.77	35.37	3.16	111.81	4.000	Yes	No	2.00
594	40.52	63.85	2.60	2.88	0.79	30.51	3.76	114.58	4.000	Yes	Yes	2.00
595	40.58	55.21	2.68	3.09	0.81	25.70	4.47	115.00	4.000	Yes	Yes	2.00
596	40.67	46.88	2.77	3.45	0.84	21.09	5.54	116.83	4.000	Yes	Yes	2.00
597	40.77	41.63	2.85	3.76	0.86	18.24	6.45	117.65	4.000	Yes	Yes	2.00
598	40.84	39.14	2.89	3.94	0.87	16.87	6.99	117.99	4.000	Yes	Yes	2.00
599	40.89	42.28	2.83	3.65	0.86	18.55	6.27	116.25	4.000	Yes	Yes	2.00
600	40.94	49.75	2.72	3.09	0.82	22.62	4.92	111.31	4.000	Yes	Yes	2.00
601	41.03	61.46	2.57	2.48	0.78	29.20	3.53	103.18	4.000	Yes	No	2.00
602	41.08	73.03	2.45	2.07	0.74	35.94	2.68	96.47	4.000	Yes	No	2.00
603	41.14	82.03	2.37	1.83	0.72	41.30	2.24	92.51	4.000	Yes	No	2.00
604	41.22	87.70	2.33	1.71	0.71	44.68	2.04	90.97	4.000	Yes	No	2.00
605	41.28	90.43	2.31	1.68	0.70	46.24	1.97	91.29	0.151	No	No	0.75
606	41.33	91.99	2.32	1.74	0.70	46.96	1.99	93.52	0.156	No	No	0.78
607	41.42	93.64	2.33	1.85	0.71	47.61	2.04	97.02	0.165	No	No	0.82
608	41.47	97.01	2.33	1.94	0.71	49.31	2.04	100.81	0.175	No	No	0.87
609	41.52	104.03	2.31	1.97	0.70	53.17	1.96	104.48	0.186	No	No	0.93
610	41.62	115.47	2.27	1.93	0.69	59.72	1.81	107.92	0.197	No	No	0.98
611	41.67	130.01	2.22	1.88	0.67	68.21	1.66	112.91	0.214	No	No	1.07
612	41.76	144.45	2.17	1.82	0.66	76.74	1.54	118.23	0.234	No	No	1.16
613	41.82	156.39	2.14	1.79	0.65	83.80	1.48	123.75	0.256	No	No	1.28
614	41.90	165.43	2.11	1.76	0.64	89.14	1.44	128.02	0.275	No	No	1.37
615	41.99	171.57	2.10	1.74	0.64	92.73	1.41	131.05	0.289	No	No	1.44
616	42.05	174.81	2.09	1.73	0.63	94.61	1.40	132.58	0.297	No	No	1.48
617	42.15	175.22	2.09	1.74	0.63	94.64	1.40	132.77	0.298	No	No	1.48
618	42.23	173.33	2.10	1.77	0.64	93.24	1.42	132.06	0.294	No	No	1.46
619	42.30	169.55	2.11	1.80	0.64	90.73	1.44	130.51	0.287	No	No	1.43
620	42.38	163.64	2.13	1.84	0.65	86.97	1.47	127.88	0.274	No	No	1.36
621	42.48	153.79	2.16	1.88	0.66	80.87	1.53	123.60	0.256	No	No	1.27
622	42.57	141.98	2.20	1.94	0.67	73.69	1.62	119.15	0.237	No	No	1.18
623	42.64	129.97	2.24	2.01	0.68	66.53	1.73	115.28	0.222	No	No	1.11
624	42.72	121.20	2.27	2.02	0.69	61.42	1.82	111.72	0.210	No	No	1.04

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	42.82	114.72	2.29	1.99	0.69	57.72	1.88	108.24	0.198	No	No	0.98
626	42.90	110.03	2.30	1.96	0.70	55.08	1.91	105.42	0.189	No	No	0.94
627	42.97	106.05	2.31	1.98	0.70	52.74	1.98	104.32	0.186	No	No	0.92
628	43.06	102.31	2.34	2.04	0.71	50.43	2.08	104.69	0.187	No	No	0.93
629	43.15	98.76	2.35	2.01	0.71	48.44	2.11	102.43	0.180	No	No	0.89
630	43.20	97.75	2.34	1.92	0.71	48.00	2.07	99.54	0.172	No	No	0.85
631	43.30	104.19	2.28	1.70	0.69	51.99	1.84	95.67	0.161	No	No	0.80
632	43.40	119.88	2.19	1.51	0.66	61.38	1.58	97.12	0.165	No	No	0.82
633	43.48	132.43	2.13	1.40	0.65	68.91	1.47	100.97	0.176	No	No	0.87
634	43.51	139.11	2.10	1.37	0.64	72.90	1.43	103.89	0.184	No	No	0.92
635	43.52	146.23	2.08	1.34	0.63	77.22	1.39	107.23	0.195	No	No	0.97
636	43.56	160.13	2.03	1.26	0.62	85.83	1.33	114.20	0.219	No	No	1.09
637	43.61	178.86	1.96	1.17	0.60	97.60	1.28	124.81	0.261	No	No	1.30
638	43.67	193.23	1.92	1.11	0.58	106.74	1.25	133.29	0.300	No	No	1.49
639	43.72	206.01	1.88	1.05	0.57	115.04	1.22	140.56	0.338	No	No	1.68
640	43.80	216.51	1.85	1.00	0.56	121.88	1.20	145.95	0.369	No	No	1.83
641	43.85	224.74	1.82	0.97	0.56	127.26	1.18	149.84	0.393	No	No	1.95
642	43.90	231.25	1.81	0.95	0.55	131.51	1.16	152.56	0.410	No	No	2.00
643	43.94	236.38	1.79	0.94	0.55	134.87	1.14	154.37	0.422	No	No	2.00
644	43.99	239.82	1.78	0.92	0.54	137.13	1.13	155.28	0.428	No	No	2.00
645	44.08	241.54	1.78	0.92	0.54	138.11	1.13	155.65	0.431	No	No	2.00
646	44.14	241.51	1.79	0.94	0.54	137.71	1.14	156.49	0.436	No	No	2.00
647	44.22	240.40	1.80	0.97	0.55	136.41	1.15	157.19	0.441	No	No	2.00
648	44.28	238.31	1.82	1.01	0.55	134.50	1.17	157.37	0.442	No	No	2.00
649	44.33	235.67	1.83	1.05	0.56	132.35	1.18	156.78	0.438	No	No	2.00
650	44.40	232.27	1.85	1.10	0.56	129.52	1.20	155.80	0.432	No	No	2.00
651	44.48	231.30	1.87	1.15	0.57	128.25	1.22	155.90	0.432	No	No	2.00
652	44.52	228.57	1.90	1.24	0.58	125.64	1.24	155.24	0.428	No	No	2.00
653	44.61	230.02	1.89	1.23	0.58	126.41	1.23	155.88	0.432	No	No	2.00
654	44.72	231.52	1.90	1.24	0.58	127.03	1.23	156.70	0.438	No	No	2.00
655	44.77	236.14	1.88	1.21	0.57	130.05	1.22	159.04	0.454	No	No	2.00
656	44.91	237.86	1.89	1.24	0.57	130.46	1.23	160.27	0.463	No	No	2.00
657	44.95	231.69	1.91	1.29	0.58	126.16	1.24	156.88	0.439	No	No	2.00
658	45.02	227.41	1.92	1.32	0.59	123.19	1.25	154.33	0.422	No	No	2.00
659	45.04	198.97	2.01	1.51	0.61	104.88	1.32	138.44	0.327	No	No	1.62
660	45.06	203.49	2.00	1.46	0.61	107.81	1.30	140.63	0.339	No	No	1.68
661	45.11	208.45	1.98	1.41	0.60	111.04	1.29	143.03	0.352	No	No	1.75
662	45.15	239.96	1.87	1.20	0.57	131.64	1.22	160.49	0.464	No	No	2.00
663	45.21	246.91	1.85	1.16	0.56	136.23	1.20	163.81	0.489	No	No	2.00
664	45.25	252.44	1.84	1.13	0.56	139.80	1.19	166.43	0.509	No	No	2.00
665	45.30	256.29	1.83	1.13	0.56	142.11	1.18	168.34	0.524	No	No	2.00
666	45.35	258.04	1.83	1.13	0.56	143.02	1.18	169.35	0.532	No	No	2.00
667	45.41	258.42	1.83	1.14	0.56	143.02	1.19	169.64	0.534	No	No	2.00
668	45.49	257.00	1.84	1.15	0.56	141.89	1.19	168.87	0.528	No	No	2.00
669	45.55	254.13	1.84	1.15	0.56	139.97	1.19	167.24	0.515	No	No	2.00
670	45.63	249.51	1.85	1.16	0.56	136.90	1.20	164.52	0.494	No	No	2.00
671	45.69	243.67	1.86	1.16	0.57	133.19	1.21	161.09	0.469	No	No	2.00
672	45.78	236.62	1.88	1.18	0.57	128.61	1.22	156.88	0.439	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	45.84	228.05	1.89	1.18	0.58	123.25	1.23	151.68	0.405	No	No	2.00
674	45.93	217.69	1.91	1.19	0.58	116.85	1.24	145.18	0.365	No	No	1.81
675	46.02	205.11	1.93	1.19	0.59	109.16	1.26	137.24	4.000	Yes	No	2.00
676	46.08	190.40	1.96	1.19	0.60	100.37	1.28	128.00	4.000	Yes	No	2.00
677	46.16	174.41	1.99	1.20	0.61	90.73	1.30	118.20	4.000	Yes	No	2.00
678	46.24	157.13	2.04	1.24	0.62	80.39	1.35	108.31	4.000	Yes	No	2.00
679	46.31	138.07	2.12	1.34	0.64	68.91	1.44	99.54	4.000	Yes	No	2.00
680	46.41	117.36	2.22	1.54	0.67	56.54	1.67	94.32	4.000	Yes	No	2.00
681	46.48	95.77	2.36	1.87	0.72	44.06	2.17	95.41	4.000	Yes	No	2.00
682	46.56	75.72	2.51	2.32	0.76	32.98	3.08	101.49	4.000	Yes	No	2.00
683	46.65	58.08	2.68	2.81	0.81	23.81	4.47	106.39	4.000	Yes	Yes	2.00
684	46.75	45.43	2.81	3.12	0.85	17.64	5.95	104.92	4.000	Yes	Yes	2.00
685	46.84	36.62	2.95	3.29	1.00	12.08	8.01	96.75	4.000	Yes	Yes	2.00
686	46.94	30.75	3.03	3.37	1.00	9.96	9.25	92.20	3.600	No	Yes	2.00
687	47.02	25.79	3.12	3.65	1.00	8.18	10.96	89.65	3.600	No	Yes	2.00
688	47.08	21.37	3.22	4.12	1.00	6.60	13.29	87.68	3.600	No	Yes	2.00
689	47.12	18.76	3.30	4.53	1.00	5.66	15.23	86.24	3.600	No	Yes	2.00
690	47.16	17.85	3.33	4.58	1.00	5.33	15.88	84.67	3.600	No	Yes	2.00
691	47.21	17.81	3.31	4.30	1.00	5.32	15.49	82.35	3.600	No	Yes	2.00
692	47.27	17.46	3.31	4.03	1.00	5.18	15.33	79.44	3.600	No	Yes	2.00
693	47.35	16.42	3.33	3.97	1.00	4.80	15.97	76.72	3.600	No	Yes	2.00
694	47.40	15.74	3.33	3.65	1.00	4.56	15.95	72.71	3.600	No	Yes	2.00
695	47.50	15.37	3.32	3.29	1.00	4.42	15.62	68.97	3.600	No	Yes	2.00
696	47.55	15.16	3.29	2.90	1.00	4.34	15.04	65.28	3.600	No	Yes	2.00
697	47.61	15.00	3.29	2.76	1.00	4.27	14.89	63.67	3.600	No	Yes	2.00
698	47.69	14.73	3.29	2.69	1.00	4.17	15.00	62.57	3.600	No	Yes	2.00
699	47.76	14.39	3.30	2.67	1.00	4.05	15.25	61.71	3.600	No	Yes	2.00
700	47.83	14.02	3.31	2.58	1.00	3.91	15.40	60.22	3.600	No	Yes	2.00
701	47.93	13.85	3.30	2.41	1.00	3.84	15.20	58.40	3.600	No	Yes	2.00
702	48.02	13.82	3.29	2.31	1.00	3.82	15.00	57.34	3.600	No	Yes	2.00
703	48.09	13.88	3.28	2.19	1.00	3.84	14.67	56.35	3.600	No	Yes	2.00
704	48.18	13.85	3.29	2.28	1.00	3.82	14.94	57.05	3.600	No	Yes	2.00
705	48.27	13.88	3.30	2.43	1.00	3.82	15.29	58.44	3.600	No	Yes	2.00
706	48.37	13.98	3.33	2.72	1.00	3.85	15.87	61.09	3.600	No	Yes	2.00
707	48.46	14.12	3.34	2.92	1.00	3.89	16.20	62.98	3.600	No	Yes	2.00
708	48.52	14.18	3.35	3.07	1.00	3.90	16.46	64.25	3.600	No	Yes	2.00
709	48.60	14.25	3.35	3.18	1.00	3.92	16.64	65.23	3.600	No	Yes	2.00
710	48.70	14.38	3.35	3.25	1.00	3.96	16.68	65.99	3.600	No	Yes	2.00
711	48.79	14.65	3.35	3.27	1.00	4.04	16.50	66.70	3.600	No	Yes	2.00
712	48.85	15.06	3.34	3.39	1.00	4.18	16.39	68.42	3.600	No	Yes	2.00
713	48.94	15.74	3.34	3.61	1.00	4.40	16.24	71.44	3.600	No	Yes	2.00
714	49.04	16.68	3.31	3.62	1.00	4.71	15.57	73.34	3.600	No	Yes	2.00
715	49.13	18.30	3.32	4.31	1.00	5.25	15.62	82.09	3.600	No	Yes	2.00
716	49.23	21.13	3.29	4.85	1.00	6.21	14.82	92.00	3.600	No	Yes	2.00
717	49.33	24.04	3.27	5.48	1.00	7.18	14.31	102.80	3.600	No	Yes	2.00
718	49.38	24.88	3.28	6.09	1.00	7.46	14.69	109.60	3.600	No	Yes	2.00
719	49.42	25.93	3.28	6.47	1.00	7.81	14.70	114.80	3.600	No	Yes	2.00
720	49.48	26.70	3.28	6.79	1.00	8.06	14.75	118.93	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	49.53	28.79	3.25	6.60	1.00	8.76	13.86	121.43	3.600	No	Yes	2.00
722	49.58	29.43	3.24	6.72	1.00	8.97	13.78	123.62	3.600	No	Yes	2.00
723	49.63	30.10	3.24	6.80	1.00	9.19	13.66	125.52	3.600	No	Yes	2.00
724	49.72	30.91	3.23	6.72	1.00	9.44	13.37	126.23	3.600	No	Yes	2.00
725	49.77	31.42	3.22	6.60	1.00	9.60	13.13	125.98	3.600	No	Yes	2.00
726	49.83	31.42	3.22	6.55	1.00	9.59	13.08	125.40	3.600	No	Yes	2.00
727	49.92	30.71	3.23	6.62	1.00	9.33	13.37	124.67	3.600	No	Yes	2.00
728	49.97	30.39	3.23	6.56	1.00	9.21	13.41	123.55	3.600	No	Yes	2.00
729	50.04	29.48	3.25	6.66	1.00	8.89	13.80	122.65	3.600	No	Yes	2.00
730	50.11	29.82	3.24	6.56	1.00	8.99	13.61	122.33	3.600	No	Yes	2.00
731	50.20	30.21	3.22	6.30	1.00	9.10	13.25	120.55	3.600	No	Yes	2.00
732	50.27	30.78	3.19	5.73	1.00	9.28	12.51	116.01	3.600	No	Yes	2.00
733	50.34	29.50	3.18	5.11	1.00	8.83	12.20	107.79	3.600	No	Yes	2.00
734	50.45	26.76	3.19	4.68	1.00	7.90	12.55	99.22	3.600	No	Yes	2.00
735	50.54	23.73	3.23	4.48	1.00	6.88	13.43	92.39	3.600	No	Yes	2.00
736	50.59	21.13	3.28	4.47	1.00	6.01	14.59	87.71	3.600	No	Yes	2.00
737	50.68	19.24	3.32	4.43	1.00	5.37	15.59	83.78	3.600	No	Yes	2.00
738	50.79	18.13	3.33	4.26	1.00	4.99	16.06	80.17	3.600	No	Yes	2.00
739	50.88	17.81	3.33	4.10	1.00	4.88	16.03	78.18	3.600	No	Yes	2.00
740	50.98	17.64	3.34	4.11	1.00	4.81	16.19	77.89	3.600	No	Yes	2.00
741	51.07	17.81	3.32	3.85	1.00	4.86	15.67	76.09	3.600	No	Yes	2.00
742	51.17	18.43	3.26	3.21	1.00	5.05	14.19	71.67	3.600	No	Yes	2.00
743	51.24	19.51	3.20	2.74	1.00	5.40	12.74	68.77	3.600	No	Yes	2.00
744	51.33	20.19	3.19	2.81	1.00	5.61	12.56	70.43	3.600	No	Yes	2.00
745	51.46	20.09	3.23	3.28	1.00	5.56	13.45	74.75	3.600	No	Yes	2.00
746	51.46	19.80	3.27	3.71	1.00	5.46	14.31	78.20	3.600	No	Yes	2.00
747	51.51	19.77	3.28	3.88	1.00	5.45	14.62	79.60	3.600	No	Yes	2.00
748	51.56	19.87	3.29	4.15	1.00	5.47	14.98	82.02	3.600	No	Yes	2.00
749	51.65	19.95	3.31	4.41	1.00	5.49	15.35	84.26	3.600	No	Yes	2.00
750	51.71	20.09	3.32	4.71	1.00	5.53	15.72	86.89	3.600	No	Yes	2.00
751	51.79	20.49	3.32	4.86	1.00	5.65	15.73	88.80	3.600	No	Yes	2.00
752	51.85	21.23	3.32	5.11	1.00	5.88	15.68	92.19	3.600	No	Yes	2.00
753	51.94	22.11	3.32	5.42	1.00	6.15	15.66	96.33	3.600	No	Yes	2.00
754	51.99	23.22	3.32	5.95	1.00	6.51	15.77	102.62	3.600	No	Yes	2.00
755	52.09	24.17	3.33	6.60	1.00	6.80	16.12	109.52	3.600	No	Yes	2.00
756	52.19	27.74	3.28	6.62	1.00	7.93	14.73	116.81	3.600	No	Yes	2.00
757	52.28	33.34	3.20	6.19	1.00	9.72	12.62	122.63	3.600	No	Yes	2.00
758	52.35	36.42	3.17	6.29	1.00	10.69	12.02	128.41	3.600	No	Yes	2.00
759	52.43	37.06	3.18	6.64	1.00	10.87	12.22	132.82	3.600	No	Yes	2.00
760	52.52	35.17	3.22	7.33	1.00	10.25	13.30	136.28	3.600	No	Yes	2.00
761	52.62	35.61	3.22	7.23	1.00	10.37	13.11	135.93	3.600	No	Yes	2.00
762	52.72	35.98	3.20	6.96	1.00	10.46	12.80	133.92	3.600	No	Yes	2.00
763	52.81	34.26	3.24	7.47	1.00	9.89	13.70	135.53	3.600	No	Yes	2.00
764	52.91	31.32	3.34	9.52	1.00	8.94	16.37	146.31	3.600	No	Yes	2.00
765	53.00	37.23	3.27	9.04	1.00	10.79	14.34	154.70	3.600	No	Yes	2.00
766	53.10	62.36	2.95	5.53	1.00	18.71	7.92	148.13	4.000	Yes	Yes	2.00
767	53.20	108.21	2.62	3.37	1.00	33.14	3.92	129.79	4.000	Yes	Yes	2.00
768	53.29	163.78	2.38	2.36	1.00	50.57	2.27	114.61	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	53.38	213.88	2.24	1.98	1.00	66.21	1.72	114.09	4.000	Yes	No	2.00
770	53.46	260.07	2.14	1.75	1.00	80.59	1.49	119.81	4.000	Yes	No	2.00
771	53.53	292.05	2.12	1.83	1.00	90.48	1.45	130.93	4.000	Yes	No	2.00
772	53.63	323.19	2.09	1.82	1.00	100.02	1.40	139.93	4.000	Yes	No	2.00
773	53.73	361.79	2.01	1.58	1.00	111.85	1.31	146.92	4.000	Yes	No	2.00
774	53.82	388.35	1.92	1.28	1.00	119.89	1.25	150.03	4.000	Yes	No	2.00
775	53.92	387.71	1.89	1.12	1.00	119.45	1.23	146.54	4.000	Yes	No	2.00
776	53.94	360.18	1.92	1.15	1.00	110.85	1.25	138.23	0.326	No	No	1.66
777	53.96	336.26	1.95	1.19	1.00	103.38	1.27	131.20	0.290	No	No	1.48
778	53.97	349.08	1.92	1.12	1.00	107.34	1.25	134.16	0.305	No	No	1.55
779	54.05	377.59	1.87	1.03	1.00	116.04	1.22	141.00	0.341	No	No	1.73
780	54.08	426.28	1.79	0.91	1.00	131.09	1.15	150.15	0.395	No	No	2.00
781	54.13	473.21	1.74	0.84	1.00	145.55	1.06	154.41	0.422	No	No	2.00
782	54.19	518.79	1.70	0.83	1.00	159.56	1.00	159.56	0.458	No	No	2.00
783	54.25	524.22	1.71	0.86	1.00	161.12	1.01	162.94	0.482	No	No	2.00
784	54.28	510.87	1.74	0.91	1.00	156.95	1.06	166.66	0.510	No	No	2.00
785	54.29	486.82	1.76	0.94	1.00	149.48	1.10	164.40	0.493	No	No	2.00
786	54.34	486.89	1.76	0.94	1.00	149.42	1.10	164.35	0.493	No	No	2.00
787	54.35	492.20	1.75	0.93	1.00	151.05	1.09	164.72	0.496	No	No	2.00
788	54.40	504.89	1.74	0.91	1.00	154.89	1.07	165.62	0.503	No	No	2.00
789	54.44	522.30	1.72	0.90	1.00	160.18	1.04	166.45	0.509	No	No	2.00
790	54.49	535.62	1.71	0.88	1.00	164.19	1.01	165.88	0.505	No	No	2.00
791	54.53	546.25	1.70	0.87	1.00	167.39	1.00	167.39	0.516	No	No	2.00
792	54.57	558.27	1.69	0.87	1.00	171.02	1.00	171.02	0.545	No	No	2.00
793	54.58	567.78	1.70	0.89	1.00	173.92	1.00	173.92	0.569	No	No	2.00
794	54.63	560.90	1.71	0.92	1.00	171.71	1.01	173.90	0.569	No	No	2.00
795	54.68	536.31	1.75	0.99	1.00	164.04	1.08	176.93	0.595	No	No	2.00
796	54.73	510.50	1.78	1.03	1.00	156.00	1.12	175.12	0.579	No	No	2.00
797	54.78	499.67	1.79	1.04	1.00	152.59	1.14	173.29	0.564	No	No	2.00
798	54.83	493.63	1.80	1.06	1.00	150.64	1.15	172.82	0.560	No	No	2.00
799	54.88	497.14	1.80	1.09	1.00	151.64	1.15	175.08	0.579	No	No	2.00
800	54.92	500.68	1.81	1.15	1.00	152.65	1.17	178.37	0.608	No	No	2.00
801	54.97	510.81	1.81	1.14	1.00	155.66	1.16	180.73	0.629	No	No	2.00
802	55.02	513.44	1.81	1.15	1.00	156.38	1.16	181.62	0.637	No	No	2.00
803	55.12	487.90	1.85	1.25	1.00	148.39	1.20	178.01	0.605	No	No	2.00
804	55.17	449.17	1.92	1.45	1.00	136.44	1.25	170.63	0.542	No	No	2.00
805	55.25	410.54	1.98	1.59	1.00	124.51	1.29	160.49	0.464	No	No	2.00
806	55.31	394.21	1.98	1.55	1.00	119.43	1.29	154.46	0.423	No	No	2.00
807	55.36	388.18	1.95	1.35	1.00	117.52	1.27	148.87	0.387	No	No	1.98
808	55.45	381.09	1.91	1.20	1.00	115.23	1.25	143.68	0.356	No	No	1.82
809	55.50	365.91	1.92	1.15	1.00	110.54	1.25	137.89	0.324	No	No	1.66
810	55.60	351.24	1.94	1.19	1.00	105.95	1.26	133.93	0.303	No	No	1.56
811	55.65	332.24	1.96	1.21	1.00	100.11	1.28	128.15	0.276	No	No	1.41
812	55.71	324.14	1.96	1.15	1.00	97.58	1.27	124.39	0.259	No	No	1.33
813	55.75	320.40	1.93	1.03	1.00	96.40	1.26	121.19	0.246	No	No	1.26
814	55.79	325.12	1.91	0.99	1.00	97.79	1.25	121.90	0.248	No	No	1.27
815	55.84	332.47	1.90	0.97	1.00	99.97	1.24	123.76	0.256	No	No	1.32
816	55.89	338.01	1.90	0.97	1.00	101.60	1.23	125.39	0.263	No	No	1.35

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	55.90	341.15	1.89	0.96	1.00	102.54	1.23	126.17	0.267	No	No	1.37
818	55.94	336.26	1.90	0.98	1.00	101.02	1.24	124.98	0.262	No	No	1.34
819	55.99	327.63	1.92	1.01	1.00	98.34	1.25	122.89	0.253	No	No	1.30
820	56.03	317.88	1.94	1.05	1.00	95.34	1.26	120.41	0.242	No	No	1.24
821	56.08	311.67	1.95	1.06	1.00	93.40	1.27	118.54	0.235	No	No	1.21
822	56.14	306.37	1.95	1.05	1.00	91.74	1.27	116.74	0.228	No	No	1.17
823	56.22	299.89	1.96	1.06	1.00	89.70	1.28	114.65	0.220	No	No	1.13
824	56.28	294.29	1.97	1.06	1.00	87.95	1.28	112.90	0.214	No	No	1.10
825	56.33	292.57	1.97	1.06	1.00	87.39	1.29	112.38	0.212	No	No	1.09
826	56.38	294.06	1.97	1.04	1.00	87.79	1.28	112.46	0.212	No	No	1.09
827	56.45	301.34	1.95	1.02	1.00	89.92	1.27	114.23	0.219	No	No	1.13
828	56.52	312.58	1.93	0.98	1.00	93.24	1.25	117.01	0.229	No	No	1.18
829	56.62	325.19	1.90	0.94	1.00	96.94	1.24	120.21	0.242	No	No	1.24
830	56.66	338.42	1.87	0.89	1.00	100.88	1.22	123.02	0.253	No	No	1.30
831	56.73	350.06	1.87	0.90	1.00	104.30	1.21	126.65	0.269	No	No	1.39
832	56.81	357.11	1.87	0.94	1.00	106.33	1.22	129.59	0.282	No	No	1.46
833	56.95	363.42	1.89	1.01	1.00	108.06	1.23	132.64	0.297	No	No	1.53
834	57.00	372.46	1.88	1.03	1.00	110.72	1.23	135.80	0.313	No	No	1.61
835	57.09	373.11	1.89	1.06	1.00	110.80	1.23	136.52	0.317	No	No	1.63
836	57.19	368.58	1.91	1.10	1.00	109.32	1.24	135.85	0.313	No	No	1.62
837	57.27	354.04	1.92	1.11	1.00	104.88	1.25	131.44	0.291	No	No	1.50
838	57.35	357.65	1.89	0.99	1.00	105.87	1.23	130.16	0.285	No	No	1.47
839	57.44	356.17	1.86	0.89	1.00	105.33	1.21	127.36	0.272	No	No	1.41
840	57.50	364.37	1.83	0.81	1.00	107.70	1.18	127.07	0.271	No	No	1.40
841	57.52	378.10	1.83	0.84	1.00	111.77	1.18	131.85	0.293	No	No	1.52
842	57.58	409.37	1.82	0.90	1.00	121.03	1.17	141.73	0.345	No	No	1.78
843	57.63	432.08	1.81	0.95	1.00	127.73	1.17	149.17	0.389	No	No	2.00
844	57.72	439.00	1.81	0.96	1.00	129.66	1.17	151.31	0.402	No	No	2.00
845	57.77	433.73	1.80	0.92	1.00	128.03	1.16	148.26	0.383	No	No	1.98
846	57.82	429.55	1.78	0.84	1.00	126.71	1.13	143.29	0.354	No	No	1.83
847	57.91	436.73	1.74	0.73	1.00	128.72	1.06	137.09	0.320	No	No	1.66
848	57.96	442.84	1.69	0.63	1.00	130.46	1.00	130.46	0.287	No	No	1.48
849	58.02	458.90	1.66	0.57	1.00	135.16	1.00	135.16	0.310	No	No	1.61
850	58.09	469.26	1.65	0.56	1.00	138.12	1.00	138.12	0.325	No	No	1.69
851	58.16	484.88	1.63	0.56	1.00	142.65	1.00	142.65	0.350	No	No	1.82
852	58.25	491.12	1.64	0.58	1.00	144.36	1.00	144.36	0.360	No	No	1.87
853	58.30	487.65	1.66	0.63	1.00	143.26	1.00	143.26	0.353	No	No	1.83
854	58.40	479.62	1.69	0.68	1.00	140.74	1.00	140.74	0.339	No	No	1.76
855	58.50	468.52	1.71	0.72	1.00	137.31	1.02	139.77	0.334	No	No	1.74
856	58.56	467.50	1.71	0.71	1.00	136.92	1.01	138.70	0.328	No	No	1.71
857	58.64	464.81	1.72	0.73	1.00	136.01	1.03	140.28	0.337	No	No	1.75
858	58.73	474.79	1.73	0.77	1.00	138.81	1.05	145.16	0.364	No	No	1.90
859	58.78	488.15	1.72	0.76	1.00	142.67	1.02	145.87	0.369	No	No	1.92
860	58.88	506.71	1.69	0.74	1.00	147.98	1.00	147.98	0.381	No	No	1.98
861	58.97	511.03	1.66	0.67	1.00	149.10	1.00	149.10	0.388	No	No	2.00
862	59.07	506.24	1.66	0.64	1.00	147.53	1.00	147.53	0.379	No	No	1.97
863	59.13	493.59	1.65	0.61	1.00	143.73	1.00	143.73	0.356	No	No	1.86
864	59.23	484.71	1.65	0.59	1.00	140.99	1.00	140.99	0.341	No	No	1.78

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	59.31	464.47	1.65	0.56	1.00	134.94	1.00	134.94	0.308	No	No	1.61
866	59.38	450.35	1.65	0.54	1.00	130.71	1.00	130.71	0.288	No	No	1.50
867	59.41	439.19	1.66	0.53	1.00	127.40	1.00	127.40	0.272	No	No	1.42
868	59.46	443.57	1.65	0.53	1.00	128.62	1.00	128.62	0.278	No	No	1.45
869	59.51	443.56	1.65	0.52	1.00	128.55	1.00	128.55	0.278	No	No	1.45
870	59.57	451.89	1.67	0.58	1.00	130.91	1.00	130.91	0.289	No	No	1.51
871	59.66	471.05	1.67	0.61	1.00	136.37	1.00	136.37	0.316	No	No	1.65
872	59.75	492.31	1.70	0.71	1.00	142.44	1.00	142.44	0.349	No	No	1.82
873	59.80	506.48	1.71	0.77	1.00	146.48	1.01	147.84	0.380	No	No	1.99
874	59.85	508.64	1.74	0.86	1.00	147.04	1.07	156.99	0.440	No	No	2.00
875	59.91	504.22	1.75	0.88	1.00	145.65	1.08	158.02	0.447	No	No	2.00
876	59.99	498.85	1.77	0.91	1.00	143.96	1.11	159.53	0.458	No	No	2.00
877	60.05	480.97	1.81	1.03	1.00	138.68	1.17	161.59	0.472	No	No	2.00
878	60.09	464.78	1.85	1.12	1.00	133.92	1.20	160.52	0.465	No	No	2.00
879	60.14	444.43	1.88	1.17	1.00	127.94	1.22	156.08	0.434	No	No	2.00
880	60.19	437.86	1.87	1.13	1.00	125.96	1.22	153.23	0.415	No	No	2.00
881	60.22	434.25	1.87	1.11	1.00	124.88	1.21	151.55	0.404	No	No	2.00
882	60.28	412.99	1.89	1.13	1.00	118.63	1.23	145.94	0.369	No	No	1.93
883	60.33	381.24	1.93	1.19	1.00	109.36	1.26	137.48	0.322	No	No	1.69
884	60.38	338.97	2.00	1.32	1.00	97.07	1.31	126.83	0.270	No	No	1.41
885	60.42	309.75	2.05	1.40	1.00	88.57	1.35	119.65	0.239	No	No	1.25
886	60.48	282.02	2.07	1.37	1.00	80.50	1.38	111.02	0.207	No	No	1.09
887	60.57	262.48	2.05	1.17	1.00	74.78	1.36	101.50	0.177	No	No	0.93
888	60.66	243.89	2.02	0.93	1.00	69.35	1.32	91.67	0.152	No	No	0.80
889	60.68	232.16	1.99	0.79	1.00	65.95	1.30	85.85	0.139	No	No	0.73
890	60.69	225.51	1.98	0.72	1.00	64.02	1.29	82.84	0.133	No	No	0.70
891	60.74	217.75	1.99	0.69	1.00	61.75	1.30	80.07	0.128	No	No	0.67
892	60.79	206.27	2.00	0.66	1.00	58.41	1.30	76.18	0.121	No	No	0.64
893	60.84	192.16	2.02	0.64	1.00	54.32	1.32	71.82	0.114	No	No	0.60
894	60.89	182.35	2.03	0.62	1.00	51.47	1.33	68.64	0.110	No	No	0.58
895	60.98	174.35	2.05	0.63	1.00	49.12	1.36	66.57	0.107	No	No	0.56
896	61.03	168.07	2.13	0.84	1.00	47.30	1.46	69.19	0.111	No	No	0.58
897	61.08	164.86	2.24	1.28	1.00	46.35	1.72	79.69	0.127	No	No	0.67
898	61.18	164.63	2.31	1.64	1.00	46.24	1.95	90.12	0.148	No	No	0.78
899	61.23	168.20	2.35	1.96	1.00	47.23	2.12	100.04	0.173	No	No	0.91
900	61.31	194.08	2.24	1.58	1.00	54.62	1.72	94.03	0.157	No	No	0.83
901	61.42	236.42	2.09	1.19	1.00	66.70	1.41	94.11	0.158	No	No	0.83
902	61.47	287.17	1.90	0.74	1.00	81.21	1.24	100.64	0.175	No	No	0.92
903	61.51	331.30	1.79	0.58	1.00	93.81	1.14	107.25	0.195	No	No	1.03
904	61.54	366.14	1.73	0.52	1.00	103.76	1.05	108.54	0.199	No	No	1.05
905	61.57	395.83	1.70	0.53	1.00	112.23	1.00	112.23	0.211	No	No	1.11
906	61.58	418.64	1.67	0.50	1.00	118.74	1.00	118.74	0.236	No	No	1.24
907	61.61	393.43	1.70	0.50	1.00	111.49	1.00	111.49	0.209	No	No	1.10
908	61.63	367.65	1.72	0.50	1.00	104.10	1.03	107.07	0.194	No	No	1.02
909	61.63	257.89	1.94	0.73	1.00	72.70	1.26	91.77	0.152	No	No	0.80
910	61.66	191.36	2.14	1.04	1.00	53.66	1.48	79.27	0.126	No	No	0.67
911	61.67	129.55	2.40	1.69	1.00	35.97	2.37	85.35	0.138	No	No	0.73
912	61.70	152.96	2.31	1.50	1.00	42.66	1.96	83.80	0.135	No	No	0.71

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	61.71	180.90	2.22	1.34	1.00	50.64	1.67	84.55	0.136	No	No	0.72
914	61.76	206.41	2.15	1.24	1.00	57.90	1.51	87.45	0.142	No	No	0.75
915	61.80	228.84	2.10	1.15	1.00	64.28	1.42	91.10	0.150	No	No	0.79
916	61.84	250.40	2.03	1.01	1.00	70.41	1.34	94.04	0.157	No	No	0.83
917	61.86	279.75	1.93	0.78	1.00	78.77	1.26	98.87	0.170	No	No	0.90
918	61.93	312.34	1.82	0.60	1.00	88.02	1.18	103.69	0.184	No	No	0.97
919	61.98	357.76	1.73	0.50	1.00	100.92	1.00	100.92	0.176	No	No	0.93
920	62.04	405.56	1.68	0.50	1.00	114.48	1.00	114.48	0.220	No	No	1.16
921	62.09	451.78	1.64	0.49	1.00	127.59	1.00	127.59	0.273	No	No	1.44
922	62.14	481.91	1.62	0.49	1.00	136.10	1.00	136.10	0.314	No	No	1.66
923	62.19	499.12	1.60	0.47	1.00	140.93	1.00	140.93	0.340	No	No	1.80
924	62.24	508.93	1.59	0.47	1.00	143.65	1.00	143.65	0.356	No	No	1.88
925	62.26	519.32	1.58	0.47	1.00	146.58	1.00	146.58	0.373	No	No	1.97
926	62.29	519.05	1.58	0.47	1.00	146.46	1.00	146.46	0.372	No	No	1.97
927	62.38	515.71	1.60	0.51	1.00	145.37	1.00	145.37	0.366	No	No	1.93
928	62.44	490.28	1.65	0.57	1.00	138.07	1.00	138.07	0.325	No	No	1.72
929	62.46	469.07	1.69	0.62	1.00	132.02	1.00	132.02	0.294	No	No	1.55
930	62.47	448.15	1.70	0.62	1.00	126.07	1.00	126.07	0.266	No	No	1.41
931	62.51	453.68	1.69	0.61	1.00	127.59	1.00	127.59	0.273	No	No	1.44
932	62.56	463.98	1.69	0.61	1.00	130.45	1.00	130.45	0.286	No	No	1.52
933	62.60	477.62	1.68	0.62	1.00	134.26	1.00	134.26	0.305	No	No	1.61
934	62.65	481.73	1.68	0.62	1.00	135.35	1.00	135.35	0.311	No	No	1.64
935	62.70	482.34	1.66	0.58	1.00	135.46	1.00	135.46	0.311	No	No	1.65
936	62.75	483.05	1.65	0.56	1.00	135.59	1.00	135.59	0.312	No	No	1.65
937	62.80	494.83	1.64	0.55	1.00	138.85	1.00	138.85	0.329	No	No	1.74
938	62.85	525.29	1.60	0.52	1.00	147.40	1.00	147.40	0.378	No	No	2.00
939	62.89	569.18	1.56	0.50	1.00	159.73	1.00	159.73	0.459	No	No	2.00
940	62.97	619.66	1.54	0.51	1.00	173.86	1.00	173.86	0.569	No	No	2.00
941	63.04	667.84	1.52	0.52	1.00	187.32	1.00	187.32	0.691	No	No	2.00
942	63.09	703.12	1.50	0.52	1.00	197.18	1.00	197.18	0.793	No	No	2.00
943	63.13	715.51	1.51	0.54	1.00	200.57	1.00	200.57	4.000	No	No	2.00
944	63.19	716.52	1.54	0.60	1.00	200.74	1.00	200.74	4.000	No	No	2.00
945	63.23	720.23	1.57	0.67	1.00	201.69	1.00	201.69	4.000	No	No	2.00
946	63.28	726.78	1.59	0.73	1.00	203.42	1.00	203.42	4.000	No	No	2.00
947	63.32	729.18	1.57	0.68	1.00	204.02	1.00	204.02	4.000	No	No	2.00
948	63.38	725.67	1.49	0.51	1.00	202.89	1.00	202.89	4.000	No	No	2.00
949	63.44	726.68	1.43	0.41	1.00	203.06	1.00	203.06	4.000	No	No	2.00
950	63.52	715.48	1.43	0.40	1.00	199.75	1.00	199.75	0.821	No	No	2.00
951	63.57	697.37	1.49	0.49	1.00	194.57	1.00	194.57	0.765	No	No	2.00
952	63.66	659.58	1.52	0.51	1.00	183.79	1.00	183.79	0.657	No	No	2.00
953	63.73	534.95	1.63	0.58	1.00	148.76	1.00	148.76	0.386	No	No	2.00
954	63.76	455.61	1.72	0.67	1.00	126.50	1.03	130.54	0.287	No	No	1.53
955	63.76	411.85	1.77	0.71	1.00	114.24	1.12	127.66	0.274	No	No	1.45
956	63.78	471.87	1.70	0.64	1.00	131.02	1.00	131.02	0.289	No	No	1.54
957	63.81	512.86	1.67	0.65	1.00	142.46	1.00	142.46	0.349	No	No	1.86
958	63.85	526.43	1.68	0.68	1.00	146.19	1.00	146.19	0.371	No	No	1.97
959	63.86	522.58	1.70	0.74	1.00	145.10	1.00	145.10	0.364	No	No	1.94
960	63.91	497.92	1.74	0.81	1.00	138.14	1.07	148.35	0.384	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	63.94	483.78	1.77	0.87	1.00	134.14	1.12	150.35	0.396	No	No	2.00
962	63.95	480.34	1.79	0.90	1.00	133.15	1.14	151.38	0.403	No	No	2.00
963	64.00	476.26	1.79	0.91	1.00	131.94	1.14	150.67	0.398	No	No	2.00
964	64.02	473.22	1.79	0.89	1.00	131.08	1.14	149.37	0.390	No	No	2.00
965	64.05	475.78	1.78	0.86	1.00	131.75	1.12	148.02	0.382	No	No	2.00
966	64.09	478.18	1.77	0.83	1.00	132.36	1.11	146.64	0.373	No	No	1.99
967	64.11	480.07	1.75	0.80	1.00	132.86	1.09	144.77	0.362	No	No	1.93
968	64.15	482.26	1.74	0.77	1.00	133.43	1.07	142.44	0.349	No	No	1.86
969	64.20	494.31	1.72	0.74	1.00	136.71	1.03	141.24	0.342	No	No	1.82
970	64.25	512.59	1.70	0.72	1.00	141.74	1.00	141.74	0.345	No	No	1.84
971	64.29	535.70	1.68	0.70	1.00	148.11	1.00	148.11	0.382	No	No	2.00
972	64.34	570.38	1.64	0.65	1.00	157.68	1.00	157.68	0.445	No	No	2.00
973	64.43	605.81	1.60	0.60	1.00	167.40	1.00	167.40	0.516	No	No	2.00
974	64.48	630.95	1.56	0.56	1.00	174.30	1.00	174.30	0.572	No	No	2.00
975	64.53	642.69	1.53	0.51	1.00	177.47	1.00	177.47	0.600	No	No	2.00
976	64.58	655.07	1.52	0.49	1.00	180.82	1.00	180.82	0.630	No	No	2.00
977	64.63	680.65	1.51	0.49	1.00	187.83	1.00	187.83	0.696	No	No	2.00
978	64.68	709.63	1.52	0.55	1.00	195.77	1.00	195.77	0.778	No	No	2.00
979	64.73	718.74	1.53	0.57	1.00	198.20	1.00	198.20	0.804	No	No	2.00
980	64.77	735.60	1.51	0.56	1.00	202.79	1.00	202.79	4.000	No	No	2.00
981	64.82	751.19	1.48	0.51	1.00	207.01	1.00	207.01	4.000	No	No	2.00
982	64.87	732.64	1.49	0.51	1.00	201.76	1.00	201.76	4.000	No	No	2.00
983	64.89	713.98	1.50	0.52	1.00	196.56	1.00	196.56	0.786	No	No	2.00
984	64.93	689.59	1.53	0.54	1.00	189.73	1.00	189.73	0.715	No	No	2.00
985	64.94	715.81	1.51	0.53	1.00	196.96	1.00	196.96	0.791	No	No	2.00
986	64.98	725.69	1.50	0.53	1.00	199.62	1.00	199.62	0.820	No	No	2.00
987	64.99	734.03	1.50	0.52	1.00	201.90	1.00	201.90	4.000	No	No	2.00
988	65.03	732.37	1.50	0.52	1.00	201.35	1.00	201.35	4.000	No	No	2.00
989	65.08	727.04	1.49	0.50	1.00	199.79	1.00	199.79	0.822	No	No	2.00
990	65.13	715.51	1.48	0.47	1.00	196.50	1.00	196.50	0.786	No	No	2.00
991	65.17	703.60	1.46	0.43	1.00	193.13	1.00	193.13	0.750	No	No	2.00
992	65.22	689.29	1.45	0.41	1.00	189.08	1.00	189.08	0.709	No	No	2.00
993	65.23	681.55	1.45	0.40	1.00	186.93	1.00	186.93	0.687	No	No	2.00
994	65.28	679.28	1.46	0.40	1.00	186.22	1.00	186.22	0.681	No	No	2.00
995	65.32	679.65	1.47	0.43	1.00	186.24	1.00	186.24	0.681	No	No	2.00
996	65.37	680.17	1.49	0.45	1.00	186.30	1.00	186.30	0.681	No	No	2.00
997	65.42	684.61	1.50	0.48	1.00	187.42	1.00	187.42	0.692	No	No	2.00
998	65.47	671.65	1.50	0.48	1.00	183.76	1.00	183.76	0.657	No	No	2.00
999	65.48	657.21	1.52	0.49	1.00	179.77	1.00	179.77	0.620	No	No	2.00
1000	65.49	638.86	1.52	0.48	1.00	174.70	1.00	174.70	0.576	No	No	2.00
1001	65.52	636.56	1.52	0.47	1.00	174.01	1.00	174.01	0.570	No	No	2.00
1002	65.57	645.67	1.41	0.30	1.00	176.43	1.00	176.43	0.591	No	No	2.00
1003	65.62	661.16	1.28	0.15	1.00	180.61	1.00	180.61	0.628	No	No	2.00
1004	65.67	682.44	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1005	65.69	697.23	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1006	65.72	719.02	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1007	65.77	752.26	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1008	65.82	790.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	65.86	811.97	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1010	65.86	833.63	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1011	65.91	854.04	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1012	65.96	878.41	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.01	2.00	0.00	0.00	0.03	0.00	0.04	2.00	0.00	0.00	0.03	0.00
0.08	2.00	0.00	0.00	0.04	0.00	0.10	2.00	0.00	0.00	0.02	0.00
0.13	2.00	0.00	0.00	0.03	0.00	0.18	2.00	0.00	0.00	0.04	0.00
0.22	2.00	0.00	0.00	0.05	0.00	0.27	2.00	0.00	0.00	0.05	0.00
0.33	2.00	0.00	0.00	0.05	0.00	0.36	2.00	0.00	0.00	0.03	0.00
0.37	2.00	0.00	0.00	0.01	0.00	0.38	2.00	0.00	0.00	0.01	0.00
0.42	2.00	0.00	0.00	0.04	0.00	0.44	2.00	0.00	0.00	0.03	0.00
0.47	2.00	0.00	0.00	0.02	0.00	0.47	2.00	0.00	0.00	0.01	0.00
0.52	2.00	0.00	0.00	0.04	0.00	0.56	2.00	0.00	0.00	0.05	0.00
0.58	2.00	0.00	0.00	0.01	0.00	0.61	2.00	0.00	0.00	0.03	0.00
0.66	2.00	0.00	0.00	0.05	0.00	0.76	2.00	0.00	0.00	0.09	0.00
0.80	2.00	0.00	0.00	0.05	0.00	0.81	2.00	0.00	0.00	0.01	0.00
0.85	2.00	0.00	0.00	0.04	0.00	0.86	2.00	0.00	0.00	0.01	0.00
0.90	2.00	0.00	0.00	0.04	0.00	0.95	2.00	0.00	0.00	0.04	0.00
1.00	2.00	0.00	0.00	0.05	0.00	1.05	2.00	0.00	0.00	0.06	0.00
1.14	2.00	0.00	0.00	0.09	0.00	1.24	2.00	0.00	0.00	0.09	0.00
1.31	2.00	0.00	0.00	0.08	0.00	1.36	2.00	0.00	0.00	0.05	0.00
1.37	2.00	0.00	0.00	0.01	0.00	1.39	2.00	0.00	0.00	0.02	0.00
1.43	2.00	0.00	0.00	0.04	0.00	1.44	2.00	0.00	0.00	0.01	0.00
1.49	2.00	0.00	0.00	0.06	0.00	1.53	2.00	0.00	0.00	0.04	0.00
1.58	2.00	0.00	0.00	0.05	0.00	1.63	2.00	0.00	0.00	0.05	0.00
1.68	2.00	0.00	0.00	0.05	0.00	1.72	2.00	0.00	0.00	0.05	0.00
1.77	2.00	0.00	0.00	0.05	0.00	1.82	2.00	0.00	0.00	0.05	0.00
1.86	2.00	0.00	0.00	0.04	0.00	1.92	2.00	0.00	0.00	0.05	0.00
1.97	2.00	0.00	0.00	0.05	0.00	2.01	2.00	0.00	0.00	0.05	0.00
2.09	2.00	0.00	0.00	0.07	0.00	2.16	2.00	0.00	0.00	0.07	0.00
2.20	2.00	0.00	0.00	0.04	0.00	2.25	2.00	0.00	0.00	0.05	0.00
2.31	2.00	0.00	0.00	0.06	0.00	2.37	2.00	0.00	0.00	0.06	0.00
2.40	2.00	0.00	0.00	0.03	0.00	2.46	2.00	0.00	0.00	0.06	0.00
2.54	2.00	0.00	0.00	0.08	0.00	2.59	2.00	0.00	0.00	0.05	0.00
2.69	2.00	0.00	0.00	0.10	0.00	2.74	2.00	0.00	0.00	0.05	0.00
2.83	2.00	0.00	0.00	0.10	0.00	2.88	2.00	0.00	0.00	0.05	0.00
2.98	2.00	0.00	0.00	0.10	0.00	3.03	2.00	0.00	0.00	0.05	0.00
3.12	2.00	0.00	0.00	0.08	0.00	3.21	2.00	0.00	0.00	0.09	0.00
3.27	2.00	0.00	0.00	0.06	0.00	3.34	2.00	0.00	0.00	0.08	0.00
3.41	2.00	0.00	0.00	0.07	0.00	3.51	2.00	0.00	0.00	0.10	0.00
3.55	2.00	0.00	0.00	0.05	0.00	3.65	2.00	0.00	0.00	0.10	0.00
3.75	2.00	0.00	0.00	0.10	0.00	3.83	2.00	0.00	0.00	0.09	0.00
3.94	2.00	0.00	0.00	0.10	0.00	4.04	2.00	0.00	0.00	0.10	0.00
4.13	2.00	0.00	0.00	0.09	0.00	4.24	2.00	0.00	0.00	0.11	0.00
4.38	2.00	0.00	0.00	0.13	0.00	4.50	2.00	0.00	0.00	0.12	0.00
4.62	2.00	0.00	0.00	0.12	0.00	4.71	2.00	0.00	0.00	0.10	0.00
4.75	2.00	0.00	0.00	0.04	0.00	4.84	2.00	0.00	0.00	0.08	0.00
4.89	2.00	0.00	0.00	0.05	0.00	4.94	2.00	0.00	0.00	0.05	0.00
4.98	2.00	0.00	0.00	0.04	0.00	5.07	2.00	0.00	0.00	0.09	0.00
5.13	2.00	0.00	0.00	0.05	0.00	5.17	2.00	0.00	0.00	0.05	0.00
5.27	2.00	0.00	0.00	0.09	0.00	5.32	2.00	0.00	0.00	0.05	0.00
5.42	2.00	0.00	0.00	0.10	0.00	5.46	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
5.56	2.00	0.00	0.00	0.10	0.00	5.61	2.00	0.00	0.00	0.05	0.00
5.71	2.00	0.00	0.00	0.09	0.00	5.78	2.00	0.00	0.00	0.08	0.00
5.85	2.00	0.00	0.00	0.07	0.00	5.95	2.00	0.00	0.00	0.10	0.00
6.00	2.00	0.00	0.00	0.05	0.00	6.09	2.00	0.00	0.00	0.10	0.00
6.14	2.00	0.00	0.00	0.05	0.00	6.24	2.00	0.00	0.00	0.09	0.00
6.30	2.00	0.00	0.00	0.06	0.00	6.38	2.00	0.00	0.00	0.09	0.00
6.46	2.00	0.00	0.00	0.08	0.00	6.50	2.00	0.00	0.00	0.04	0.00
6.56	2.00	0.00	0.00	0.07	0.00	6.63	2.00	0.00	0.00	0.06	0.00
6.68	2.00	0.00	0.00	0.05	0.00	6.76	2.00	0.00	0.00	0.08	0.00
6.82	2.00	0.00	0.00	0.06	0.00	6.88	2.00	0.00	0.00	0.06	0.00
6.96	2.00	0.00	0.00	0.08	0.00	7.03	2.00	0.00	0.00	0.07	0.00
7.11	2.00	0.00	0.00	0.08	0.00	7.16	2.00	0.00	0.00	0.05	0.00
7.26	2.00	0.00	0.00	0.10	0.00	7.31	2.00	0.00	0.00	0.05	0.00
7.40	2.00	0.00	0.00	0.09	0.00	7.45	2.00	0.00	0.00	0.05	0.00
7.54	2.00	0.00	0.00	0.09	0.00	7.60	2.00	0.00	0.00	0.06	0.00
7.68	2.00	0.00	0.00	0.09	0.00	7.74	2.00	0.00	0.00	0.05	0.00
7.83	2.00	0.00	0.00	0.09	0.00	7.90	2.00	0.00	0.00	0.07	0.00
7.98	2.00	0.00	0.00	0.08	0.00	8.05	2.00	0.00	0.00	0.07	0.00
8.12	2.00	0.00	0.00	0.08	0.00	8.19	2.00	0.00	0.00	0.07	0.00
8.27	2.00	0.00	0.00	0.07	0.00	8.36	2.00	0.00	0.00	0.10	0.00
8.41	2.00	0.00	0.00	0.05	0.00	8.50	2.00	0.00	0.00	0.09	0.00
8.60	2.00	0.00	0.00	0.10	0.00	8.70	2.00	0.00	0.00	0.09	0.00
8.74	2.00	0.00	0.00	0.05	0.00	8.78	2.00	0.00	0.00	0.03	0.00
8.81	2.00	0.00	0.00	0.03	0.00	8.86	2.00	0.00	0.00	0.05	0.00
8.91	2.00	0.00	0.00	0.04	0.00	8.94	2.00	0.00	0.00	0.04	0.00
9.02	2.00	0.00	0.00	0.08	0.00	9.10	2.00	0.00	0.00	0.07	0.00
9.17	2.00	0.00	0.00	0.07	0.00	9.22	2.00	0.00	0.00	0.05	0.00
9.31	2.00	0.00	0.00	0.09	0.00	9.37	2.00	0.00	0.00	0.06	0.00
9.42	2.00	0.00	0.00	0.05	0.00	9.52	2.00	0.00	0.00	0.10	0.00
9.60	2.00	0.00	0.00	0.08	0.00	9.66	2.00	0.00	0.00	0.06	0.00
9.74	2.00	0.00	0.00	0.08	0.00	9.81	2.00	0.00	0.00	0.07	0.00
9.89	2.00	0.00	0.00	0.08	0.00	9.98	2.00	0.00	0.00	0.09	0.00
10.03	2.00	0.00	0.00	0.06	0.00	10.13	2.00	0.00	0.00	0.09	0.00
10.23	2.00	0.00	0.00	0.10	0.00	10.32	2.00	0.00	0.00	0.09	0.00
10.38	2.00	0.00	0.00	0.06	0.00	10.47	2.00	0.00	0.00	0.09	0.00
10.57	2.00	0.00	0.00	0.10	0.00	10.66	2.00	0.00	0.00	0.09	0.00
10.76	2.00	0.00	0.00	0.10	0.00	10.85	2.00	0.00	0.00	0.10	0.00
10.92	2.00	0.00	0.00	0.07	0.00	11.00	2.00	0.00	0.00	0.08	0.00
11.07	2.00	0.00	0.00	0.06	0.00	11.10	2.00	0.00	0.00	0.03	0.00
11.15	2.00	0.00	0.00	0.05	0.00	11.19	2.00	0.00	0.00	0.04	0.00
11.24	2.00	0.00	0.00	0.05	0.00	11.29	2.00	0.00	0.00	0.05	0.00
11.34	2.00	0.00	0.00	0.05	0.00	11.40	2.00	0.00	0.00	0.07	0.00
11.47	2.00	0.00	0.00	0.06	0.00	11.53	2.00	0.00	0.00	0.06	0.00
11.58	2.00	0.00	0.00	0.04	0.00	11.65	2.00	0.00	0.00	0.07	0.00
11.72	2.00	0.00	0.00	0.07	0.00	11.77	2.00	0.00	0.00	0.05	0.00
11.82	2.00	0.00	0.00	0.05	0.00	11.88	2.00	0.00	0.00	0.06	0.00
11.97	2.00	0.00	0.00	0.09	0.00	12.02	2.00	0.00	0.00	0.05	0.00
12.06	2.00	0.00	0.00	0.05	0.00	12.11	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
12.21	2.00	0.00	0.00	0.10	0.00	12.25	2.00	0.00	0.00	0.04	0.00
12.30	2.00	0.00	0.00	0.05	0.00	12.31	2.00	0.00	0.00	0.01	0.00
12.32	2.00	0.00	0.00	0.01	0.00	12.35	2.00	0.00	0.00	0.03	0.00
12.40	2.00	0.00	0.00	0.05	0.00	12.45	2.00	0.00	0.00	0.05	0.00
12.52	2.00	0.00	0.00	0.08	0.00	12.56	2.00	0.00	0.00	0.04	0.00
12.62	2.00	0.00	0.00	0.06	0.00	12.65	2.00	0.00	0.00	0.04	0.00
12.71	2.00	0.00	0.00	0.05	0.00	12.76	2.00	0.00	0.00	0.05	0.00
12.83	2.00	0.00	0.00	0.07	0.00	12.88	2.00	0.00	0.00	0.05	0.00
12.93	2.00	0.00	0.00	0.05	0.00	12.98	2.00	0.00	0.00	0.05	0.00
13.03	2.00	0.00	0.00	0.05	0.00	13.04	2.00	0.00	0.00	0.01	0.00
13.07	2.00	0.00	0.00	0.04	0.00	13.13	2.00	0.00	0.00	0.05	0.00
13.17	2.00	0.00	0.00	0.04	0.00	13.22	2.00	0.00	0.00	0.05	0.00
13.27	2.00	0.00	0.00	0.05	0.00	13.32	2.00	0.00	0.00	0.04	0.00
13.37	2.00	0.00	0.00	0.05	0.00	13.41	2.00	0.00	0.00	0.04	0.00
13.46	2.00	0.00	0.00	0.05	0.00	13.51	2.00	0.00	0.00	0.04	0.00
13.56	2.00	0.00	0.00	0.05	0.00	13.60	2.00	0.00	0.00	0.04	0.00
13.66	2.00	0.00	0.00	0.06	0.00	13.75	2.00	0.00	0.00	0.09	0.00
13.80	2.00	0.00	0.00	0.05	0.00	13.89	2.00	0.00	0.00	0.09	0.00
13.94	2.00	0.00	0.00	0.05	0.00	13.99	2.00	0.00	0.00	0.05	0.00
14.09	2.00	0.00	0.00	0.09	0.00	14.14	2.00	0.00	0.00	0.06	0.00
14.23	2.00	0.00	0.00	0.09	0.00	14.28	2.00	0.00	0.00	0.05	0.00
14.38	2.00	0.00	0.00	0.10	0.00	14.42	2.00	0.00	0.00	0.04	0.00
14.52	2.00	0.00	0.00	0.10	0.00	14.57	2.00	0.00	0.00	0.05	0.00
14.67	2.00	0.00	0.00	0.10	0.00	14.68	2.00	0.00	0.00	0.01	0.00
14.70	2.00	0.00	0.00	0.02	0.00	14.75	2.00	0.00	0.00	0.05	0.00
14.80	2.00	0.00	0.00	0.04	0.00	14.89	2.00	0.00	0.00	0.10	0.00
14.94	2.00	0.00	0.00	0.05	0.00	15.04	2.00	0.00	0.00	0.10	0.00
15.13	2.00	0.00	0.00	0.09	0.00	15.21	2.00	0.00	0.00	0.08	0.00
15.28	2.00	0.00	0.00	0.07	0.00	15.38	2.00	0.00	0.00	0.10	0.00
15.47	2.00	0.00	0.00	0.09	0.00	15.57	2.00	0.00	0.00	0.10	0.00
15.67	2.00	0.00	0.00	0.09	0.00	15.77	2.00	0.00	0.00	0.10	0.00
15.86	2.00	0.00	0.00	0.10	0.00	15.96	2.00	0.00	0.00	0.09	0.00
16.05	2.00	0.00	0.00	0.10	0.00	16.15	2.00	0.00	0.00	0.09	0.00
16.25	2.00	0.00	0.00	0.10	0.00	16.31	2.00	0.00	0.00	0.06	0.00
16.39	2.00	0.00	0.00	0.08	0.00	16.48	2.00	0.00	0.00	0.10	0.00
16.59	2.00	0.00	0.00	0.10	0.00	16.68	2.00	0.00	0.00	0.09	0.00
16.76	2.00	0.00	0.00	0.08	0.00	16.86	2.00	0.00	0.00	0.10	0.00
16.92	2.00	0.00	0.00	0.06	0.00	17.02	2.00	0.00	0.00	0.09	0.00
17.11	2.00	0.00	0.00	0.10	0.00	17.22	2.00	0.00	0.00	0.11	0.00
17.35	2.00	0.00	0.00	0.13	0.00	17.45	2.00	0.00	0.00	0.10	0.00
17.55	2.00	0.00	0.00	0.10	0.00	17.61	2.00	0.00	0.00	0.07	0.00
17.64	2.00	0.00	0.00	0.03	0.00	17.70	2.00	0.00	0.00	0.06	0.00
17.75	2.00	0.00	0.00	0.04	0.00	17.80	2.00	0.00	0.00	0.05	0.00
17.85	2.00	0.00	0.00	0.05	0.00	17.94	2.00	0.00	0.00	0.10	0.00
17.99	2.00	0.00	0.00	0.04	0.00	18.09	2.00	0.00	0.00	0.10	0.00
18.15	2.00	0.00	0.00	0.06	0.00	18.23	2.00	0.00	0.00	0.08	0.00
18.33	2.00	0.00	0.00	0.10	0.00	18.43	2.00	0.00	0.00	0.10	0.00
18.52	2.00	0.00	0.00	0.10	0.00	18.59	2.00	0.00	0.00	0.07	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
18.72	2.00	0.00	0.00	0.13	0.00	18.81	2.00	0.00	0.00	0.09	0.00
18.87	2.00	0.00	0.00	0.06	0.00	18.95	2.00	0.00	0.00	0.08	0.00
19.05	2.00	0.00	0.00	0.10	0.00	19.14	2.00	0.00	0.00	0.09	0.00
19.22	2.00	0.00	0.00	0.07	0.00	19.29	2.00	0.00	0.00	0.08	0.00
19.38	2.00	0.00	0.00	0.09	0.00	19.44	2.00	0.00	0.00	0.06	0.00
19.53	2.00	0.00	0.00	0.09	0.00	19.62	2.00	0.00	0.00	0.09	0.00
19.69	2.00	0.00	0.00	0.07	0.00	19.79	2.00	0.00	0.00	0.10	0.00
19.86	2.00	0.00	0.00	0.07	0.00	19.97	2.00	0.00	0.00	0.10	0.00
20.07	2.00	0.00	0.00	0.10	0.00	20.16	2.00	0.00	0.00	0.09	0.00
20.26	2.00	0.00	0.00	0.10	0.00	20.34	2.00	0.00	0.00	0.08	0.00
20.43	2.00	0.00	0.00	0.09	0.00	20.50	2.00	0.00	0.00	0.07	0.00
20.60	2.00	0.00	0.00	0.10	0.00	20.62	2.00	0.00	0.00	0.02	0.00
20.63	2.00	0.00	0.00	0.01	0.00	20.68	2.00	0.00	0.00	0.05	0.00
20.73	2.00	0.00	0.00	0.05	0.00	20.82	2.00	0.00	0.00	0.09	0.00
20.87	2.00	0.00	0.00	0.05	0.00	20.91	2.00	0.00	0.00	0.05	0.00
20.96	2.00	0.00	0.00	0.05	0.00	21.05	2.00	0.00	0.00	0.09	0.00
21.11	2.00	0.00	0.00	0.06	0.00	21.17	2.00	0.00	0.00	0.06	0.00
21.25	2.00	0.00	0.00	0.08	0.00	21.30	2.00	0.00	0.00	0.06	0.00
21.37	2.00	0.00	0.00	0.06	0.00	21.45	2.00	0.00	0.00	0.08	0.00
21.49	2.00	0.00	0.00	0.05	0.00	21.58	2.00	0.00	0.00	0.09	0.00
21.64	2.00	0.00	0.00	0.06	0.00	21.69	2.00	0.00	0.00	0.05	0.00
21.78	2.00	0.00	0.00	0.09	0.00	21.83	2.00	0.00	0.00	0.05	0.00
21.89	2.00	0.00	0.00	0.06	0.00	21.98	2.00	0.00	0.00	0.09	0.00
22.03	2.00	0.00	0.00	0.05	0.00	22.12	2.00	0.00	0.00	0.09	0.00
22.22	2.00	0.00	0.00	0.10	0.00	22.26	2.00	0.00	0.00	0.05	0.00
22.36	2.00	0.00	0.00	0.09	0.00	22.41	2.00	0.00	0.00	0.05	0.00
22.51	2.00	0.00	0.00	0.10	0.00	22.60	2.00	0.00	0.00	0.09	0.00
22.70	2.00	0.00	0.00	0.10	0.00	22.75	2.00	0.00	0.00	0.05	0.00
22.84	2.00	0.00	0.00	0.10	0.00	22.89	2.00	0.00	0.00	0.05	0.00
22.90	2.00	0.00	0.00	0.01	0.00	22.94	2.00	0.00	0.00	0.04	0.00
23.00	2.00	0.00	0.00	0.06	0.00	23.08	2.00	0.00	0.00	0.08	0.00
23.13	2.00	0.00	0.00	0.05	0.00	23.20	2.00	0.00	0.00	0.07	0.00
23.27	2.00	0.00	0.00	0.07	0.00	23.33	2.00	0.00	0.00	0.06	0.00
23.42	2.00	0.00	0.00	0.09	0.00	23.48	2.00	0.00	0.00	0.06	0.00
23.57	2.00	0.00	0.00	0.09	0.00	23.61	2.00	0.00	0.00	0.04	0.00
23.66	2.00	0.00	0.00	0.05	0.00	23.73	2.00	0.00	0.00	0.07	0.00
23.80	2.00	0.00	0.00	0.07	0.00	23.85	2.00	0.00	0.00	0.05	0.00
23.94	2.00	0.00	0.00	0.09	0.00	24.00	2.00	0.00	0.00	0.05	0.00
24.09	2.00	0.00	0.00	0.09	0.00	24.16	2.00	0.00	0.00	0.07	0.00
24.24	2.00	0.00	0.00	0.07	0.00	24.33	2.00	0.00	0.00	0.10	0.00
24.43	2.00	0.00	0.00	0.10	0.00	24.52	2.00	0.00	0.00	0.09	0.00
24.58	2.00	0.00	0.00	0.06	0.00	24.59	2.00	0.00	0.00	0.01	0.00
24.63	2.00	0.00	0.00	0.04	0.00	24.68	2.00	0.00	0.00	0.05	0.00
24.77	2.00	0.00	0.00	0.10	0.00	24.82	2.00	0.00	0.00	0.05	0.00
24.92	2.00	0.00	0.00	0.10	0.00	25.01	2.00	0.00	0.00	0.09	0.00
25.06	2.00	0.00	0.00	0.06	0.00	25.16	2.00	0.00	0.00	0.09	0.00
25.25	2.00	0.00	0.00	0.09	0.00	25.30	2.00	0.00	0.00	0.05	0.00
25.41	2.00	0.00	0.00	0.11	0.00	25.49	2.00	0.00	0.00	0.09	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
25.55	2.00	0.00	0.00	0.05	0.00	25.64	2.00	0.00	0.00	0.09	0.00
25.70	2.00	0.00	0.00	0.06	0.00	25.79	2.00	0.00	0.00	0.09	0.00
25.89	2.00	0.00	0.00	0.10	0.00	25.94	2.00	0.00	0.00	0.06	0.00
26.02	2.00	0.00	0.00	0.08	0.00	26.12	2.00	0.00	0.00	0.09	0.00
26.17	2.00	0.00	0.00	0.05	0.00	26.28	2.00	0.00	0.00	0.11	0.00
26.36	2.00	0.00	0.00	0.09	0.00	26.45	2.00	0.00	0.00	0.09	0.00
26.50	2.00	0.00	0.00	0.05	0.00	26.61	2.00	0.00	0.00	0.11	0.00
26.70	2.00	0.00	0.00	0.09	0.00	26.77	2.00	0.00	0.00	0.07	0.00
26.85	2.00	0.00	0.00	0.08	0.00	26.94	2.00	0.00	0.00	0.09	0.00
27.04	2.00	0.00	0.00	0.09	0.00	27.14	2.00	0.00	0.00	0.10	0.00
27.23	2.00	0.00	0.00	0.09	0.00	27.28	2.00	0.00	0.00	0.05	0.00
27.29	2.00	0.00	0.00	0.01	0.00	27.38	2.00	0.00	0.00	0.09	0.00
27.48	2.00	0.00	0.00	0.10	0.00	27.57	2.00	0.00	0.00	0.09	0.00
27.64	2.00	0.00	0.00	0.07	0.00	27.65	2.00	0.00	0.00	0.01	0.00
27.74	2.00	0.00	0.00	0.09	0.00	27.80	2.00	0.00	0.00	0.06	0.00
27.90	2.00	0.00	0.00	0.10	0.00	27.99	2.00	0.00	0.00	0.09	0.00
28.07	2.00	0.00	0.00	0.08	0.00	28.16	2.00	0.00	0.00	0.09	0.00
28.25	2.00	0.00	0.00	0.09	0.00	28.34	2.00	0.00	0.00	0.09	0.00
28.44	2.00	0.00	0.00	0.10	0.00	28.53	2.00	0.00	0.00	0.09	0.00
28.62	2.00	0.00	0.00	0.09	0.00	28.76	2.00	0.00	0.00	0.14	0.00
28.86	2.00	0.00	0.00	0.10	0.00	28.96	2.00	0.00	0.00	0.10	0.00
29.08	2.00	0.00	0.00	0.11	0.00	29.19	2.00	0.00	0.00	0.12	0.00
29.29	2.00	0.00	0.00	0.10	0.00	29.39	2.00	0.00	0.00	0.09	0.00
29.50	2.00	0.00	0.00	0.11	0.00	29.63	2.00	0.00	0.00	0.13	0.00
29.65	2.00	0.00	0.00	0.02	0.00	29.66	2.00	0.00	0.00	0.01	0.00
29.72	2.00	0.00	0.00	0.06	0.00	29.80	2.00	0.00	0.00	0.09	0.00
29.85	2.00	0.00	0.00	0.05	0.00	29.94	2.00	0.00	0.00	0.09	0.00
30.00	2.00	0.00	0.00	0.06	0.00	30.05	2.00	0.00	0.00	0.05	0.00
30.14	2.00	0.00	0.00	0.09	0.00	30.19	2.00	0.00	0.00	0.05	0.00
30.24	2.00	0.00	0.00	0.05	0.00	30.29	1.91	0.00	0.00	0.05	0.00
30.38	1.88	0.00	0.00	0.09	0.00	30.43	1.83	0.00	0.00	0.05	0.00
30.48	1.77	0.00	0.00	0.05	0.00	30.54	1.71	0.00	0.00	0.06	0.00
30.62	1.69	0.00	0.00	0.08	0.00	30.67	1.67	0.00	0.00	0.05	0.00
30.72	1.67	0.00	0.00	0.05	0.00	30.76	1.68	0.00	0.00	0.04	0.00
30.86	1.71	0.00	0.00	0.10	0.00	30.91	1.74	0.00	0.00	0.05	0.00
30.95	1.79	0.00	0.00	0.05	0.00	31.03	1.84	0.00	0.00	0.07	0.00
31.10	1.89	0.00	0.00	0.07	0.00	31.15	1.94	0.00	0.00	0.05	0.00
31.20	2.00	0.00	0.00	0.05	0.00	31.26	2.00	0.00	0.00	0.06	0.00
31.34	2.00	0.00	0.00	0.08	0.00	31.37	2.00	0.00	0.00	0.02	0.00
31.38	1.99	0.00	0.00	0.01	0.00	31.43	2.00	0.00	0.00	0.05	0.00
31.47	1.91	0.00	0.00	0.05	0.00	31.55	1.79	0.00	0.00	0.07	0.00
31.59	1.61	0.00	0.00	0.05	0.00	31.66	1.40	0.00	0.00	0.06	0.00
31.73	1.23	0.00	0.00	0.08	0.00	31.78	1.10	0.00	0.00	0.05	0.00
31.84	1.03	0.00	0.00	0.06	0.00	31.93	1.00	0.00	0.00	0.09	0.00
31.98	1.02	0.00	0.00	0.05	0.00	32.02	1.07	0.00	0.00	0.05	0.00
32.09	1.13	0.00	0.00	0.07	0.00	32.16	1.16	0.00	0.00	0.07	0.00
32.22	1.17	0.00	0.00	0.05	0.00	32.27	1.17	0.00	0.00	0.05	0.00
32.34	1.17	0.00	0.00	0.07	0.00	32.42	1.16	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
32.46	1.15	0.00	0.00	0.04	0.00	32.54	1.14	0.00	0.00	0.09	0.00
32.60	1.12	0.00	0.00	0.06	0.00	32.67	1.11	0.00	0.00	0.07	0.00
32.75	1.12	0.00	0.00	0.08	0.00	32.81	1.15	0.00	0.00	0.06	0.00
32.89	1.20	0.00	0.00	0.08	0.00	32.94	1.17	0.00	0.00	0.05	0.00
32.95	1.19	0.00	0.00	0.01	0.00	33.00	1.22	0.00	0.00	0.05	0.00
33.06	1.32	0.00	0.00	0.06	0.00	33.11	1.35	0.00	0.00	0.05	0.00
33.20	1.35	0.00	0.00	0.09	0.00	33.25	1.34	0.00	0.00	0.05	0.00
33.34	1.32	0.00	0.00	0.09	0.00	33.38	1.33	0.00	0.00	0.04	0.00
33.48	1.35	0.00	0.00	0.10	0.00	33.58	1.39	0.00	0.00	0.10	0.00
33.63	1.46	0.00	0.00	0.04	0.00	33.73	1.55	0.00	0.00	0.10	0.00
33.82	1.65	0.00	0.00	0.09	0.00	33.87	1.77	0.00	0.00	0.05	0.00
33.96	1.91	0.00	0.00	0.09	0.00	34.02	2.00	0.00	0.00	0.06	0.00
34.11	2.00	0.00	0.00	0.09	0.00	34.18	2.00	0.00	0.00	0.07	0.00
34.26	2.00	0.00	0.00	0.08	0.00	34.35	2.00	0.00	0.00	0.09	0.00
34.44	2.00	0.00	0.00	0.09	0.00	34.49	2.00	0.00	0.00	0.05	0.00
34.59	2.00	0.00	0.00	0.10	0.00	34.69	2.00	0.00	0.00	0.09	0.00
34.76	2.00	0.00	0.00	0.07	0.00	34.83	2.00	0.00	0.00	0.08	0.00
34.93	2.00	0.00	0.00	0.10	0.00	35.02	2.00	0.00	0.00	0.09	0.00
35.12	2.00	0.00	0.00	0.10	0.00	35.22	2.00	0.00	0.00	0.10	0.00
35.30	2.00	0.00	0.00	0.08	0.00	35.38	2.00	0.00	0.00	0.08	0.00
35.43	2.00	0.00	0.00	0.04	0.00	35.46	2.00	0.00	0.00	0.04	0.00
35.51	2.00	0.00	0.00	0.05	0.00	35.56	2.00	0.00	0.00	0.04	0.00
35.66	2.00	0.00	0.00	0.10	0.00	35.70	2.00	0.00	0.00	0.05	0.00
35.80	2.00	0.00	0.00	0.10	0.00	35.89	2.00	0.00	0.00	0.09	0.00
35.96	2.00	0.00	0.00	0.07	0.00	36.04	2.00	0.00	0.00	0.08	0.00
36.14	2.00	0.00	0.00	0.10	0.00	36.19	2.00	0.00	0.00	0.05	0.00
36.28	2.00	0.00	0.00	0.09	0.00	36.33	2.00	0.00	0.00	0.04	0.00
36.42	2.00	0.00	0.00	0.09	0.00	36.48	2.00	0.00	0.00	0.05	0.00
36.52	2.00	0.00	0.00	0.05	0.00	36.62	2.00	0.00	0.00	0.10	0.00
36.68	2.00	0.00	0.00	0.06	0.00	36.77	2.00	0.00	0.00	0.09	0.00
36.86	2.00	0.00	0.00	0.09	0.00	36.90	2.00	0.00	0.00	0.05	0.00
37.00	2.00	0.00	0.00	0.10	0.00	37.10	2.00	0.00	0.00	0.10	0.00
37.20	2.00	0.00	0.00	0.10	0.00	37.29	2.00	0.00	0.00	0.09	0.00
37.39	2.00	0.00	0.00	0.10	0.00	37.49	2.00	0.00	0.00	0.10	0.00
37.53	2.00	0.00	0.00	0.05	0.00	37.58	2.00	0.00	0.00	0.04	0.00
37.62	2.00	0.00	0.00	0.05	0.00	37.69	2.00	0.00	0.00	0.07	0.00
37.77	2.00	0.00	0.00	0.08	0.00	37.82	2.00	0.00	0.00	0.05	0.00
37.87	2.00	0.00	0.00	0.05	0.00	37.91	2.00	0.00	0.00	0.05	0.00
37.97	2.00	0.00	0.00	0.06	0.00	38.06	2.00	0.00	0.00	0.09	0.00
38.10	2.00	0.00	0.00	0.04	0.00	38.17	2.00	0.00	0.00	0.07	0.00
38.25	2.00	0.00	0.00	0.08	0.00	38.35	2.00	0.00	0.00	0.09	0.00
38.40	2.00	0.00	0.00	0.05	0.00	38.46	2.00	0.00	0.00	0.06	0.00
38.54	2.00	0.00	0.00	0.08	0.00	38.60	2.00	0.00	0.00	0.06	0.00
38.69	2.00	0.00	0.00	0.08	0.00	38.74	2.00	0.00	0.00	0.05	0.00
38.83	2.00	0.00	0.00	0.09	0.00	38.88	2.00	0.00	0.00	0.05	0.00
38.97	2.00	0.00	0.00	0.09	0.00	39.02	2.00	0.00	0.00	0.05	0.00
39.11	2.00	0.00	0.00	0.09	0.00	39.16	2.00	0.00	0.00	0.06	0.00
39.23	1.92	0.00	0.00	0.06	0.00	39.24	1.83	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
39.28	1.78	0.00	0.00	0.04	0.00	39.32	1.80	0.00	0.00	0.05	0.00
39.39	2.00	0.00	0.00	0.06	0.00	39.47	2.00	0.00	0.00	0.08	0.00
39.54	2.00	0.00	0.00	0.07	0.00	39.62	2.00	0.00	0.00	0.08	0.00
39.71	2.00	0.00	0.00	0.09	0.00	39.76	2.00	0.00	0.00	0.05	0.00
39.85	2.00	0.00	0.00	0.09	0.00	39.90	2.00	0.00	0.00	0.06	0.00
40.00	2.00	0.00	0.00	0.10	0.00	40.06	2.00	0.00	0.00	0.06	0.00
40.15	2.00	0.00	0.00	0.09	0.00	40.21	2.00	0.00	0.00	0.06	0.00
40.29	2.00	0.00	0.00	0.08	0.00	40.35	2.00	0.00	0.00	0.06	0.00
40.43	2.00	0.00	0.00	0.08	0.00	40.52	2.00	0.00	0.00	0.09	0.00
40.58	2.00	0.00	0.00	0.05	0.00	40.67	2.00	0.00	0.00	0.10	0.00
40.77	2.00	0.00	0.00	0.09	0.00	40.84	2.00	0.00	0.00	0.07	0.00
40.89	2.00	0.00	0.00	0.05	0.00	40.94	2.00	0.00	0.00	0.05	0.00
41.03	2.00	0.00	0.00	0.10	0.00	41.08	2.00	0.00	0.00	0.05	0.00
41.14	2.00	0.00	0.00	0.06	0.00	41.22	2.00	0.00	0.00	0.08	0.00
41.28	0.75	0.25	1.20	0.06	0.02	41.33	0.78	0.22	1.41	0.05	0.01
41.42	0.82	0.18	2.00	0.09	0.02	41.47	0.87	0.13	3.68	0.05	0.01
41.52	0.93	0.07	13.55	0.06	0.00	41.62	0.98	0.02	23365.55	0.09	0.00
41.67	1.07	0.00	0.00	0.05	0.00	41.76	1.16	0.00	0.00	0.09	0.00
41.82	1.28	0.00	0.00	0.06	0.00	41.90	1.37	0.00	0.00	0.08	0.00
41.99	1.44	0.00	0.00	0.09	0.00	42.05	1.48	0.00	0.00	0.06	0.00
42.15	1.48	0.00	0.00	0.10	0.00	42.23	1.46	0.00	0.00	0.09	0.00
42.30	1.43	0.00	0.00	0.07	0.00	42.38	1.36	0.00	0.00	0.08	0.00
42.48	1.27	0.00	0.00	0.10	0.00	42.57	1.18	0.00	0.00	0.09	0.00
42.64	1.11	0.00	0.00	0.07	0.00	42.72	1.04	0.00	0.00	0.08	0.00
42.82	0.98	0.02	148889.56	0.10	0.00	42.90	0.94	0.06	23.51	0.08	0.01
42.97	0.92	0.08	11.30	0.07	0.01	43.06	0.93	0.07	13.85	0.09	0.01
43.15	0.89	0.11	5.32	0.09	0.01	43.20	0.85	0.15	2.78	0.05	0.01
43.30	0.80	0.20	1.68	0.10	0.02	43.40	0.82	0.18	1.97	0.10	0.02
43.48	0.87	0.13	3.65	0.08	0.01	43.51	0.92	0.08	9.02	0.03	0.00
43.52	0.97	0.03	357.31	0.01	0.00	43.56	1.09	0.00	0.00	0.04	0.00
43.61	1.30	0.00	0.00	0.05	0.00	43.67	1.49	0.00	0.00	0.06	0.00
43.72	1.68	0.00	0.00	0.05	0.00	43.80	1.83	0.00	0.00	0.08	0.00
43.85	1.95	0.00	0.00	0.05	0.00	43.90	2.00	0.00	0.00	0.05	0.00
43.94	2.00	0.00	0.00	0.05	0.00	43.99	2.00	0.00	0.00	0.05	0.00
44.08	2.00	0.00	0.00	0.09	0.00	44.14	2.00	0.00	0.00	0.06	0.00
44.22	2.00	0.00	0.00	0.08	0.00	44.28	2.00	0.00	0.00	0.05	0.00
44.33	2.00	0.00	0.00	0.05	0.00	44.40	2.00	0.00	0.00	0.07	0.00
44.48	2.00	0.00	0.00	0.08	0.00	44.52	2.00	0.00	0.00	0.05	0.00
44.61	2.00	0.00	0.00	0.09	0.00	44.72	2.00	0.00	0.00	0.11	0.00
44.77	2.00	0.00	0.00	0.05	0.00	44.91	2.00	0.00	0.00	0.14	0.00
44.95	2.00	0.00	0.00	0.05	0.00	45.02	2.00	0.00	0.00	0.07	0.00
45.04	1.62	0.00	0.00	0.02	0.00	45.06	1.68	0.00	0.00	0.02	0.00
45.11	1.75	0.00	0.00	0.05	0.00	45.15	2.00	0.00	0.00	0.05	0.00
45.21	2.00	0.00	0.00	0.05	0.00	45.25	2.00	0.00	0.00	0.04	0.00
45.30	2.00	0.00	0.00	0.05	0.00	45.35	2.00	0.00	0.00	0.05	0.00
45.41	2.00	0.00	0.00	0.06	0.00	45.49	2.00	0.00	0.00	0.08	0.00
45.55	2.00	0.00	0.00	0.05	0.00	45.63	2.00	0.00	0.00	0.09	0.00
45.69	2.00	0.00	0.00	0.05	0.00	45.78	2.00	0.00	0.00	0.09	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
45.84	2.00	0.00	0.00	0.06	0.00	45.93	1.81	0.00	0.00	0.09	0.00
46.02	2.00	0.00	0.00	0.09	0.00	46.08	2.00	0.00	0.00	0.05	0.00
46.16	2.00	0.00	0.00	0.09	0.00	46.24	2.00	0.00	0.00	0.07	0.00
46.31	2.00	0.00	0.00	0.07	0.00	46.41	2.00	0.00	0.00	0.10	0.00
46.48	2.00	0.00	0.00	0.06	0.00	46.56	2.00	0.00	0.00	0.09	0.00
46.65	2.00	0.00	0.00	0.09	0.00	46.75	2.00	0.00	0.00	0.10	0.00
46.84	2.00	0.00	0.00	0.09	0.00	46.94	2.00	0.00	0.00	0.09	0.00
47.02	2.00	0.00	0.00	0.08	0.00	47.08	2.00	0.00	0.00	0.06	0.00
47.12	2.00	0.00	0.00	0.04	0.00	47.16	2.00	0.00	0.00	0.04	0.00
47.21	2.00	0.00	0.00	0.05	0.00	47.27	2.00	0.00	0.00	0.06	0.00
47.35	2.00	0.00	0.00	0.08	0.00	47.40	2.00	0.00	0.00	0.05	0.00
47.50	2.00	0.00	0.00	0.10	0.00	47.55	2.00	0.00	0.00	0.05	0.00
47.61	2.00	0.00	0.00	0.06	0.00	47.69	2.00	0.00	0.00	0.08	0.00
47.76	2.00	0.00	0.00	0.08	0.00	47.83	2.00	0.00	0.00	0.07	0.00
47.93	2.00	0.00	0.00	0.10	0.00	48.02	2.00	0.00	0.00	0.09	0.00
48.09	2.00	0.00	0.00	0.07	0.00	48.18	2.00	0.00	0.00	0.09	0.00
48.27	2.00	0.00	0.00	0.09	0.00	48.37	2.00	0.00	0.00	0.10	0.00
48.46	2.00	0.00	0.00	0.09	0.00	48.52	2.00	0.00	0.00	0.07	0.00
48.60	2.00	0.00	0.00	0.08	0.00	48.70	2.00	0.00	0.00	0.10	0.00
48.79	2.00	0.00	0.00	0.09	0.00	48.85	2.00	0.00	0.00	0.06	0.00
48.94	2.00	0.00	0.00	0.09	0.00	49.04	2.00	0.00	0.00	0.09	0.00
49.13	2.00	0.00	0.00	0.09	0.00	49.23	2.00	0.00	0.00	0.10	0.00
49.33	2.00	0.00	0.00	0.09	0.00	49.38	2.00	0.00	0.00	0.05	0.00
49.42	2.00	0.00	0.00	0.04	0.00	49.48	2.00	0.00	0.00	0.06	0.00
49.53	2.00	0.00	0.00	0.04	0.00	49.58	2.00	0.00	0.00	0.05	0.00
49.63	2.00	0.00	0.00	0.05	0.00	49.72	2.00	0.00	0.00	0.10	0.00
49.77	2.00	0.00	0.00	0.05	0.00	49.83	2.00	0.00	0.00	0.05	0.00
49.92	2.00	0.00	0.00	0.09	0.00	49.97	2.00	0.00	0.00	0.05	0.00
50.04	2.00	0.00	0.00	0.07	0.00	50.11	2.00	0.00	0.00	0.07	0.00
50.20	2.00	0.00	0.00	0.09	0.00	50.27	2.00	0.00	0.00	0.07	0.00
50.34	2.00	0.00	0.00	0.07	0.00	50.45	2.00	0.00	0.00	0.10	0.00
50.54	2.00	0.00	0.00	0.09	0.00	50.59	2.00	0.00	0.00	0.05	0.00
50.68	2.00	0.00	0.00	0.09	0.00	50.79	2.00	0.00	0.00	0.10	0.00
50.88	2.00	0.00	0.00	0.09	0.00	50.98	2.00	0.00	0.00	0.10	0.00
51.07	2.00	0.00	0.00	0.09	0.00	51.17	2.00	0.00	0.00	0.10	0.00
51.24	2.00	0.00	0.00	0.07	0.00	51.33	2.00	0.00	0.00	0.09	0.00
51.46	2.00	0.00	0.00	0.13	0.00	51.46	2.00	0.00	0.00	0.00	0.00
51.51	2.00	0.00	0.00	0.05	0.00	51.56	2.00	0.00	0.00	0.05	0.00
51.65	2.00	0.00	0.00	0.09	0.00	51.71	2.00	0.00	0.00	0.06	0.00
51.79	2.00	0.00	0.00	0.09	0.00	51.85	2.00	0.00	0.00	0.05	0.00
51.94	2.00	0.00	0.00	0.09	0.00	51.99	2.00	0.00	0.00	0.05	0.00
52.09	2.00	0.00	0.00	0.10	0.00	52.19	2.00	0.00	0.00	0.10	0.00
52.28	2.00	0.00	0.00	0.09	0.00	52.35	2.00	0.00	0.00	0.07	0.00
52.43	2.00	0.00	0.00	0.08	0.00	52.52	2.00	0.00	0.00	0.09	0.00
52.62	2.00	0.00	0.00	0.11	0.00	52.72	2.00	0.00	0.00	0.09	0.00
52.81	2.00	0.00	0.00	0.09	0.00	52.91	2.00	0.00	0.00	0.10	0.00
53.00	2.00	0.00	0.00	0.09	0.00	53.10	2.00	0.00	0.00	0.10	0.00
53.20	2.00	0.00	0.00	0.09	0.00	53.29	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
53.38	2.00	0.00	0.00	0.09	0.00	53.46	2.00	0.00	0.00	0.08	0.00
53.53	2.00	0.00	0.00	0.07	0.00	53.63	2.00	0.00	0.00	0.10	0.00
53.73	2.00	0.00	0.00	0.10	0.00	53.82	2.00	0.00	0.00	0.09	0.00
53.92	2.00	0.00	0.00	0.10	0.00	53.94	1.66	0.00	0.00	0.02	0.00
53.96	1.48	0.00	0.00	0.02	0.00	53.97	1.55	0.00	0.00	0.01	0.00
54.05	1.73	0.00	0.00	0.08	0.00	54.08	2.00	0.00	0.00	0.02	0.00
54.13	2.00	0.00	0.00	0.05	0.00	54.19	2.00	0.00	0.00	0.06	0.00
54.25	2.00	0.00	0.00	0.06	0.00	54.28	2.00	0.00	0.00	0.03	0.00
54.29	2.00	0.00	0.00	0.02	0.00	54.34	2.00	0.00	0.00	0.05	0.00
54.35	2.00	0.00	0.00	0.01	0.00	54.40	2.00	0.00	0.00	0.05	0.00
54.44	2.00	0.00	0.00	0.04	0.00	54.49	2.00	0.00	0.00	0.05	0.00
54.53	2.00	0.00	0.00	0.04	0.00	54.57	2.00	0.00	0.00	0.03	0.00
54.58	2.00	0.00	0.00	0.02	0.00	54.63	2.00	0.00	0.00	0.04	0.00
54.68	2.00	0.00	0.00	0.05	0.00	54.73	2.00	0.00	0.00	0.05	0.00
54.78	2.00	0.00	0.00	0.05	0.00	54.83	2.00	0.00	0.00	0.05	0.00
54.88	2.00	0.00	0.00	0.05	0.00	54.92	2.00	0.00	0.00	0.05	0.00
54.97	2.00	0.00	0.00	0.05	0.00	55.02	2.00	0.00	0.00	0.05	0.00
55.12	2.00	0.00	0.00	0.09	0.00	55.17	2.00	0.00	0.00	0.05	0.00
55.25	2.00	0.00	0.00	0.08	0.00	55.31	2.00	0.00	0.00	0.06	0.00
55.36	1.98	0.00	0.00	0.05	0.00	55.45	1.82	0.00	0.00	0.09	0.00
55.50	1.66	0.00	0.00	0.05	0.00	55.60	1.56	0.00	0.00	0.10	0.00
55.65	1.41	0.00	0.00	0.05	0.00	55.71	1.33	0.00	0.00	0.06	0.00
55.75	1.26	0.00	0.00	0.04	0.00	55.79	1.27	0.00	0.00	0.04	0.00
55.84	1.32	0.00	0.00	0.05	0.00	55.89	1.35	0.00	0.00	0.05	0.00
55.90	1.37	0.00	0.00	0.01	0.00	55.94	1.34	0.00	0.00	0.03	0.00
55.99	1.30	0.00	0.00	0.05	0.00	56.03	1.24	0.00	0.00	0.05	0.00
56.08	1.21	0.00	0.00	0.05	0.00	56.14	1.17	0.00	0.00	0.06	0.00
56.22	1.13	0.00	0.00	0.08	0.00	56.28	1.10	0.00	0.00	0.05	0.00
56.33	1.09	0.00	0.00	0.05	0.00	56.38	1.09	0.00	0.00	0.05	0.00
56.45	1.13	0.00	0.00	0.07	0.00	56.52	1.18	0.00	0.00	0.07	0.00
56.62	1.24	0.00	0.00	0.10	0.00	56.66	1.30	0.00	0.00	0.05	0.00
56.73	1.39	0.00	0.00	0.07	0.00	56.81	1.46	0.00	0.00	0.08	0.00
56.95	1.53	0.00	0.00	0.14	0.00	57.00	1.61	0.00	0.00	0.04	0.00
57.09	1.63	0.00	0.00	0.10	0.00	57.19	1.62	0.00	0.00	0.10	0.00
57.27	1.50	0.00	0.00	0.08	0.00	57.35	1.47	0.00	0.00	0.07	0.00
57.44	1.41	0.00	0.00	0.09	0.00	57.50	1.40	0.00	0.00	0.07	0.00
57.52	1.52	0.00	0.00	0.02	0.00	57.58	1.78	0.00	0.00	0.05	0.00
57.63	2.00	0.00	0.00	0.05	0.00	57.72	2.00	0.00	0.00	0.09	0.00
57.77	1.98	0.00	0.00	0.04	0.00	57.82	1.83	0.00	0.00	0.05	0.00
57.91	1.66	0.00	0.00	0.09	0.00	57.96	1.48	0.00	0.00	0.05	0.00
58.02	1.61	0.00	0.00	0.05	0.00	58.09	1.69	0.00	0.00	0.08	0.00
58.16	1.82	0.00	0.00	0.06	0.00	58.25	1.87	0.00	0.00	0.10	0.00
58.30	1.83	0.00	0.00	0.05	0.00	58.40	1.76	0.00	0.00	0.10	0.00
58.50	1.74	0.00	0.00	0.10	0.00	58.56	1.71	0.00	0.00	0.06	0.00
58.64	1.75	0.00	0.00	0.08	0.00	58.73	1.90	0.00	0.00	0.09	0.00
58.78	1.92	0.00	0.00	0.05	0.00	58.88	1.98	0.00	0.00	0.09	0.00
58.97	2.00	0.00	0.00	0.09	0.00	59.07	1.97	0.00	0.00	0.10	0.00
59.13	1.86	0.00	0.00	0.05	0.00	59.23	1.78	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
59.31	1.61	0.00	0.00	0.09	0.00	59.38	1.50	0.00	0.00	0.07	0.00
59.41	1.42	0.00	0.00	0.03	0.00	59.46	1.45	0.00	0.00	0.05	0.00
59.51	1.45	0.00	0.00	0.05	0.00	59.57	1.51	0.00	0.00	0.05	0.00
59.66	1.65	0.00	0.00	0.09	0.00	59.75	1.82	0.00	0.00	0.09	0.00
59.80	1.99	0.00	0.00	0.05	0.00	59.85	2.00	0.00	0.00	0.05	0.00
59.91	2.00	0.00	0.00	0.06	0.00	59.99	2.00	0.00	0.00	0.08	0.00
60.05	2.00	0.00	0.00	0.05	0.00	60.09	2.00	0.00	0.00	0.04	0.00
60.14	2.00	0.00	0.00	0.05	0.00	60.19	2.00	0.00	0.00	0.05	0.00
60.22	2.00	0.00	0.00	0.03	0.00	60.28	1.93	0.00	0.00	0.06	0.00
60.33	1.69	0.00	0.00	0.05	0.00	60.38	1.41	0.00	0.00	0.05	0.00
60.42	1.25	0.00	0.00	0.04	0.00	60.48	1.09	0.00	0.00	0.06	0.00
60.57	0.93	0.07	15.13	0.09	0.00	60.66	0.80	0.20	1.61	0.09	0.00
60.68	0.73	0.27	1.06	0.03	0.00	60.69	0.70	0.30	0.91	0.01	0.00
60.74	0.67	0.33	0.81	0.05	0.00	60.79	0.64	0.36	0.71	0.05	0.00
60.84	0.60	0.40	0.63	0.05	0.00	60.89	0.58	0.42	0.59	0.05	0.00
60.98	0.56	0.44	0.57	0.09	0.01	61.03	0.58	0.42	0.60	0.04	0.00
61.08	0.67	0.33	0.80	0.06	0.00	61.18	0.78	0.22	1.42	0.09	0.00
61.23	0.91	0.09	7.91	0.06	0.00	61.31	0.83	0.17	2.12	0.08	0.00
61.42	0.83	0.17	2.14	0.10	0.00	61.47	0.92	0.08	10.64	0.05	0.00
61.51	1.03	0.00	0.00	0.05	0.00	61.54	1.05	0.00	0.00	0.02	0.00
61.57	1.11	0.00	0.00	0.03	0.00	61.58	1.24	0.00	0.00	0.02	0.00
61.61	1.10	0.00	0.00	0.03	0.00	61.63	1.02	0.00	0.00	0.01	0.00
61.63	0.80	0.20	1.66	0.01	0.00	61.66	0.67	0.33	0.80	0.02	0.00
61.67	0.73	0.27	1.04	0.01	0.00	61.70	0.71	0.29	0.96	0.03	0.00
61.71	0.72	0.28	1.00	0.01	0.00	61.76	0.75	0.25	1.18	0.04	0.00
61.80	0.79	0.21	1.57	0.05	0.00	61.84	0.83	0.17	2.16	0.04	0.00
61.86	0.90	0.10	5.56	0.02	0.00	61.93	0.97	0.03	567.87	0.07	0.00
61.98	0.93	0.07	13.38	0.05	0.00	62.04	1.16	0.00	0.00	0.06	0.00
62.09	1.44	0.00	0.00	0.05	0.00	62.14	1.66	0.00	0.00	0.05	0.00
62.19	1.80	0.00	0.00	0.05	0.00	62.24	1.88	0.00	0.00	0.05	0.00
62.26	1.97	0.00	0.00	0.02	0.00	62.29	1.97	0.00	0.00	0.03	0.00
62.38	1.93	0.00	0.00	0.09	0.00	62.44	1.72	0.00	0.00	0.06	0.00
62.46	1.55	0.00	0.00	0.02	0.00	62.47	1.41	0.00	0.00	0.01	0.00
62.51	1.44	0.00	0.00	0.04	0.00	62.56	1.52	0.00	0.00	0.05	0.00
62.60	1.61	0.00	0.00	0.04	0.00	62.65	1.64	0.00	0.00	0.05	0.00
62.70	1.65	0.00	0.00	0.05	0.00	62.75	1.65	0.00	0.00	0.05	0.00
62.80	1.74	0.00	0.00	0.05	0.00	62.85	2.00	0.00	0.00	0.05	0.00
62.89	2.00	0.00	0.00	0.05	0.00	62.97	2.00	0.00	0.00	0.07	0.00
63.04	2.00	0.00	0.00	0.07	0.00	63.09	2.00	0.00	0.00	0.05	0.00
63.13	2.00	0.00	0.00	0.05	0.00	63.19	2.00	0.00	0.00	0.05	0.00
63.23	2.00	0.00	0.00	0.04	0.00	63.28	2.00	0.00	0.00	0.05	0.00
63.32	2.00	0.00	0.00	0.04	0.00	63.38	2.00	0.00	0.00	0.06	0.00
63.44	2.00	0.00	0.00	0.06	0.00	63.52	2.00	0.00	0.00	0.08	0.00
63.57	2.00	0.00	0.00	0.05	0.00	63.66	2.00	0.00	0.00	0.09	0.00
63.73	2.00	0.00	0.00	0.06	0.00	63.76	1.53	0.00	0.00	0.03	0.00
63.76	1.45	0.00	0.00	0.01	0.00	63.78	1.54	0.00	0.00	0.02	0.00
63.81	1.86	0.00	0.00	0.03	0.00	63.85	1.97	0.00	0.00	0.04	0.00
63.86	1.94	0.00	0.00	0.01	0.00	63.91	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
63.94	2.00	0.00	0.00	0.03	0.00	63.95	2.00	0.00	0.00	0.02	0.00
64.00	2.00	0.00	0.00	0.05	0.00	64.02	2.00	0.00	0.00	0.01	0.00
64.05	2.00	0.00	0.00	0.03	0.00	64.09	1.99	0.00	0.00	0.04	0.00
64.11	1.93	0.00	0.00	0.02	0.00	64.15	1.86	0.00	0.00	0.04	0.00
64.20	1.82	0.00	0.00	0.05	0.00	64.25	1.84	0.00	0.00	0.05	0.00
64.29	2.00	0.00	0.00	0.04	0.00	64.34	2.00	0.00	0.00	0.05	0.00
64.43	2.00	0.00	0.00	0.08	0.00	64.48	2.00	0.00	0.00	0.05	0.00
64.53	2.00	0.00	0.00	0.05	0.00	64.58	2.00	0.00	0.00	0.05	0.00
64.63	2.00	0.00	0.00	0.05	0.00	64.68	2.00	0.00	0.00	0.05	0.00
64.73	2.00	0.00	0.00	0.05	0.00	64.77	2.00	0.00	0.00	0.05	0.00
64.82	2.00	0.00	0.00	0.04	0.00	64.87	2.00	0.00	0.00	0.05	0.00
64.89	2.00	0.00	0.00	0.02	0.00	64.93	2.00	0.00	0.00	0.04	0.00
64.94	2.00	0.00	0.00	0.01	0.00	64.98	2.00	0.00	0.00	0.04	0.00
64.99	2.00	0.00	0.00	0.01	0.00	65.03	2.00	0.00	0.00	0.05	0.00
65.08	2.00	0.00	0.00	0.05	0.00	65.13	2.00	0.00	0.00	0.05	0.00
65.17	2.00	0.00	0.00	0.04	0.00	65.22	2.00	0.00	0.00	0.05	0.00
65.23	2.00	0.00	0.00	0.01	0.00	65.28	2.00	0.00	0.00	0.05	0.00
65.32	2.00	0.00	0.00	0.04	0.00	65.37	2.00	0.00	0.00	0.05	0.00
65.42	2.00	0.00	0.00	0.05	0.00	65.47	2.00	0.00	0.00	0.05	0.00
65.48	2.00	0.00	0.00	0.01	0.00	65.49	2.00	0.00	0.00	0.01	0.00
65.52	2.00	0.00	0.00	0.03	0.00	65.57	2.00	0.00	0.00	0.05	0.00
65.62	2.00	0.00	0.00	0.05	0.00	65.67	2.00	0.00	0.00	0.05	0.00
65.69	2.00	0.00	0.00	0.01	0.00	65.72	2.00	0.00	0.00	0.03	0.00
65.77	2.00	0.00	0.00	0.05	0.00	65.82	2.00	0.00	0.00	0.05	0.00
65.86	2.00	0.00	0.00	0.04	0.00	65.86	2.00	0.00	0.00	0.01	0.00
65.91	2.00	0.00	0.00	0.05	0.00	65.96	2.00	0.00	0.00	0.04	0.00

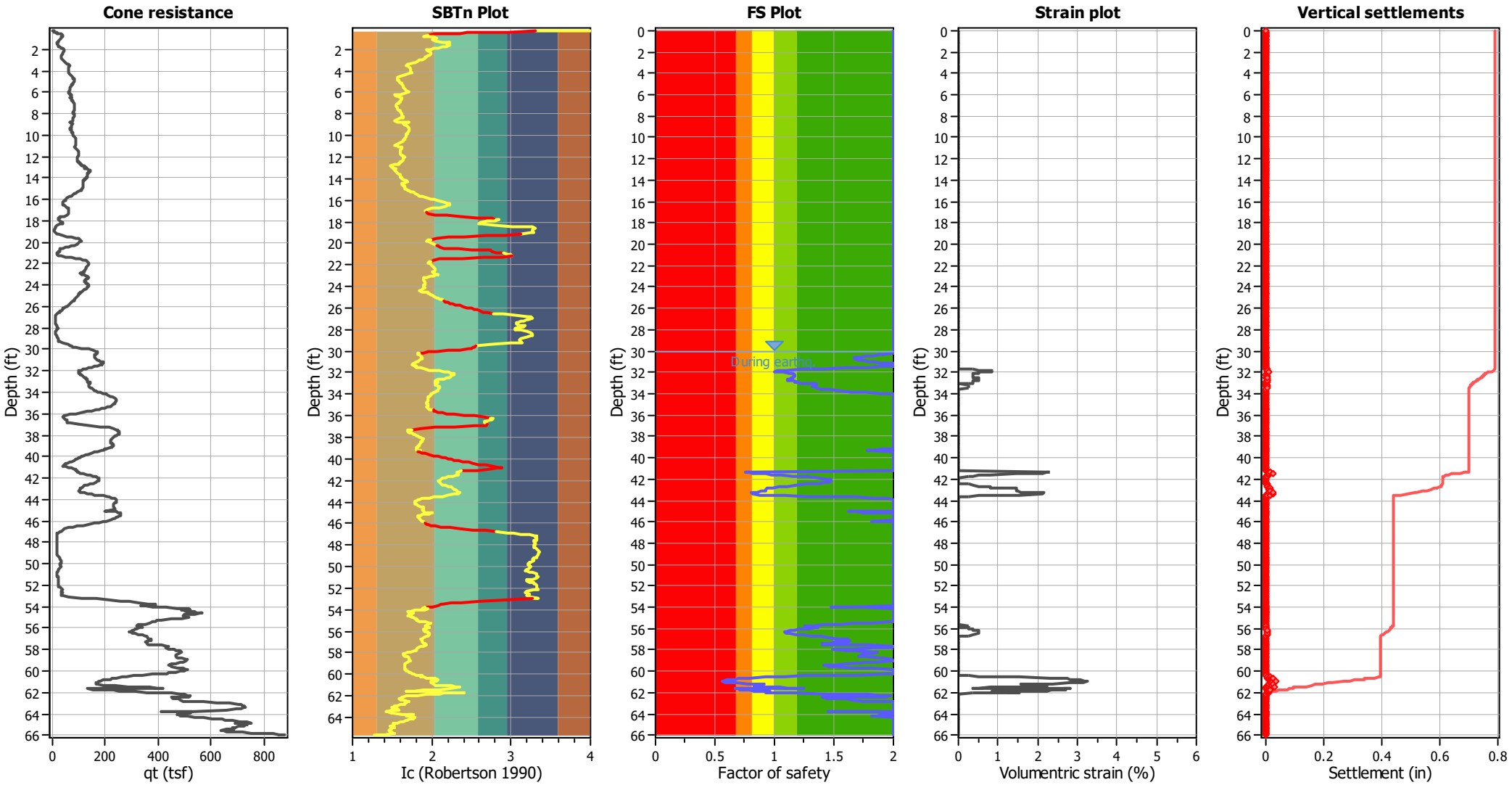
Overall liquefaction potential: 0.21

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.05	136.43	2.00	0.00	1.00	0.00	30.14	140.95	2.00	0.00	1.00	0.00
30.19	142.08	2.00	0.00	1.00	0.00	30.24	142.19	2.00	0.00	1.00	0.00
30.29	142.38	1.91	0.00	1.00	0.00	30.38	141.39	1.88	0.00	1.00	0.00
30.43	139.76	1.83	0.00	1.00	0.00	30.48	137.67	1.77	0.00	1.00	0.00
30.54	135.86	1.71	0.00	1.00	0.00	30.62	134.98	1.69	0.00	1.00	0.00
30.67	134.34	1.67	0.00	1.00	0.00	30.72	134.61	1.67	0.00	1.00	0.00
30.76	134.89	1.68	0.00	1.00	0.00	30.86	135.92	1.71	0.00	1.00	0.00
30.91	137.26	1.74	0.00	1.00	0.00	30.95	138.94	1.79	0.00	1.00	0.00
31.03	140.71	1.84	0.00	1.00	0.00	31.10	142.33	1.89	0.00	1.00	0.00
31.15	144.07	1.94	0.00	1.00	0.00	31.20	146.05	2.00	0.00	1.00	0.00
31.26	147.81	2.00	0.00	1.00	0.00	31.34	147.23	2.00	0.00	1.00	0.00
31.37	146.99	2.00	0.00	1.00	0.00	31.38	145.70	1.99	0.00	1.00	0.00
31.43	146.17	2.00	0.00	1.00	0.00	31.47	143.44	1.91	0.00	1.00	0.00
31.55	139.35	1.79	0.00	1.00	0.00	31.59	132.93	1.61	0.00	1.00	0.00
31.66	124.83	1.40	0.00	1.00	0.00	31.73	116.80	1.23	0.36	1.00	0.00
31.78	110.36	1.10	0.52	1.00	0.00	31.84	106.34	1.03	0.83	1.00	0.01
31.93	104.84	1.00	0.85	1.00	0.01	31.98	106.04	1.02	0.84	1.00	0.00
32.02	108.88	1.07	0.52	1.00	0.00	32.09	111.87	1.13	0.51	1.00	0.00
32.16	113.86	1.16	0.37	1.00	0.00	32.22	114.52	1.17	0.37	1.00	0.00
32.27	114.53	1.17	0.37	1.00	0.00	32.34	114.38	1.17	0.37	1.00	0.00
32.42	114.11	1.16	0.37	1.00	0.00	32.46	113.62	1.15	0.37	1.00	0.00
32.54	113.25	1.14	0.51	1.00	0.01	32.60	112.00	1.12	0.51	1.00	0.00
32.67	111.53	1.11	0.51	1.00	0.00	32.75	111.85	1.12	0.51	1.00	0.00
32.81	113.95	1.15	0.37	1.00	0.00	32.89	116.21	1.20	0.36	1.00	0.00
32.94	114.84	1.17	0.37	1.00	0.00	32.95	116.07	1.19	0.36	1.00	0.00
33.00	117.56	1.22	0.36	1.00	0.00	33.06	122.40	1.32	0.25	1.00	0.00
33.11	123.66	1.35	0.00	1.00	0.00	33.20	123.53	1.35	0.25	1.00	0.00
33.25	123.06	1.34	0.25	1.00	0.00	33.34	122.48	1.32	0.25	1.00	0.00
33.38	122.68	1.33	0.25	1.00	0.00	33.48	123.78	1.35	0.25	1.00	0.00
33.58	125.79	1.39	0.00	1.00	0.00	33.63	128.81	1.46	0.00	1.00	0.00
33.73	132.15	1.55	0.00	1.00	0.00	33.82	136.16	1.65	0.00	1.00	0.00
33.87	140.58	1.77	0.00	1.00	0.00	33.96	145.13	1.91	0.00	1.00	0.00
34.02	150.66	2.00	0.00	1.00	0.00	34.11	157.32	2.00	0.00	1.00	0.00
34.18	164.99	2.00	0.00	1.00	0.00	34.26	172.52	2.00	0.00	1.00	0.00
34.35	179.50	2.00	0.00	1.00	0.00	34.44	185.53	2.00	0.00	1.00	0.00
34.49	190.23	2.00	0.00	1.00	0.00	34.59	192.83	2.00	0.00	1.00	0.00
34.69	194.12	2.00	0.00	1.00	0.00	34.76	194.53	2.00	0.00	1.00	0.00
34.83	194.02	2.00	0.00	1.00	0.00	34.93	191.54	2.00	0.00	1.00	0.00
35.02	188.08	2.00	0.00	1.00	0.00	35.12	184.23	2.00	0.00	1.00	0.00
35.22	181.13	2.00	0.00	1.00	0.00	35.30	177.46	2.00	0.00	1.00	0.00
35.38	168.21	2.00	0.00	1.00	0.00	35.43	161.35	2.00	0.00	1.00	0.00
35.46	155.80	2.00	0.00	1.00	0.00	35.51	153.78	2.00	0.00	1.00	0.00
35.56	146.76	2.00	0.00	1.00	0.00	35.66	138.53	2.00	0.00	1.00	0.00
35.70	130.03	2.00	0.00	1.00	0.00	35.80	123.66	2.00	0.00	1.00	0.00
35.89	119.95	2.00	0.00	1.00	0.00	35.96	120.81	2.00	0.00	1.00	0.00
36.04	120.37	2.00	0.00	1.00	0.00	36.14	117.01	2.00	0.00	1.00	0.00
36.19	110.69	2.00	0.00	1.00	0.00	36.28	110.05	2.00	0.00	1.00	0.00
36.33	108.32	2.00	0.00	1.00	0.00	36.42	108.08	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
36.48	107.27	2.00	0.00	1.00	0.00	36.52	112.95	2.00	0.00	1.00	0.00
36.62	119.67	2.00	0.00	1.00	0.00	36.68	126.59	2.00	0.00	1.00	0.00
36.77	128.11	2.00	0.00	1.00	0.00	36.86	126.60	2.00	0.00	1.00	0.00
36.90	115.19	2.00	0.00	1.00	0.00	37.00	103.13	2.00	0.00	1.00	0.00
37.10	112.56	2.00	0.00	1.00	0.00	37.20	136.84	2.00	0.00	1.00	0.00
37.29	147.30	2.00	0.00	1.00	0.00	37.39	149.01	2.00	0.00	1.00	0.00
37.49	155.00	2.00	0.00	1.00	0.00	37.53	160.20	2.00	0.00	1.00	0.00
37.58	165.44	2.00	0.00	1.00	0.00	37.62	169.66	2.00	0.00	1.00	0.00
37.69	175.10	2.00	0.00	1.00	0.00	37.77	179.78	2.00	0.00	1.00	0.00
37.82	183.39	2.00	0.00	1.00	0.00	37.87	184.85	2.00	0.00	1.00	0.00
37.91	184.82	2.00	0.00	1.00	0.00	37.97	183.06	2.00	0.00	1.00	0.00
38.06	179.59	2.00	0.00	1.00	0.00	38.10	175.74	2.00	0.00	1.00	0.00
38.17	172.34	2.00	0.00	1.00	0.00	38.25	169.66	2.00	0.00	1.00	0.00
38.35	167.11	2.00	0.00	1.00	0.00	38.40	164.83	2.00	0.00	1.00	0.00
38.46	163.21	2.00	0.00	1.00	0.00	38.54	162.26	2.00	0.00	1.00	0.00
38.60	161.69	2.00	0.00	1.00	0.00	38.69	161.77	2.00	0.00	1.00	0.00
38.74	162.53	2.00	0.00	1.00	0.00	38.83	163.73	2.00	0.00	1.00	0.00
38.88	163.54	2.00	0.00	1.00	0.00	38.97	162.47	2.00	0.00	1.00	0.00
39.02	160.45	2.00	0.00	1.00	0.00	39.11	158.54	2.00	0.00	1.00	0.00
39.16	154.99	2.00	0.00	1.00	0.00	39.23	148.10	1.92	0.00	1.00	0.00
39.24	145.08	1.83	0.00	1.00	0.00	39.28	143.39	1.78	0.00	1.00	0.00
39.32	144.08	1.80	0.00	1.00	0.00	39.39	139.67	2.00	0.00	1.00	0.00
39.47	133.48	2.00	0.00	1.00	0.00	39.54	125.99	2.00	0.00	1.00	0.00
39.62	117.99	2.00	0.00	1.00	0.00	39.71	110.70	2.00	0.00	1.00	0.00
39.76	105.08	2.00	0.00	1.00	0.00	39.85	101.34	2.00	0.00	1.00	0.00
39.90	98.95	2.00	0.00	1.00	0.00	40.00	97.53	2.00	0.00	1.00	0.00
40.06	96.96	2.00	0.00	1.00	0.00	40.15	97.18	2.00	0.00	1.00	0.00
40.21	98.86	2.00	0.00	1.00	0.00	40.29	102.19	2.00	0.00	1.00	0.00
40.35	108.27	2.00	0.00	1.00	0.00	40.43	111.81	2.00	0.00	1.00	0.00
40.52	114.58	2.00	0.00	1.00	0.00	40.58	115.00	2.00	0.00	1.00	0.00
40.67	116.83	2.00	0.00	1.00	0.00	40.77	117.65	2.00	0.00	1.00	0.00
40.84	117.99	2.00	0.00	1.00	0.00	40.89	116.25	2.00	0.00	1.00	0.00
40.94	111.31	2.00	0.00	1.00	0.00	41.03	103.18	2.00	0.00	1.00	0.00
41.08	96.47	2.00	0.00	1.00	0.00	41.14	92.51	2.00	0.00	1.00	0.00
41.22	90.97	2.00	0.00	1.00	0.00	41.28	91.29	0.75	2.32	1.00	0.02
41.33	93.52	0.78	2.24	1.00	0.01	41.42	97.02	0.82	2.12	1.00	0.02
41.47	100.81	0.87	1.55	1.00	0.01	41.52	104.48	0.93	1.47	1.00	0.01
41.62	107.92	0.98	0.82	1.00	0.01	41.67	112.91	1.07	0.51	1.00	0.00
41.76	118.23	1.16	0.36	1.00	0.00	41.82	123.75	1.28	0.25	1.00	0.00
41.90	128.02	1.37	0.00	1.00	0.00	41.99	131.05	1.44	0.00	1.00	0.00
42.05	132.58	1.48	0.00	1.00	0.00	42.15	132.77	1.48	0.00	1.00	0.00
42.23	132.06	1.46	0.00	1.00	0.00	42.30	130.51	1.43	0.00	1.00	0.00
42.38	127.88	1.36	0.00	1.00	0.00	42.48	123.60	1.27	0.25	1.00	0.00
42.57	119.15	1.18	0.36	1.00	0.00	42.64	115.28	1.11	0.50	1.00	0.00
42.72	111.72	1.04	0.80	1.00	0.01	42.82	108.24	0.98	0.82	1.00	0.01
42.90	105.42	0.94	1.45	1.00	0.01	42.97	104.32	0.92	1.47	1.00	0.01
43.06	104.69	0.93	1.47	1.00	0.02	43.15	102.43	0.89	1.51	1.00	0.02
43.20	99.54	0.85	1.58	1.00	0.01	43.30	95.67	0.80	2.17	1.00	0.02

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
43.40	97.12	0.82	2.12	1.00	0.02	43.48	100.97	0.87	1.55	1.00	0.01
43.51	103.89	0.92	1.48	1.00	0.01	43.52	107.23	0.97	0.83	1.00	0.00
43.56	114.20	1.09	0.51	1.00	0.00	43.61	124.81	1.30	0.25	1.00	0.00
43.67	133.29	1.49	0.00	1.00	0.00	43.72	140.56	1.68	0.00	1.00	0.00
43.80	145.95	1.83	0.00	1.00	0.00	43.85	149.84	1.95	0.00	1.00	0.00
43.90	152.56	2.00	0.00	1.00	0.00	43.94	154.37	2.00	0.00	1.00	0.00
43.99	155.28	2.00	0.00	1.00	0.00	44.08	155.65	2.00	0.00	1.00	0.00
44.14	156.49	2.00	0.00	1.00	0.00	44.22	157.19	2.00	0.00	1.00	0.00
44.28	157.37	2.00	0.00	1.00	0.00	44.33	156.78	2.00	0.00	1.00	0.00
44.40	155.80	2.00	0.00	1.00	0.00	44.48	155.90	2.00	0.00	1.00	0.00
44.52	155.24	2.00	0.00	1.00	0.00	44.61	155.88	2.00	0.00	1.00	0.00
44.72	156.70	2.00	0.00	1.00	0.00	44.77	159.04	2.00	0.00	1.00	0.00
44.91	160.27	2.00	0.00	1.00	0.00	44.95	156.88	2.00	0.00	1.00	0.00
45.02	154.33	2.00	0.00	1.00	0.00	45.04	138.44	1.62	0.00	1.00	0.00
45.06	140.63	1.68	0.00	1.00	0.00	45.11	143.03	1.75	0.00	1.00	0.00
45.15	160.49	2.00	0.00	1.00	0.00	45.21	163.81	2.00	0.00	1.00	0.00
45.25	166.43	2.00	0.00	1.00	0.00	45.30	168.34	2.00	0.00	1.00	0.00
45.35	169.35	2.00	0.00	1.00	0.00	45.41	169.64	2.00	0.00	1.00	0.00
45.49	168.87	2.00	0.00	1.00	0.00	45.55	167.24	2.00	0.00	1.00	0.00
45.63	164.52	2.00	0.00	1.00	0.00	45.69	161.09	2.00	0.00	1.00	0.00
45.78	156.88	2.00	0.00	1.00	0.00	45.84	151.68	2.00	0.00	1.00	0.00
45.93	145.18	1.81	0.00	1.00	0.00	46.02	137.24	2.00	0.00	1.00	0.00
46.08	128.00	2.00	0.00	1.00	0.00	46.16	118.20	2.00	0.00	1.00	0.00
46.24	108.31	2.00	0.00	1.00	0.00	46.31	99.54	2.00	0.00	1.00	0.00
46.41	94.32	2.00	0.00	1.00	0.00	46.48	95.41	2.00	0.00	1.00	0.00
46.56	101.49	2.00	0.00	1.00	0.00	46.65	106.39	2.00	0.00	1.00	0.00
46.75	104.92	2.00	0.00	1.00	0.00	46.84	96.75	2.00	0.00	1.00	0.00
46.94	92.20	2.00	0.00	1.00	0.00	47.02	89.65	2.00	0.00	1.00	0.00
47.08	87.68	2.00	0.00	1.00	0.00	47.12	86.24	2.00	0.00	1.00	0.00
47.16	84.67	2.00	0.00	1.00	0.00	47.21	82.35	2.00	0.00	1.00	0.00
47.27	79.44	2.00	0.00	1.00	0.00	47.35	76.72	2.00	0.00	1.00	0.00
47.40	72.71	2.00	0.00	1.00	0.00	47.50	68.97	2.00	0.00	1.00	0.00
47.55	65.28	2.00	0.00	1.00	0.00	47.61	63.67	2.00	0.00	1.00	0.00
47.69	62.57	2.00	0.00	1.00	0.00	47.76	61.71	2.00	0.00	1.00	0.00
47.83	60.22	2.00	0.00	1.00	0.00	47.93	58.40	2.00	0.00	1.00	0.00
48.02	57.34	2.00	0.00	1.00	0.00	48.09	56.35	2.00	0.00	1.00	0.00
48.18	57.05	2.00	0.00	1.00	0.00	48.27	58.44	2.00	0.00	1.00	0.00
48.37	61.09	2.00	0.00	1.00	0.00	48.46	62.98	2.00	0.00	1.00	0.00
48.52	64.25	2.00	0.00	1.00	0.00	48.60	65.23	2.00	0.00	1.00	0.00
48.70	65.99	2.00	0.00	1.00	0.00	48.79	66.70	2.00	0.00	1.00	0.00
48.85	68.42	2.00	0.00	1.00	0.00	48.94	71.44	2.00	0.00	1.00	0.00
49.04	73.34	2.00	0.00	1.00	0.00	49.13	82.09	2.00	0.00	1.00	0.00
49.23	92.00	2.00	0.00	1.00	0.00	49.33	102.80	2.00	0.00	1.00	0.00
49.38	109.60	2.00	0.00	1.00	0.00	49.42	114.80	2.00	0.00	1.00	0.00
49.48	118.93	2.00	0.00	1.00	0.00	49.53	121.43	2.00	0.00	1.00	0.00
49.58	123.62	2.00	0.00	1.00	0.00	49.63	125.52	2.00	0.00	1.00	0.00
49.72	126.23	2.00	0.00	1.00	0.00	49.77	125.98	2.00	0.00	1.00	0.00
49.83	125.40	2.00	0.00	1.00	0.00	49.92	124.67	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
49.97	123.55	2.00	0.00	1.00	0.00	50.04	122.65	2.00	0.00	1.00	0.00
50.11	122.33	2.00	0.00	1.00	0.00	50.20	120.55	2.00	0.00	1.00	0.00
50.27	116.01	2.00	0.00	1.00	0.00	50.34	107.79	2.00	0.00	1.00	0.00
50.45	99.22	2.00	0.00	1.00	0.00	50.54	92.39	2.00	0.00	1.00	0.00
50.59	87.71	2.00	0.00	1.00	0.00	50.68	83.78	2.00	0.00	1.00	0.00
50.79	80.17	2.00	0.00	1.00	0.00	50.88	78.18	2.00	0.00	1.00	0.00
50.98	77.89	2.00	0.00	1.00	0.00	51.07	76.09	2.00	0.00	1.00	0.00
51.17	71.67	2.00	0.00	1.00	0.00	51.24	68.77	2.00	0.00	1.00	0.00
51.33	70.43	2.00	0.00	1.00	0.00	51.46	74.75	2.00	0.00	1.00	0.00
51.46	78.20	2.00	0.00	1.00	0.00	51.51	79.60	2.00	0.00	1.00	0.00
51.56	82.02	2.00	0.00	1.00	0.00	51.65	84.26	2.00	0.00	1.00	0.00
51.71	86.89	2.00	0.00	1.00	0.00	51.79	88.80	2.00	0.00	1.00	0.00
51.85	92.19	2.00	0.00	1.00	0.00	51.94	96.33	2.00	0.00	1.00	0.00
51.99	102.62	2.00	0.00	1.00	0.00	52.09	109.52	2.00	0.00	1.00	0.00
52.19	116.81	2.00	0.00	1.00	0.00	52.28	122.63	2.00	0.00	1.00	0.00
52.35	128.41	2.00	0.00	1.00	0.00	52.43	132.82	2.00	0.00	1.00	0.00
52.52	136.28	2.00	0.00	1.00	0.00	52.62	135.93	2.00	0.00	1.00	0.00
52.72	133.92	2.00	0.00	1.00	0.00	52.81	135.53	2.00	0.00	1.00	0.00
52.91	146.31	2.00	0.00	1.00	0.00	53.00	154.70	2.00	0.00	1.00	0.00
53.10	148.13	2.00	0.00	1.00	0.00	53.20	129.79	2.00	0.00	1.00	0.00
53.29	114.61	2.00	0.00	1.00	0.00	53.38	114.09	2.00	0.00	1.00	0.00
53.46	119.81	2.00	0.00	1.00	0.00	53.53	130.93	2.00	0.00	1.00	0.00
53.63	139.93	2.00	0.00	1.00	0.00	53.73	146.92	2.00	0.00	1.00	0.00
53.82	150.03	2.00	0.00	1.00	0.00	53.92	146.54	2.00	0.00	1.00	0.00
53.94	138.23	1.66	0.00	1.00	0.00	53.96	131.20	1.48	0.00	1.00	0.00
53.97	134.16	1.55	0.00	1.00	0.00	54.05	141.00	1.73	0.00	1.00	0.00
54.08	150.15	2.00	0.00	1.00	0.00	54.13	154.41	2.00	0.00	1.00	0.00
54.19	159.56	2.00	0.00	1.00	0.00	54.25	162.94	2.00	0.00	1.00	0.00
54.28	166.66	2.00	0.00	1.00	0.00	54.29	164.40	2.00	0.00	1.00	0.00
54.34	164.35	2.00	0.00	1.00	0.00	54.35	164.72	2.00	0.00	1.00	0.00
54.40	165.62	2.00	0.00	1.00	0.00	54.44	166.45	2.00	0.00	1.00	0.00
54.49	165.88	2.00	0.00	1.00	0.00	54.53	167.39	2.00	0.00	1.00	0.00
54.57	171.02	2.00	0.00	1.00	0.00	54.58	173.92	2.00	0.00	1.00	0.00
54.63	173.90	2.00	0.00	1.00	0.00	54.68	176.93	2.00	0.00	1.00	0.00
54.73	175.12	2.00	0.00	1.00	0.00	54.78	173.29	2.00	0.00	1.00	0.00
54.83	172.82	2.00	0.00	1.00	0.00	54.88	175.08	2.00	0.00	1.00	0.00
54.92	178.37	2.00	0.00	1.00	0.00	54.97	180.73	2.00	0.00	1.00	0.00
55.02	181.62	2.00	0.00	1.00	0.00	55.12	178.01	2.00	0.00	1.00	0.00
55.17	170.63	2.00	0.00	1.00	0.00	55.25	160.49	2.00	0.00	1.00	0.00
55.31	154.46	2.00	0.00	1.00	0.00	55.36	148.87	1.98	0.00	1.00	0.00
55.45	143.68	1.82	0.00	1.00	0.00	55.50	137.89	1.66	0.00	1.00	0.00
55.60	133.93	1.56	0.00	1.00	0.00	55.65	128.15	1.41	0.00	1.00	0.00
55.71	124.39	1.33	0.25	1.00	0.00	55.75	121.19	1.26	0.25	1.00	0.00
55.79	121.90	1.27	0.25	1.00	0.00	55.84	123.76	1.32	0.25	1.00	0.00
55.89	125.39	1.35	0.00	1.00	0.00	55.90	126.17	1.37	0.00	1.00	0.00
55.94	124.98	1.34	0.25	1.00	0.00	55.99	122.89	1.30	0.25	1.00	0.00
56.03	120.41	1.24	0.36	1.00	0.00	56.08	118.54	1.21	0.36	1.00	0.00
56.14	116.74	1.17	0.36	1.00	0.00	56.22	114.65	1.13	0.50	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
56.28	112.90	1.10	0.51	1.00	0.00	56.33	112.38	1.09	0.51	1.00	0.00
56.38	112.46	1.09	0.51	1.00	0.00	56.45	114.23	1.13	0.51	1.00	0.00
56.52	117.01	1.18	0.36	1.00	0.00	56.62	120.21	1.24	0.36	1.00	0.00
56.66	123.02	1.30	0.25	1.00	0.00	56.73	126.65	1.39	0.00	1.00	0.00
56.81	129.59	1.46	0.00	1.00	0.00	56.95	132.64	1.53	0.00	1.00	0.00
57.00	135.80	1.61	0.00	1.00	0.00	57.09	136.52	1.63	0.00	1.00	0.00
57.19	135.85	1.62	0.00	1.00	0.00	57.27	131.44	1.50	0.00	1.00	0.00
57.35	130.16	1.47	0.00	1.00	0.00	57.44	127.36	1.41	0.00	1.00	0.00
57.50	127.07	1.40	0.00	1.00	0.00	57.52	131.85	1.52	0.00	1.00	0.00
57.58	141.73	1.78	0.00	1.00	0.00	57.63	149.17	2.00	0.00	1.00	0.00
57.72	151.31	2.00	0.00	1.00	0.00	57.77	148.26	1.98	0.00	1.00	0.00
57.82	143.29	1.83	0.00	1.00	0.00	57.91	137.09	1.66	0.00	1.00	0.00
57.96	130.46	1.48	0.00	1.00	0.00	58.02	135.16	1.61	0.00	1.00	0.00
58.09	138.12	1.69	0.00	1.00	0.00	58.16	142.65	1.82	0.00	1.00	0.00
58.25	144.36	1.87	0.00	1.00	0.00	58.30	143.26	1.83	0.00	1.00	0.00
58.40	140.74	1.76	0.00	1.00	0.00	58.50	139.77	1.74	0.00	1.00	0.00
58.56	138.70	1.71	0.00	1.00	0.00	58.64	140.28	1.75	0.00	1.00	0.00
58.73	145.16	1.90	0.00	1.00	0.00	58.78	145.87	1.92	0.00	1.00	0.00
58.88	147.98	1.98	0.00	1.00	0.00	58.97	149.10	2.00	0.00	1.00	0.00
59.07	147.53	1.97	0.00	1.00	0.00	59.13	143.73	1.86	0.00	1.00	0.00
59.23	140.99	1.78	0.00	1.00	0.00	59.31	134.94	1.61	0.00	1.00	0.00
59.38	130.71	1.50	0.00	1.00	0.00	59.41	127.40	1.42	0.00	1.00	0.00
59.46	128.62	1.45	0.00	1.00	0.00	59.51	128.55	1.45	0.00	1.00	0.00
59.57	130.91	1.51	0.00	1.00	0.00	59.66	136.37	1.65	0.00	1.00	0.00
59.75	142.44	1.82	0.00	1.00	0.00	59.80	147.84	1.99	0.00	1.00	0.00
59.85	156.99	2.00	0.00	1.00	0.00	59.91	158.02	2.00	0.00	1.00	0.00
59.99	159.53	2.00	0.00	1.00	0.00	60.05	161.59	2.00	0.00	1.00	0.00
60.09	160.52	2.00	0.00	1.00	0.00	60.14	156.08	2.00	0.00	1.00	0.00
60.19	153.23	2.00	0.00	1.00	0.00	60.22	151.55	2.00	0.00	1.00	0.00
60.28	145.94	1.93	0.00	1.00	0.00	60.33	137.48	1.69	0.00	1.00	0.00
60.38	126.83	1.41	0.00	1.00	0.00	60.42	119.65	1.25	0.25	1.00	0.00
60.48	111.02	1.09	0.52	1.00	0.00	60.57	101.50	0.93	1.53	1.00	0.02
60.66	91.67	0.80	2.31	1.00	0.02	60.68	85.85	0.73	2.65	1.00	0.01
60.69	82.84	0.70	2.73	1.00	0.00	60.74	80.07	0.67	2.80	1.00	0.02
60.79	76.18	0.64	2.92	1.00	0.02	60.84	71.82	0.60	3.07	1.00	0.02
60.89	68.64	0.58	3.18	1.00	0.02	60.98	66.57	0.56	3.26	1.00	0.04
61.03	69.19	0.58	3.16	1.00	0.02	61.08	79.69	0.67	2.81	1.00	0.02
61.18	90.12	0.78	2.37	1.00	0.03	61.23	100.04	0.91	1.57	1.00	0.01
61.31	94.03	0.83	2.22	1.00	0.02	61.42	94.11	0.83	2.22	1.00	0.03
61.47	100.64	0.92	1.55	1.00	0.01	61.51	107.25	1.03	0.83	1.00	0.00
61.54	108.54	1.05	0.82	1.00	0.00	61.57	112.23	1.11	0.51	1.00	0.00
61.58	118.74	1.24	0.36	1.00	0.00	61.61	111.49	1.10	0.51	1.00	0.00
61.63	107.07	1.02	0.83	1.00	0.00	61.63	91.77	0.80	2.30	1.00	0.00
61.66	79.27	0.67	2.83	1.00	0.01	61.67	85.35	0.73	2.66	1.00	0.00
61.70	83.80	0.71	2.70	1.00	0.01	61.71	84.55	0.72	2.68	1.00	0.00
61.76	87.45	0.75	2.61	1.00	0.01	61.80	91.10	0.79	2.33	1.00	0.01
61.84	94.04	0.83	2.22	1.00	0.01	61.86	98.87	0.90	1.59	1.00	0.00
61.93	103.69	0.97	0.85	1.00	0.01	61.98	100.92	0.93	1.55	1.00	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
62.04	114.48	1.16	0.37	1.00	0.00	62.09	127.59	1.44	0.00	1.00	0.00
62.14	136.10	1.66	0.00	1.00	0.00	62.19	140.93	1.80	0.00	1.00	0.00
62.24	143.65	1.88	0.00	1.00	0.00	62.26	146.58	1.97	0.00	1.00	0.00
62.29	146.46	1.97	0.00	1.00	0.00	62.38	145.37	1.93	0.00	1.00	0.00
62.44	138.07	1.72	0.00	1.00	0.00	62.46	132.02	1.55	0.00	1.00	0.00
62.47	126.07	1.41	0.00	1.00	0.00	62.51	127.59	1.44	0.00	1.00	0.00
62.56	130.45	1.52	0.00	1.00	0.00	62.60	134.26	1.61	0.00	1.00	0.00
62.65	135.35	1.64	0.00	1.00	0.00	62.70	135.46	1.65	0.00	1.00	0.00
62.75	135.59	1.65	0.00	1.00	0.00	62.80	138.85	1.74	0.00	1.00	0.00
62.85	147.40	2.00	0.00	1.00	0.00	62.89	159.73	2.00	0.00	1.00	0.00
62.97	173.86	2.00	0.00	1.00	0.00	63.04	187.32	2.00	0.00	1.00	0.00
63.09	197.18	2.00	0.00	1.00	0.00	63.13	200.57	2.00	0.00	1.00	0.00
63.19	200.74	2.00	0.00	1.00	0.00	63.23	201.69	2.00	0.00	1.00	0.00
63.28	203.42	2.00	0.00	1.00	0.00	63.32	204.02	2.00	0.00	1.00	0.00
63.38	202.89	2.00	0.00	1.00	0.00	63.44	203.06	2.00	0.00	1.00	0.00
63.52	199.75	2.00	0.00	1.00	0.00	63.57	194.57	2.00	0.00	1.00	0.00
63.66	183.79	2.00	0.00	1.00	0.00	63.73	148.76	2.00	0.00	1.00	0.00
63.76	130.54	1.53	0.00	1.00	0.00	63.76	127.66	1.45	0.00	1.00	0.00
63.78	131.02	1.54	0.00	1.00	0.00	63.81	142.46	1.86	0.00	1.00	0.00
63.85	146.19	1.97	0.00	1.00	0.00	63.86	145.10	1.94	0.00	1.00	0.00
63.91	148.35	2.00	0.00	1.00	0.00	63.94	150.35	2.00	0.00	1.00	0.00
63.95	151.38	2.00	0.00	1.00	0.00	64.00	150.67	2.00	0.00	1.00	0.00
64.02	149.37	2.00	0.00	1.00	0.00	64.05	148.02	2.00	0.00	1.00	0.00
64.09	146.64	1.99	0.00	1.00	0.00	64.11	144.77	1.93	0.00	1.00	0.00
64.15	142.44	1.86	0.00	1.00	0.00	64.20	141.24	1.82	0.00	1.00	0.00
64.25	141.74	1.84	0.00	1.00	0.00	64.29	148.11	2.00	0.00	1.00	0.00
64.34	157.68	2.00	0.00	1.00	0.00	64.43	167.40	2.00	0.00	1.00	0.00
64.48	174.30	2.00	0.00	1.00	0.00	64.53	177.47	2.00	0.00	1.00	0.00
64.58	180.82	2.00	0.00	1.00	0.00	64.63	187.83	2.00	0.00	1.00	0.00
64.68	195.77	2.00	0.00	1.00	0.00	64.73	198.20	2.00	0.00	1.00	0.00
64.77	202.79	2.00	0.00	1.00	0.00	64.82	207.01	2.00	0.00	1.00	0.00
64.87	201.76	2.00	0.00	1.00	0.00	64.89	196.56	2.00	0.00	1.00	0.00
64.93	189.73	2.00	0.00	1.00	0.00	64.94	196.96	2.00	0.00	1.00	0.00
64.98	199.62	2.00	0.00	1.00	0.00	64.99	201.90	2.00	0.00	1.00	0.00
65.03	201.35	2.00	0.00	1.00	0.00	65.08	199.79	2.00	0.00	1.00	0.00
65.13	196.50	2.00	0.00	1.00	0.00	65.17	193.13	2.00	0.00	1.00	0.00
65.22	189.08	2.00	0.00	1.00	0.00	65.23	186.93	2.00	0.00	1.00	0.00
65.28	186.22	2.00	0.00	1.00	0.00	65.32	186.24	2.00	0.00	1.00	0.00
65.37	186.30	2.00	0.00	1.00	0.00	65.42	187.42	2.00	0.00	1.00	0.00
65.47	183.76	2.00	0.00	1.00	0.00	65.48	179.77	2.00	0.00	1.00	0.00
65.49	174.70	2.00	0.00	1.00	0.00	65.52	174.01	2.00	0.00	1.00	0.00
65.57	176.43	2.00	0.00	1.00	0.00	65.62	180.61	2.00	0.00	1.00	0.00
65.67	-1.00	2.00	0.00	1.00	0.00	65.69	-1.00	2.00	0.00	1.00	0.00
65.72	-1.00	2.00	0.00	1.00	0.00	65.77	-1.00	2.00	0.00	1.00	0.00
65.82	-1.00	2.00	0.00	1.00	0.00	65.86	-1.00	2.00	0.00	1.00	0.00
65.86	-1.00	2.00	0.00	1.00	0.00	65.91	-1.00	2.00	0.00	1.00	0.00
65.96	-1.00	2.00	0.00	1.00	0.00						

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)

Total estimated settlement: 0.79

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.01	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.04	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.08	-0.07	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.10	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.13	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.18	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.22	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.27	0.81	1.28	50.14	63.98	4.01	4.89	3.60
0.33	2.77	4.42	15.47	68.30	3.31	5.08	10.70
0.36	5.16	8.26	7.99	66.07	2.95	0.18	0.67
0.37	7.12	11.41	5.40	61.61	2.76	0.13	0.66
0.38	8.20	13.14	4.58	60.15	2.69	0.11	0.66
0.42	9.38	15.03	3.98	59.88	2.63	0.11	0.66
0.44	10.59	16.98	3.58	60.79	2.58	0.12	0.66
0.47	12.18	19.53	3.09	60.26	2.52	0.12	0.66
0.47	14.24	22.83	2.61	59.51	2.44	0.11	0.66
0.52	17.00	27.27	2.14	58.39	2.35	0.10	0.65
0.56	20.48	32.85	1.78	58.60	2.26	0.10	0.65
0.58	24.93	40.00	1.52	60.77	2.16	0.12	0.66
0.61	30.70	49.27	1.35	66.61	2.05	0.19	0.67
0.66	36.94	59.30	1.27	75.22	1.95	0.39	0.70
0.76	40.79	65.47	1.23	80.72	1.89	0.62	0.71
0.80	38.66	62.05	1.25	77.85	1.93	0.49	0.70
0.81	35.49	56.95	1.29	73.41	1.98	0.34	0.69
0.85	32.42	52.02	1.33	69.37	2.03	0.24	0.68
0.86	32.79	52.62	1.33	69.99	2.03	0.25	0.68
0.90	32.22	51.69	1.35	70.01	2.05	0.25	0.68
0.95	31.82	51.04	1.38	70.34	2.07	0.26	0.68
1.00	30.53	48.97	1.37	67.09	2.06	0.20	0.68
1.05	28.88	46.31	1.34	62.22	2.04	0.14	0.66
1.14	26.55	42.56	1.00	42.56	2.01	0.03	0.62
1.24	24.29	38.92	1.00	38.92	2.04	0.03	0.62
1.31	20.51	32.85	1.00	32.85	2.14	0.02	0.62
1.36	17.93	28.70	1.67	48.03	2.22	0.05	0.62
1.37	17.77	28.44	1.71	48.50	2.23	0.05	0.62
1.39	18.54	29.68	1.64	48.64	2.21	0.05	0.62
1.43	19.03	30.46	1.60	48.73	2.19	0.05	0.62
1.44	18.05	28.88	1.68	48.54	2.23	0.05	0.62
1.49	18.35	29.36	1.67	49.05	2.22	0.05	0.62
1.53	18.89	30.23	1.66	50.30	2.22	0.05	0.63
1.58	19.67	31.47	1.66	52.29	2.22	0.06	0.63
1.63	20.62	32.99	1.66	54.77	2.22	0.08	0.64
1.68	21.70	34.72	1.65	57.36	2.21	0.09	0.65
1.72	23.31	37.31	1.61	60.04	2.20	0.11	0.66
1.77	25.48	40.78	1.54	62.93	2.17	0.14	0.66
1.82	28.31	45.33	1.46	66.36	2.13	0.19	0.67
1.86	31.52	50.48	1.40	70.45	2.08	0.26	0.68
1.92	35.09	56.22	1.34	75.14	2.03	0.39	0.70

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
1.97	38.67	61.96	1.29	80.21	1.98	0.59	0.71
2.01	41.61	66.68	1.27	84.88	1.95	0.72	0.72
2.09	43.22	69.27	1.26	87.55	1.94	0.72	0.72
2.16	43.05	68.99	1.27	87.53	1.95	0.72	0.72
2.20	41.47	66.43	1.28	85.02	1.96	0.72	0.72
2.25	39.85	63.83	1.29	82.39	1.98	0.71	0.71
2.31	38.60	61.82	1.30	80.09	1.99	0.59	0.71
2.37	37.79	60.52	1.29	78.32	1.98	0.51	0.70
2.40	36.88	59.05	1.30	76.51	1.99	0.44	0.70
2.46	35.97	57.57	1.29	74.55	1.98	0.37	0.69
2.54	35.36	56.59	1.29	72.87	1.97	0.32	0.69
2.59	34.69	55.51	1.00	55.51	1.96	0.08	0.64
2.69	34.25	54.80	1.00	54.80	1.94	0.08	0.64
2.74	33.95	54.31	1.00	54.31	1.92	0.07	0.64
2.83	33.88	54.19	1.00	54.19	1.92	0.07	0.64
2.88	34.35	54.94	1.00	54.94	1.91	0.08	0.64
2.98	35.70	57.10	1.00	57.10	1.89	0.09	0.65
3.03	38.57	61.71	1.00	61.71	1.85	0.13	0.66
3.12	42.31	67.72	1.00	67.72	1.82	0.21	0.68
3.21	46.83	74.97	1.00	74.97	1.79	0.38	0.70
3.27	51.66	82.72	1.00	82.72	1.76	0.71	0.71
3.34	57.05	91.38	1.00	91.38	1.72	0.73	0.73
3.41	61.91	99.18	1.00	99.18	1.69	0.75	0.75
3.51	64.20	102.85	1.00	102.85	1.68	0.75	0.75
3.55	63.63	101.93	1.00	101.93	1.70	0.75	0.75
3.65	62.42	99.97	1.00	99.97	1.72	0.75	0.75
3.75	61.71	98.83	1.00	98.83	1.73	0.75	0.75
3.83	61.44	98.39	1.00	98.39	1.73	0.75	0.75
3.94	61.11	97.84	1.00	97.84	1.73	0.74	0.74
4.04	60.30	96.53	1.00	96.53	1.73	0.74	0.74
4.13	60.63	97.06	1.08	104.72	1.75	0.76	0.76
4.24	61.68	98.73	1.00	98.73	1.74	0.75	0.75
4.38	65.15	104.30	1.00	104.30	1.68	0.76	0.76
4.50	68.93	110.36	1.00	110.36	1.62	0.77	0.77
4.62	74.13	118.70	1.00	118.70	1.57	0.78	0.78
4.71	77.89	124.73	1.00	124.73	1.57	0.79	0.79
4.75	80.93	129.61	1.00	129.61	1.57	0.80	0.80
4.84	82.11	131.50	1.00	131.50	1.58	0.80	0.80
4.89	82.93	132.82	1.00	132.82	1.58	0.80	0.80
4.94	82.93	132.82	1.00	132.82	1.58	0.80	0.80
4.98	81.72	130.87	1.00	130.87	1.59	0.80	0.80
5.07	80.10	128.25	1.00	128.25	1.60	0.80	0.80
5.13	78.48	125.65	1.00	125.65	1.61	0.79	0.79
5.17	76.79	122.93	1.00	122.93	1.61	0.79	0.79
5.27	74.77	119.67	1.00	119.67	1.62	0.78	0.78
5.32	72.75	116.42	1.00	116.42	1.63	0.78	0.78
5.42	70.86	113.37	1.00	113.37	1.64	0.77	0.77
5.46	69.34	110.93	1.00	110.93	1.64	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.56	68.02	108.80	1.00	108.80	1.65	0.76	0.76
5.61	66.87	106.96	1.00	106.96	1.66	0.76	0.76
5.71	65.86	105.32	1.00	105.32	1.66	0.76	0.76
5.78	64.92	103.80	1.00	103.80	1.67	0.76	0.76
5.85	63.84	102.06	1.00	102.06	1.68	0.75	0.75
5.95	62.83	100.42	1.00	100.42	1.69	0.75	0.75
6.00	62.32	99.61	1.00	99.61	1.71	0.75	0.75
6.09	62.93	100.57	1.00	100.57	1.66	0.75	0.75
6.14	64.75	103.50	1.00	103.50	1.60	0.75	0.75
6.24	67.52	107.94	1.00	107.94	1.53	0.76	0.76
6.30	70.42	112.60	1.00	112.60	1.54	0.77	0.77
6.38	71.40	114.16	1.00	114.16	1.56	0.77	0.77
6.46	69.58	111.22	1.00	111.22	1.60	0.77	0.77
6.50	68.43	109.38	1.00	109.38	1.62	0.77	0.77
6.56	68.84	110.02	1.00	110.02	1.63	0.77	0.77
6.63	71.30	113.98	1.00	113.98	1.61	0.77	0.77
6.68	72.51	115.92	1.00	115.92	1.61	0.78	0.78
6.76	73.49	117.34	1.00	117.34	1.61	0.78	0.78
6.82	74.54	118.51	1.00	118.51	1.60	0.78	0.78
6.88	76.19	120.59	1.00	120.59	1.59	0.78	0.78
6.96	78.38	123.33	1.00	123.33	1.58	0.79	0.79
7.03	80.54	126.09	1.00	126.09	1.56	0.79	0.79
7.11	82.06	127.75	1.00	127.75	1.55	0.80	0.80
7.16	83.04	128.83	1.00	128.83	1.55	0.80	0.80
7.26	83.82	129.11	1.00	129.11	1.55	0.80	0.80
7.31	84.43	129.55	1.00	129.55	1.56	0.80	0.80
7.40	84.63	129.06	1.00	129.06	1.56	0.80	0.80
7.45	84.52	128.43	1.00	128.43	1.56	0.80	0.80
7.54	83.95	126.75	1.00	126.75	1.57	0.79	0.79
7.60	82.84	124.58	1.00	124.58	1.58	0.79	0.79
7.68	81.22	121.42	1.00	121.42	1.59	0.79	0.79
7.74	79.70	118.70	1.00	118.70	1.60	0.78	0.78
7.83	78.55	116.27	1.00	116.27	1.61	0.78	0.78
7.90	78.35	115.47	1.00	115.47	1.61	0.78	0.78
7.98	79.10	115.95	1.00	115.95	1.62	0.78	0.78
8.05	80.62	117.66	1.00	117.66	1.62	0.78	0.78
8.12	81.69	118.66	1.00	118.66	1.62	0.78	0.78
8.19	81.66	118.08	1.00	118.08	1.62	0.78	0.78
8.27	80.48	115.81	1.00	115.81	1.64	0.78	0.78
8.36	79.13	113.39	1.00	113.39	1.65	0.77	0.77
8.41	78.35	111.75	1.00	111.75	1.61	0.77	0.77
8.50	78.42	111.21	1.00	111.21	1.57	0.77	0.77
8.60	78.79	111.10	1.00	111.10	1.54	0.77	0.77
8.70	78.76	110.43	1.00	110.43	1.56	0.77	0.77
8.74	70.97	99.16	1.00	99.16	1.64	0.75	0.75
8.78	65.57	92.36	1.00	92.36	1.68	0.73	0.73
8.81	63.58	89.84	1.00	89.84	1.71	0.73	0.73
8.86	69.75	97.38	1.00	97.38	1.66	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.91	73.77	102.14	1.00	102.14	1.64	0.75	0.75
8.94	74.34	102.81	1.00	102.81	1.64	0.75	0.75
9.02	73.80	101.95	1.00	101.95	1.66	0.75	0.75
9.10	72.52	100.12	1.00	100.12	1.68	0.75	0.75
9.17	71.17	98.18	1.00	98.18	1.69	0.74	0.74
9.22	69.95	96.47	1.00	96.47	1.70	0.74	0.74
9.31	69.01	94.84	1.00	94.84	1.71	0.74	0.74
9.37	68.50	93.92	1.00	93.92	1.72	0.74	0.74
9.42	68.60	93.81	1.00	93.81	1.72	0.74	0.74
9.52	69.18	94.01	1.00	94.01	1.72	0.74	0.74
9.60	70.19	94.84	1.00	94.84	1.71	0.74	0.74
9.66	71.54	96.20	1.00	96.20	1.70	0.74	0.74
9.74	73.13	97.75	1.00	97.75	1.69	0.74	0.74
9.81	74.58	99.20	1.00	99.20	1.69	0.75	0.75
9.89	75.79	100.34	1.00	100.34	1.68	0.75	0.75
9.98	77.04	101.50	1.00	101.50	1.68	0.75	0.75
10.03	78.79	103.47	1.00	103.47	1.68	0.75	0.75
10.13	81.26	106.04	1.00	106.04	1.67	0.76	0.76
10.23	84.06	108.97	1.00	108.97	1.66	0.76	0.76
10.32	86.45	111.33	1.00	111.33	1.65	0.77	0.77
10.38	88.11	112.97	1.00	112.97	1.65	0.77	0.77
10.47	88.68	113.17	1.00	113.17	1.65	0.77	0.77
10.57	88.44	112.36	1.00	112.36	1.65	0.77	0.77
10.66	87.94	111.05	1.00	111.05	1.61	0.77	0.77
10.76	87.67	110.18	1.00	110.18	1.57	0.77	0.77
10.85	88.00	110.11	1.00	110.11	1.53	0.77	0.77
10.92	88.54	110.44	1.00	110.44	1.55	0.77	0.77
11.00	85.17	105.80	1.00	105.80	1.58	0.76	0.76
11.07	82.17	101.74	1.00	101.74	1.61	0.75	0.75
11.10	80.21	99.18	1.00	99.18	1.63	0.75	0.75
11.15	82.81	102.16	1.00	102.16	1.62	0.75	0.75
11.19	85.41	105.18	1.00	105.18	1.61	0.76	0.76
11.24	87.43	107.45	1.00	107.45	1.61	0.76	0.76
11.29	89.66	109.95	1.00	109.95	1.61	0.77	0.77
11.34	92.29	112.96	1.00	112.96	1.60	0.77	0.77
11.40	94.89	115.81	1.00	115.81	1.60	0.78	0.78
11.47	96.81	117.83	1.00	117.83	1.60	0.78	0.78
11.53	97.72	118.60	1.00	118.60	1.60	0.78	0.78
11.58	98.23	118.97	1.00	118.97	1.60	0.78	0.78
11.65	98.70	119.16	1.00	119.16	1.61	0.78	0.78
11.72	99.17	119.34	1.00	119.34	1.61	0.78	0.78
11.77	99.00	118.88	1.00	118.88	1.61	0.78	0.78
11.82	98.36	117.83	1.00	117.83	1.62	0.78	0.78
11.88	97.25	116.19	1.00	116.19	1.64	0.78	0.78
11.97	96.10	114.49	1.00	114.49	1.65	0.77	0.77
12.02	94.75	112.75	1.00	112.75	1.65	0.77	0.77
12.06	93.54	110.95	1.00	110.95	1.65	0.77	0.77
12.11	93.03	110.11	1.00	110.11	1.65	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.21	92.63	109.15	1.00	109.15	1.65	0.76	0.76
12.25	92.93	109.21	1.00	109.21	1.64	0.76	0.76
12.30	93.00	109.05	1.00	109.05	1.64	0.76	0.76
12.31	93.44	109.51	1.00	109.51	1.63	0.77	0.77
12.32	93.64	109.72	1.00	109.72	1.63	0.77	0.77
12.35	94.21	110.25	1.00	110.25	1.62	0.77	0.77
12.40	95.26	111.26	1.00	111.26	1.61	0.77	0.77
12.45	96.78	112.82	1.00	112.82	1.60	0.77	0.77
12.52	98.43	114.40	1.00	114.40	1.60	0.77	0.77
12.56	100.32	116.43	1.00	116.43	1.59	0.78	0.78
12.62	102.04	118.16	1.00	118.16	1.59	0.78	0.78
12.65	103.69	119.90	1.00	119.90	1.56	0.78	0.78
12.71	105.14	121.32	1.00	121.32	1.53	0.78	0.78
12.76	107.34	123.61	1.00	123.61	1.48	0.79	0.79
12.83	110.34	126.74	1.00	126.74	1.48	0.79	0.79
12.88	114.29	131.03	1.00	131.03	1.50	0.80	0.80
12.93	118.94	136.14	1.00	136.14	1.50	0.81	0.81
12.98	121.44	138.73	1.00	138.73	1.52	0.81	0.81
13.03	123.77	141.10	1.00	141.10	1.52	0.81	0.81
13.04	120.16	136.93	1.00	136.93	1.54	0.81	0.81
13.07	122.72	139.66	1.00	139.66	1.54	0.81	0.81
13.13	125.66	142.70	1.00	142.70	1.55	0.82	0.82
13.17	134.36	152.37	1.00	152.37	1.53	0.83	0.83
13.22	137.87	156.08	1.00	156.08	1.53	0.84	0.84
13.27	140.13	158.31	1.00	158.31	1.54	0.84	0.84
13.32	141.11	159.12	1.00	159.12	1.54	0.84	0.84
13.37	141.28	159.00	1.00	159.00	1.55	0.84	0.84
13.41	140.67	158.02	1.00	158.02	1.55	0.84	0.84
13.46	139.05	155.85	1.00	155.85	1.56	0.83	0.83
13.51	137.63	153.98	1.00	153.98	1.57	0.83	0.83
13.56	135.98	151.81	1.00	151.81	1.58	0.83	0.83
13.60	134.29	149.65	1.00	149.65	1.59	0.83	0.83
13.66	132.81	147.65	1.00	147.65	1.60	0.82	0.82
13.75	131.80	145.98	1.00	145.98	1.60	0.82	0.82
13.80	131.19	145.02	1.00	145.02	1.60	0.82	0.82
13.89	130.75	144.01	1.00	144.01	1.61	0.82	0.82
13.94	129.81	142.69	1.00	142.69	1.61	0.82	0.82
13.99	128.19	140.62	1.00	140.62	1.63	0.81	0.81
14.09	125.39	137.21	1.00	137.21	1.65	0.81	0.81
14.14	122.28	133.79	1.00	133.79	1.68	0.80	0.80
14.23	119.38	130.35	1.00	130.35	1.70	0.80	0.80
14.28	117.19	127.54	1.00	127.54	1.68	0.79	0.79
14.38	116.43	125.95	1.00	125.95	1.66	0.79	0.79
14.42	115.35	124.40	1.00	124.40	1.63	0.79	0.79
14.52	115.79	124.40	1.00	124.40	1.63	0.79	0.79
14.57	116.75	125.23	1.00	125.23	1.64	0.79	0.79
14.67	117.53	125.60	1.00	125.60	1.64	0.79	0.79
14.68	117.83	125.93	1.00	125.93	1.64	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.70	116.41	124.39	1.00	124.39	1.65	0.79	0.79
14.75	116.58	124.38	1.00	124.38	1.66	0.79	0.79
14.80	116.18	123.80	1.00	123.80	1.66	0.79	0.79
14.89	116.21	123.45	1.00	123.45	1.67	0.79	0.79
14.94	114.76	121.75	1.00	121.75	1.68	0.79	0.79
15.04	111.83	118.29	1.00	118.29	1.69	0.78	0.78
15.13	107.24	113.18	1.01	114.51	1.71	0.77	0.77
15.21	101.74	107.19	1.06	113.68	1.74	0.77	0.77
15.28	95.87	100.87	1.10	111.36	1.76	0.77	0.77
15.38	90.00	94.46	1.14	107.63	1.79	0.76	0.76
15.47	83.86	87.79	1.17	102.77	1.82	0.75	0.75
15.57	77.55	80.97	1.20	97.12	1.85	0.74	0.74
15.67	70.76	73.71	1.23	90.52	1.89	0.73	0.73
15.77	63.91	66.40	1.26	83.47	1.93	0.71	0.71
15.86	57.27	59.33	1.29	76.63	1.98	0.44	0.70
15.96	51.73	53.45	1.34	71.45	2.03	0.29	0.69
16.05	47.31	48.75	1.40	68.25	2.09	0.22	0.68
16.15	43.60	44.83	1.51	67.79	2.15	0.21	0.68
16.25	41.11	42.13	1.63	68.47	2.20	0.22	0.68
16.31	39.86	40.76	1.71	69.57	2.23	0.25	0.68
16.39	39.72	40.48	1.70	68.78	2.23	0.23	0.68
16.48	40.50	41.08	1.65	67.59	2.21	0.21	0.68
16.59	43.06	43.47	1.53	66.70	2.17	0.19	0.67
16.68	47.95	48.20	1.40	67.68	2.09	0.21	0.68
16.76	53.89	53.96	1.31	70.90	2.01	0.27	0.69
16.86	58.72	58.53	1.27	74.31	1.95	0.36	0.69
16.92	61.25	60.90	1.25	76.25	1.92	0.43	0.70
17.02	61.65	61.10	1.25	76.36	1.92	0.43	0.70
17.11	61.14	60.41	1.26	76.12	1.94	0.42	0.70
17.22	60.40	59.48	1.28	75.94	1.96	0.42	0.70
17.35	58.51	57.44	1.34	77.19	2.04	0.46	0.70
17.45	53.15	52.07	1.57	81.76	2.18	0.68	0.71
17.55	43.40	42.36	2.26	95.58	2.38	0.74	0.74
17.61	33.92	32.93	3.48	114.42	2.57	0.77	0.77
17.64	27.41	26.45	4.70	124.38	2.70	0.79	0.79
17.70	24.84	23.84	5.27	125.58	2.75	0.79	0.79
17.75	23.12	22.09	5.71	126.01	2.79	0.79	0.79
17.80	22.04	20.96	6.07	127.17	2.82	0.79	0.79
17.85	21.57	20.45	6.49	132.79	2.85	0.80	0.80
17.94	24.37	23.10	5.83	134.72	2.80	0.81	0.81
17.99	29.74	28.29	4.75	134.51	2.70	0.81	0.81
18.09	36.42	34.65	3.76	130.35	2.60	0.80	0.80
18.15	38.34	36.42	3.61	131.44	2.58	0.80	0.80
18.23	36.08	34.09	3.99	135.89	2.63	0.81	0.81
18.33	27.03	25.22	5.88	148.20	2.80	0.82	0.82
18.43	18.43	16.85	8.99	151.54	3.01	1.12	1.20
18.52	11.28	9.87	14.46	142.66	3.27	0.79	0.70
18.59	9.25	7.88	15.23	120.07	3.30	0.54	0.56

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
18.72	8.44	7.05	14.48	102.14	3.27	0.33	0.50
18.81	7.87	6.47	14.17	91.69	3.26	0.29	0.46
18.87	7.73	6.32	14.34	90.62	3.27	0.28	0.45
18.95	7.94	6.48	14.76	95.67	3.28	0.31	0.46
19.05	8.95	7.39	13.77	101.75	3.24	0.40	0.53
19.14	11.32	9.56	10.96	104.74	3.12	0.45	0.68
19.22	15.43	13.37	7.56	101.14	2.92	0.75	0.75
19.29	23.29	20.64	4.44	91.70	2.67	0.73	0.73
19.38	36.79	33.12	2.43	80.52	2.41	0.61	0.71
19.44	54.77	49.78	1.63	81.04	2.21	0.64	0.71
19.53	73.63	67.13	1.37	92.11	2.06	0.73	0.73
19.62	89.35	81.50	1.30	105.61	1.99	0.76	0.76
19.69	100.62	91.73	1.27	116.28	1.95	0.78	0.78
19.79	106.79	97.11	1.26	122.62	1.94	0.79	0.79
19.86	108.17	98.11	1.28	125.15	1.96	0.79	0.79
19.97	105.91	95.65	1.30	124.06	1.99	0.79	0.79
20.07	101.09	90.89	1.33	120.48	2.02	0.78	0.78
20.16	94.14	84.23	1.37	115.28	2.06	0.78	0.78
20.26	84.49	75.23	1.38	103.79	2.07	0.76	0.76
20.34	72.68	64.34	1.43	91.71	2.10	0.73	0.73
20.43	59.83	52.55	1.52	80.02	2.16	0.58	0.71
20.50	47.95	41.63	2.03	84.51	2.33	0.72	0.72
20.60	37.70	32.23	3.01	96.91	2.50	0.74	0.74
20.62	30.48	25.73	4.28	110.02	2.66	0.77	0.77
20.63	28.08	23.58	4.89	115.31	2.72	0.78	0.78
20.68	27.74	23.22	5.10	118.43	2.74	0.78	0.78
20.73	27.64	23.06	5.32	122.67	2.76	0.79	0.79
20.82	25.48	21.06	6.08	128.12	2.82	0.80	0.80
20.87	23.45	19.23	6.78	130.45	2.87	0.80	0.80
20.91	21.57	17.54	7.32	128.42	2.91	0.80	0.80
20.96	19.58	15.59	7.98	124.40	2.95	0.79	0.79
21.05	17.59	13.84	8.82	122.12	3.00	0.63	0.99
21.11	16.98	13.29	9.07	120.49	3.02	0.63	0.95
21.17	17.11	13.36	9.02	120.44	3.01	0.63	0.95
21.25	21.23	17.01	6.86	116.62	2.88	0.78	0.78
21.30	31.25	25.68	4.13	106.03	2.64	0.76	0.76
21.37	48.56	40.77	2.31	94.37	2.39	0.74	0.74
21.45	68.84	58.49	1.62	94.86	2.20	0.74	0.74
21.49	87.80	75.10	1.41	105.59	2.09	0.76	0.76
21.58	103.45	88.68	1.33	117.80	2.02	0.78	0.78
21.64	115.70	99.28	1.29	128.46	1.98	0.80	0.80
21.69	124.50	106.86	1.28	136.49	1.96	0.81	0.81
21.78	130.41	111.69	1.27	142.03	1.95	0.82	0.82
21.83	133.78	114.42	1.27	145.79	1.96	0.82	0.82
21.89	135.43	115.57	1.28	148.03	1.97	0.82	0.82
21.98	136.01	115.67	1.29	149.32	1.98	0.83	0.83
22.03	135.90	115.31	1.30	150.06	1.99	0.83	0.83
22.12	134.89	114.06	1.31	149.60	2.01	0.83	0.83

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.22	133.20	112.20	1.32	148.31	2.02	0.82	0.82
22.26	130.88	110.01	1.33	146.45	2.03	0.82	0.82
22.36	128.38	107.52	1.34	144.21	2.04	0.82	0.82
22.41	125.79	105.07	1.36	142.38	2.05	0.82	0.82
22.51	123.53	102.88	1.35	138.65	2.04	0.81	0.81
22.60	121.33	100.82	1.34	134.71	2.03	0.81	0.81
22.70	119.34	98.95	1.32	130.43	2.01	0.80	0.80
22.75	116.88	96.72	1.32	127.90	2.02	0.80	0.80
22.84	109.32	89.92	1.36	122.31	2.05	0.79	0.79
22.89	107.14	87.93	1.37	120.57	2.06	0.78	0.78
22.90	104.88	85.98	1.38	118.82	2.07	0.78	0.78
22.94	110.11	90.42	1.34	121.26	2.04	0.78	0.78
23.00	112.36	92.21	1.32	122.07	2.02	0.79	0.79
23.08	118.94	97.70	1.29	126.15	1.98	0.79	0.79
23.13	127.04	104.57	1.26	131.91	1.94	0.80	0.80
23.20	134.05	110.43	1.24	136.83	1.90	0.81	0.81
23.27	137.05	112.81	1.23	138.66	1.89	0.81	0.81
23.33	135.57	111.40	1.23	136.90	1.89	0.81	0.81
23.42	131.55	107.76	1.23	132.83	1.89	0.80	0.80
23.48	126.94	103.73	1.24	128.30	1.90	0.80	0.80
23.57	123.16	100.30	1.24	124.68	1.91	0.79	0.79
23.61	121.20	98.52	1.25	122.97	1.92	0.79	0.79
23.66	121.50	98.62	1.25	123.25	1.92	0.79	0.79
23.73	124.04	100.52	1.25	125.44	1.92	0.79	0.79
23.80	127.95	103.59	1.24	128.73	1.91	0.80	0.80
23.85	131.96	106.79	1.24	132.25	1.90	0.80	0.80
23.94	134.80	108.87	1.24	134.50	1.90	0.81	0.81
24.00	135.88	109.59	1.24	135.41	1.90	0.81	0.81
24.09	135.37	108.86	1.24	134.81	1.90	0.81	0.81
24.16	133.34	106.93	1.24	133.09	1.91	0.80	0.80
24.24	130.04	104.25	1.23	128.02	1.89	0.80	0.80
24.33	125.79	100.75	1.21	122.05	1.86	0.79	0.79
24.43	121.10	96.90	1.19	115.53	1.84	0.78	0.78
24.52	114.28	90.85	1.23	111.31	1.88	0.77	0.77
24.58	108.90	86.13	1.25	107.54	1.92	0.76	0.76
24.59	104.52	82.40	1.27	104.41	1.95	0.76	0.76
24.63	104.21	82.05	1.27	104.24	1.95	0.76	0.76
24.68	103.45	81.24	1.28	103.96	1.96	0.76	0.76
24.77	102.47	80.14	1.29	103.52	1.98	0.75	0.75
24.82	100.31	78.15	1.31	102.59	2.01	0.75	0.75
24.92	97.85	75.83	1.34	101.32	2.03	0.75	0.75
25.01	95.22	73.42	1.36	100.09	2.06	0.75	0.75
25.06	92.38	70.94	1.39	98.75	2.08	0.75	0.75
25.16	89.48	68.36	1.42	97.29	2.10	0.74	0.74
25.25	86.51	65.75	1.46	95.92	2.13	0.74	0.74
25.30	83.55	63.24	1.50	94.77	2.15	0.74	0.74
25.41	80.44	60.52	1.55	93.81	2.17	0.74	0.74
25.49	77.27	57.80	1.61	93.24	2.20	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.55	73.97	55.02	1.70	93.42	2.23	0.74	0.74
25.64	70.59	52.13	1.81	94.24	2.27	0.74	0.74
25.70	67.02	49.15	1.95	95.94	2.31	0.74	0.74
25.79	63.24	46.00	2.13	97.75	2.35	0.74	0.74
25.89	58.92	42.45	2.35	99.94	2.40	0.75	0.75
25.94	54.26	38.75	2.63	101.97	2.45	0.75	0.75
26.02	49.37	34.89	2.95	102.81	2.50	0.75	0.75
26.12	45.05	31.51	3.23	101.92	2.54	0.75	0.75
26.17	40.83	28.31	3.52	99.58	2.57	0.75	0.75
26.28	37.02	25.37	3.84	97.30	2.61	0.74	0.74
26.36	33.31	22.57	4.17	94.10	2.65	0.74	0.74
26.45	29.43	19.65	4.69	92.22	2.70	0.73	0.73
26.50	24.94	16.31	5.63	91.86	2.78	0.73	0.73
26.61	20.15	12.75	7.37	93.95	2.91	0.74	0.74
26.70	15.97	9.43	10.10	95.23	3.07	0.35	0.67
26.77	12.97	7.45	12.95	96.46	3.21	0.35	0.53
26.85	11.85	6.70	14.12	94.58	3.26	0.34	0.48
26.94	11.45	6.41	14.29	91.60	3.27	0.29	0.46
27.04	11.95	6.71	13.15	88.25	3.22	0.28	0.48
27.14	12.22	6.86	12.68	86.95	3.20	0.27	0.49
27.23	12.90	7.27	11.66	84.75	3.15	0.26	0.52
27.28	13.22	7.46	11.13	83.02	3.13	0.24	0.53
27.29	13.29	7.50	10.38	77.81	3.09	0.24	0.54
27.38	13.29	7.47	9.96	74.44	3.07	0.16	0.53
27.48	13.27	7.43	9.89	73.48	3.06	0.18	0.53
27.57	13.27	7.41	10.67	79.00	3.10	0.22	0.53
27.64	13.30	7.41	11.31	83.76	3.13	0.26	0.53
27.65	13.44	7.49	12.08	90.43	3.17	0.27	0.53
27.74	14.52	8.14	11.82	96.17	3.16	0.36	0.58
27.80	16.91	9.63	10.69	102.90	3.10	0.41	0.69
27.90	19.17	11.00	9.59	105.58	3.05	0.48	0.79
27.99	19.34	11.07	9.67	106.99	3.05	0.48	0.79
28.07	17.12	9.65	10.91	105.31	3.11	0.45	0.69
28.16	14.45	7.96	12.63	100.58	3.20	0.39	0.57
28.25	12.53	6.75	13.86	93.48	3.25	0.31	0.48
28.34	11.52	6.10	14.13	86.20	3.26	0.25	0.44
28.44	11.01	5.76	14.19	81.77	3.26	0.21	0.41
28.53	10.84	5.64	14.27	80.51	3.26	0.21	0.40
28.62	11.75	6.17	14.04	86.70	3.26	0.23	0.44
28.76	14.21	7.64	12.54	95.81	3.19	0.35	0.55
28.86	17.65	9.69	11.11	107.72	3.12	0.45	0.69
28.96	20.32	11.26	10.51	118.36	3.09	0.58	0.80
29.08	21.30	11.80	11.10	130.98	3.12	0.70	0.84
29.19	22.07	12.21	11.60	141.58	3.15	0.86	0.87
29.29	27.50	15.40	8.64	133.06	2.99	0.80	0.80
29.39	40.70	25.08	5.15	129.21	2.74	0.80	0.80
29.50	57.67	36.81	3.37	124.06	2.55	0.79	0.79
29.63	66.88	42.86	3.19	136.79	2.53	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
29.65	70.22	45.09	3.13	141.18	2.52	0.81	0.81
29.66	71.00	45.61	3.10	141.50	2.52	0.82	0.82
29.72	73.53	47.34	2.95	139.57	2.50	0.81	0.81
29.80	77.81	50.31	2.70	135.94	2.46	0.81	0.81
29.85	89.49	58.79	2.17	127.49	2.36	0.79	0.79
29.94	111.58	75.08	1.62	121.89	2.20	0.79	0.79
30.00	135.50	93.20	1.37	127.60	2.06	0.79	0.79
30.05	152.98	106.83	1.28	136.43	1.96	0.81	0.81
30.14	162.60	114.57	1.23	140.95	1.89	0.81	0.81
30.19	167.56	118.78	1.20	142.08	1.84	0.82	0.82
30.24	169.61	120.45	1.18	142.19	1.83	0.82	0.82
30.29	169.68	120.31	1.18	142.38	1.83	0.82	0.82
30.38	167.72	118.51	1.19	141.39	1.84	0.82	0.82
30.43	164.79	116.05	1.20	139.76	1.85	0.81	0.81
30.48	161.62	113.47	1.21	137.67	1.87	0.81	0.81
30.54	159.16	111.46	1.22	135.86	1.87	0.81	0.81
30.62	158.35	110.69	1.22	134.98	1.87	0.81	0.81
30.67	157.77	110.16	1.22	134.34	1.87	0.80	0.80
30.72	158.55	110.67	1.22	134.61	1.87	0.81	0.81
30.76	159.46	111.32	1.21	134.89	1.86	0.81	0.81
30.86	162.06	113.16	1.20	135.92	1.85	0.81	0.81
30.91	165.09	115.46	1.19	137.26	1.84	0.81	0.81
30.95	168.94	118.37	1.17	138.94	1.82	0.81	0.81
31.03	173.83	122.03	1.15	140.71	1.80	0.81	0.81
31.10	179.36	126.19	1.13	142.33	1.78	0.82	0.82
31.15	185.03	130.44	1.10	144.07	1.76	0.82	0.82
31.20	189.66	133.76	1.09	146.05	1.75	0.82	0.82
31.26	192.52	135.69	1.09	147.81	1.75	0.82	0.82
31.34	186.22	130.42	1.13	147.23	1.78	0.82	0.82
31.37	184.63	129.08	1.14	146.99	1.79	0.82	0.82
31.38	181.39	126.56	1.15	145.70	1.80	0.82	0.82
31.43	184.63	129.02	1.13	146.17	1.78	0.82	0.82
31.47	179.33	124.92	1.15	143.44	1.80	0.82	0.82
31.55	171.64	118.91	1.17	139.35	1.82	0.81	0.81
31.59	160.34	110.19	1.21	132.93	1.86	0.80	0.80
31.66	147.76	100.47	1.24	124.83	1.91	0.79	0.79
31.73	135.75	91.20	1.28	116.80	1.97	0.78	0.78
31.78	125.08	83.04	1.33	110.36	2.02	0.77	0.77
31.84	115.64	75.76	1.40	106.34	2.09	0.76	0.76
31.93	107.23	69.27	1.51	104.84	2.16	0.76	0.76
31.98	100.42	64.06	1.66	106.04	2.22	0.76	0.76
32.02	98.18	62.19	1.75	108.88	2.25	0.76	0.76
32.09	97.00	61.07	1.83	111.87	2.27	0.77	0.77
32.16	98.89	62.18	1.83	113.86	2.27	0.77	0.77
32.22	100.29	63.04	1.82	114.52	2.27	0.77	0.77
32.27	103.49	65.22	1.76	114.53	2.25	0.77	0.77
32.34	106.02	66.91	1.71	114.38	2.24	0.77	0.77
32.42	108.89	68.85	1.66	114.11	2.22	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
32.46	113.04	71.82	1.58	113.62	2.19	0.77	0.77
32.54	117.73	75.15	1.51	113.25	2.15	0.77	0.77
32.60	121.74	78.23	1.43	112.00	2.11	0.77	0.77
32.67	124.81	80.60	1.38	111.53	2.07	0.77	0.77
32.75	127.51	82.59	1.35	111.85	2.05	0.77	0.77
32.81	130.38	84.43	1.35	113.95	2.05	0.77	0.77
32.89	133.38	86.29	1.35	116.21	2.04	0.78	0.78
32.94	129.47	83.21	1.38	114.84	2.07	0.77	0.77
32.95	131.02	84.23	1.38	116.07	2.07	0.78	0.78
33.00	132.88	85.36	1.38	117.56	2.07	0.78	0.78
33.06	141.08	91.06	1.34	122.40	2.04	0.79	0.79
33.11	142.26	91.66	1.35	123.66	2.04	0.79	0.79
33.20	141.21	90.60	1.36	123.53	2.06	0.79	0.79
33.25	139.02	88.78	1.39	123.06	2.08	0.79	0.79
33.34	137.03	87.07	1.41	122.48	2.09	0.79	0.79
33.38	136.69	86.68	1.42	122.68	2.10	0.79	0.79
33.48	138.41	87.63	1.41	123.78	2.10	0.79	0.79
33.58	141.92	89.83	1.40	125.79	2.09	0.79	0.79
33.63	146.74	93.05	1.38	128.81	2.07	0.80	0.80
33.73	152.41	96.75	1.37	132.15	2.06	0.80	0.80
33.82	158.96	101.09	1.35	136.16	2.04	0.81	0.81
33.87	165.74	105.66	1.33	140.58	2.03	0.81	0.81
33.96	172.72	110.29	1.32	145.13	2.01	0.82	0.82
34.02	180.58	115.54	1.30	150.66	2.00	0.83	0.83
34.11	190.03	121.77	1.29	157.32	1.98	0.84	0.84
34.18	200.49	128.68	1.28	164.99	1.97	0.85	0.85
34.26	210.44	135.11	1.28	172.52	1.96	0.86	0.86
34.35	219.45	140.77	1.28	179.50	1.96	0.86	0.86
34.44	227.51	145.83	1.27	185.53	1.95	0.87	0.87
34.49	233.96	150.02	1.27	190.23	1.95	0.88	0.88
34.59	237.94	152.42	1.27	192.83	1.94	0.88	0.88
34.69	240.00	153.47	1.26	194.12	1.94	0.88	0.88
34.76	240.94	153.92	1.26	194.53	1.94	0.88	0.88
34.83	240.60	153.43	1.26	194.02	1.94	0.88	0.88
34.93	237.97	151.43	1.26	191.54	1.94	0.88	0.88
35.02	233.82	148.39	1.27	188.08	1.95	0.87	0.87
35.12	229.78	145.60	1.27	184.23	1.94	0.87	0.87
35.22	226.47	143.26	1.26	181.13	1.94	0.87	0.87
35.30	222.22	140.29	1.26	177.46	1.94	0.86	0.86
35.38	208.55	130.48	1.29	168.21	1.98	0.85	0.85
35.43	198.10	123.09	1.31	161.35	2.00	0.84	0.84
35.46	189.40	116.99	1.33	155.80	2.03	0.83	0.83
35.51	187.20	115.53	1.33	153.78	2.03	0.83	0.83
35.56	176.78	108.45	1.35	146.76	2.05	0.82	0.82
35.66	163.52	99.31	1.39	138.53	2.08	0.81	0.81
35.70	148.20	89.01	1.46	130.03	2.13	0.80	0.80
35.80	131.87	77.90	1.59	123.66	2.19	0.79	0.79
35.89	111.32	64.17	1.87	119.95	2.28	0.78	0.78

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
35.96	89.09	49.72	2.43	120.81	2.41	0.78	0.78
36.04	68.24	36.73	3.28	120.37	2.54	0.78	0.78
36.14	52.15	27.04	4.33	117.01	2.66	0.78	0.78
36.19	43.48	22.01	5.03	110.69	2.73	0.77	0.77
36.28	40.51	20.23	5.44	110.05	2.77	0.77	0.77
36.33	40.51	20.24	5.35	108.32	2.76	0.76	0.76
36.42	42.30	21.24	5.09	108.08	2.74	0.76	0.76
36.48	45.97	23.38	4.59	107.27	2.69	0.76	0.76
36.52	51.03	26.20	4.31	112.95	2.66	0.77	0.77
36.62	54.10	27.78	4.31	119.67	2.66	0.78	0.78
36.68	54.07	27.55	4.59	126.59	2.69	0.79	0.79
36.77	52.82	26.73	4.79	128.11	2.71	0.80	0.80
36.86	54.64	27.76	4.56	126.60	2.69	0.79	0.79
36.90	67.67	35.75	3.22	115.19	2.53	0.77	0.77
37.00	98.14	55.13	1.87	103.13	2.29	0.75	0.75
37.10	140.34	83.45	1.35	112.56	2.04	0.77	0.77
37.20	182.54	113.15	1.21	136.84	1.86	0.81	0.81
37.29	213.04	135.23	1.09	147.30	1.75	0.82	0.82
37.39	232.34	149.01	1.00	149.01	1.70	0.83	0.83
37.49	241.91	155.00	1.00	155.00	1.70	0.83	0.83
37.53	245.57	156.74	1.02	160.20	1.72	0.84	0.84
37.58	246.07	156.33	1.06	165.44	1.73	0.85	0.85
37.62	247.84	156.88	1.08	169.66	1.75	0.85	0.85
37.69	250.56	157.82	1.11	175.10	1.77	0.86	0.86
37.77	253.53	158.95	1.13	179.78	1.78	0.86	0.86
37.82	254.98	159.10	1.15	183.39	1.80	0.87	0.87
37.87	254.84	158.42	1.17	184.85	1.81	0.87	0.87
37.91	252.72	156.44	1.18	184.82	1.83	0.87	0.87
37.97	248.23	152.87	1.20	183.06	1.85	0.87	0.87
38.06	241.92	148.07	1.21	179.59	1.87	0.86	0.86
38.10	235.58	143.53	1.22	175.74	1.88	0.86	0.86
38.17	230.89	140.30	1.23	172.34	1.89	0.86	0.86
38.25	228.09	138.57	1.22	169.66	1.88	0.85	0.85
38.35	225.79	137.24	1.22	167.11	1.87	0.85	0.85
38.40	223.43	135.86	1.21	164.83	1.87	0.85	0.85
38.46	221.65	134.68	1.21	163.21	1.86	0.84	0.84
38.54	220.87	134.09	1.21	162.26	1.86	0.84	0.84
38.60	220.87	134.14	1.21	161.69	1.86	0.84	0.84
38.69	222.22	135.09	1.20	161.77	1.85	0.84	0.84
38.74	224.92	137.05	1.19	162.53	1.83	0.84	0.84
38.83	227.85	138.91	1.18	163.73	1.82	0.84	0.84
38.88	229.20	139.97	1.17	163.54	1.81	0.84	0.84
38.97	228.76	139.65	1.16	162.47	1.81	0.84	0.84
39.02	227.25	138.83	1.16	160.45	1.80	0.84	0.84
39.11	224.44	136.82	1.16	158.54	1.81	0.84	0.84
39.16	218.51	132.80	1.17	154.99	1.81	0.83	0.83
39.23	205.48	123.73	1.20	148.10	1.85	0.82	0.82
39.24	200.81	120.69	1.20	145.08	1.85	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.28	198.62	119.29	1.20	143.39	1.85	0.82	0.82
39.32	201.93	121.86	1.18	144.08	1.83	0.82	0.82
39.39	194.55	116.84	1.20	139.67	1.84	0.81	0.81
39.47	183.96	109.44	1.22	133.48	1.88	0.80	0.80
39.54	171.48	100.68	1.25	125.99	1.92	0.79	0.79
39.62	158.42	91.63	1.29	117.99	1.98	0.78	0.78
39.71	145.73	82.95	1.33	110.70	2.03	0.77	0.77
39.76	134.50	75.46	1.39	105.08	2.08	0.76	0.76
39.85	125.32	69.36	1.46	101.34	2.13	0.75	0.75
39.90	117.87	64.48	1.53	98.95	2.17	0.75	0.75
40.00	111.05	60.00	1.63	97.53	2.20	0.74	0.74
40.06	104.71	55.91	1.73	96.96	2.24	0.74	0.74
40.15	98.67	52.00	1.87	97.18	2.28	0.74	0.74
40.21	92.83	48.24	2.05	98.86	2.33	0.75	0.75
40.29	86.59	44.24	2.31	102.19	2.39	0.75	0.75
40.35	79.68	39.85	2.72	108.27	2.46	0.76	0.76
40.43	72.22	35.37	3.16	111.81	2.53	0.77	0.77
40.52	63.85	30.51	3.76	114.58	2.60	0.77	0.77
40.58	55.21	25.70	4.47	115.00	2.68	0.77	0.77
40.67	46.88	21.09	5.54	116.83	2.77	0.78	0.78
40.77	41.63	18.24	6.45	117.65	2.85	0.78	0.78
40.84	39.14	16.87	6.99	117.99	2.89	0.78	0.78
40.89	42.28	18.55	6.27	116.25	2.83	0.78	0.78
40.94	49.75	22.62	4.92	111.31	2.72	0.77	0.77
41.03	61.46	29.20	3.53	103.18	2.57	0.75	0.75
41.08	73.03	35.94	2.68	96.47	2.45	0.74	0.74
41.14	82.03	41.30	2.24	92.51	2.37	0.73	0.73
41.22	87.70	44.68	2.04	90.97	2.33	0.73	0.73
41.28	90.43	46.24	1.97	91.29	2.31	0.73	0.73
41.33	91.99	46.96	1.99	93.52	2.32	0.74	0.74
41.42	93.64	47.61	2.04	97.02	2.33	0.74	0.74
41.47	97.01	49.31	2.04	100.81	2.33	0.75	0.75
41.52	104.03	53.17	1.96	104.48	2.31	0.76	0.76
41.62	115.47	59.72	1.81	107.92	2.27	0.76	0.76
41.67	130.01	68.21	1.66	112.91	2.22	0.77	0.77
41.76	144.45	76.74	1.54	118.23	2.17	0.78	0.78
41.82	156.39	83.80	1.48	123.75	2.14	0.79	0.79
41.90	165.43	89.14	1.44	128.02	2.11	0.80	0.80
41.99	171.57	92.73	1.41	131.05	2.10	0.80	0.80
42.05	174.81	94.61	1.40	132.58	2.09	0.80	0.80
42.15	175.22	94.64	1.40	132.77	2.09	0.80	0.80
42.23	173.33	93.24	1.42	132.06	2.10	0.80	0.80
42.30	169.55	90.73	1.44	130.51	2.11	0.80	0.80
42.38	163.64	86.97	1.47	127.88	2.13	0.80	0.80
42.48	153.79	80.87	1.53	123.60	2.16	0.79	0.79
42.57	141.98	73.69	1.62	119.15	2.20	0.78	0.78
42.64	129.97	66.53	1.73	115.28	2.24	0.78	0.78
42.72	121.20	61.42	1.82	111.72	2.27	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.82	114.72	57.72	1.88	108.24	2.29	0.76	0.76
42.90	110.03	55.08	1.91	105.42	2.30	0.76	0.76
42.97	106.05	52.74	1.98	104.32	2.31	0.76	0.76
43.06	102.31	50.43	2.08	104.69	2.34	0.76	0.76
43.15	98.76	48.44	2.11	102.43	2.35	0.75	0.75
43.20	97.75	48.00	2.07	99.54	2.34	0.75	0.75
43.30	104.19	51.99	1.84	95.67	2.28	0.74	0.74
43.40	119.88	61.38	1.58	97.12	2.19	0.74	0.74
43.48	132.43	68.91	1.47	100.97	2.13	0.75	0.75
43.51	139.11	72.90	1.43	103.89	2.10	0.76	0.76
43.52	146.23	77.22	1.39	107.23	2.08	0.76	0.76
43.56	160.13	85.83	1.33	114.20	2.03	0.77	0.77
43.61	178.86	97.60	1.28	124.81	1.96	0.79	0.79
43.67	193.23	106.74	1.25	133.29	1.92	0.80	0.80
43.72	206.01	115.04	1.22	140.56	1.88	0.81	0.81
43.80	216.51	121.88	1.20	145.95	1.85	0.82	0.82
43.85	224.74	127.26	1.18	149.84	1.82	0.83	0.83
43.90	231.25	131.51	1.16	152.56	1.81	0.83	0.83
43.94	236.38	134.87	1.14	154.37	1.79	0.83	0.83
43.99	239.82	137.13	1.13	155.28	1.78	0.83	0.83
44.08	241.54	138.11	1.13	155.65	1.78	0.83	0.83
44.14	241.51	137.71	1.14	156.49	1.79	0.84	0.84
44.22	240.40	136.41	1.15	157.19	1.80	0.84	0.84
44.28	238.31	134.50	1.17	157.37	1.82	0.84	0.84
44.33	235.67	132.35	1.18	156.78	1.83	0.84	0.84
44.40	232.27	129.52	1.20	155.80	1.85	0.83	0.83
44.48	231.30	128.25	1.22	155.90	1.87	0.83	0.83
44.52	228.57	125.64	1.24	155.24	1.90	0.83	0.83
44.61	230.02	126.41	1.23	155.88	1.89	0.83	0.83
44.72	231.52	127.03	1.23	156.70	1.90	0.84	0.84
44.77	236.14	130.05	1.22	159.04	1.88	0.84	0.84
44.91	237.86	130.46	1.23	160.27	1.89	0.84	0.84
44.95	231.69	126.16	1.24	156.88	1.91	0.84	0.84
45.02	227.41	123.19	1.25	154.33	1.92	0.83	0.83
45.04	198.97	104.88	1.32	138.44	2.01	0.81	0.81
45.06	203.49	107.81	1.30	140.63	2.00	0.81	0.81
45.11	208.45	111.04	1.29	143.03	1.98	0.82	0.82
45.15	239.96	131.64	1.22	160.49	1.87	0.84	0.84
45.21	246.91	136.23	1.20	163.81	1.85	0.84	0.84
45.25	252.44	139.80	1.19	166.43	1.84	0.85	0.85
45.30	256.29	142.11	1.18	168.34	1.83	0.85	0.85
45.35	258.04	143.02	1.18	169.35	1.83	0.85	0.85
45.41	258.42	143.02	1.19	169.64	1.83	0.85	0.85
45.49	257.00	141.89	1.19	168.87	1.84	0.85	0.85
45.55	254.13	139.97	1.19	167.24	1.84	0.85	0.85
45.63	249.51	136.90	1.20	164.52	1.85	0.85	0.85
45.69	243.67	133.19	1.21	161.09	1.86	0.84	0.84
45.78	236.62	128.61	1.22	156.88	1.88	0.84	0.84

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
45.84	228.05	123.25	1.23	151.68	1.89	0.83	0.83
45.93	217.69	116.85	1.24	145.18	1.91	0.82	0.82
46.02	205.11	109.16	1.26	137.24	1.93	0.81	0.81
46.08	190.40	100.37	1.28	128.00	1.96	0.80	0.80
46.16	174.41	90.73	1.30	118.20	1.99	0.78	0.78
46.24	157.13	80.39	1.35	108.31	2.04	0.76	0.76
46.31	138.07	68.91	1.44	99.54	2.12	0.75	0.75
46.41	117.36	56.54	1.67	94.32	2.22	0.74	0.74
46.48	95.77	44.06	2.17	95.41	2.36	0.74	0.74
46.56	75.72	32.98	3.08	101.49	2.51	0.75	0.75
46.65	58.08	23.81	4.47	106.39	2.68	0.76	0.76
46.75	45.43	17.64	5.95	104.92	2.81	0.76	0.76
46.84	36.62	12.08	8.01	96.75	2.95	0.74	0.74
46.94	30.75	9.96	9.25	92.20	3.03	0.42	0.71
47.02	25.79	8.18	10.96	89.65	3.12	0.36	0.58
47.08	21.37	6.60	13.29	87.68	3.22	0.33	0.47
47.12	18.76	5.66	15.23	86.24	3.30	0.32	0.40
47.16	17.85	5.33	15.88	84.67	3.33	0.30	0.38
47.21	17.81	5.32	15.49	82.35	3.31	0.28	0.38
47.27	17.46	5.18	15.33	79.44	3.31	0.26	0.37
47.35	16.42	4.80	15.97	76.72	3.33	0.23	0.34
47.40	15.74	4.56	15.95	72.71	3.33	0.22	0.33
47.50	15.37	4.42	15.62	68.97	3.32	0.17	0.32
47.55	15.16	4.34	15.04	65.28	3.29	0.16	0.31
47.61	15.00	4.27	14.89	63.67	3.29	0.14	0.31
47.69	14.73	4.17	15.00	62.57	3.29	0.14	0.30
47.76	14.39	4.05	15.25	61.71	3.30	0.13	0.29
47.83	14.02	3.91	15.40	60.22	3.31	0.13	0.28
47.93	13.85	3.84	15.20	58.40	3.30	0.11	0.27
48.02	13.82	3.82	15.00	57.34	3.29	0.10	0.27
48.09	13.88	3.84	14.67	56.35	3.28	0.11	0.27
48.18	13.85	3.82	14.94	57.05	3.29	0.10	0.27
48.27	13.88	3.82	15.29	58.44	3.30	0.12	0.27
48.37	13.98	3.85	15.87	61.09	3.33	0.13	0.27
48.46	14.12	3.89	16.20	62.98	3.34	0.14	0.28
48.52	14.18	3.90	16.46	64.25	3.35	0.15	0.28
48.60	14.25	3.92	16.64	65.23	3.35	0.16	0.28
48.70	14.38	3.96	16.68	65.99	3.35	0.16	0.28
48.79	14.65	4.04	16.50	66.70	3.35	0.16	0.29
48.85	15.06	4.18	16.39	68.42	3.34	0.17	0.30
48.94	15.74	4.40	16.24	71.44	3.34	0.20	0.31
49.04	16.68	4.71	15.57	73.34	3.31	0.23	0.34
49.13	18.30	5.25	15.62	82.09	3.32	0.22	0.38
49.23	21.13	6.21	14.82	92.00	3.29	0.41	0.44
49.33	24.04	7.18	14.31	102.80	3.27	0.51	0.51
49.38	24.88	7.46	14.69	109.60	3.28	0.57	0.53
49.42	25.93	7.81	14.70	114.80	3.28	0.64	0.56
49.48	26.70	8.06	14.75	118.93	3.28	0.70	0.58

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
49.53	28.79	8.76	13.86	121.43	3.25	0.73	0.63
49.58	29.43	8.97	13.78	123.62	3.24	0.76	0.64
49.63	30.10	9.19	13.66	125.52	3.24	0.79	0.66
49.72	30.91	9.44	13.37	126.23	3.23	0.81	0.67
49.77	31.42	9.60	13.13	125.98	3.22	0.80	0.69
49.83	31.42	9.59	13.08	125.40	3.22	0.79	0.68
49.92	30.71	9.33	13.37	124.67	3.23	0.79	0.67
49.97	30.39	9.21	13.41	123.55	3.23	0.76	0.66
50.04	29.48	8.89	13.80	122.65	3.25	0.74	0.64
50.11	29.82	8.99	13.61	122.33	3.24	0.74	0.64
50.20	30.21	9.10	13.25	120.55	3.22	0.76	0.65
50.27	30.78	9.28	12.51	116.01	3.19	0.68	0.66
50.34	29.50	8.83	12.20	107.79	3.18	0.58	0.63
50.45	26.76	7.90	12.55	99.22	3.19	0.45	0.56
50.54	23.73	6.88	13.43	92.39	3.23	0.38	0.49
50.59	21.13	6.01	14.59	87.71	3.28	0.35	0.43
50.68	19.24	5.37	15.59	83.78	3.32	0.30	0.38
50.79	18.13	4.99	16.06	80.17	3.33	0.26	0.36
50.88	17.81	4.88	16.03	78.18	3.33	0.25	0.35
50.98	17.64	4.81	16.19	77.89	3.34	0.25	0.34
51.07	17.81	4.86	15.67	76.09	3.32	0.25	0.35
51.17	18.43	5.05	14.19	71.67	3.26	0.21	0.36
51.24	19.51	5.40	12.74	68.77	3.20	0.16	0.39
51.33	20.19	5.61	12.56	70.43	3.19	0.20	0.40
51.46	20.09	5.56	13.45	74.75	3.23	0.25	0.40
51.46	19.80	5.46	14.31	78.20	3.27	0.25	0.39
51.51	19.77	5.45	14.62	79.60	3.28	0.28	0.39
51.56	19.87	5.47	14.98	82.02	3.29	0.28	0.39
51.65	19.95	5.49	15.35	84.26	3.31	0.31	0.39
51.71	20.09	5.53	15.72	86.89	3.32	0.33	0.39
51.79	20.49	5.65	15.73	88.80	3.32	0.35	0.40
51.85	21.23	5.88	15.68	92.19	3.32	0.37	0.42
51.94	22.11	6.15	15.66	96.33	3.32	0.43	0.44
51.99	23.22	6.51	15.77	102.62	3.32	0.48	0.46
52.09	24.17	6.80	16.12	109.52	3.33	0.57	0.49
52.19	27.74	7.93	14.73	116.81	3.28	0.67	0.57
52.28	33.34	9.72	12.62	122.63	3.20	0.78	0.69
52.35	36.42	10.69	12.02	128.41	3.17	0.87	0.76
52.43	37.06	10.87	12.22	132.82	3.18	0.95	0.78
52.52	35.17	10.25	13.30	136.28	3.22	0.97	0.73
52.62	35.61	10.37	13.11	135.93	3.22	0.98	0.74
52.72	35.98	10.46	12.80	133.92	3.20	0.94	0.75
52.81	34.26	9.89	13.70	135.53	3.24	0.89	0.71
52.91	31.32	8.94	16.37	146.31	3.34	1.03	0.64
53.00	37.23	10.79	14.34	154.70	3.27	1.38	0.77
53.10	62.36	18.71	7.92	148.13	2.95	0.82	0.82
53.20	108.21	33.14	3.92	129.79	2.62	0.80	0.80
53.29	163.78	50.57	2.27	114.61	2.38	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.38	213.88	66.21	1.72	114.09	2.24	0.77	0.77
53.46	260.07	80.59	1.49	119.81	2.14	0.78	0.78
53.53	292.05	90.48	1.45	130.93	2.12	0.80	0.80
53.63	323.19	100.02	1.40	139.93	2.09	0.81	0.81
53.73	361.79	111.85	1.31	146.92	2.01	0.82	0.82
53.82	388.35	119.89	1.25	150.03	1.92	0.83	0.83
53.92	387.71	119.45	1.23	146.54	1.89	0.82	0.82
53.94	360.18	110.85	1.25	138.23	1.92	0.81	0.81
53.96	336.26	103.38	1.27	131.20	1.95	0.80	0.80
53.97	349.08	107.34	1.25	134.16	1.92	0.80	0.80
54.05	377.59	116.04	1.22	141.00	1.87	0.81	0.81
54.08	426.28	131.09	1.15	150.15	1.79	0.83	0.83
54.13	473.21	145.55	1.06	154.41	1.74	0.83	0.83
54.19	518.79	159.56	1.00	159.56	1.70	0.84	0.84
54.25	524.22	161.12	1.01	162.94	1.71	0.84	0.84
54.28	510.87	156.95	1.06	166.66	1.74	0.85	0.85
54.29	486.82	149.48	1.10	164.40	1.76	0.85	0.85
54.34	486.89	149.42	1.10	164.35	1.76	0.85	0.85
54.35	492.20	151.05	1.09	164.72	1.75	0.85	0.85
54.40	504.89	154.89	1.07	165.62	1.74	0.85	0.85
54.44	522.30	160.18	1.04	166.45	1.72	0.85	0.85
54.49	535.62	164.19	1.01	165.88	1.71	0.85	0.85
54.53	546.25	167.39	1.00	167.39	1.70	0.85	0.85
54.57	558.27	171.02	1.00	171.02	1.69	0.85	0.85
54.58	567.78	173.92	1.00	173.92	1.70	0.86	0.86
54.63	560.90	171.71	1.01	173.90	1.71	0.86	0.86
54.68	536.31	164.04	1.08	176.93	1.75	0.86	0.86
54.73	510.50	156.00	1.12	175.12	1.78	0.86	0.86
54.78	499.67	152.59	1.14	173.29	1.79	0.86	0.86
54.83	493.63	150.64	1.15	172.82	1.80	0.86	0.86
54.88	497.14	151.64	1.15	175.08	1.80	0.86	0.86
54.92	500.68	152.65	1.17	178.37	1.81	0.86	0.86
54.97	510.81	155.66	1.16	180.73	1.81	0.87	0.87
55.02	513.44	156.38	1.16	181.62	1.81	0.87	0.87
55.12	487.90	148.39	1.20	178.01	1.85	0.86	0.86
55.17	449.17	136.44	1.25	170.63	1.92	0.85	0.85
55.25	410.54	124.51	1.29	160.49	1.98	0.84	0.84
55.31	394.21	119.43	1.29	154.46	1.98	0.83	0.83
55.36	388.18	117.52	1.27	148.87	1.95	0.83	0.83
55.45	381.09	115.23	1.25	143.68	1.91	0.82	0.82
55.50	365.91	110.54	1.25	137.89	1.92	0.81	0.81
55.60	351.24	105.95	1.26	133.93	1.94	0.80	0.80
55.65	332.24	100.11	1.28	128.15	1.96	0.80	0.80
55.71	324.14	97.58	1.27	124.39	1.96	0.79	0.79
55.75	320.40	96.40	1.26	121.19	1.93	0.78	0.78
55.79	325.12	97.79	1.25	121.90	1.91	0.79	0.79
55.84	332.47	99.97	1.24	123.76	1.90	0.79	0.79
55.89	338.01	101.60	1.23	125.39	1.90	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.90	341.15	102.54	1.23	126.17	1.89	0.79	0.79
55.94	336.26	101.02	1.24	124.98	1.90	0.79	0.79
55.99	327.63	98.34	1.25	122.89	1.92	0.79	0.79
56.03	317.88	95.34	1.26	120.41	1.94	0.78	0.78
56.08	311.67	93.40	1.27	118.54	1.95	0.78	0.78
56.14	306.37	91.74	1.27	116.74	1.95	0.78	0.78
56.22	299.89	89.70	1.28	114.65	1.96	0.77	0.77
56.28	294.29	87.95	1.28	112.90	1.97	0.77	0.77
56.33	292.57	87.39	1.29	112.38	1.97	0.77	0.77
56.38	294.06	87.79	1.28	112.46	1.97	0.77	0.77
56.45	301.34	89.92	1.27	114.23	1.95	0.77	0.77
56.52	312.58	93.24	1.25	117.01	1.93	0.78	0.78
56.62	325.19	96.94	1.24	120.21	1.90	0.78	0.78
56.66	338.42	100.88	1.22	123.02	1.87	0.79	0.79
56.73	350.06	104.30	1.21	126.65	1.87	0.79	0.79
56.81	357.11	106.33	1.22	129.59	1.87	0.80	0.80
56.95	363.42	108.06	1.23	132.64	1.89	0.80	0.80
57.00	372.46	110.72	1.23	135.80	1.88	0.81	0.81
57.09	373.11	110.80	1.23	136.52	1.89	0.81	0.81
57.19	368.58	109.32	1.24	135.85	1.91	0.81	0.81
57.27	354.04	104.88	1.25	131.44	1.92	0.80	0.80
57.35	357.65	105.87	1.23	130.16	1.89	0.80	0.80
57.44	356.17	105.33	1.21	127.36	1.86	0.79	0.79
57.50	364.37	107.70	1.18	127.07	1.83	0.79	0.79
57.52	378.10	111.77	1.18	131.85	1.83	0.80	0.80
57.58	409.37	121.03	1.17	141.73	1.82	0.82	0.82
57.63	432.08	127.73	1.17	149.17	1.81	0.83	0.83
57.72	439.00	129.66	1.17	151.31	1.81	0.83	0.83
57.77	433.73	128.03	1.16	148.26	1.80	0.82	0.82
57.82	429.55	126.71	1.13	143.29	1.78	0.82	0.82
57.91	436.73	128.72	1.06	137.09	1.74	0.81	0.81
57.96	442.84	130.46	1.00	130.46	1.69	0.80	0.80
58.02	458.90	135.16	1.00	135.16	1.66	0.81	0.81
58.09	469.26	138.12	1.00	138.12	1.65	0.81	0.81
58.16	484.88	142.65	1.00	142.65	1.63	0.82	0.82
58.25	491.12	144.36	1.00	144.36	1.64	0.82	0.82
58.30	487.65	143.26	1.00	143.26	1.66	0.82	0.82
58.40	479.62	140.74	1.00	140.74	1.69	0.81	0.81
58.50	468.52	137.31	1.02	139.77	1.71	0.81	0.81
58.56	467.50	136.92	1.01	138.70	1.71	0.81	0.81
58.64	464.81	136.01	1.03	140.28	1.72	0.81	0.81
58.73	474.79	138.81	1.05	145.16	1.73	0.82	0.82
58.78	488.15	142.67	1.02	145.87	1.72	0.82	0.82
58.88	506.71	147.98	1.00	147.98	1.69	0.82	0.82
58.97	511.03	149.10	1.00	149.10	1.66	0.83	0.83
59.07	506.24	147.53	1.00	147.53	1.66	0.82	0.82
59.13	493.59	143.73	1.00	143.73	1.65	0.82	0.82
59.23	484.71	140.99	1.00	140.99	1.65	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.31	464.47	134.94	1.00	134.94	1.65	0.81	0.81
59.38	450.35	130.71	1.00	130.71	1.65	0.80	0.80
59.41	439.19	127.40	1.00	127.40	1.66	0.79	0.79
59.46	443.57	128.62	1.00	128.62	1.65	0.80	0.80
59.51	443.56	128.55	1.00	128.55	1.65	0.80	0.80
59.57	451.89	130.91	1.00	130.91	1.67	0.80	0.80
59.66	471.05	136.37	1.00	136.37	1.67	0.81	0.81
59.75	492.31	142.44	1.00	142.44	1.70	0.82	0.82
59.80	506.48	146.48	1.01	147.84	1.71	0.82	0.82
59.85	508.64	147.04	1.07	156.99	1.74	0.84	0.84
59.91	504.22	145.65	1.08	158.02	1.75	0.84	0.84
59.99	498.85	143.96	1.11	159.53	1.77	0.84	0.84
60.05	480.97	138.68	1.17	161.59	1.81	0.84	0.84
60.09	464.78	133.92	1.20	160.52	1.85	0.84	0.84
60.14	444.43	127.94	1.22	156.08	1.88	0.84	0.84
60.19	437.86	125.96	1.22	153.23	1.87	0.83	0.83
60.22	434.25	124.88	1.21	151.55	1.87	0.83	0.83
60.28	412.99	118.63	1.23	145.94	1.89	0.82	0.82
60.33	381.24	109.36	1.26	137.48	1.93	0.81	0.81
60.38	338.97	97.07	1.31	126.83	2.00	0.79	0.79
60.42	309.75	88.57	1.35	119.65	2.05	0.78	0.78
60.48	282.02	80.50	1.38	111.02	2.07	0.77	0.77
60.57	262.48	74.78	1.36	101.50	2.05	0.75	0.75
60.66	243.89	69.35	1.32	91.67	2.02	0.73	0.73
60.68	232.16	65.95	1.30	85.85	1.99	0.72	0.72
60.69	225.51	64.02	1.29	82.84	1.98	0.71	0.71
60.74	217.75	61.75	1.30	80.07	1.99	0.59	0.71
60.79	206.27	58.41	1.30	76.18	2.00	0.42	0.70
60.84	192.16	54.32	1.32	71.82	2.02	0.30	0.69
60.89	182.35	51.47	1.33	68.64	2.03	0.23	0.68
60.98	174.35	49.12	1.36	66.57	2.05	0.19	0.67
61.03	168.07	47.30	1.46	69.19	2.13	0.24	0.68
61.08	164.86	46.35	1.72	79.69	2.24	0.57	0.71
61.18	164.63	46.24	1.95	90.12	2.31	0.73	0.73
61.23	168.20	47.23	2.12	100.04	2.35	0.75	0.75
61.31	194.08	54.62	1.72	94.03	2.24	0.74	0.74
61.42	236.42	66.70	1.41	94.11	2.09	0.74	0.74
61.47	287.17	81.21	1.24	100.64	1.90	0.75	0.75
61.51	331.30	93.81	1.14	107.25	1.79	0.76	0.76
61.54	366.14	103.76	1.05	108.54	1.73	0.76	0.76
61.57	395.83	112.23	1.00	112.23	1.70	0.77	0.77
61.58	418.64	118.74	1.00	118.74	1.67	0.78	0.78
61.61	393.43	111.49	1.00	111.49	1.70	0.77	0.77
61.63	367.65	104.10	1.03	107.07	1.72	0.76	0.76
61.63	257.89	72.70	1.26	91.77	1.94	0.73	0.73
61.66	191.36	53.66	1.48	79.27	2.14	0.55	0.71
61.67	129.55	35.97	2.37	85.35	2.40	0.72	0.72
61.70	152.96	42.66	1.96	83.80	2.31	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
61.71	180.90	50.64	1.67	84.55	2.22	0.72	0.72
61.76	206.41	57.90	1.51	87.45	2.15	0.72	0.72
61.80	228.84	64.28	1.42	91.10	2.10	0.73	0.73
61.84	250.40	70.41	1.34	94.04	2.03	0.74	0.74
61.86	279.75	78.77	1.26	98.87	1.93	0.75	0.75
61.93	312.34	88.02	1.18	103.69	1.82	0.75	0.75
61.98	357.76	100.92	1.00	100.92	1.73	0.75	0.75
62.04	405.56	114.48	1.00	114.48	1.68	0.77	0.77
62.09	451.78	127.59	1.00	127.59	1.64	0.79	0.79
62.14	481.91	136.10	1.00	136.10	1.62	0.81	0.81
62.19	499.12	140.93	1.00	140.93	1.60	0.81	0.81
62.24	508.93	143.65	1.00	143.65	1.59	0.82	0.82
62.26	519.32	146.58	1.00	146.58	1.58	0.82	0.82
62.29	519.05	146.46	1.00	146.46	1.58	0.82	0.82
62.38	515.71	145.37	1.00	145.37	1.60	0.82	0.82
62.44	490.28	138.07	1.00	138.07	1.65	0.81	0.81
62.46	469.07	132.02	1.00	132.02	1.69	0.80	0.80
62.47	448.15	126.07	1.00	126.07	1.70	0.79	0.79
62.51	453.68	127.59	1.00	127.59	1.69	0.79	0.79
62.56	463.98	130.45	1.00	130.45	1.69	0.80	0.80
62.60	477.62	134.26	1.00	134.26	1.68	0.80	0.80
62.65	481.73	135.35	1.00	135.35	1.68	0.81	0.81
62.70	482.34	135.46	1.00	135.46	1.66	0.81	0.81
62.75	483.05	135.59	1.00	135.59	1.65	0.81	0.81
62.80	494.83	138.85	1.00	138.85	1.64	0.81	0.81
62.85	525.29	147.40	1.00	147.40	1.60	0.82	0.82
62.89	569.18	159.73	1.00	159.73	1.56	0.84	0.84
62.97	619.66	173.86	1.00	173.86	1.54	0.86	0.86
63.04	667.84	187.32	1.00	187.32	1.52	0.87	0.87
63.09	703.12	197.18	1.00	197.18	1.50	0.88	0.88
63.13	715.51	200.57	1.00	200.57	1.51	0.89	0.89
63.19	716.52	200.74	1.00	200.74	1.54	0.89	0.89
63.23	720.23	201.69	1.00	201.69	1.57	0.89	0.89
63.28	726.78	203.42	1.00	203.42	1.59	0.89	0.89
63.32	729.18	204.02	1.00	204.02	1.57	0.89	0.89
63.38	725.67	202.89	1.00	202.89	1.49	0.89	0.89
63.44	726.68	203.06	1.00	203.06	1.43	0.89	0.89
63.52	715.48	199.75	1.00	199.75	1.43	0.89	0.89
63.57	697.37	194.57	1.00	194.57	1.49	0.88	0.88
63.66	659.58	183.79	1.00	183.79	1.52	0.87	0.87
63.73	534.95	148.76	1.00	148.76	1.63	0.83	0.83
63.76	455.61	126.50	1.03	130.54	1.72	0.80	0.80
63.76	411.85	114.24	1.12	127.66	1.77	0.79	0.79
63.78	471.87	131.02	1.00	131.02	1.70	0.80	0.80
63.81	512.86	142.46	1.00	142.46	1.67	0.82	0.82
63.85	526.43	146.19	1.00	146.19	1.68	0.82	0.82
63.86	522.58	145.10	1.00	145.10	1.70	0.82	0.82
63.91	497.92	138.14	1.07	148.35	1.74	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.94	483.78	134.14	1.12	150.35	1.77	0.83	0.83
63.95	480.34	133.15	1.14	151.38	1.79	0.83	0.83
64.00	476.26	131.94	1.14	150.67	1.79	0.83	0.83
64.02	473.22	131.08	1.14	149.37	1.79	0.83	0.83
64.05	475.78	131.75	1.12	148.02	1.78	0.82	0.82
64.09	478.18	132.36	1.11	146.64	1.77	0.82	0.82
64.11	480.07	132.86	1.09	144.77	1.75	0.82	0.82
64.15	482.26	133.43	1.07	142.44	1.74	0.82	0.82
64.20	494.31	136.71	1.03	141.24	1.72	0.81	0.81
64.25	512.59	141.74	1.00	141.74	1.70	0.82	0.82
64.29	535.70	148.11	1.00	148.11	1.68	0.82	0.82
64.34	570.38	157.68	1.00	157.68	1.64	0.84	0.84
64.43	605.81	167.40	1.00	167.40	1.60	0.85	0.85
64.48	630.95	174.30	1.00	174.30	1.56	0.86	0.86
64.53	642.69	177.47	1.00	177.47	1.53	0.86	0.86
64.58	655.07	180.82	1.00	180.82	1.52	0.87	0.87
64.63	680.65	187.83	1.00	187.83	1.51	0.87	0.87
64.68	709.63	195.77	1.00	195.77	1.52	0.88	0.88
64.73	718.74	198.20	1.00	198.20	1.53	0.88	0.88
64.77	735.60	202.79	1.00	202.79	1.51	0.89	0.89
64.82	751.19	207.01	1.00	207.01	1.48	0.89	0.89
64.87	732.64	201.76	1.00	201.76	1.49	0.89	0.89
64.89	713.98	196.56	1.00	196.56	1.50	0.88	0.88
64.93	689.59	189.73	1.00	189.73	1.53	0.88	0.88
64.94	715.81	196.96	1.00	196.96	1.51	0.88	0.88
64.98	725.69	199.62	1.00	199.62	1.50	0.89	0.89
64.99	734.03	201.90	1.00	201.90	1.50	0.89	0.89
65.03	732.37	201.35	1.00	201.35	1.50	0.89	0.89
65.08	727.04	199.79	1.00	199.79	1.49	0.89	0.89
65.13	715.51	196.50	1.00	196.50	1.48	0.88	0.88
65.17	703.60	193.13	1.00	193.13	1.46	0.88	0.88
65.22	689.29	189.08	1.00	189.08	1.45	0.87	0.87
65.23	681.55	186.93	1.00	186.93	1.45	0.87	0.87
65.28	679.28	186.22	1.00	186.22	1.46	0.87	0.87
65.32	679.65	186.24	1.00	186.24	1.47	0.87	0.87
65.37	680.17	186.30	1.00	186.30	1.49	0.87	0.87
65.42	684.61	187.42	1.00	187.42	1.50	0.87	0.87
65.47	671.65	183.76	1.00	183.76	1.50	0.87	0.87
65.48	657.21	179.77	1.00	179.77	1.52	0.86	0.86
65.49	638.86	174.70	1.00	174.70	1.52	0.86	0.86
65.52	636.56	174.01	1.00	174.01	1.52	0.86	0.86
65.57	645.67	176.43	1.00	176.43	1.41	0.86	0.86
65.62	661.16	180.61	1.00	180.61	1.28	0.87	0.87
65.67	682.44	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.69	697.23	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.72	719.02	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.77	752.26	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.82	790.78	-1.00	1.00	-1.00	-1.00	0.00	0.00

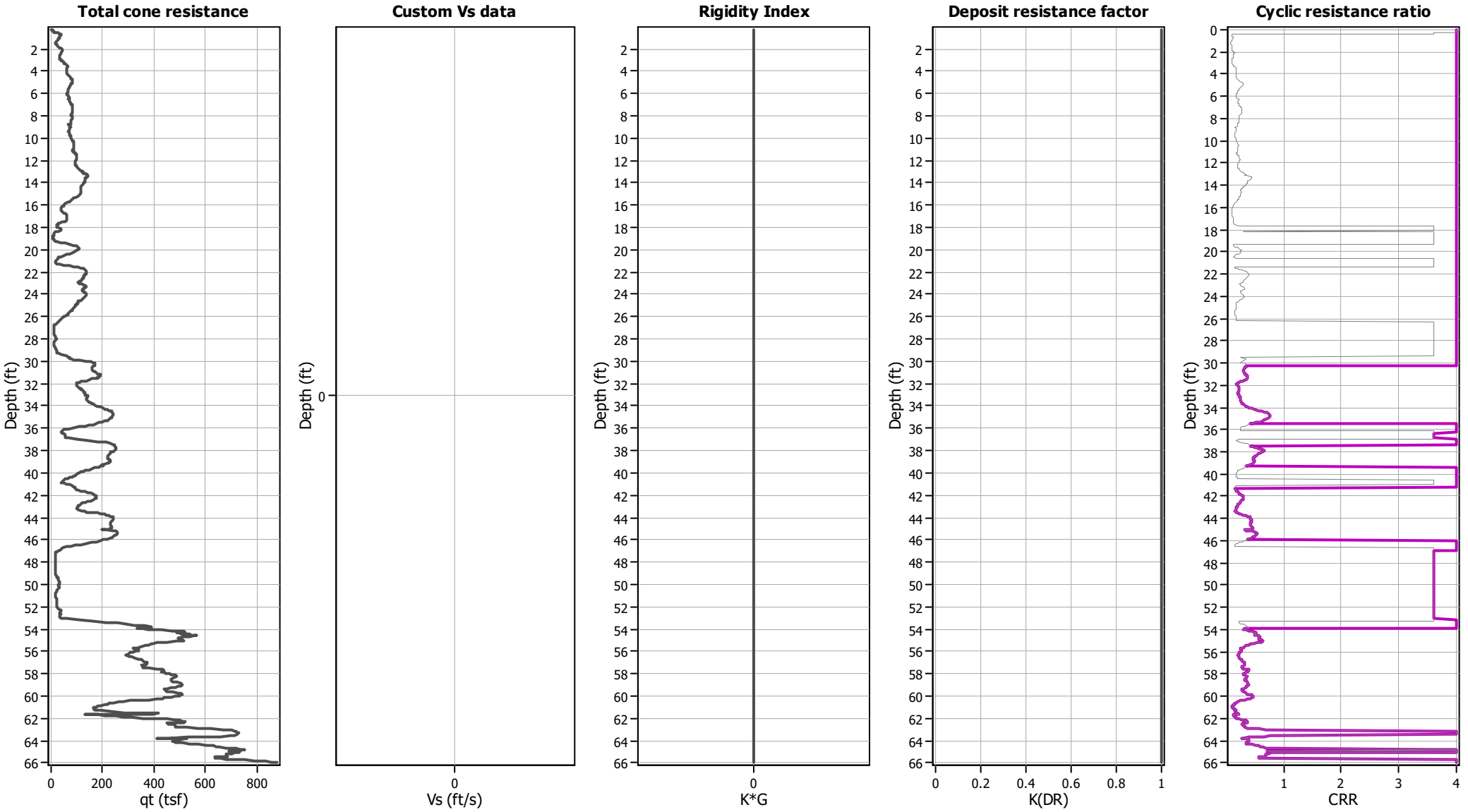
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
65.86	811.97	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.86	833.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.91	854.04	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.96	878.41	-1.00	1.00	-1.00	-1.00	0.00	0.00

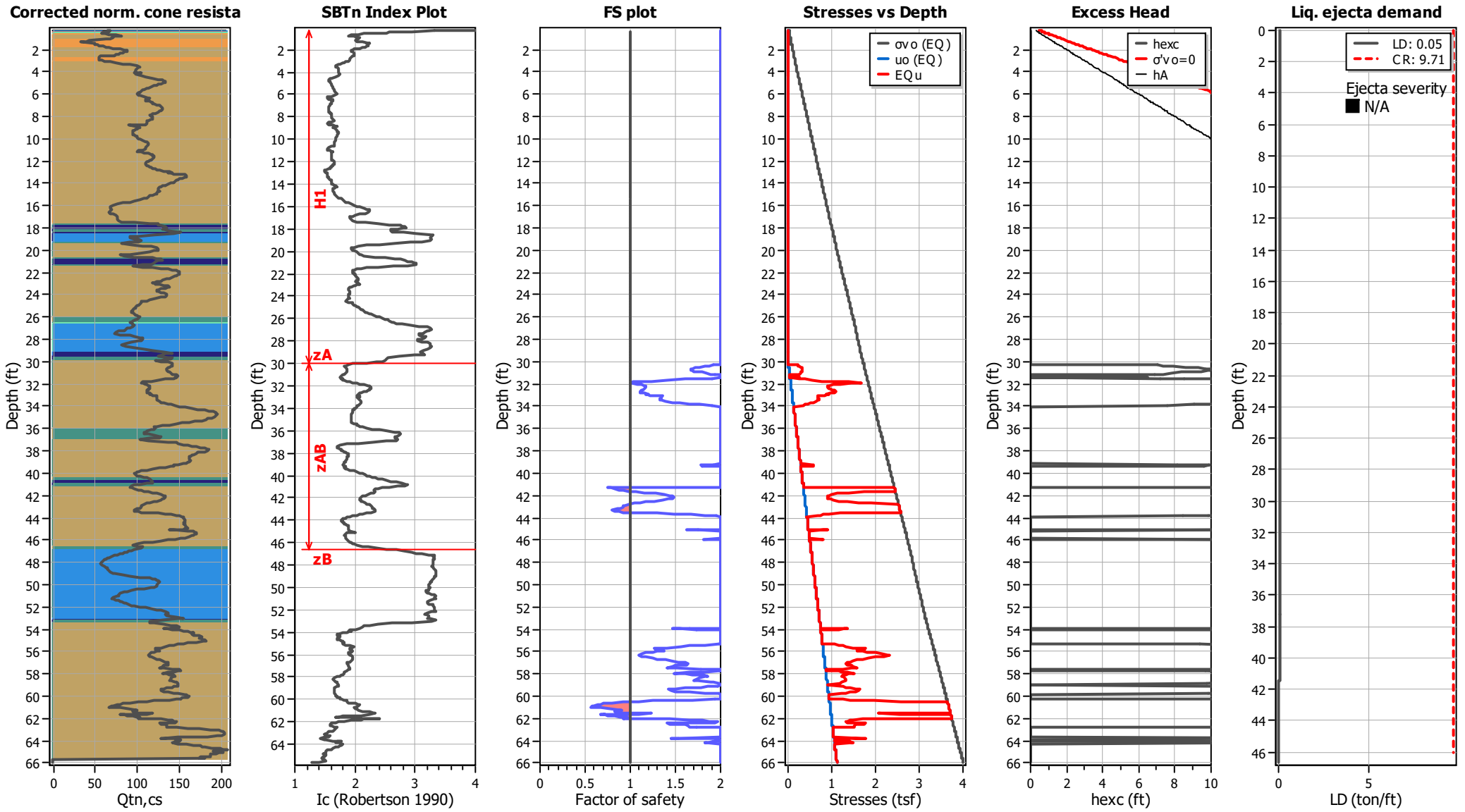
Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Aging Calculation Estimation



Ejecta Severity Estimation



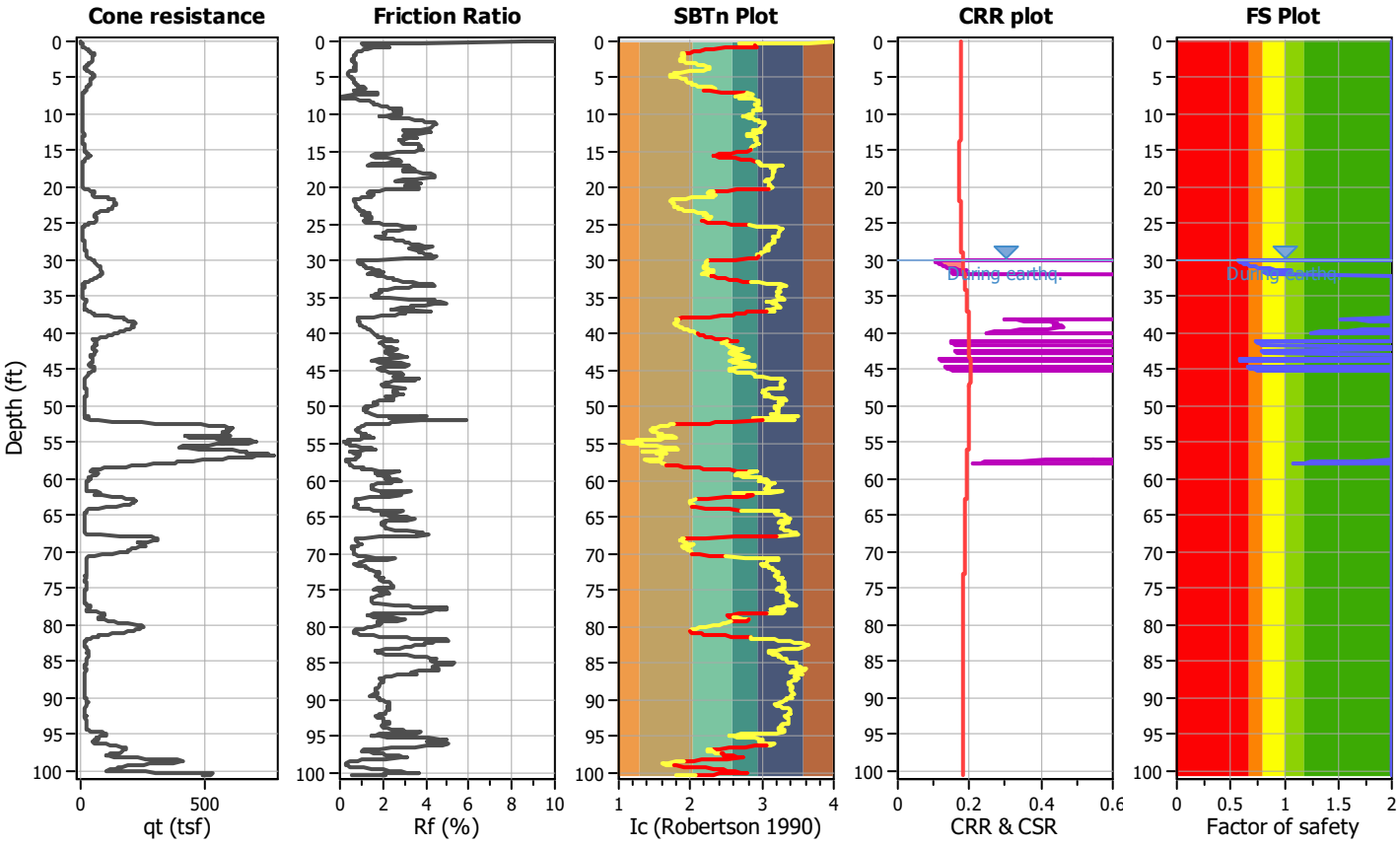
LIQUEFACTION ANALYSIS REPORT

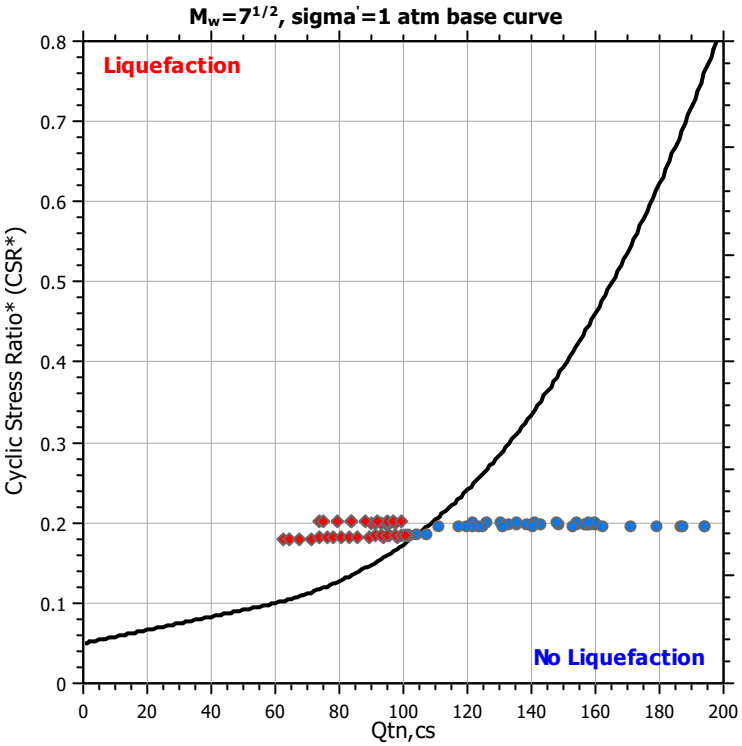
Project title : W1857-88-01 **Location : 331 The City Drive S**

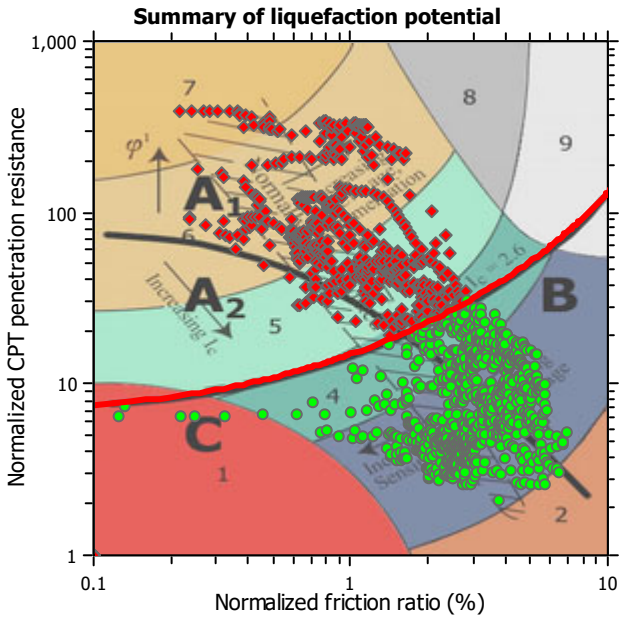
CPT file : CPT-3

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	62.00 ft
Earthquake magnitude M_w:	6.12	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

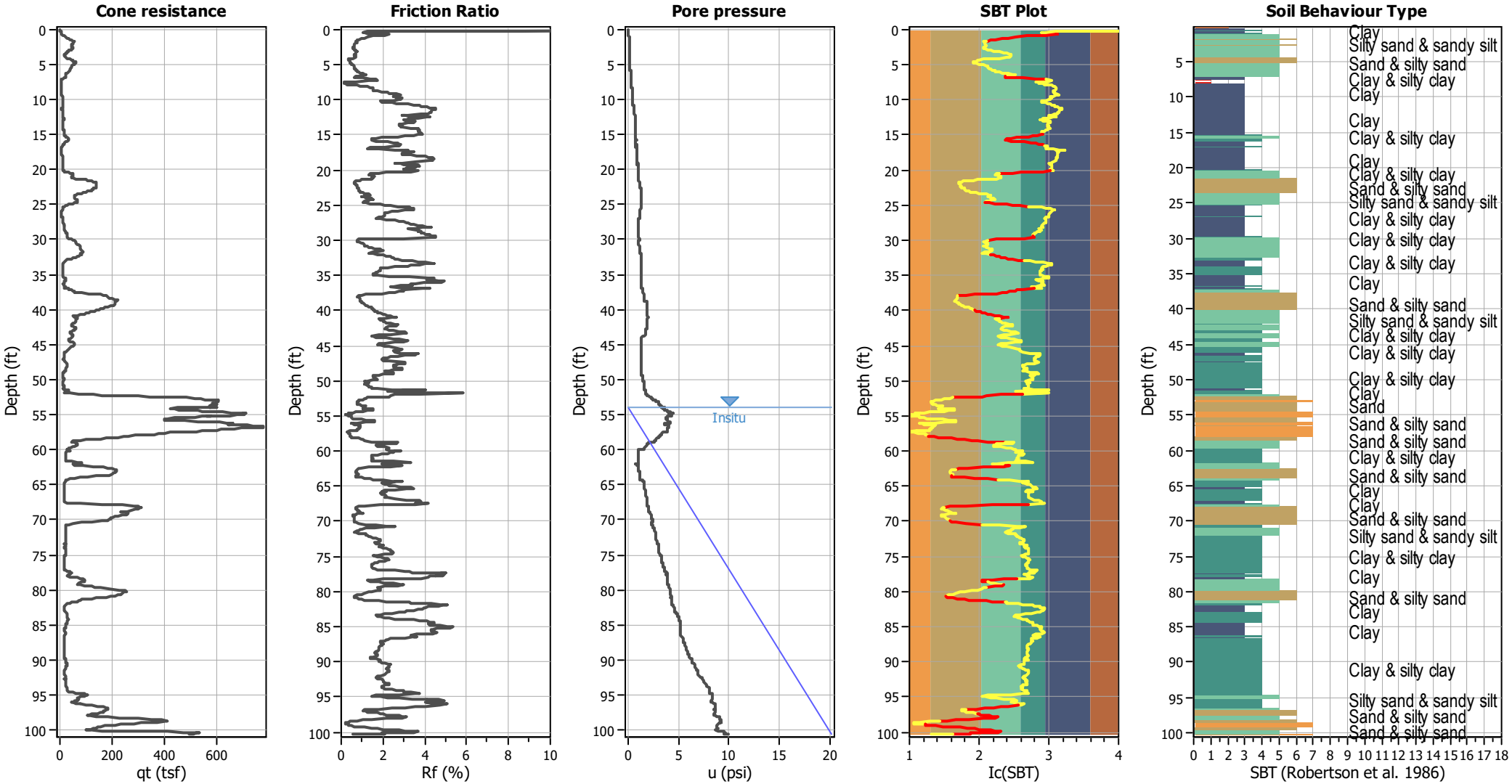






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



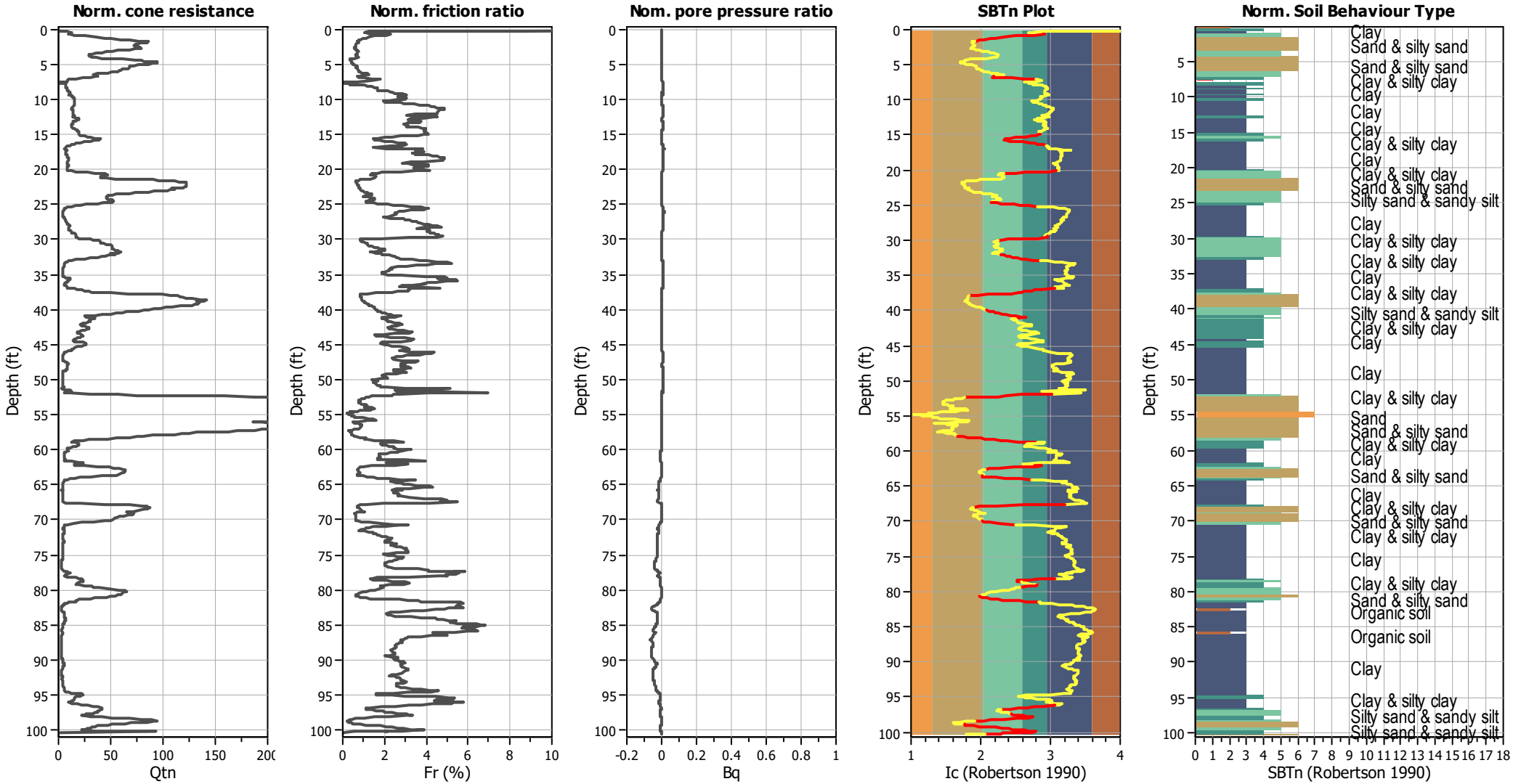
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



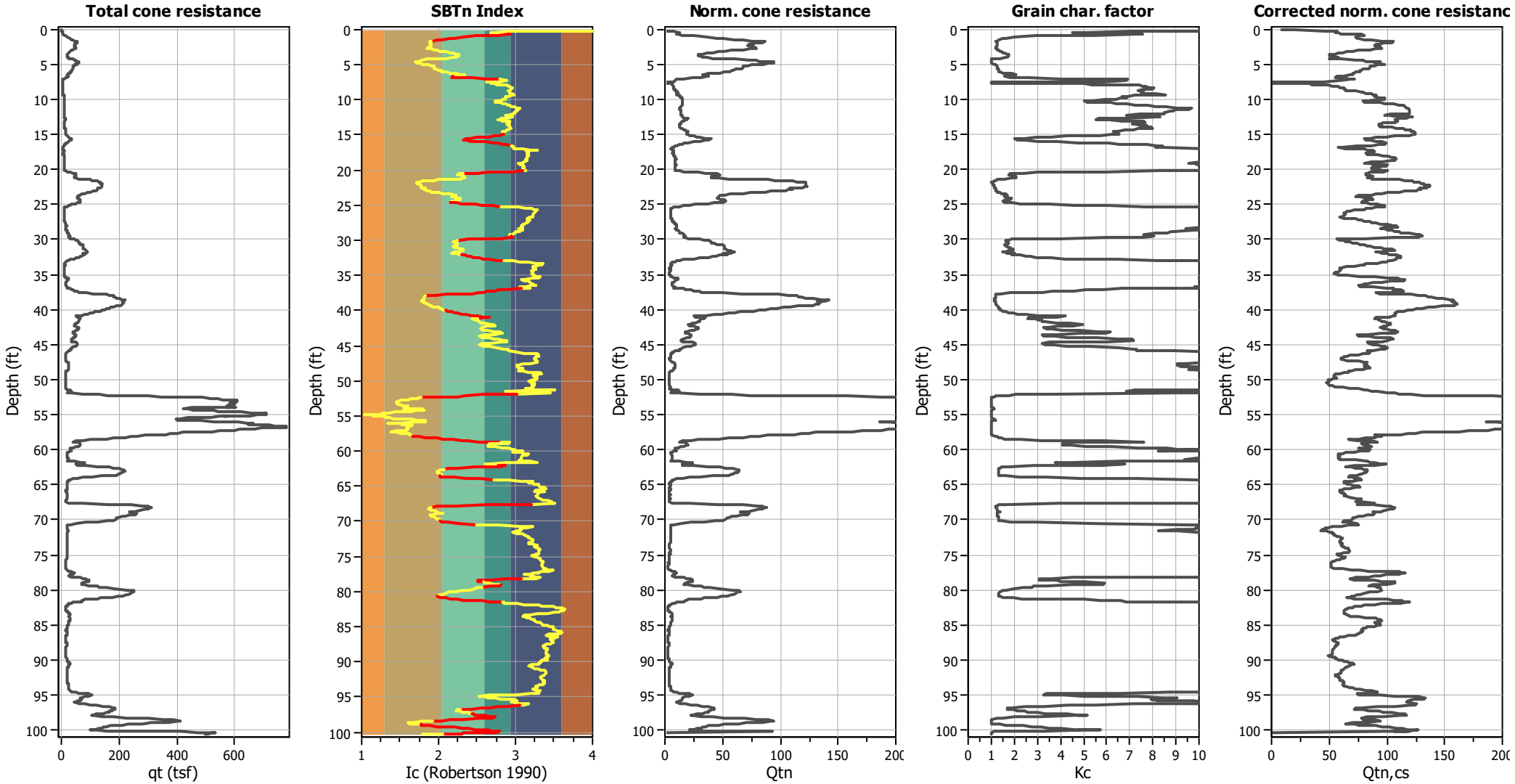
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

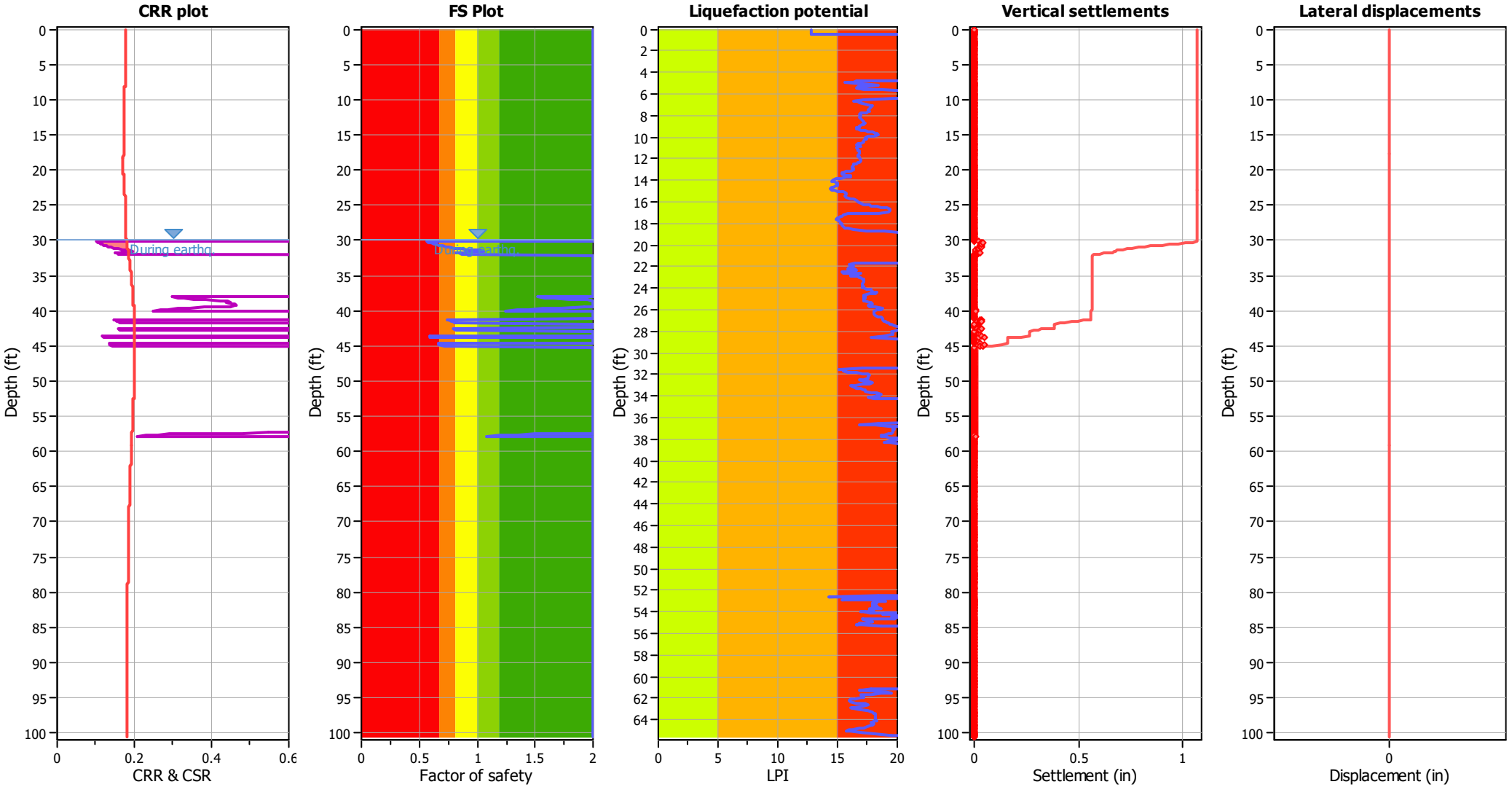
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

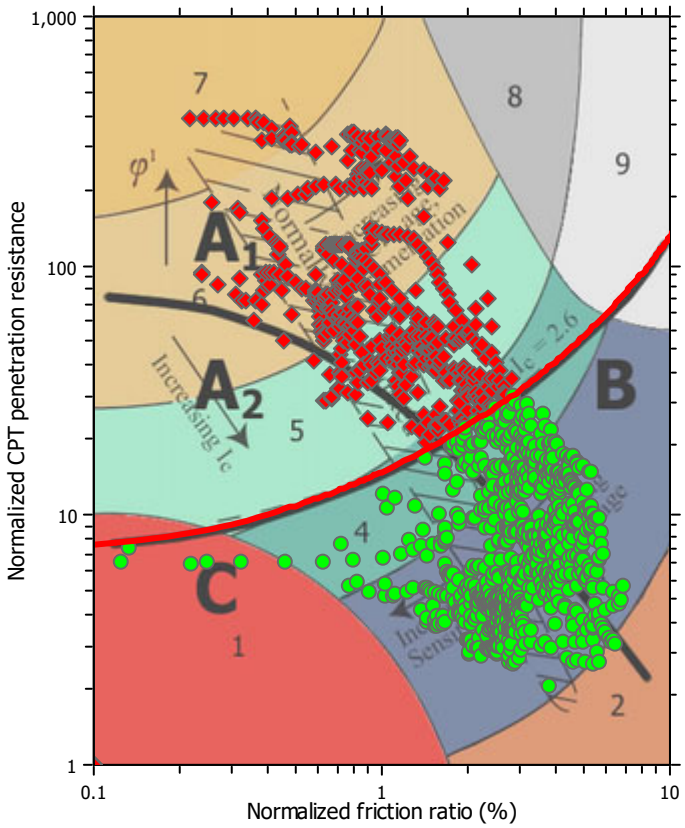
F.S. color scheme

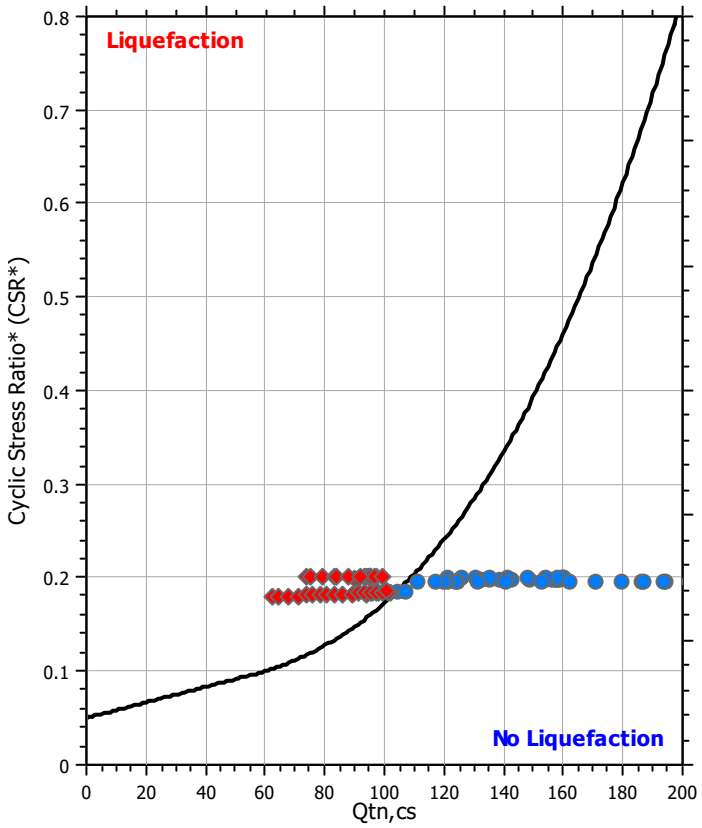
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

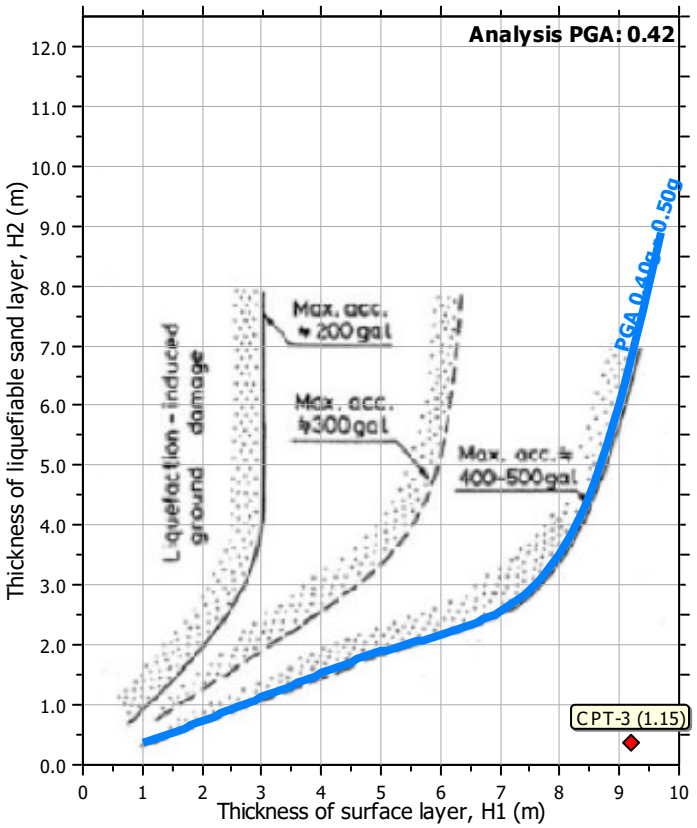
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



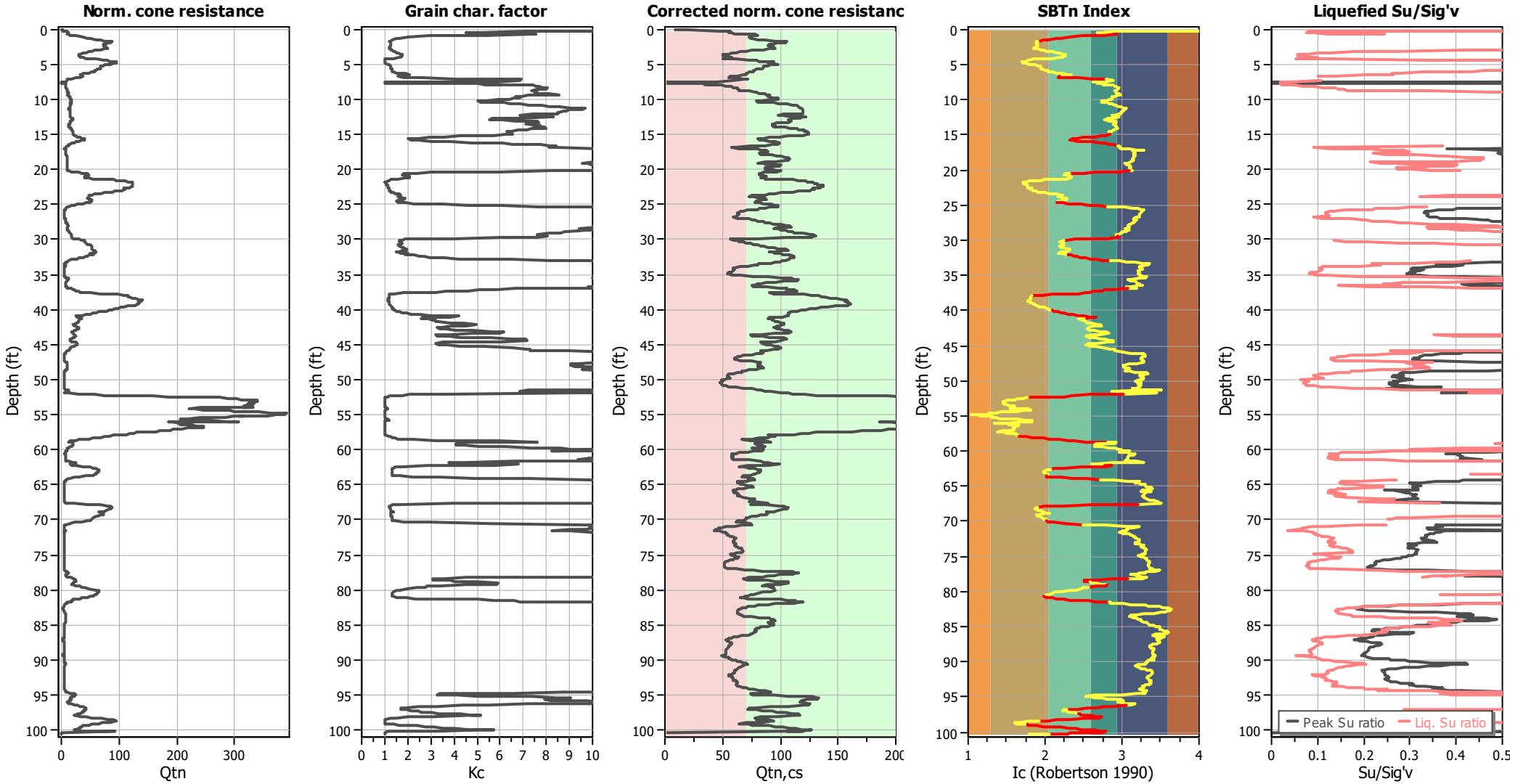




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

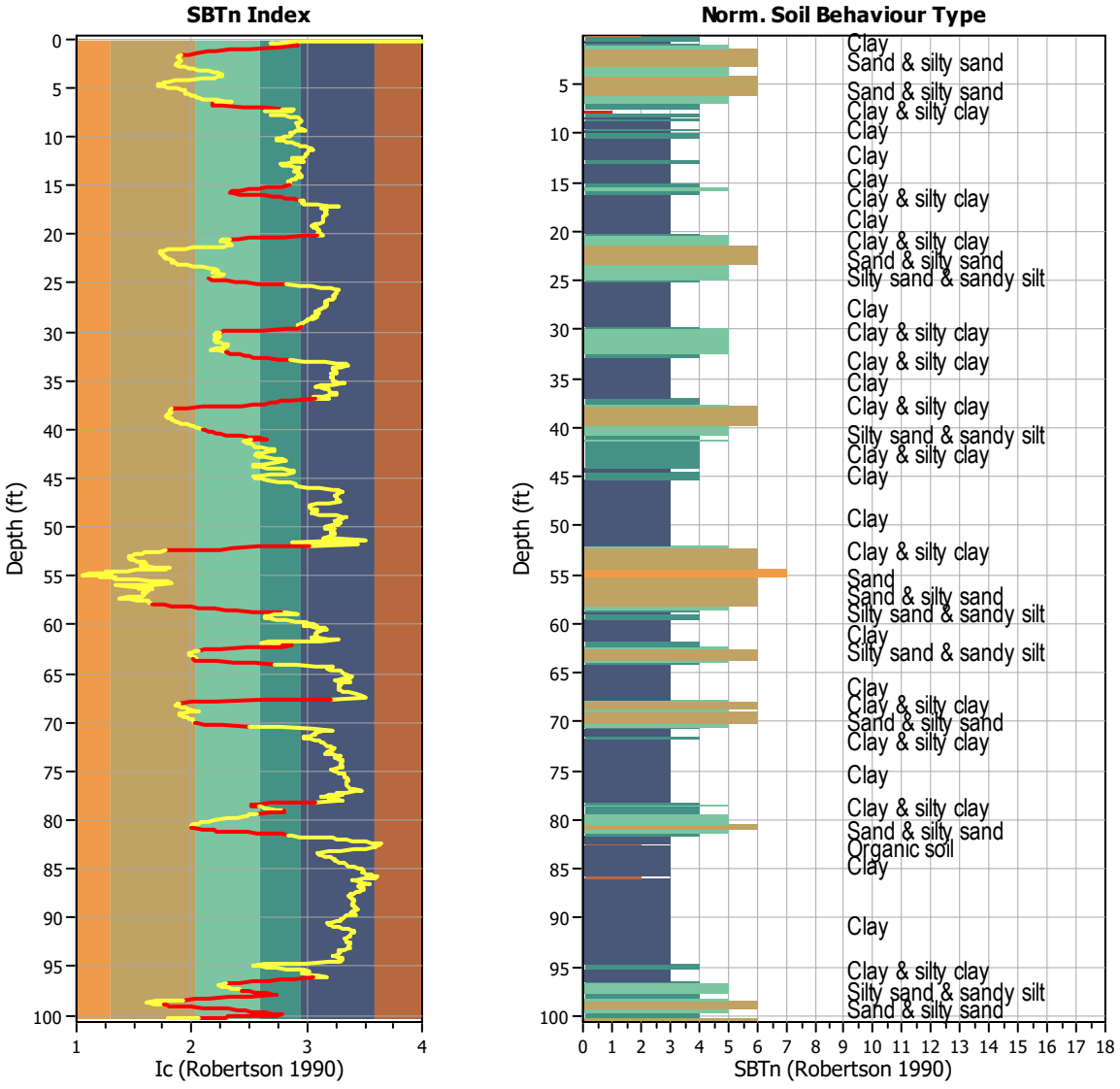
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between 1.80 < I_c < 3.0) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0250
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1376
Total points excluded:	224
Exclusion percentage:	16.28%
Number of layers detected:	26

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	12	Start depth: 0.72 (ft)	3	Clay
		End depth: 1.74 (ft)	6	Sand & silty sand
Transition layer 2	6	Start depth: 6.76 (ft)	5	Silty sand & sandy silt
		End depth: 7.19 (ft)	4	Clay & silty clay
Transition layer 3	9	Start depth: 14.99 (ft)	3	Clay
		End depth: 15.67 (ft)	5	Silty sand & sandy silt
Transition layer 4	11	Start depth: 15.76 (ft)	5	Silty sand & sandy silt
		End depth: 16.58 (ft)	3	Clay
Transition layer 5	7	Start depth: 20.21 (ft)	3	Clay
		End depth: 20.60 (ft)	5	Silty sand & sandy silt
Transition layer 6	9	Start depth: 24.64 (ft)	5	Silty sand & sandy silt
		End depth: 25.27 (ft)	3	Clay
Transition layer 7	8	Start depth: 29.55 (ft)	3	Clay
		End depth: 30.13 (ft)	5	Silty sand & sandy silt
Transition layer 8	12	Start depth: 32.12 (ft)	5	Silty sand & sandy silt
		End depth: 32.98 (ft)	3	Clay
Transition layer 9	15	Start depth: 36.97 (ft)	3	Clay
		End depth: 37.97 (ft)	6	Sand & silty sand
Transition layer 10	12	Start depth: 40.09 (ft)	5	Silty sand & sandy silt
		End depth: 40.97 (ft)	4	Clay & silty clay
Transition layer 11	4	Start depth: 40.97 (ft)	4	Clay & silty clay
		End depth: 41.15 (ft)	5	Silty sand & sandy silt
Transition layer 12	8	Start depth: 52.01 (ft)	4	Clay & silty clay
		End depth: 52.45 (ft)	6	Sand & silty sand
Transition layer 13	14	Start depth: 57.92 (ft)	6	Sand & silty sand
		End depth: 58.84 (ft)	3	Clay
Transition layer 14	7	Start depth: 62.10 (ft)	3	Clay
		End depth: 62.74 (ft)	6	Sand & silty sand
Transition layer 15	7	Start depth: 63.61 (ft)	6	Sand & silty sand
		End depth: 64.15 (ft)	3	Clay
Transition layer 16	5	Start depth: 67.68 (ft)	4	Clay & silty clay
		End depth: 68.07 (ft)	6	Sand & silty sand
Transition layer 17	5	Start depth: 70.08 (ft)	6	Sand & silty sand
		End depth: 70.54 (ft)	4	Clay & silty clay
Transition layer 18	4	Start depth: 78.24 (ft)	4	Clay & silty clay
		End depth: 78.47 (ft)	5	Silty sand & sandy silt
Transition layer 19	4	Start depth: 78.53 (ft)	5	Silty sand & sandy silt
		End depth: 78.69 (ft)	4	Clay & silty clay
Transition layer 20	4	Start depth: 79.16 (ft)	4	Clay & silty clay
		End depth: 79.45 (ft)	5	Silty sand & sandy silt
Transition layer 21	15	Start depth: 80.83 (ft)	6	Sand & silty sand
		End depth: 81.56 (ft)	3	Clay
Transition layer 22	7	Start depth: 96.30 (ft)	3	Clay
		End depth: 96.87 (ft)	5	Silty sand & sandy silt
Transition layer 23	8	Start depth: 97.45 (ft)	5	Silty sand & sandy silt
		End depth: 97.88 (ft)	4	Clay & silty clay

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 24	8	Start depth: 97.88 (ft)	4	Clay & silty clay
		End depth: 98.47 (ft)	6	Sand & silty sand
Transition layer 25	14	Start depth: 98.98 (ft)	6	Sand & silty sand
		End depth: 99.95 (ft)	3	Clay
Transition layer 26	9	Start depth: 99.95 (ft)	3	Clay
		End depth: 100.28 (ft)	6	Sand & silty sand

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.04	0.10	0.03	0.00	100.00	87.36
2	0.10	0.10	0.04	0.00	100.00	87.36
3	0.11	0.20	0.05	0.00	100.00	87.36
4	0.16	0.40	0.05	0.00	100.00	87.36
5	0.19	1.01	0.05	0.00	100.00	88.74
6	0.24	2.43	0.05	0.00	71.90	91.34
7	0.31	5.06	0.06	0.00	51.48	93.80
8	0.38	7.29	0.07	0.00	42.56	95.48
9	0.43	7.69	0.08	0.00	39.63	96.43
10	0.49	7.69	0.08	0.00	41.35	96.84
11	0.58	6.58	0.09	0.00	44.64	97.26
12	0.63	6.17	0.10	0.00	49.07	97.85
13	0.67	5.97	0.11	0.00	51.93	98.72
14	0.72	6.02	0.13	0.00	53.54	99.42
15	0.72	6.07	0.13	0.00	52.47	101.17
16	0.84	8.00	0.20	0.00	44.02	103.62
17	0.96	13.76	0.25	0.00	30.61	106.61
18	1.06	25.71	0.28	0.10	23.44	108.76
19	1.24	28.44	0.33	0.10	19.50	109.81
20	1.30	29.76	0.31	0.10	17.10	110.05
21	1.48	36.23	0.28	0.10	14.00	110.41
22	1.59	45.85	0.33	0.10	12.36	111.13
23	1.69	44.33	0.37	0.10	11.12	112.10
24	1.69	52.02	0.37	0.10	10.74	112.65
25	1.74	53.04	0.39	0.10	9.92	112.99
26	1.79	54.66	0.40	0.10	9.87	113.14
27	1.84	53.64	0.39	0.10	10.04	113.01
28	1.88	50.40	0.38	0.10	10.26	112.64
29	1.93	49.70	0.35	0.10	10.40	112.09
30	1.99	48.28	0.32	0.10	10.27	111.60
31	2.03	48.08	0.31	0.10	10.19	111.23
32	2.08	47.87	0.31	0.10	10.14	110.98
33	2.13	47.06	0.29	0.10	10.28	110.80
34	2.22	45.65	0.30	0.10	10.49	110.61
35	2.27	44.84	0.29	0.10	10.68	110.44
36	2.33	44.43	0.28	0.10	10.61	110.26
37	2.42	45.04	0.28	0.10	10.34	110.23
38	2.48	46.86	0.28	0.10	9.95	110.30
39	2.56	48.28	0.28	0.10	9.56	110.53
40	2.65	50.10	0.29	0.10	9.36	110.70
41	2.72	49.90	0.29	0.10	9.62	110.74
42	2.80	46.15	0.29	0.10	10.31	110.44
43	2.89	42.00	0.28	0.10	11.29	109.97
44	2.94	39.17	0.26	0.10	12.40	109.53
45	3.04	35.93	0.26	0.10	13.48	109.00
46	3.14	32.59	0.24	0.10	14.78	108.19
47	3.23	28.44	0.21	0.10	15.91	107.05
48	3.31	26.01	0.18	0.10	17.31	105.88

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	3.37	22.77	0.17	0.10	18.64	104.75
50	3.48	20.34	0.15	0.10	20.16	103.47
51	3.57	18.02	0.12	0.10	20.83	102.23
52	3.65	18.02	0.11	0.10	20.99	101.38
53	3.71	18.02	0.11	0.10	20.91	101.29
54	3.82	18.02	0.11	0.10	20.93	102.11
55	3.91	19.84	0.15	0.10	20.16	103.21
56	4.00	22.67	0.16	0.10	18.85	104.71
57	4.10	25.91	0.19	0.10	15.53	104.42
58	4.19	30.57	0.11	0.10	5.00	104.40
59	4.26	37.15	0.13	0.10	5.00	104.51
60	4.35	46.05	0.17	0.10	5.00	106.46
61	4.44	53.64	0.20	0.19	5.00	107.75
62	4.52	49.70	0.21	0.19	5.00	108.36
63	4.53	50.81	0.21	0.19	5.00	108.59
64	4.58	56.27	0.21	0.19	5.00	108.81
65	4.63	58.00	0.22	0.19	5.00	109.16
66	4.68	59.01	0.23	0.19	5.00	109.49
67	4.72	59.51	0.24	0.19	5.00	109.83
68	4.77	59.31	0.25	0.19	5.00	110.07
69	4.82	58.40	0.26	0.19	5.00	110.22
70	4.88	56.48	0.26	0.19	5.00	110.30
71	4.96	53.74	0.27	0.19	7.94	110.33
72	5.01	50.61	0.27	0.19	8.80	110.33
73	5.08	47.27	0.28	0.19	9.75	110.30
74	5.16	44.43	0.28	0.19	10.61	110.22
75	5.21	42.71	0.28	0.19	11.15	110.15
76	5.30	42.66	0.28	0.19	11.35	110.11
77	5.37	42.66	0.28	0.19	11.37	110.11
78	5.45	42.61	0.28	0.19	11.35	110.10
79	5.52	42.81	0.28	0.19	11.43	110.08
80	5.59	41.90	0.28	0.19	11.67	109.99
81	5.65	40.38	0.27	0.19	12.17	109.79
82	5.74	38.16	0.27	0.19	12.78	109.59
83	5.83	36.84	0.27	0.19	13.36	109.47
84	5.89	36.23	0.27	0.29	13.78	109.49
85	5.97	35.83	0.27	0.29	14.10	109.46
86	6.07	34.92	0.27	0.29	14.65	109.36
87	6.12	32.79	0.27	0.29	15.67	109.20
88	6.22	29.96	0.27	0.29	17.39	109.00
89	6.28	26.52	0.27	0.29	19.71	108.75
90	6.36	23.18	0.27	0.29	22.24	108.30
91	6.46	20.65	0.26	0.29	24.09	107.75
92	6.52	20.04	0.24	0.29	23.83	106.97
93	6.60	21.46	0.20	0.29	21.15	106.06
94	6.70	24.70	0.16	0.29	18.41	104.86
95	6.76	24.49	0.14	0.29	18.15	104.05
96	6.84	19.84	0.15	0.29	21.31	103.55

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	6.94	14.57	0.15	0.29	28.13	103.13
98	7.03	10.32	0.15	0.29	36.85	102.17
99	7.13	7.69	0.14	0.29	45.33	101.02
100	7.19	6.68	0.13	0.29	50.80	99.02
101	7.32	5.47	0.08	0.29	50.53	95.58
102	7.42	5.16	0.02	0.29	46.05	89.63
103	7.49	4.86	0.01	0.29	36.85	87.36
104	7.57	4.76	-0.01	0.29	N/A	87.36
105	7.66	4.55	0.00	0.29	N/A	87.36
106	7.76	4.35	0.01	0.29	39.30	87.36
107	7.77	4.40	0.01	0.29	41.66	87.36
108	7.78	4.40	0.01	0.29	42.16	87.36
109	7.82	4.45	0.01	0.29	43.69	87.36
110	7.87	4.45	0.02	0.29	46.05	87.36
111	7.92	4.45	0.03	0.29	48.69	87.36
112	7.97	4.45	0.03	0.29	50.96	88.91
113	8.01	4.55	0.04	0.29	52.87	90.83
114	8.06	4.76	0.05	0.29	53.56	92.24
115	8.11	4.96	0.06	0.29	53.89	93.35
116	8.20	5.06	0.06	0.29	54.02	94.10
117	8.26	5.16	0.07	0.29	54.67	94.95
118	8.35	5.26	0.08	0.29	55.25	95.57
119	8.40	5.26	0.08	0.38	55.42	95.96
120	8.49	5.36	0.08	0.38	55.15	96.13
121	8.54	5.47	0.08	0.38	54.56	96.42
122	8.64	5.67	0.09	0.38	53.58	96.77
123	8.69	5.97	0.09	0.38	52.70	97.12
124	8.79	6.07	0.09	0.38	53.07	98.37
125	8.84	6.48	0.14	0.38	53.64	99.77
126	8.93	6.88	0.15	0.38	53.23	100.93
127	9.03	7.29	0.15	0.38	53.10	101.61
128	9.08	7.19	0.17	0.38	53.34	101.99
129	9.11	7.14	0.18	0.38	54.44	102.35
130	9.12	7.14	0.18	0.38	54.87	102.44
131	9.17	7.08	0.18	0.38	55.46	102.54
132	9.22	6.98	0.19	0.38	55.68	102.79
133	9.31	7.29	0.19	0.38	57.60	103.02
134	9.36	6.48	0.20	0.38	56.84	103.40
135	9.40	7.69	0.21	0.38	55.49	103.68
136	9.46	8.20	0.21	0.38	52.20	104.01
137	9.51	8.50	0.21	0.38	50.78	104.20
138	9.55	8.70	0.22	0.48	49.80	104.47
139	9.61	9.11	0.23	0.48	49.60	104.86
140	9.69	9.11	0.24	0.48	49.93	105.32
141	9.74	9.11	0.26	0.38	50.53	105.75
142	9.81	9.31	0.27	0.48	50.47	106.17
143	9.89	9.72	0.28	0.38	49.47	106.49
144	9.94	10.22	0.29	0.48	48.57	106.69

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	10.03	10.22	0.28	0.48	47.95	106.73
146	10.08	10.22	0.28	0.48	46.27	105.91
147	10.18	10.22	0.19	0.48	43.86	104.66
148	10.23	10.22	0.16	0.48	42.16	103.72
149	10.33	10.22	0.21	0.48	42.78	104.06
150	10.40	10.22	0.22	0.48	44.53	104.99
151	10.47	10.22	0.24	0.48	46.24	105.54
152	10.51	9.77	0.26	0.48	47.48	106.12
153	10.56	10.17	0.28	0.48	48.53	106.55
154	10.61	10.12	0.29	0.48	48.96	107.12
155	10.67	10.32	0.32	0.48	50.59	107.76
156	10.75	10.02	0.37	0.48	52.01	108.32
157	10.80	10.02	0.37	0.48	53.26	108.59
158	10.85	9.92	0.37	0.48	53.79	108.61
159	10.90	9.72	0.37	0.57	54.58	108.60
160	11.00	9.51	0.38	0.57	55.86	108.56
161	11.05	9.11	0.37	0.57	57.54	108.36
162	11.14	8.50	0.36	0.57	59.49	108.14
163	11.21	8.20	0.36	0.57	61.41	108.08
164	11.29	8.10	0.38	0.57	61.90	108.18
165	11.38	8.40	0.37	0.57	61.40	108.38
166	11.46	8.70	0.39	0.57	60.04	108.48
167	11.52	8.91	0.38	0.57	59.20	108.60
168	11.60	9.01	0.38	0.57	58.74	108.64
169	11.67	9.01	0.39	0.57	58.51	108.69
170	11.72	9.11	0.39	0.57	58.33	108.76
171	11.81	9.21	0.39	0.57	57.50	108.86
172	11.86	9.62	0.39	0.57	57.42	108.90
173	11.96	9.21	0.39	0.57	57.28	108.93
174	12.01	9.41	0.40	0.57	57.36	108.99
175	12.10	9.72	0.40	0.57	56.33	108.48
176	12.16	9.92	0.30	0.57	52.86	107.67
177	12.24	10.53	0.27	0.67	50.46	107.26
178	12.32	10.93	0.34	0.67	50.49	108.00
179	12.39	11.13	0.39	0.67	51.82	109.13
180	12.48	11.44	0.42	0.67	55.21	109.56
181	12.50	9.31	0.43	0.67	56.54	109.82
182	12.54	9.92	0.45	0.67	56.14	110.10
183	12.64	12.95	0.45	0.67	51.14	110.63
184	12.68	14.17	0.46	0.67	46.74	111.06
185	12.77	14.98	0.47	0.67	45.02	111.08
186	12.82	14.98	0.44	0.67	44.58	110.87
187	12.89	14.27	0.42	0.67	45.32	110.45
188	12.97	13.36	0.41	0.67	47.27	110.13
189	13.03	12.45	0.41	0.67	49.63	109.86
190	13.12	11.64	0.40	0.67	52.08	109.64
191	13.16	11.03	0.40	0.67	53.60	109.40
192	13.26	10.93	0.39	0.67	54.00	108.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	13.34	10.73	0.34	0.67	53.03	108.33
194	13.41	10.83	0.31	0.67	51.87	107.54
195	13.50	10.63	0.28	0.67	51.53	107.03
196	13.60	10.32	0.28	0.67	52.24	106.75
197	13.65	10.02	0.28	0.67	53.22	106.76
198	13.75	10.02	0.29	0.67	54.12	106.90
199	13.80	10.02	0.30	0.67	53.54	106.72
200	13.89	10.22	0.26	0.67	53.46	106.90
201	13.94	10.42	0.31	0.76	53.08	107.50
202	14.03	11.23	0.37	0.76	54.97	108.63
203	14.11	10.73	0.41	0.76	55.24	109.48
204	14.13	11.69	0.42	0.76	55.28	110.03
205	14.18	12.15	0.45	0.76	53.47	110.47
206	14.22	12.95	0.46	0.76	52.62	110.95
207	14.28	13.36	0.49	0.76	51.87	111.50
208	14.37	13.97	0.53	0.76	51.36	112.04
209	14.44	14.68	0.56	0.76	50.25	112.56
210	14.51	15.69	0.58	0.76	48.93	112.99
211	14.60	16.50	0.60	0.76	48.02	113.34
212	14.65	16.70	0.62	0.76	47.94	113.59
213	14.75	16.50	0.63	0.76	48.44	113.74
214	14.85	16.45	0.64	0.76	48.93	113.80
215	14.91	16.45	0.63	0.76	49.08	113.80
216	14.99	16.40	0.63	0.76	47.80	113.81
217	15.09	18.12	0.62	0.76	45.25	113.98
218	15.18	20.34	0.63	0.76	41.64	114.15
219	15.25	22.37	0.61	0.76	38.13	114.10
220	15.33	24.09	0.55	0.76	34.47	113.87
221	15.43	27.02	0.52	0.76	30.57	113.72
222	15.51	31.38	0.52	0.76	26.98	113.86
223	15.59	35.53	0.52	0.76	24.54	114.07
224	15.67	36.94	0.52	0.76	23.56	114.17
225	15.76	36.03	0.51	0.86	24.48	114.23
226	15.86	32.39	0.54	0.76	26.98	114.13
227	15.95	27.63	0.54	0.76	31.02	113.82
228	16.05	22.87	0.53	0.76	35.88	113.11
229	16.14	18.72	0.48	0.76	40.89	112.24
230	16.20	16.30	0.45	0.76	44.59	111.36
231	16.28	15.49	0.42	0.76	47.26	110.71
232	16.34	14.17	0.41	0.76	49.02	109.97
233	16.44	12.95	0.36	0.76	51.62	109.16
234	16.50	11.64	0.33	0.86	54.21	108.05
235	16.58	10.22	0.29	0.76	56.10	106.16
236	16.73	8.60	0.17	0.86	57.07	103.07
237	16.82	7.39	0.09	0.76	55.90	98.94
238	16.92	6.78	0.07	0.86	56.73	97.37
239	17.01	6.98	0.12	0.86	64.41	99.23
240	17.11	5.87	0.17	0.86	72.33	101.23

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	17.12	5.72	0.19	0.86	79.64	102.14
242	17.14	5.57	0.19	0.86	75.40	102.95
243	17.19	7.69	0.22	0.86	70.99	103.97
244	17.28	8.10	0.25	0.86	67.48	104.99
245	17.33	8.00	0.26	0.86	68.61	105.59
246	17.43	7.89	0.28	0.86	70.20	105.75
247	17.47	7.69	0.27	0.86	70.55	105.46
248	17.57	7.59	0.24	0.86	70.29	104.78
249	17.65	7.39	0.21	0.86	69.39	104.05
250	17.72	7.39	0.21	0.86	69.90	104.00
251	17.81	7.39	0.23	0.86	69.98	104.48
252	17.86	7.89	0.25	0.86	70.40	105.52
253	17.95	8.30	0.30	0.86	70.27	106.61
254	18.05	8.70	0.35	0.86	69.77	107.59
255	18.10	9.31	0.36	0.86	69.28	108.43
256	18.20	9.62	0.41	0.86	68.75	109.17
257	18.30	10.02	0.44	0.86	69.06	109.74
258	18.39	10.02	0.45	0.86	68.69	110.03
259	18.48	10.32	0.45	0.86	68.26	110.09
260	18.58	10.42	0.45	0.86	68.26	110.10
261	18.66	10.12	0.45	0.86	68.67	110.00
262	18.74	10.02	0.43	0.86	68.65	109.66
263	18.87	10.02	0.39	0.86	65.89	108.15
264	18.97	9.62	0.22	0.86	63.51	106.58
265	19.06	9.31	0.24	0.96	61.57	105.45
266	19.16	9.72	0.27	0.86	62.59	106.45
267	19.25	10.42	0.32	0.96	62.93	107.21
268	19.27	10.22	0.32	0.86	63.88	107.82
269	19.30	10.02	0.35	0.96	64.63	108.39
270	19.34	10.83	0.39	0.96	65.30	109.05
271	19.39	10.83	0.41	0.96	65.04	109.46
272	19.49	10.83	0.41	0.96	65.33	109.38
273	19.55	10.63	0.38	0.96	65.79	108.98
274	19.63	10.02	0.36	0.96	66.38	108.45
275	19.68	9.82	0.34	0.96	66.57	107.82
276	19.74	9.72	0.30	0.96	65.75	107.23
277	19.83	9.72	0.28	0.96	65.45	106.97
278	19.87	9.72	0.31	0.96	65.22	106.85
279	19.94	9.72	0.29	0.96	66.15	107.18
280	20.02	9.72	0.33	0.96	67.03	107.64
281	20.07	9.92	0.36	0.96	67.92	108.78
282	20.17	10.83	0.44	0.96	64.62	109.94
283	20.21	13.46	0.47	0.96	56.54	111.19
284	20.28	18.22	0.50	0.96	46.28	112.30
285	20.36	24.49	0.52	1.05	37.36	113.43
286	20.41	31.88	0.56	1.05	30.98	114.57
287	20.48	38.76	0.62	1.05	26.57	115.62
288	20.55	45.24	0.66	1.05	23.46	116.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	20.60	50.91	0.67	1.05	21.46	116.95
290	20.70	53.44	0.69	1.05	20.55	117.24
291	20.74	53.24	0.71	1.05	20.71	117.40
292	20.79	51.32	0.72	1.05	21.66	117.54
293	20.89	48.89	0.76	1.05	23.50	117.89
294	20.96	45.85	0.85	0.96	23.80	117.32
295	21.04	45.80	0.57	0.96	24.10	117.07
296	21.13	45.80	0.70	0.96	23.70	116.74
297	21.22	45.75	0.76	0.96	23.00	117.62
298	21.29	56.07	0.78	1.05	21.86	118.10
299	21.35	56.27	0.79	1.05	18.50	118.64
300	21.37	73.99	0.80	1.05	15.90	119.09
301	21.42	83.80	0.82	1.05	13.13	119.55
302	21.47	93.32	0.82	1.05	11.52	119.85
303	21.48	101.01	0.82	1.05	10.27	120.06
304	21.52	107.59	0.82	1.05	9.34	120.20
305	21.57	113.46	0.81	1.05	8.57	120.29
306	21.62	118.62	0.80	1.05	7.91	120.35
307	21.66	124.29	0.80	1.05	7.35	120.43
308	21.71	129.05	0.81	1.15	6.92	120.56
309	21.76	132.99	0.82	1.15	6.65	120.75
310	21.81	135.83	0.84	1.15	6.55	120.99
311	21.85	137.14	0.87	1.15	6.57	121.25
312	21.91	137.95	0.90	1.15	6.66	121.49
313	21.95	138.26	0.92	1.15	6.78	121.69
314	22.00	138.06	0.94	1.15	6.89	121.84
315	22.05	138.36	0.96	1.15	6.99	121.96
316	22.10	138.06	0.97	1.15	7.07	122.06
317	22.15	138.26	0.98	1.15	7.14	122.15
318	22.19	138.56	0.99	1.15	7.18	122.24
319	22.24	139.17	1.00	1.15	7.38	122.59
320	22.29	139.98	1.12	1.15	7.48	122.79
321	22.34	140.38	1.07	1.15	7.53	122.89
322	22.39	140.18	1.04	1.15	7.42	122.71
323	22.43	139.57	1.04	1.15	7.44	122.63
324	22.48	138.46	1.05	1.15	7.57	122.64
325	22.55	136.94	1.06	1.15	7.77	122.66
326	22.62	134.92	1.06	1.15	8.48	122.57
327	22.63	118.32	1.06	1.24	8.67	122.48
328	22.72	130.57	1.04	1.24	8.87	122.34
329	22.77	127.73	1.02	1.24	8.53	122.30
330	22.83	125.91	1.02	1.24	8.81	122.33
331	22.91	124.70	1.06	1.24	9.13	122.40
332	22.96	121.96	1.07	1.24	9.51	122.45
333	23.02	118.52	1.06	1.24	9.95	122.36
334	23.10	114.07	1.06	1.24	10.51	122.24
335	23.16	108.91	1.05	1.24	11.23	122.08
336	23.20	102.23	1.04	1.24	12.12	121.86

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	23.26	95.44	1.03	1.24	13.14	121.54
338	23.35	88.66	0.99	1.24	14.37	121.28
339	23.39	81.88	1.01	1.24	15.74	120.92
340	23.48	74.39	0.96	1.24	17.51	120.69
341	23.54	67.71	0.98	1.24	19.01	120.18
342	23.63	62.85	0.89	1.24	19.95	119.45
343	23.69	59.72	0.76	1.24	19.23	117.77
344	23.78	57.59	0.48	1.24	18.61	116.63
345	23.87	57.74	0.60	1.24	18.21	116.01
346	23.88	57.74	0.61	1.24	19.03	116.77
347	23.93	57.89	0.67	1.34	19.95	117.38
348	24.02	56.58	0.77	1.34	20.80	117.95
349	24.04	57.13	0.78	1.34	21.46	118.37
350	24.05	57.13	0.80	1.34	21.78	118.73
351	24.15	57.69	0.89	1.34	21.95	119.14
352	24.20	59.92	0.91	1.34	21.72	119.56
353	24.30	62.65	0.93	1.34	20.63	119.52
354	24.40	65.28	0.83	1.34	19.19	119.11
355	24.46	67.21	0.74	1.34	17.84	118.42
356	24.54	67.21	0.69	1.34	17.34	117.92
357	24.64	64.78	0.69	1.34	18.05	117.78
358	24.73	60.22	0.72	1.34	19.84	117.90
359	24.78	54.76	0.77	1.34	22.46	118.05
360	24.88	48.89	0.80	1.34	25.68	117.95
361	24.94	42.00	0.78	1.24	29.51	117.49
362	25.02	34.82	0.73	1.24	34.04	116.54
363	25.12	28.14	0.65	1.24	39.88	115.47
364	25.17	22.27	0.62	1.24	46.77	114.38
365	25.27	18.12	0.59	1.24	54.06	113.10
366	25.36	14.78	0.46	1.24	61.30	111.68
367	25.43	12.45	0.42	1.24	67.46	110.12
368	25.50	10.53	0.38	1.24	73.11	108.95
369	25.60	9.62	0.33	1.24	77.33	107.97
370	25.64	9.11	0.32	1.24	78.94	107.28
371	25.67	9.01	0.30	1.15	79.14	106.81
372	25.71	9.01	0.28	1.15	78.50	105.99
373	25.79	8.50	0.23	1.15	78.06	104.81
374	25.93	8.00	0.19	1.15	77.81	103.60
375	26.03	8.00	0.18	1.15	77.15	102.74
376	26.13	8.00	0.16	1.15	76.38	102.36
377	26.24	8.00	0.16	1.15	75.73	102.24
378	26.37	8.20	0.17	1.15	75.53	102.41
379	26.47	8.30	0.17	1.15	75.71	102.64
380	26.60	8.20	0.18	1.15	74.72	102.14
381	26.71	8.20	0.14	1.15	72.50	101.53
382	26.85	8.70	0.13	1.15	69.69	101.34
383	26.95	9.31	0.16	1.15	71.29	102.63
384	27.04	8.81	0.22	1.15	71.21	104.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	27.09	10.63	0.25	1.05	71.61	105.86
386	27.19	10.93	0.29	1.05	69.63	106.85
387	27.23	11.23	0.30	1.05	70.05	107.52
388	27.33	11.34	0.32	1.05	70.38	108.10
389	27.40	11.64	0.36	1.05	70.26	108.70
390	27.47	12.25	0.38	1.05	69.48	109.39
391	27.57	12.95	0.41	1.05	68.12	110.02
392	27.66	13.66	0.44	1.05	66.86	110.95
393	27.77	14.88	0.52	1.05	65.56	112.10
394	27.86	16.30	0.60	1.05	64.27	113.38
395	27.96	17.61	0.69	1.05	63.40	114.40
396	28.06	18.22	0.74	1.05	64.03	115.00
397	28.15	17.31	0.77	1.05	65.56	115.03
398	28.25	16.30	0.72	1.05	64.37	114.22
399	28.34	17.46	0.52	1.05	63.64	113.20
400	28.44	15.69	0.53	1.05	61.14	112.70
401	28.54	17.61	0.59	1.05	64.86	113.09
402	28.62	14.98	0.63	1.05	62.81	113.97
403	28.71	19.74	0.70	1.05	62.14	114.69
404	28.77	20.24	0.75	1.05	59.04	115.50
405	28.86	20.75	0.80	1.05	59.06	115.95
406	28.91	21.15	0.82	1.05	58.48	116.29
407	28.97	22.06	0.84	1.05	57.87	116.68
408	29.04	22.87	0.91	1.05	57.17	117.16
409	29.10	23.78	0.96	1.05	56.38	117.71
410	29.15	25.20	1.01	1.05	55.66	118.36
411	29.25	26.42	1.13	1.05	54.03	119.02
412	29.34	27.53	1.19	1.05	53.66	119.56
413	29.38	28.14	1.22	1.05	53.77	119.85
414	29.48	27.53	1.26	1.05	55.21	119.97
415	29.55	27.43	1.26	1.05	55.61	119.94
416	29.63	27.43	1.21	1.05	53.71	119.51
417	29.72	27.33	1.04	1.05	46.70	117.24
418	29.82	30.47	0.29	1.15	36.62	114.29
419	29.88	36.84	0.31	1.15	26.07	110.63
420	29.96	43.12	0.35	1.15	21.97	111.98
421	30.06	55.67	0.40	1.15	20.66	113.06
422	30.13	50.91	0.44	1.05	19.28	113.85
423	30.18	57.39	0.44	1.05	19.21	114.32
424	30.28	59.72	0.48	1.05	18.92	115.08
425	30.37	59.01	0.56	1.05	19.74	116.07
426	30.47	59.82	0.65	1.05	20.55	117.07
427	30.57	62.65	0.72	1.05	20.45	117.89
428	30.66	67.31	0.76	1.05	19.78	118.59
429	30.74	71.76	0.82	1.05	19.08	119.20
430	30.82	74.90	0.87	1.05	18.72	119.77
431	30.90	76.82	0.92	1.15	18.90	120.37
432	31.01	77.12	1.02	1.15	19.54	121.00

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	31.10	76.72	1.12	1.15	20.53	121.75
434	31.19	77.18	1.25	1.15	21.62	122.52
435	31.28	77.23	1.39	1.15	22.44	123.19
436	31.35	78.24	1.47	1.15	22.96	123.75
437	31.43	80.06	1.56	1.15	23.03	124.24
438	31.53	83.20	1.66	1.15	22.94	124.75
439	31.60	86.03	1.75	1.15	21.03	124.07
440	31.67	88.46	1.07	1.15	19.28	123.27
441	31.77	89.68	1.16	1.15	17.72	122.34
442	31.84	90.18	1.26	1.15	18.27	122.84
443	31.91	89.68	1.32	1.15	19.80	123.18
444	31.98	78.64	1.39	1.15	22.19	123.23
445	31.98	68.93	1.40	1.15	23.12	123.39
446	32.04	84.01	1.44	1.24	23.03	123.69
447	32.12	83.20	1.54	1.24	22.36	124.14
448	32.16	80.77	1.60	1.24	23.73	124.42
449	32.27	76.11	1.67	1.24	25.51	124.47
450	32.33	70.04	1.66	1.24	27.40	124.34
451	32.41	66.09	1.63	1.24	28.95	124.00
452	32.50	62.75	1.55	1.24	30.35	123.44
453	32.58	56.48	1.41	1.24	31.97	122.68
454	32.66	50.71	1.29	1.24	34.45	121.67
455	32.74	43.42	1.16	1.24	37.91	120.54
456	32.84	35.73	1.02	1.24	42.91	119.34
457	32.90	29.15	0.95	1.24	48.72	118.12
458	32.98	24.70	0.85	1.24	56.09	116.92
459	33.08	20.85	0.75	1.24	62.41	115.68
460	33.14	16.70	0.69	1.24	70.22	114.44
461	33.22	13.56	0.63	1.24	78.27	113.16
462	33.32	12.04	0.53	1.24	84.25	111.85
463	33.37	10.93	0.46	1.24	85.46	110.42
464	33.47	10.83	0.38	1.24	84.74	109.62
465	33.56	11.34	0.39	1.24	80.65	109.42
466	33.63	12.75	0.41	1.24	77.37	109.72
467	33.71	13.16	0.40	1.24	75.48	109.42
468	33.81	12.04	0.34	1.24	74.83	107.78
469	33.90	10.73	0.19	1.24	75.10	105.75
470	33.95	10.32	0.19	1.24	75.13	103.88
471	34.04	9.82	0.19	1.24	76.22	103.67
472	34.14	10.02	0.18	1.34	77.27	103.52
473	34.17	9.72	0.19	1.24	77.76	103.53
474	34.20	9.62	0.19	1.24	76.51	103.73
475	34.26	10.83	0.19	1.24	75.12	103.91
476	34.35	10.63	0.19	1.24	73.88	103.93
477	34.43	10.32	0.19	1.24	74.71	103.73
478	34.49	10.22	0.18	1.24	74.86	103.40
479	34.59	10.22	0.17	1.24	74.51	102.92
480	34.69	10.02	0.15	1.24	74.15	102.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	34.73	9.92	0.15	1.24	74.31	102.00
482	34.83	9.72	0.15	1.24	74.57	101.78
483	34.90	9.72	0.14	1.24	75.16	101.82
484	34.98	9.72	0.15	1.24	75.52	102.24
485	35.07	10.02	0.17	1.24	76.19	103.35
486	35.16	10.63	0.21	1.24	78.83	105.56
487	35.26	11.03	0.33	1.24	83.16	108.85
488	35.33	12.15	0.55	1.24	81.79	112.16
489	35.40	16.50	0.76	1.34	74.84	114.98
490	35.50	21.56	0.92	1.34	67.00	116.75
491	35.57	24.39	0.97	1.34	63.27	117.70
492	35.65	24.09	1.01	1.34	63.57	118.14
493	35.71	22.77	1.08	1.34	66.27	118.34
494	35.79	21.66	1.09	1.34	69.18	118.25
495	35.85	20.45	1.03	1.34	71.21	117.70
496	35.94	18.93	0.91	1.34	72.32	116.92
497	35.99	18.42	0.83	1.34	72.47	115.84
498	36.08	17.51	0.69	1.34	72.38	114.36
499	36.17	15.49	0.51	1.34	73.86	112.64
500	36.24	13.56	0.46	1.34	75.60	111.22
501	36.33	13.56	0.44	1.34	77.26	110.71
502	36.42	13.56	0.44	1.34	77.95	110.94
503	36.52	13.56	0.50	1.34	73.49	110.01
504	36.61	14.98	0.26	1.34	67.87	109.88
505	36.70	17.61	0.38	1.34	62.71	110.97
506	36.78	20.55	0.63	1.34	62.56	113.90
507	36.85	22.47	0.80	1.34	71.90	115.26
508	36.87	11.64	0.83	1.34	69.07	116.41
509	36.91	26.42	0.92	1.34	63.50	117.24
510	36.97	31.58	0.97	1.43	49.63	118.44
511	37.06	36.13	1.01	1.43	46.01	119.19
512	37.12	37.96	1.11	1.43	43.96	120.10
513	37.20	41.70	1.28	1.43	42.39	121.21
514	37.27	47.47	1.45	1.43	39.71	122.19
515	37.35	53.44	1.50	1.43	36.91	122.63
516	37.44	55.67	1.40	1.43	34.70	122.58
517	37.49	56.48	1.34	1.43	32.26	122.38
518	37.59	63.06	1.30	1.43	27.80	122.53
519	37.64	81.98	1.30	1.43	21.40	123.10
520	37.70	111.84	1.32	1.53	15.68	123.77
521	37.78	139.98	1.32	1.53	11.92	124.31
522	37.83	157.89	1.32	1.53	9.84	124.68
523	37.92	169.13	1.35	1.53	8.83	124.96
524	37.97	175.50	1.38	1.53	8.44	125.29
525	38.07	179.05	1.45	1.53	8.35	125.63
526	38.14	181.78	1.51	1.53	8.44	126.04
527	38.22	184.61	1.60	1.53	8.51	126.51
528	38.31	190.69	1.72	1.53	8.57	127.15

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	38.41	199.80	1.90	1.62	8.22	127.66
530	38.52	213.56	1.89	1.62	7.81	128.17
531	38.64	224.49	2.02	1.62	7.45	128.44
532	38.74	225.00	2.04	1.62	7.89	128.67
533	38.80	204.05	2.10	1.62	8.30	128.80
534	38.89	213.46	2.16	1.82	8.75	128.95
535	38.94	213.66	2.21	1.82	8.74	129.21
536	39.03	213.76	2.31	1.82	9.04	129.51
537	39.13	213.26	2.44	1.82	9.44	129.87
538	39.23	212.65	2.56	1.91	9.96	130.20
539	39.35	208.10	2.67	1.91	10.48	130.39
540	39.42	202.73	2.68	1.91	11.13	130.39
541	39.51	192.20	2.66	1.91	11.86	130.23
542	39.60	181.27	2.62	1.91	12.73	129.97
543	39.70	170.95	2.55	1.91	13.46	129.70
544	39.78	166.19	2.50	1.91	14.13	129.38
545	39.90	156.68	2.40	1.91	14.77	129.07
546	39.99	149.09	2.35	1.91	15.57	128.71
547	40.09	141.29	2.28	1.91	16.39	128.37
548	40.18	133.80	2.21	1.91	17.30	128.04
549	40.23	126.21	2.16	1.91	18.29	127.67
550	40.33	118.02	2.08	1.91	19.50	127.30
551	40.43	109.72	2.03	1.91	20.84	126.92
552	40.52	102.53	1.98	1.91	22.74	126.70
553	40.61	93.22	2.06	1.91	24.63	126.07
554	40.69	81.48	1.71	1.91	27.65	125.27
555	40.80	67.00	1.63	1.91	31.04	124.10
556	40.87	57.39	1.51	1.91	34.44	123.25
557	40.95	55.26	1.38	1.91	37.39	122.50
558	40.97	47.67	1.35	1.91	38.04	122.03
559	41.01	51.11	1.30	2.01	35.69	121.95
560	41.07	64.07	1.26	2.01	31.09	122.03
561	41.15	70.14	1.23	2.01	28.20	122.06
562	41.26	67.91	1.21	1.91	28.17	121.94
563	41.35	63.26	1.21	1.91	29.96	121.73
564	41.47	57.89	1.20	1.91	31.46	121.66
565	41.59	59.61	1.23	1.91	31.96	121.71
566	41.69	61.44	1.24	1.91	31.98	121.95
567	41.78	60.12	1.30	1.91	33.05	122.10
568	41.88	55.87	1.33	1.82	35.75	121.95
569	41.98	48.18	1.27	1.82	39.01	121.52
570	42.08	44.23	1.21	1.82	41.72	120.96
571	42.16	42.91	1.16	1.82	41.89	120.65
572	42.24	45.75	1.14	1.82	39.57	120.77
573	42.31	52.63	1.19	1.91	36.25	121.19
574	42.45	58.30	1.23	1.82	33.81	121.60
575	42.55	59.82	1.24	1.82	32.69	121.82
576	42.60	59.92	1.25	1.82	32.61	121.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	42.70	59.51	1.27	1.82	33.18	122.03
578	42.81	58.50	1.32	1.72	34.70	122.15
579	42.89	54.05	1.36	1.72	37.37	122.12
580	42.98	48.08	1.34	1.72	41.13	121.83
581	43.08	42.61	1.30	1.72	45.23	121.41
582	43.17	38.66	1.28	1.72	47.51	121.07
583	43.27	39.98	1.25	1.72	46.42	120.88
584	43.37	44.43	1.19	1.72	41.14	119.79
585	43.50	46.96	0.69	1.72	35.96	118.51
586	43.61	48.99	0.69	1.72	32.32	117.19
587	43.74	49.59	0.74	1.62	32.41	117.56
588	43.79	49.29	0.79	1.62	33.54	118.20
589	43.86	48.99	0.89	1.43	35.58	118.96
590	43.94	47.06	1.02	1.34	38.25	119.71
591	44.00	45.04	1.11	1.34	41.55	120.34
592	44.08	42.51	1.22	1.34	44.91	120.67
593	44.17	39.37	1.23	1.34	48.70	120.54
594	44.27	34.61	1.15	1.34	51.70	119.87
595	44.42	32.29	1.00	1.34	51.75	119.10
596	44.52	35.53	0.93	1.34	46.94	118.74
597	44.61	43.42	0.93	1.34	39.36	118.80
598	44.71	53.44	0.86	1.34	33.96	119.33
599	44.85	58.80	0.98	1.34	32.04	120.04
600	44.95	57.69	1.13	1.34	32.93	120.75
601	45.09	55.36	1.15	1.34	35.03	121.01
602	45.19	51.82	1.14	1.34	38.27	120.75
603	45.33	43.02	1.11	1.34	43.45	120.27
604	45.42	35.42	1.09	1.34	49.18	119.55
605	45.57	33.00	0.99	1.34	51.89	118.90
606	45.68	34.11	0.92	1.34	52.37	118.05
607	45.81	30.57	0.81	1.34	52.39	116.56
608	45.92	26.62	0.54	1.34	59.16	115.42
609	46.05	22.37	0.69	1.34	66.42	114.50
610	46.16	17.81	0.67	1.24	75.25	114.63
611	46.17	17.71	0.67	1.24	79.56	114.21
612	46.23	17.61	0.63	1.24	79.66	113.87
613	46.29	17.00	0.59	1.24	80.53	113.32
614	46.34	15.89	0.55	1.24	81.48	112.46
615	46.42	15.18	0.46	1.24	81.87	111.41
616	46.48	14.78	0.40	1.24	80.78	110.31
617	46.52	14.68	0.36	1.24	79.61	109.48
618	46.60	14.57	0.33	1.24	78.79	108.88
619	46.67	14.37	0.32	1.24	78.01	108.41
620	46.74	14.47	0.30	1.24	77.35	108.06
621	46.82	14.47	0.29	1.24	76.73	107.71
622	46.88	14.27	0.28	1.34	77.13	107.41
623	46.96	13.76	0.27	1.34	77.21	107.25
624	47.06	14.22	0.27	1.34	77.78	107.20

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	47.15	13.87	0.27	1.34	77.74	107.41
626	47.24	14.17	0.29	1.34	79.57	108.74
627	47.35	15.18	0.43	1.34	80.06	111.84
628	47.49	19.13	0.74	1.34	72.80	113.76
629	47.58	24.70	0.62	1.34	64.43	115.05
630	47.73	28.44	0.64	1.34	60.58	115.11
631	47.83	24.90	0.71	1.34	59.52	115.49
632	47.87	27.78	0.69	1.34	61.47	115.59
633	47.89	25.81	0.69	1.34	59.88	115.52
634	47.94	27.13	0.67	1.34	60.12	115.37
635	48.02	26.92	0.66	1.34	59.63	115.28
636	48.07	26.32	0.66	1.34	60.36	115.24
637	48.12	25.91	0.67	1.34	61.69	115.43
638	48.18	25.61	0.72	1.34	63.36	115.65
639	48.26	24.70	0.74	1.34	64.74	115.83
640	48.31	24.65	0.73	1.34	65.22	115.64
641	48.38	24.39	0.68	1.34	64.33	115.21
642	48.46	24.59	0.62	1.34	62.61	114.59
643	48.52	25.10	0.57	1.34	61.59	113.83
644	48.60	23.48	0.50	1.34	62.06	112.77
645	48.68	20.85	0.41	1.34	65.40	111.58
646	48.74	17.91	0.39	1.34	70.58	110.53
647	48.82	15.79	0.38	1.34	77.29	109.90
648	48.89	14.07	0.36	1.34	82.02	109.37
649	48.99	13.76	0.34	1.34	84.26	108.81
650	49.05	13.56	0.31	1.34	83.16	108.02
651	49.12	13.56	0.26	1.34	81.66	107.12
652	49.18	13.36	0.24	1.34	79.51	106.27
653	49.27	13.66	0.22	1.34	77.50	105.79
654	49.32	14.17	0.21	1.34	75.79	105.36
655	49.42	13.87	0.20	1.43	76.97	105.08
656	49.48	12.55	0.20	1.43	78.75	104.88
657	49.56	12.85	0.21	1.43	79.72	105.05
658	49.66	13.56	0.21	1.43	79.61	105.56
659	49.76	13.36	0.25	1.43	78.83	106.06
660	49.85	14.07	0.25	1.43	75.45	105.30
661	49.99	14.68	0.14	1.43	70.32	104.44
662	50.09	15.79	0.17	1.43	70.12	103.40
663	50.21	12.75	0.18	1.43	73.69	103.83
664	50.24	12.85	0.18	1.53	76.33	103.72
665	50.29	13.97	0.17	1.53	74.08	103.47
666	50.38	13.87	0.15	1.53	73.00	103.13
667	50.47	13.16	0.15	1.53	73.91	102.86
668	50.52	13.06	0.15	1.62	75.96	102.88
669	50.62	12.65	0.16	1.62	76.35	103.11
670	50.66	13.26	0.17	1.62	76.26	103.37
671	50.76	13.46	0.17	1.62	76.25	103.65
672	50.83	13.06	0.18	1.62	73.88	104.35

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	50.91	15.79	0.21	1.62	75.06	105.23
674	51.00	13.97	0.24	1.62	71.94	106.28
675	51.06	17.00	0.25	1.62	67.88	107.32
676	51.15	21.05	0.29	1.62	69.95	108.74
677	51.24	14.88	0.40	1.62	78.64	110.36
678	51.31	13.06	0.52	1.62	100.00	111.65
679	51.39	10.63	0.63	1.62	79.74	113.89
680	51.48	31.88	0.71	1.72	52.10	116.37
681	51.58	53.85	0.83	1.72	50.39	117.73
682	51.68	20.34	1.00	1.72	65.78	117.82
683	51.77	9.21	0.95	1.72	93.85	117.60
684	51.90	23.89	1.17	1.72	59.97	121.42
685	52.01	77.23	2.02	1.72	34.57	125.62
686	52.11	122.06	2.62	1.82	24.20	130.24
687	52.26	186.13	4.47	1.91	20.87	132.32
688	52.30	177.33	4.12	1.91	16.50	133.89
689	52.33	263.97	4.17	2.01	12.89	134.16
690	52.35	303.94	4.21	2.01	9.58	134.71
691	52.40	340.79	4.23	2.10	7.60	135.11
692	52.45	397.77	4.28	2.10	6.58	135.59
693	52.50	405.87	4.66	2.10	5.88	136.22
694	52.55	443.01	5.01	2.20	5.51	137.00
695	52.60	493.01	5.46	2.29	4.93	137.28
696	52.65	523.48	5.64	2.29	4.29	137.28
697	52.71	531.47	4.88	2.29	3.82	137.28
698	52.77	538.36	4.91	2.39	3.33	137.17
699	52.82	555.56	4.74	2.48	2.92	137.04
700	52.88	581.47	4.49	2.48	2.56	137.02
701	52.93	597.26	4.71	2.48	2.35	137.05
702	52.98	597.36	4.69	2.68	2.26	137.26
703	53.03	622.36	4.79	2.77	2.29	137.28
704	53.08	606.07	4.93	2.77	2.33	137.28
705	53.12	596.25	4.80	2.87	2.35	137.28
706	53.17	600.60	4.53	2.96	2.30	137.12
707	53.23	597.67	4.62	2.96	2.17	136.97
708	53.28	603.74	4.51	2.96	2.36	137.15
709	53.37	587.14	4.91	2.96	2.61	137.28
710	53.42	574.49	5.08	2.96	2.84	137.28
711	53.46	590.58	5.02	3.06	3.06	137.28
712	53.53	595.24	5.73	3.06	3.30	137.28
713	53.61	611.13	6.49	3.15	3.78	137.28
714	53.62	585.52	6.56	3.15	4.29	137.28
715	53.65	550.00	6.65	3.15	4.43	137.28
716	53.67	586.48	6.45	3.15	4.49	137.28
717	53.70	577.42	6.61	3.15	4.24	137.28
718	53.74	587.44	6.53	3.25	4.32	137.28
719	53.76	583.50	6.67	3.25	4.30	137.28
720	53.80	580.36	6.60	3.35	4.27	137.28

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	53.84	579.25	6.26	3.35	4.16	137.28
722	53.90	573.68	6.10	3.54	4.02	137.28
723	53.91	581.62	6.13	3.54	4.14	137.28
724	53.95	555.16	6.20	3.35	4.11	137.28
725	53.96	584.00	6.20	3.54	4.03	137.28
726	53.98	600.50	6.20	3.35	3.69	137.28
727	53.99	618.52	6.20	3.54	3.66	137.28
728	54.01	589.67	6.20	3.54	3.83	137.28
729	54.02	568.11	6.20	3.54	4.04	137.28
730	54.03	580.06	6.20	3.44	4.51	137.28
731	54.04	511.13	6.23	3.44	5.55	137.28
732	54.05	423.17	6.26	3.44	7.02	137.28
733	54.09	422.06	6.38	3.44	8.01	137.28
734	54.10	422.52	6.39	3.44	8.11	137.28
735	54.13	420.04	6.40	3.44	8.10	137.28
736	54.14	422.97	6.38	3.54	8.17	137.28
737	54.19	419.73	6.47	3.54	8.19	137.28
738	54.19	425.60	6.59	3.54	8.13	137.28
739	54.24	440.89	6.74	3.54	7.58	137.28
740	54.29	451.01	5.95	3.63	6.38	137.28
741	54.33	478.84	4.90	3.63	4.97	137.18
742	54.38	492.30	4.37	3.73	3.90	136.44
743	54.39	513.56	4.28	3.73	3.34	136.18
744	54.43	532.08	4.28	3.82	3.17	136.44
745	54.48	541.59	4.69	3.92	2.05	135.02
746	54.52	555.46	1.86	4.01	1.07	133.52
747	54.58	572.77	2.20	4.01	0.00	131.47
748	54.62	593.21	2.48	4.01	0.17	132.34
749	54.65	595.24	2.63	4.11	0.34	133.29
750	54.67	624.69	3.14	4.21	0.41	134.02
751	54.71	649.89	3.25	4.30	0.23	134.52
752	54.77	699.69	3.10	4.30	0.00	132.94
753	54.81	688.25	1.22	4.40	0.00	131.29
754	54.85	720.84	1.65	4.49	0.00	129.34
755	54.86	702.93	1.70	4.49	0.00	130.17
756	54.87	703.44	1.76	4.01	0.00	130.82
757	54.91	703.44	2.13	4.01	0.00	131.80
758	54.96	703.94	2.50	4.11	0.00	132.67
759	55.00	713.86	2.56	4.21	0.00	133.08
760	55.01	691.59	2.56	4.30	0.00	133.14
761	55.05	681.88	2.60	4.30	0.00	133.23
762	55.10	663.66	2.72	4.30	0.00	133.31
763	55.12	607.48	2.75	4.30	0.35	133.29
764	55.13	539.98	2.77	3.82	0.72	133.17
765	55.14	565.28	2.75	3.82	0.76	133.02
766	55.19	583.90	2.62	3.92	0.54	132.92
767	55.20	581.37	2.60	3.92	0.51	132.84
768	55.25	563.36	2.67	3.92	0.76	132.97

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	55.29	541.49	2.82	3.92	1.13	133.28
770	55.33	533.19	3.02	3.82	1.75	133.67
771	55.38	484.21	3.29	3.82	3.14	134.78
772	55.48	425.91	4.60	3.73	4.92	135.85
773	55.57	407.69	5.12	3.82	6.63	136.68
774	55.63	400.40	5.18	3.73	8.12	137.28
775	55.72	386.03	6.83	3.82	8.85	137.28
776	55.80	419.53	7.09	3.92	8.57	137.28
777	55.86	487.55	7.03	3.92	5.58	137.28
778	55.97	534.41	2.93	4.01	2.94	135.99
779	56.01	561.43	2.52	4.11	0.84	133.07
780	56.06	585.62	2.75	4.11	2.80	133.29
781	56.11	616.29	3.05	4.21	2.89	134.29
782	56.15	637.24	3.61	4.21	2.94	135.21
783	56.20	668.42	3.85	4.21	3.11	136.08
784	56.27	676.92	4.26	4.21	3.34	136.55
785	56.27	643.97	4.36	3.54	3.72	137.19
786	56.30	671.45	5.00	3.63	4.59	137.28
787	56.33	611.03	5.86	3.63	4.98	137.28
788	56.35	665.99	5.93	3.73	5.33	137.28
789	56.40	665.78	6.04	3.73	5.05	137.28
790	56.41	671.65	6.02	3.73	5.04	137.28
791	56.44	670.44	5.96	3.73	4.83	137.28
792	56.49	702.32	5.96	4.01	4.63	137.28
793	56.54	712.65	6.04	4.01	4.51	137.28
794	56.58	737.34	6.69	4.01	4.47	137.28
795	56.59	761.53	6.82	4.01	4.50	137.28
796	56.64	751.51	6.82	4.11	4.44	137.28
797	56.69	758.80	6.82	4.11	4.36	137.28
798	56.73	783.90	6.89	4.11	4.18	137.28
799	56.78	791.59	6.79	4.01	4.03	137.28
800	56.83	760.01	6.22	3.92	4.01	137.28
801	56.88	726.82	5.89	3.92	4.11	137.28
802	56.89	708.40	5.80	3.92	4.29	137.28
803	56.95	691.29	5.71	3.92	4.27	137.28
804	57.01	677.73	5.02	3.92	4.25	137.28
805	57.07	634.81	4.55	3.92	4.06	137.16
806	57.11	625.10	4.12	3.92	3.10	134.76
807	57.17	598.27	1.33	3.92	2.28	132.45
808	57.26	572.36	1.93	3.92	1.15	128.54
809	57.31	551.41	1.12	3.82	1.89	129.56
810	57.37	517.20	2.07	3.92	2.19	129.21
811	57.45	491.70	1.77	3.82	3.04	129.89
812	57.51	461.74	1.72	3.92	3.56	129.21
813	57.53	400.30	1.71	3.44	4.16	128.95
814	57.59	402.43	1.70	3.35	4.63	128.80
815	57.63	401.31	1.70	3.35	4.68	128.76
816	57.68	393.01	1.70	3.35	4.88	128.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	57.73	380.06	1.70	3.35	5.00	128.66
818	57.78	386.23	1.69	3.25	5.00	128.45
819	57.86	370.64	1.59	3.25	5.00	127.83
820	57.92	322.87	1.37	3.25	5.00	127.38
821	57.98	285.32	1.55	3.15	5.00	126.34
822	58.06	264.17	1.14	3.15	8.62	126.17
823	58.12	240.38	1.42	3.06	10.36	126.82
824	58.21	224.09	2.06	3.06	12.69	127.74
825	58.26	202.63	1.92	2.96	14.68	128.10
826	58.35	186.44	1.85	2.87	16.91	127.69
827	58.41	151.92	1.98	2.77	18.65	126.15
828	58.50	126.31	1.07	2.77	22.32	124.42
829	58.56	90.18	1.13	2.68	25.70	122.30
830	58.64	77.93	1.17	2.68	32.24	121.95
831	58.73	65.49	1.17	2.58	38.56	121.50
832	58.80	47.47	1.15	2.58	46.17	120.90
833	58.84	40.28	1.14	2.58	53.64	120.39
834	58.85	38.87	1.15	2.10	52.29	120.54
835	58.93	52.12	1.18	2.10	46.67	120.88
836	58.98	60.42	1.13	2.10	41.28	121.05
837	59.02	61.74	1.07	2.01	38.75	120.92
838	59.12	63.06	1.05	2.01	37.78	120.90
839	59.17	65.28	1.10	1.91	37.23	121.24
840	59.27	67.81	1.19	1.91	37.05	121.75
841	59.31	68.83	1.26	1.82	37.57	122.15
842	59.41	66.19	1.29	1.82	39.18	122.16
843	59.46	59.41	1.25	1.72	42.47	121.59
844	59.55	48.28	1.11	1.72	47.58	120.51
845	59.65	38.56	0.98	1.62	52.69	118.45
846	59.70	32.08	0.61	1.62	56.48	116.90
847	59.80	32.03	0.70	1.62	57.81	115.98
848	59.89	32.03	0.75	1.62	59.47	116.71
849	59.94	31.98	0.83	1.53	62.29	117.23
850	60.01	29.05	0.89	1.53	64.42	117.61
851	60.02	29.96	0.90	1.05	61.57	118.05
852	60.08	38.87	0.92	1.05	57.81	118.31
853	60.12	37.75	0.91	1.05	56.24	118.23
854	60.17	33.00	0.85	1.05	59.45	117.26
855	60.27	27.83	0.68	0.96	63.29	115.67
856	60.31	24.80	0.53	0.96	66.90	113.84
857	60.37	21.76	0.47	0.96	69.47	112.16
858	60.46	20.04	0.38	0.96	70.56	111.08
859	60.51	20.95	0.36	0.96	68.92	110.12
860	60.61	21.25	0.32	0.96	66.37	109.76
861	60.65	22.06	0.32	0.96	64.85	109.53
862	60.75	22.17	0.33	0.96	64.20	109.61
863	60.81	22.27	0.33	0.96	64.08	109.63
864	60.89	22.27	0.33	0.96	63.94	109.50

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	60.94	22.06	0.31	0.96	63.62	109.62
866	61.03	22.98	0.34	0.96	63.91	109.95
867	61.09	22.77	0.37	0.96	64.04	110.05
868	61.19	22.17	0.32	0.96	64.33	109.85
869	61.24	22.17	0.32	0.96	62.81	109.78
870	61.33	24.49	0.35	0.96	60.69	110.44
871	61.38	26.82	0.39	0.96	65.07	112.24
872	61.47	21.25	0.62	0.96	71.67	113.99
873	61.53	21.36	0.74	0.96	79.17	115.51
874	61.62	22.98	0.84	0.96	67.75	116.60
875	61.70	38.46	0.78	0.96	49.71	119.32
876	61.77	71.96	1.30	0.96	39.07	122.50
877	61.86	89.98	1.86	1.05	35.53	124.72
878	61.95	83.91	1.82	0.96	37.04	125.34
879	61.97	69.13	1.75	0.96	40.15	124.80
880	62.01	64.78	1.66	0.76	44.89	124.10
881	62.10	53.14	1.59	0.96	50.12	122.90
882	62.24	38.56	1.26	0.86	45.56	121.95
883	62.34	74.49	1.03	0.96	29.67	122.37
884	62.49	150.00	1.24	1.05	20.54	123.30
885	62.54	158.20	1.26	1.05	16.26	124.73
886	62.66	185.32	1.44	1.05	14.83	125.34
887	62.74	200.61	1.45	1.05	13.53	125.96
888	62.87	213.05	1.49	1.05	12.71	126.26
889	62.92	221.25	1.54	1.05	12.47	126.53
890	63.03	217.20	1.57	1.05	12.52	126.76
891	63.15	219.03	1.63	1.15	12.78	126.94
892	63.26	217.91	1.66	1.15	13.29	127.02
893	63.37	202.33	1.66	1.15	13.86	126.99
894	63.45	199.80	1.66	1.15	13.98	126.43
895	63.54	198.28	1.34	1.15	13.43	125.53
896	63.61	194.63	1.14	1.15	13.55	124.83
897	63.69	177.93	1.33	1.15	15.16	124.41
898	63.79	143.52	1.25	1.15	19.52	124.50
899	63.89	103.64	1.44	1.15	24.98	122.85
900	63.98	71.25	0.85	1.15	33.14	121.18
901	64.07	50.71	0.88	1.15	41.48	118.58
902	64.15	37.45	0.76	1.15	52.38	117.41
903	64.23	29.15	0.71	1.15	63.17	116.21
904	64.26	23.28	0.70	1.15	71.64	115.56
905	64.29	22.98	0.70	1.43	74.94	115.28
906	64.33	24.39	0.67	1.43	73.52	114.50
907	64.43	22.67	0.50	1.43	71.96	113.44
908	64.47	21.86	0.45	1.53	70.64	112.07
909	64.53	22.27	0.41	1.53	70.50	111.44
910	64.62	21.25	0.40	1.53	73.02	110.99
911	64.72	18.22	0.40	1.53	77.07	110.67
912	64.78	17.81	0.39	1.53	81.00	110.63

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	64.86	17.91	0.41	1.53	81.31	111.04
914	64.96	18.83	0.47	1.62	81.88	112.08
915	65.06	19.53	0.57	1.62	82.82	113.03
916	65.11	19.23	0.60	1.62	84.86	113.77
917	65.21	18.83	0.64	1.62	87.03	114.04
918	65.31	18.42	0.64	1.62	88.72	114.06
919	65.40	18.02	0.62	1.62	86.96	113.18
920	65.50	18.32	0.43	1.62	82.58	111.98
921	65.58	19.33	0.38	1.62	77.73	110.66
922	65.68	19.33	0.38	1.72	76.23	110.07
923	65.78	18.42	0.34	1.72	80.14	109.58
924	65.84	15.18	0.33	1.72	84.20	109.11
925	65.86	15.54	0.33	1.72	87.64	108.93
926	65.87	15.89	0.33	1.72	83.53	109.02
927	65.98	18.02	0.33	1.72	80.56	109.07
928	66.10	17.81	0.33	1.72	79.47	109.53
929	66.21	17.61	0.38	1.72	79.99	110.29
930	66.34	19.13	0.43	1.72	79.70	110.56
931	66.48	18.62	0.36	1.72	78.52	110.82
932	66.62	19.18	0.42	1.72	79.48	110.40
933	66.68	17.51	0.38	1.72	80.06	110.93
934	66.87	19.23	0.44	1.82	82.16	112.09
935	66.96	19.94	0.62	1.82	85.60	113.68
936	67.11	18.22	0.72	1.82	91.78	114.55
937	67.21	16.50	0.70	1.82	96.41	113.97
938	67.35	15.69	0.52	1.82	96.63	113.04
939	67.45	16.40	0.51	1.82	100.00	114.17
940	67.59	16.30	0.99	1.82	74.11	118.15
941	67.68	49.49	1.42	1.82	36.45	123.51
942	67.83	166.29	1.89	1.91	19.64	126.78
943	67.92	263.46	1.98	1.91	12.65	128.48
944	68.02	293.92	1.94	1.91	10.42	129.17
945	68.07	292.10	2.13	2.01	9.92	129.67
946	68.16	310.93	2.28	2.01	9.66	129.78
947	68.26	313.97	1.99	2.01	9.50	129.92
948	68.35	307.79	2.22	2.01	9.90	130.20
949	68.45	301.41	2.56	2.01	10.63	130.56
950	68.55	290.58	2.39	2.01	11.31	130.75
951	68.65	282.39	2.48	2.01	12.31	130.45
952	68.78	242.10	2.43	2.01	13.49	130.30
953	68.78	236.18	2.41	2.01	14.48	130.04
954	68.79	236.18	2.38	2.01	14.61	129.83
955	68.83	230.26	2.26	2.10	13.84	129.35
956	68.93	246.56	1.93	2.20	12.61	128.54
957	68.98	254.15	1.63	2.20	11.06	127.54
958	69.04	259.82	1.45	2.20	10.24	126.83
959	69.12	259.31	1.45	2.20	10.05	126.69
960	69.22	258.60	1.54	2.29	10.33	126.73

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	69.28	248.07	1.50	2.29	10.73	126.58
962	69.36	236.43	1.40	2.29	11.11	126.14
963	69.45	227.63	1.34	2.29	11.72	125.57
964	69.60	206.58	1.26	2.29	12.39	125.02
965	69.70	196.05	1.19	2.29	13.09	124.55
966	69.80	191.80	1.17	2.29	13.36	124.31
967	69.89	192.31	1.17	2.29	13.46	124.27
968	69.98	192.00	1.18	2.39	13.63	124.23
969	70.08	186.03	1.17	2.39	14.12	123.79
970	70.18	167.51	1.02	2.39	16.36	123.38
971	70.32	125.81	1.13	2.39	21.31	122.57
972	70.42	79.55	1.08	2.29	30.56	121.25
973	70.54	47.47	0.86	2.29	44.49	118.96
974	70.66	28.34	0.70	2.29	62.02	116.28
975	70.75	19.64	0.59	2.29	75.05	114.30
976	70.80	22.47	0.52	2.48	75.37	112.45
977	70.89	23.18	0.33	2.48	68.76	110.56
978	70.99	22.17	0.25	2.48	64.60	108.11
979	71.08	21.56	0.21	2.48	63.51	106.54
980	71.17	21.05	0.19	2.58	62.68	105.76
981	71.23	21.56	0.19	2.58	63.23	105.32
982	71.33	20.04	0.18	2.58	62.20	104.96
983	71.42	21.56	0.16	2.58	59.64	104.34
984	71.52	23.48	0.14	2.58	56.37	103.78
985	71.58	23.28	0.14	2.58	56.41	104.37
986	71.67	22.77	0.19	2.58	59.63	105.94
987	71.81	22.47	0.26	2.68	62.96	107.28
988	71.82	22.06	0.26	2.68	64.77	107.94
989	71.86	22.06	0.26	2.68	65.57	107.99
990	71.91	21.66	0.26	2.68	65.98	108.01
991	71.97	21.66	0.26	2.68	66.78	108.09
992	72.05	21.36	0.27	2.68	67.69	108.22
993	72.10	20.95	0.28	2.68	68.75	108.41
994	72.20	20.95	0.29	2.68	69.45	108.55
995	72.25	20.95	0.29	2.77	70.00	108.81
996	72.34	20.95	0.31	2.77	70.88	109.34
997	72.44	21.25	0.35	2.77	72.30	109.98
998	72.53	20.95	0.38	2.77	74.03	110.47
999	72.63	20.34	0.39	2.77	74.87	110.69
1000	72.69	20.95	0.39	2.77	75.74	110.64
1001	72.82	20.04	0.38	2.77	75.05	110.60
1002	72.92	20.95	0.38	2.77	73.32	110.41
1003	73.06	22.27	0.35	2.87	70.40	110.34
1004	73.16	22.98	0.35	2.87	70.10	110.49
1005	73.30	21.66	0.39	2.87	74.63	110.57
1006	73.35	17.81	0.39	2.87	78.07	110.69
1007	73.38	20.04	0.39	2.87	79.92	110.48
1008	73.47	19.64	0.37	2.87	77.08	110.44

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	73.53	20.24	0.37	2.96	76.55	110.30
1010	73.62	20.24	0.36	2.96	76.12	110.24
1011	73.71	19.94	0.36	2.96	77.10	110.31
1012	73.77	19.53	0.38	2.96	79.03	110.64
1013	73.86	19.23	0.42	3.06	81.15	111.10
1014	73.96	19.13	0.45	3.06	82.23	111.57
1015	74.06	19.64	0.47	3.06	82.36	111.89
1016	74.13	19.84	0.48	3.06	81.49	112.15
1017	74.24	20.45	0.48	3.06	80.85	112.33
1018	74.34	20.65	0.50	3.06	80.73	112.54
1019	74.44	20.45	0.51	3.06	81.57	112.67
1020	74.58	20.04	0.51	3.06	81.41	112.52
1021	74.68	20.50	0.47	3.06	78.40	111.21
1022	74.80	20.24	0.27	3.15	74.93	109.94
1023	74.92	20.55	0.31	3.15	73.80	109.11
1024	75.07	19.84	0.36	3.15	75.92	109.75
1025	75.08	19.64	0.36	3.15	77.59	110.03
1026	75.11	19.64	0.36	3.25	78.16	110.07
1027	75.16	19.43	0.37	3.25	78.98	110.30
1028	75.25	19.43	0.39	3.25	80.91	110.74
1029	75.32	18.93	0.43	3.35	82.63	111.17
1030	75.40	18.93	0.44	3.35	83.61	111.30
1031	75.50	18.93	0.42	3.35	83.49	110.99
1032	75.59	18.42	0.38	3.35	83.68	110.27
1033	75.69	17.41	0.34	3.35	84.66	109.43
1034	75.78	16.70	0.31	3.35	85.61	108.57
1035	75.88	16.30	0.28	3.35	85.84	107.84
1036	75.96	16.09	0.26	3.35	85.52	107.10
1037	76.05	15.79	0.24	3.35	84.67	106.59
1038	76.14	16.09	0.23	3.44	84.37	106.31
1039	76.26	15.89	0.23	3.44	84.09	106.37
1040	76.36	16.09	0.24	3.44	84.42	106.50
1041	76.41	16.09	0.24	3.44	84.56	106.55
1042	76.51	15.89	0.23	3.44	85.32	106.38
1043	76.65	15.38	0.23	3.44	86.78	106.27
1044	76.72	15.08	0.24	3.44	88.00	106.27
1045	76.79	15.18	0.24	3.54	88.79	106.37
1046	76.89	15.08	0.24	3.54	90.66	107.25
1047	76.98	15.28	0.33	3.54	97.45	110.24
1048	77.08	15.89	0.64	3.54	92.62	112.89
1049	77.18	22.67	0.68	3.54	84.18	115.44
1050	77.28	27.83	0.85	3.54	77.43	117.59
1051	77.37	29.55	1.20	3.63	80.05	119.52
1052	77.42	26.11	1.45	3.63	81.77	120.82
1053	77.42	30.47	1.49	3.73	80.76	121.59
1054	77.44	33.91	1.59	3.73	75.56	122.42
1055	77.48	37.45	1.79	3.73	72.09	123.26
1056	77.52	40.69	1.91	3.82	69.21	123.98

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1057	77.54	43.52	1.97	3.82	67.19	124.41
1058	77.57	44.43	2.03	3.82	67.13	124.60
1059	77.62	42.00	2.05	3.82	68.46	124.53
1060	77.65	40.18	1.97	3.82	70.82	124.28
1061	77.67	37.96	1.92	3.82	71.65	123.83
1062	77.71	37.85	1.76	3.82	71.90	123.46
1063	77.71	37.75	1.73	3.73	71.69	122.88
1064	77.76	35.32	1.55	3.82	73.39	122.11
1065	77.81	31.07	1.35	3.73	75.70	120.92
1066	77.90	28.74	1.16	3.82	78.54	119.86
1067	77.95	27.13	1.11	3.82	80.91	119.27
1068	78.01	25.91	1.14	3.82	82.45	118.93
1069	78.10	25.81	1.05	3.82	78.83	118.74
1070	78.16	30.87	0.98	3.82	63.10	119.02
1071	78.24	52.02	0.97	3.92	49.66	119.64
1072	78.29	63.76	1.00	3.92	39.63	120.51
1073	78.39	78.54	1.05	3.92	34.27	121.15
1074	78.47	89.78	1.06	3.92	31.50	121.96
1075	78.53	93.42	1.23	3.92	31.16	123.05
1076	78.62	94.84	1.51	3.92	32.43	124.23
1077	78.68	94.33	1.70	3.92	34.74	124.97
1078	78.69	84.31	1.76	3.92	35.67	125.92
1079	78.78	100.10	2.16	3.92	36.75	126.73
1080	78.81	97.27	2.34	3.92	38.10	127.66
1081	78.92	87.04	2.58	3.92	41.97	127.53
1082	79.03	71.36	2.29	3.92	46.36	126.48
1083	79.16	59.92	1.72	3.92	46.07	125.04
1084	79.26	73.78	1.52	4.01	39.53	124.49
1085	79.35	101.31	1.66	4.01	33.43	125.47
1086	79.45	116.80	2.02	4.01	30.53	126.98
1087	79.54	125.00	2.38	4.01	29.73	128.12
1088	79.64	130.77	2.50	4.01	29.16	128.84
1089	79.74	137.75	2.60	4.11	26.56	130.21
1090	79.88	191.60	3.45	4.21	23.02	131.59
1091	79.98	231.27	3.61	4.21	19.11	132.52
1092	80.12	263.76	3.19	4.21	17.02	132.38
1093	80.22	251.11	2.99	4.21	15.38	131.25
1094	80.36	244.53	2.16	4.21	14.66	129.87
1095	80.46	238.56	1.83	4.21	13.44	128.07
1096	80.60	233.20	1.51	4.21	12.69	126.55
1097	80.70	223.58	1.18	4.21	12.64	125.70
1098	80.83	214.78	1.39	4.30	13.47	125.59
1099	80.94	200.81	1.51	4.30	15.55	125.88
1100	81.01	167.71	1.47	4.21	17.35	125.78
1101	81.04	165.18	1.46	4.40	18.79	125.42
1102	81.09	159.61	1.41	4.40	19.43	125.22
1103	81.13	150.30	1.41	4.40	20.68	125.10
1104	81.18	138.66	1.47	4.40	23.02	125.16

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1105	81.23	121.46	1.58	4.40	26.12	125.34
1106	81.28	109.61	1.68	4.40	29.84	125.42
1107	81.33	96.96	1.71	4.40	33.69	125.60
1108	81.37	87.75	1.89	4.40	38.07	125.99
1109	81.42	80.57	2.17	4.40	42.18	126.42
1110	81.47	75.20	2.23	4.40	45.53	126.65
1111	81.52	71.36	2.25	4.40	47.80	126.68
1112	81.56	69.23	2.31	4.40	48.75	126.82
1113	81.61	72.17	2.40	4.40	49.37	126.98
1114	81.64	70.14	2.41	4.40	50.62	127.02
1115	81.70	63.87	2.40	4.40	54.71	126.72
1116	81.75	52.33	2.36	4.40	60.30	126.26
1117	81.79	46.76	2.28	4.40	66.56	125.58
1118	81.82	41.40	2.11	4.40	70.87	124.78
1119	81.86	37.35	1.89	4.40	74.63	123.79
1120	81.91	33.91	1.69	4.40	77.94	122.73
1121	81.95	30.57	1.50	4.40	81.32	121.53
1122	82.00	27.23	1.28	4.40	84.85	120.08
1123	82.09	23.99	1.02	4.40	88.86	118.54
1124	82.15	21.36	0.91	4.40	93.55	117.24
1125	82.19	19.43	0.86	4.49	97.46	116.22
1126	82.26	18.52	0.73	4.49	100.00	115.23
1127	82.34	17.00	0.65	4.49	100.00	114.22
1128	82.39	15.28	0.62	4.49	100.00	113.42
1129	82.48	14.47	0.58	4.59	100.00	112.80
1130	82.58	14.37	0.53	4.59	100.00	112.31
1131	82.62	14.88	0.51	4.59	100.00	111.87
1132	82.70	14.78	0.48	4.59	100.00	111.60
1133	82.77	14.78	0.47	4.59	100.00	111.26
1134	82.87	14.68	0.45	4.59	100.00	111.18
1135	82.96	15.59	0.46	4.68	100.00	111.16
1136	83.06	18.22	0.44	4.68	90.71	111.46
1137	83.16	20.65	0.45	4.68	79.92	111.87
1138	83.25	25.10	0.46	4.78	72.16	112.31
1139	83.34	27.43	0.46	4.78	66.55	112.65
1140	83.44	28.85	0.46	4.87	65.23	113.13
1141	83.54	28.54	0.53	4.87	65.41	113.57
1142	83.64	28.64	0.54	4.87	66.63	114.00
1143	83.73	28.44	0.56	4.87	69.35	114.34
1144	83.83	25.81	0.63	4.87	71.50	114.84
1145	83.85	27.33	0.67	5.07	74.13	115.50
1146	83.89	27.13	0.74	5.07	74.39	116.20
1147	83.94	27.73	0.82	5.07	76.21	117.47
1148	84.04	29.25	1.08	5.07	76.59	118.57
1149	84.09	30.57	1.13	5.07	76.69	119.51
1150	84.13	31.17	1.19	5.07	76.09	119.96
1151	84.18	31.88	1.26	5.07	76.24	120.30
1152	84.25	31.78	1.29	5.07	77.16	120.50

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1153	84.33	30.67	1.30	5.07	79.11	120.53
1154	84.37	29.25	1.31	5.07	81.52	120.45
1155	84.46	28.24	1.30	5.16	83.35	120.16
1156	84.52	27.33	1.20	5.16	84.37	119.78
1157	84.57	26.72	1.15	5.16	84.59	119.32
1158	84.67	26.42	1.10	5.16	84.79	119.04
1159	84.71	26.21	1.08	5.16	85.52	118.94
1160	84.81	25.61	1.12	5.16	87.61	119.09
1161	84.86	24.70	1.19	5.16	90.53	119.33
1162	84.91	23.99	1.23	5.16	93.50	119.49
1163	85.00	23.28	1.24	5.16	95.77	119.52
1164	85.05	22.77	1.24	5.16	97.25	119.32
1165	85.15	22.17	1.16	5.16	97.82	118.97
1166	85.19	21.86	1.09	5.16	97.66	118.30
1167	85.29	21.15	0.96	5.16	97.29	117.62
1168	85.35	20.75	0.90	5.16	97.56	116.95
1169	85.42	20.04	0.86	5.16	98.84	116.52
1170	85.48	19.23	0.83	5.16	100.00	116.19
1171	85.55	18.72	0.81	5.26	100.00	115.89
1172	85.63	18.12	0.79	5.26	100.00	115.64
1173	85.68	17.51	0.78	5.26	100.00	115.45
1174	85.77	17.00	0.77	5.26	100.00	115.34
1175	85.82	16.80	0.77	5.26	100.00	115.39
1176	85.89	17.10	0.80	5.26	100.00	115.55
1177	85.96	18.12	0.81	5.26	100.00	115.74
1178	86.03	19.53	0.79	5.26	98.42	115.81
1179	86.11	21.25	0.76	5.26	92.88	115.75
1180	86.16	22.17	0.74	5.26	88.74	115.62
1181	86.25	22.67	0.72	5.26	89.87	115.47
1182	86.36	19.94	0.73	5.26	94.60	114.88
1183	86.50	17.10	0.62	5.26	100.00	114.26
1184	86.51	17.21	0.61	5.26	100.00	113.63
1185	86.52	17.21	0.60	5.26	100.00	113.28
1186	86.57	17.31	0.54	5.26	100.00	112.52
1187	86.65	17.31	0.44	5.35	96.58	111.56
1188	86.71	17.31	0.41	5.35	94.30	110.68
1189	86.80	17.21	0.38	5.35	94.07	110.11
1190	86.90	16.50	0.35	5.45	95.37	109.44
1191	86.99	15.49	0.32	5.45	97.33	108.73
1192	87.04	15.08	0.30	5.45	98.63	108.13
1193	87.14	14.98	0.28	5.45	98.41	107.81
1194	87.19	15.18	0.28	5.45	97.17	107.78
1195	87.28	15.69	0.29	5.54	95.63	108.26
1196	87.38	16.50	0.33	5.54	93.79	108.83
1197	87.43	17.10	0.34	5.54	91.88	109.36
1198	87.52	17.71	0.35	5.54	89.95	109.63
1199	87.61	18.22	0.36	5.64	88.28	109.78
1200	87.66	18.52	0.36	5.64	87.04	109.79

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1201	87.76	18.62	0.35	5.64	86.65	109.67
1202	87.84	18.32	0.34	5.64	86.71	109.46
1203	87.91	18.12	0.33	5.64	87.47	109.24
1204	88.00	17.71	0.32	5.64	88.37	109.00
1205	88.11	17.31	0.31	5.73	89.54	108.84
1206	88.19	17.10	0.31	5.73	90.39	108.72
1207	88.25	17.00	0.31	5.73	90.81	108.62
1208	88.34	16.90	0.30	5.73	90.64	108.42
1209	88.44	16.90	0.29	5.83	90.17	108.15
1210	88.54	16.90	0.28	5.83	89.58	107.90
1211	88.64	16.90	0.27	5.83	89.37	107.73
1212	88.72	16.80	0.27	5.93	89.61	107.69
1213	88.82	16.70	0.28	5.93	90.07	107.73
1214	88.91	16.70	0.28	5.93	90.83	107.82
1215	89.01	16.50	0.28	5.93	91.58	107.90
1216	89.10	16.40	0.29	5.93	92.45	107.97
1217	89.19	16.30	0.29	6.02	93.00	107.82
1218	89.30	15.99	0.27	6.02	91.00	106.79
1219	89.39	16.09	0.18	6.12	89.02	106.17
1220	89.49	16.60	0.23	6.12	88.22	106.44
1221	89.59	16.90	0.29	6.12	90.32	107.86
1222	89.69	16.95	0.32	6.12	91.89	108.72
1223	89.73	17.00	0.33	6.21	90.02	109.17
1224	89.78	18.83	0.34	6.31	87.19	109.42
1225	89.83	19.33	0.34	6.31	84.28	109.67
1226	89.88	19.64	0.35	6.31	83.80	109.89
1227	89.93	19.64	0.36	6.31	83.63	110.18
1228	90.00	20.04	0.38	6.40	83.30	110.59
1229	90.07	20.75	0.41	6.40	82.14	111.03
1230	90.12	21.56	0.42	6.40	81.06	111.60
1231	90.22	22.27	0.46	6.40	80.51	112.20
1232	90.27	22.67	0.50	6.40	80.53	113.17
1233	90.36	23.89	0.60	6.40	77.53	114.19
1234	90.46	28.14	0.65	6.50	73.54	115.05
1235	90.50	30.06	0.66	6.50	70.62	115.50
1236	90.61	29.35	0.68	6.59	70.53	115.62
1237	90.66	28.74	0.68	6.59	71.78	115.45
1238	90.75	27.73	0.63	6.59	73.00	114.95
1239	90.84	26.11	0.57	6.59	74.84	114.27
1240	90.89	24.39	0.54	6.59	76.93	113.58
1241	90.99	23.38	0.50	6.59	79.28	113.09
1242	91.04	22.37	0.49	6.69	81.25	112.68
1243	91.14	21.46	0.48	6.69	83.54	112.40
1244	91.22	20.65	0.47	6.79	85.84	112.13
1245	91.28	19.84	0.46	6.79	88.45	111.80
1246	91.37	18.72	0.44	6.79	89.92	111.48
1247	91.47	18.93	0.42	6.88	90.14	111.12
1248	91.61	19.03	0.40	6.88	88.70	110.98

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1249	91.71	19.53	0.41	6.88	88.08	110.93
1250	91.81	19.33	0.41	6.88	87.81	110.97
1251	91.87	19.33	0.41	6.98	88.02	110.84
1252	92.00	19.13	0.39	6.98	86.12	110.10
1253	92.10	19.38	0.29	6.98	84.52	109.49
1254	92.20	19.43	0.32	7.07	83.14	109.22
1255	92.33	19.74	0.35	7.07	83.97	109.76
1256	92.38	19.79	0.37	7.07	84.45	110.16
1257	92.43	19.84	0.37	7.26	84.47	110.37
1258	92.48	20.14	0.38	7.26	85.19	110.58
1259	92.56	19.64	0.40	7.36	86.02	110.74
1260	92.63	19.53	0.40	7.36	87.16	110.82
1261	92.67	19.43	0.40	7.36	87.45	110.81
1262	92.72	19.43	0.40	7.36	87.55	110.79
1263	92.77	19.43	0.40	7.36	87.20	110.81
1264	92.86	19.74	0.40	7.46	86.63	110.88
1265	92.92	20.04	0.41	7.46	86.16	111.05
1266	92.97	20.14	0.42	7.55	86.69	111.44
1267	93.05	20.14	0.46	7.55	87.17	111.82
1268	93.10	20.45	0.47	7.55	87.05	112.15
1269	93.16	20.95	0.48	7.55	85.70	112.28
1270	93.25	21.56	0.48	7.65	83.79	112.35
1271	93.35	22.27	0.47	7.65	80.44	112.40
1272	93.40	24.19	0.47	7.65	78.94	112.28
1273	93.49	22.77	0.45	7.74	78.47	112.15
1274	93.56	22.47	0.45	7.74	79.73	111.99
1275	93.64	22.57	0.45	7.74	79.38	112.05
1276	93.73	23.28	0.46	7.74	78.34	112.52
1277	93.83	24.70	0.52	7.84	76.63	113.28
1278	93.88	26.42	0.57	8.03	75.40	114.39
1279	93.97	27.83	0.67	8.03	75.84	115.13
1280	94.07	26.42	0.70	8.03	78.80	115.71
1281	94.17	24.70	0.75	8.03	82.08	116.26
1282	94.26	25.81	0.86	8.03	80.59	116.63
1283	94.36	29.25	0.79	8.03	81.16	117.93
1284	94.45	28.24	1.17	8.03	80.92	119.20
1285	94.55	30.57	1.33	8.12	72.58	120.82
1286	94.64	48.48	1.34	8.12	58.20	121.86
1287	94.72	65.99	1.33	8.03	49.16	122.39
1288	94.74	64.98	1.34	8.03	41.37	122.92
1289	94.77	90.28	1.36	8.31	37.18	123.45
1290	94.85	97.87	1.44	8.31	33.27	124.10
1291	94.90	103.54	1.52	8.31	32.34	124.67
1292	94.95	106.48	1.62	8.31	32.54	125.32
1293	95.01	105.57	1.83	8.31	34.52	126.41
1294	95.09	101.62	2.33	8.31	37.59	127.40
1295	95.14	94.94	2.54	8.31	42.18	128.49
1296	95.23	86.54	3.07	8.31	47.11	129.05

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1297	95.29	77.43	3.22	8.31	52.64	129.44
1298	95.38	69.84	3.34	8.31	57.15	129.42
1299	95.43	65.69	3.35	8.31	59.57	129.33
1300	95.52	66.70	3.28	8.31	59.18	129.26
1301	95.57	70.75	3.23	8.31	56.95	129.08
1302	95.67	72.87	2.99	8.31	55.03	128.58
1303	95.77	69.74	2.61	8.22	56.22	127.67
1304	95.86	56.58	2.39	8.22	62.27	126.89
1305	95.95	44.23	2.56	8.22	64.67	126.27
1306	96.03	57.64	2.16	8.22	71.02	125.95
1307	96.11	37.96	2.38	8.31	66.58	126.41
1308	96.20	58.70	2.78	8.51	62.59	127.77
1309	96.30	80.57	3.26	8.60	51.74	129.50
1310	96.39	100.81	3.60	8.60	44.40	130.84
1311	96.50	122.37	3.84	8.70	38.62	131.75
1312	96.59	145.34	3.92	8.60	32.42	131.58
1313	96.69	166.80	2.74	8.60	26.91	130.69
1314	96.78	182.08	2.25	8.60	22.17	129.05
1315	96.87	191.29	1.93	8.60	20.37	128.23
1316	96.98	184.11	1.94	8.60	20.02	127.84
1317	97.02	180.06	1.94	8.51	21.02	127.82
1318	97.06	168.82	2.00	8.70	21.61	128.14
1319	97.12	179.96	2.21	8.70	22.39	128.67
1320	97.16	177.63	2.41	8.70	23.05	129.34
1321	97.21	172.97	2.61	8.70	24.45	129.98
1322	97.27	170.04	2.93	8.60	25.91	130.63
1323	97.33	168.12	3.21	8.60	27.09	131.15
1324	97.40	166.09	3.29	8.60	27.88	131.39
1325	97.45	163.36	3.29	8.60	28.36	131.45
1326	97.50	161.94	3.32	8.60	29.21	131.67
1327	97.58	158.50	3.65	8.60	30.75	131.92
1328	97.65	146.66	3.76	8.51	32.97	132.07
1329	97.69	135.32	3.76	8.51	35.59	131.79
1330	97.74	120.95	3.57	8.51	38.21	131.25
1331	97.81	108.60	3.32	8.51	40.74	130.65
1332	97.88	101.62	3.24	8.51	42.61	130.19
1333	97.93	98.68	3.18	8.60	40.27	130.07
1334	98.03	125.30	2.99	8.79	31.75	130.21
1335	98.15	191.80	2.67	9.08	23.53	130.24
1336	98.21	230.36	2.44	9.08	17.43	129.79
1337	98.32	262.75	1.96	9.08	13.84	129.24
1338	98.42	299.09	1.85	9.08	10.93	128.66
1339	98.47	343.32	1.71	9.08	5.00	127.75
1340	98.57	405.97	1.08	9.18	5.00	126.30
1341	98.70	416.60	0.89	9.18	4.53	124.66
1342	98.78	412.55	0.91	9.27	4.67	124.49
1343	98.85	382.49	1.03	9.27	5.00	124.66
1344	98.86	321.86	1.03	9.08	5.00	124.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1345	98.92	308.60	1.04	9.08	5.00	124.62
1346	98.98	337.35	1.04	9.18	5.00	124.75
1347	99.03	309.11	1.10	9.08	5.00	125.36
1348	99.11	281.37	1.35	8.98	5.00	126.14
1349	99.18	254.05	1.55	8.98	12.62	127.01
1350	99.23	230.16	1.76	8.89	15.59	128.18
1351	99.32	209.41	2.34	8.79	19.03	129.37
1352	99.37	189.57	2.77	8.79	22.90	130.41
1353	99.45	168.82	3.08	8.79	26.41	130.81
1354	99.56	152.93	3.11	8.79	29.20	131.00
1355	99.64	149.59	3.27	8.79	31.66	131.22
1356	99.71	139.27	3.58	8.79	34.06	131.59
1357	99.75	130.87	3.81	8.89	36.97	131.47
1358	99.90	114.27	3.39	8.79	40.25	131.23
1359	99.95	103.44	3.58	8.70	45.52	131.15
1360	100.04	87.25	4.17	8.70	42.09	132.11
1361	100.14	157.89	4.41	8.98	32.87	133.35
1362	100.14	232.39	4.40	8.98	26.10	134.08
1363	100.15	224.29	4.36	9.08	23.29	134.83
1364	100.19	250.30	5.18	9.18	22.57	136.06
1365	100.21	301.41	6.43	9.27	21.06	137.28
1366	100.24	342.10	7.12	9.27	14.70	135.60
1367	100.28	411.74	0.00	9.46	8.11	131.27
1368	100.31	477.42	0.00	9.56	N/A	87.36
1369	100.33	523.38	0.00	9.56	N/A	87.36
1370	100.38	524.49	0.00	9.56	N/A	87.36
1371	100.39	525.60	0.00	9.56	N/A	87.36
1372	100.43	529.15	0.00	9.65	N/A	87.36
1373	100.48	540.18	0.00	9.65	N/A	87.36
1374	100.53	496.96	0.00	9.56	N/A	87.36
1375	100.57	490.58	0.00	9.65	N/A	87.36
1376	100.60	500.40	0.00	9.94	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.04	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
2	0.10	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
3	0.11	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
4	0.16	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
5	0.19	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
6	0.24	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
7	0.31	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
8	0.38	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
9	0.43	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
10	0.49	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
11	0.58	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
12	0.63	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
13	0.67	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
14	0.72	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
15	0.72	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
16	0.84	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
17	0.96	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
18	1.06	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
19	1.24	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
20	1.30	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
21	1.48	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
22	1.59	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
23	1.69	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
24	1.69	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
25	1.74	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
26	1.79	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
27	1.84	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
28	1.88	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
29	1.93	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
30	1.99	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
31	2.03	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
32	2.08	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
33	2.13	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
34	2.22	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
35	2.27	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
36	2.33	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
37	2.42	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
38	2.48	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
39	2.56	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
40	2.65	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
41	2.72	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
42	2.80	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
43	2.89	0.15	0.00	0.15	1.00	0.272	1.68	0.161	1.00	1.10	2.000	No
44	2.94	0.16	0.00	0.16	1.00	0.272	1.68	0.161	1.00	1.10	2.000	No
45	3.04	0.16	0.00	0.16	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
46	3.14	0.17	0.00	0.17	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
47	3.23	0.17	0.00	0.17	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
48	3.31	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	3.37	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
50	3.48	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
51	3.57	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
52	3.65	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
53	3.71	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
54	3.82	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
55	3.91	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
56	4.00	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
57	4.10	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
58	4.19	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
59	4.26	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
60	4.35	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
61	4.44	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
62	4.52	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
63	4.53	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
64	4.58	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
65	4.63	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
66	4.68	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
67	4.72	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
68	4.77	0.25	0.00	0.25	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
69	4.82	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
70	4.88	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
71	4.96	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
72	5.01	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
73	5.08	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
74	5.16	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
75	5.21	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
76	5.30	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
77	5.37	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
78	5.45	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
79	5.52	0.29	0.00	0.29	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
80	5.59	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
81	5.65	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
82	5.74	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
83	5.83	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
84	5.89	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
85	5.97	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
86	6.07	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
87	6.12	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
88	6.22	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
89	6.28	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
90	6.36	0.34	0.00	0.34	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
91	6.46	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
92	6.52	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
93	6.60	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
94	6.70	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
95	6.76	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
96	6.84	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	6.94	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
98	7.03	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
99	7.13	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
100	7.19	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
101	7.32	0.39	0.00	0.39	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
102	7.42	0.39	0.00	0.39	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
103	7.49	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
104	7.57	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
105	7.66	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
106	7.76	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
107	7.77	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
108	7.78	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
109	7.82	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
110	7.87	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
111	7.92	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
112	7.97	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
113	8.01	0.42	0.00	0.42	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
114	8.06	0.42	0.00	0.42	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
115	8.11	0.42	0.00	0.42	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
116	8.20	0.43	0.00	0.43	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
117	8.26	0.43	0.00	0.43	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
118	8.35	0.44	0.00	0.44	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
119	8.40	0.44	0.00	0.44	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
120	8.49	0.44	0.00	0.44	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
121	8.54	0.44	0.00	0.44	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
122	8.64	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
123	8.69	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
124	8.79	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
125	8.84	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
126	8.93	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
127	9.03	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
128	9.08	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
129	9.11	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
130	9.12	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
131	9.17	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
132	9.22	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
133	9.31	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
134	9.36	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
135	9.40	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
136	9.46	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
137	9.51	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
138	9.55	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
139	9.61	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
140	9.69	0.50	0.00	0.50	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
141	9.74	0.51	0.00	0.51	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
142	9.81	0.51	0.00	0.51	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
143	9.89	0.51	0.00	0.51	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
144	9.94	0.52	0.00	0.52	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	10.03	0.52	0.00	0.52	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
146	10.08	0.52	0.00	0.52	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
147	10.18	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
148	10.23	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
149	10.33	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
150	10.40	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
151	10.47	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
152	10.51	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
153	10.56	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
154	10.61	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
155	10.67	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
156	10.75	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
157	10.80	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
158	10.85	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
159	10.90	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
160	11.00	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
161	11.05	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
162	11.14	0.58	0.00	0.58	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
163	11.21	0.58	0.00	0.58	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
164	11.29	0.59	0.00	0.59	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
165	11.38	0.59	0.00	0.59	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
166	11.46	0.60	0.00	0.60	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
167	11.52	0.60	0.00	0.60	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
168	11.60	0.61	0.00	0.61	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
169	11.67	0.61	0.00	0.61	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
170	11.72	0.61	0.00	0.61	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
171	11.81	0.62	0.00	0.62	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
172	11.86	0.62	0.00	0.62	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
173	11.96	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
174	12.01	0.63	0.00	0.63	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
175	12.10	0.63	0.00	0.63	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
176	12.16	0.64	0.00	0.64	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
177	12.24	0.64	0.00	0.64	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
178	12.32	0.64	0.00	0.64	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
179	12.39	0.65	0.00	0.65	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
180	12.48	0.65	0.00	0.65	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
181	12.50	0.65	0.00	0.65	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
182	12.54	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
183	12.64	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
184	12.68	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
185	12.77	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
186	12.82	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
187	12.89	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
188	12.97	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
189	13.03	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
190	13.12	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
191	13.16	0.69	0.00	0.69	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
192	13.26	0.70	0.00	0.70	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	13.34	0.70	0.00	0.70	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
194	13.41	0.70	0.00	0.70	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
195	13.50	0.71	0.00	0.71	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
196	13.60	0.71	0.00	0.71	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
197	13.65	0.72	0.00	0.72	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
198	13.75	0.72	0.00	0.72	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
199	13.80	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
200	13.89	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
201	13.94	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
202	14.03	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
203	14.11	0.74	0.00	0.74	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
204	14.13	0.74	0.00	0.74	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
205	14.18	0.75	0.00	0.75	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
206	14.22	0.75	0.00	0.75	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
207	14.28	0.75	0.00	0.75	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
208	14.37	0.76	0.00	0.76	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
209	14.44	0.76	0.00	0.76	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
210	14.51	0.76	0.00	0.76	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
211	14.60	0.77	0.00	0.77	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
212	14.65	0.77	0.00	0.77	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
213	14.75	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
214	14.85	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
215	14.91	0.79	0.00	0.79	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
216	14.99	0.79	0.00	0.79	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
217	15.09	0.80	0.00	0.80	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
218	15.18	0.80	0.00	0.80	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
219	15.25	0.81	0.00	0.81	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
220	15.33	0.81	0.00	0.81	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
221	15.43	0.82	0.00	0.82	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
222	15.51	0.82	0.00	0.82	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
223	15.59	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
224	15.67	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
225	15.76	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
226	15.86	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
227	15.95	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
228	16.05	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
229	16.14	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
230	16.20	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
231	16.28	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
232	16.34	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
233	16.44	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
234	16.50	0.88	0.00	0.88	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
235	16.58	0.88	0.00	0.88	0.97	0.263	1.68	0.157	1.00	1.10	2.000	Yes
236	16.73	0.89	0.00	0.89	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
237	16.82	0.89	0.00	0.89	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
238	16.92	0.90	0.00	0.90	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
239	17.01	0.90	0.00	0.90	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
240	17.11	0.91	0.00	0.91	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	17.12	0.91	0.00	0.91	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
242	17.14	0.91	0.00	0.91	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
243	17.19	0.91	0.00	0.91	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
244	17.28	0.92	0.00	0.92	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
245	17.33	0.92	0.00	0.92	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
246	17.43	0.92	0.00	0.92	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
247	17.47	0.93	0.00	0.93	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
248	17.57	0.93	0.00	0.93	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
249	17.65	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
250	17.72	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
251	17.81	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
252	17.86	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
253	17.95	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
254	18.05	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
255	18.10	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
256	18.20	0.97	0.00	0.97	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
257	18.30	0.97	0.00	0.97	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
258	18.39	0.98	0.00	0.98	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
259	18.48	0.98	0.00	0.98	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
260	18.58	0.99	0.00	0.99	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
261	18.66	0.99	0.00	0.99	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
262	18.74	1.00	0.00	1.00	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
263	18.87	1.00	0.00	1.00	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
264	18.97	1.01	0.00	1.01	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
265	19.06	1.01	0.00	1.01	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
266	19.16	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
267	19.25	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
268	19.27	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
269	19.30	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
270	19.34	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
271	19.39	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
272	19.49	1.04	0.00	1.04	0.96	0.262	1.68	0.155	1.00	1.10	2.000	No
273	19.55	1.04	0.00	1.04	0.96	0.262	1.68	0.155	1.00	1.10	2.000	No
274	19.63	1.04	0.00	1.04	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
275	19.68	1.05	0.00	1.05	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
276	19.74	1.05	0.00	1.05	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
277	19.83	1.05	0.00	1.05	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
278	19.87	1.06	0.00	1.06	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
279	19.94	1.06	0.00	1.06	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
280	20.02	1.06	0.00	1.06	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
281	20.07	1.07	0.00	1.07	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
282	20.17	1.07	0.00	1.07	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
283	20.21	1.07	0.00	1.07	0.96	0.261	1.68	0.155	1.00	1.10	2.000	Yes
284	20.28	1.08	0.00	1.08	0.96	0.261	1.68	0.155	1.00	1.10	2.000	Yes
285	20.36	1.08	0.00	1.08	0.96	0.261	1.68	0.155	1.00	1.10	2.000	Yes
286	20.41	1.09	0.00	1.09	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
287	20.48	1.09	0.00	1.09	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
288	20.55	1.09	0.00	1.09	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	20.60	1.10	0.00	1.10	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
290	20.70	1.10	0.00	1.10	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
291	20.74	1.11	0.00	1.11	0.95	0.261	1.68	0.155	0.99	1.10	2.000	No
292	20.79	1.11	0.00	1.11	0.95	0.261	1.68	0.155	0.99	1.10	2.000	No
293	20.89	1.11	0.00	1.11	0.95	0.261	1.68	0.155	0.99	1.10	2.000	No
294	20.96	1.12	0.00	1.12	0.95	0.261	1.68	0.155	0.99	1.10	2.000	No
295	21.04	1.12	0.00	1.12	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
296	21.13	1.13	0.00	1.13	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
297	21.22	1.13	0.00	1.13	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
298	21.29	1.14	0.00	1.14	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
299	21.35	1.14	0.00	1.14	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
300	21.37	1.14	0.00	1.14	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
301	21.42	1.14	0.00	1.14	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
302	21.47	1.15	0.00	1.15	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
303	21.48	1.15	0.00	1.15	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
304	21.52	1.15	0.00	1.15	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
305	21.57	1.15	0.00	1.15	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
306	21.62	1.16	0.00	1.16	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
307	21.66	1.16	0.00	1.16	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
308	21.71	1.16	0.00	1.16	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
309	21.76	1.17	0.00	1.17	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
310	21.81	1.17	0.00	1.17	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
311	21.85	1.17	0.00	1.17	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
312	21.91	1.17	0.00	1.17	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
313	21.95	1.18	0.00	1.18	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
314	22.00	1.18	0.00	1.18	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
315	22.05	1.18	0.00	1.18	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
316	22.10	1.19	0.00	1.19	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
317	22.15	1.19	0.00	1.19	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
318	22.19	1.19	0.00	1.19	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
319	22.24	1.19	0.00	1.19	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
320	22.29	1.20	0.00	1.20	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
321	22.34	1.20	0.00	1.20	0.95	0.259	1.68	0.154	0.98	1.10	2.000	No
322	22.39	1.20	0.00	1.20	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
323	22.43	1.21	0.00	1.21	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
324	22.48	1.21	0.00	1.21	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
325	22.55	1.21	0.00	1.21	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
326	22.62	1.22	0.00	1.22	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
327	22.63	1.22	0.00	1.22	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
328	22.72	1.22	0.00	1.22	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
329	22.77	1.23	0.00	1.23	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
330	22.83	1.23	0.00	1.23	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
331	22.91	1.24	0.00	1.24	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
332	22.96	1.24	0.00	1.24	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
333	23.02	1.24	0.00	1.24	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
334	23.10	1.25	0.00	1.25	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
335	23.16	1.25	0.00	1.25	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
336	23.20	1.25	0.00	1.25	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	23.26	1.26	0.00	1.26	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
338	23.35	1.26	0.00	1.26	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
339	23.39	1.27	0.00	1.27	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
340	23.48	1.27	0.00	1.27	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
341	23.54	1.27	0.00	1.27	0.95	0.258	1.68	0.154	0.96	1.10	2.000	No
342	23.63	1.28	0.00	1.28	0.95	0.258	1.68	0.154	0.96	1.10	2.000	No
343	23.69	1.28	0.00	1.28	0.95	0.258	1.68	0.154	0.96	1.10	2.000	No
344	23.78	1.29	0.00	1.29	0.95	0.258	1.68	0.154	0.96	1.10	2.000	No
345	23.87	1.29	0.00	1.29	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
346	23.88	1.29	0.00	1.29	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
347	23.93	1.30	0.00	1.30	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
348	24.02	1.30	0.00	1.30	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
349	24.04	1.30	0.00	1.30	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
350	24.05	1.30	0.00	1.30	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
351	24.15	1.31	0.00	1.31	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
352	24.20	1.31	0.00	1.31	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
353	24.30	1.32	0.00	1.32	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
354	24.40	1.32	0.00	1.32	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
355	24.46	1.33	0.00	1.33	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
356	24.54	1.33	0.00	1.33	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
357	24.64	1.34	0.00	1.34	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
358	24.73	1.34	0.00	1.34	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
359	24.78	1.35	0.00	1.35	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
360	24.88	1.35	0.00	1.35	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
361	24.94	1.36	0.00	1.36	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
362	25.02	1.36	0.00	1.36	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
363	25.12	1.37	0.00	1.37	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
364	25.17	1.37	0.00	1.37	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
365	25.27	1.38	0.00	1.38	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
366	25.36	1.38	0.00	1.38	0.94	0.257	1.68	0.153	0.95	1.10	2.000	No
367	25.43	1.38	0.00	1.38	0.94	0.257	1.68	0.153	0.95	1.10	2.000	No
368	25.50	1.39	0.00	1.39	0.94	0.257	1.68	0.153	0.95	1.10	2.000	No
369	25.60	1.39	0.00	1.39	0.94	0.257	1.68	0.152	0.95	1.10	2.000	No
370	25.64	1.40	0.00	1.40	0.94	0.256	1.68	0.152	0.95	1.10	2.000	No
371	25.67	1.40	0.00	1.40	0.94	0.256	1.68	0.152	0.95	1.10	2.000	No
372	25.71	1.40	0.00	1.40	0.94	0.256	1.68	0.152	0.95	1.10	2.000	No
373	25.79	1.40	0.00	1.40	0.94	0.256	1.68	0.152	0.95	1.10	2.000	No
374	25.93	1.41	0.00	1.41	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
375	26.03	1.42	0.00	1.42	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
376	26.13	1.42	0.00	1.42	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
377	26.24	1.43	0.00	1.43	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
378	26.37	1.43	0.00	1.43	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
379	26.47	1.44	0.00	1.44	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
380	26.60	1.45	0.00	1.45	0.94	0.255	1.68	0.152	0.94	1.10	2.000	No
381	26.71	1.45	0.00	1.45	0.94	0.255	1.68	0.152	0.94	1.10	2.000	No
382	26.85	1.46	0.00	1.46	0.93	0.255	1.68	0.152	0.94	1.10	2.000	No
383	26.95	1.46	0.00	1.46	0.93	0.255	1.68	0.152	0.94	1.10	2.000	No
384	27.04	1.47	0.00	1.47	0.93	0.255	1.68	0.152	0.94	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	27.09	1.47	0.00	1.47	0.93	0.255	1.68	0.152	0.94	1.10	2.000	No
386	27.19	1.48	0.00	1.48	0.93	0.255	1.68	0.151	0.94	1.10	2.000	No
387	27.23	1.48	0.00	1.48	0.93	0.255	1.68	0.151	0.94	1.10	2.000	No
388	27.33	1.48	0.00	1.48	0.93	0.255	1.68	0.151	0.93	1.10	2.000	No
389	27.40	1.49	0.00	1.49	0.93	0.255	1.68	0.151	0.93	1.10	2.000	No
390	27.47	1.49	0.00	1.49	0.93	0.255	1.68	0.151	0.93	1.10	2.000	No
391	27.57	1.50	0.00	1.50	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
392	27.66	1.50	0.00	1.50	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
393	27.77	1.51	0.00	1.51	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
394	27.86	1.51	0.00	1.51	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
395	27.96	1.52	0.00	1.52	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
396	28.06	1.52	0.00	1.52	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
397	28.15	1.53	0.00	1.53	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
398	28.25	1.54	0.00	1.54	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
399	28.34	1.54	0.00	1.54	0.93	0.253	1.68	0.151	0.93	1.10	2.000	No
400	28.44	1.55	0.00	1.55	0.93	0.253	1.68	0.151	0.93	1.10	2.000	No
401	28.54	1.55	0.00	1.55	0.93	0.253	1.68	0.151	0.93	1.10	2.000	No
402	28.62	1.56	0.00	1.56	0.93	0.253	1.68	0.150	0.93	1.10	2.000	No
403	28.71	1.56	0.00	1.56	0.93	0.253	1.68	0.150	0.93	1.10	2.000	No
404	28.77	1.56	0.00	1.56	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
405	28.86	1.57	0.00	1.57	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
406	28.91	1.57	0.00	1.57	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
407	28.97	1.58	0.00	1.58	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
408	29.04	1.58	0.00	1.58	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
409	29.10	1.58	0.00	1.58	0.92	0.253	1.68	0.150	0.92	1.10	2.000	No
410	29.15	1.59	0.00	1.59	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
411	29.25	1.59	0.00	1.59	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
412	29.34	1.60	0.00	1.60	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
413	29.38	1.60	0.00	1.60	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
414	29.48	1.61	0.00	1.61	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
415	29.55	1.61	0.00	1.61	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
416	29.63	1.62	0.00	1.62	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
417	29.72	1.62	0.00	1.62	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
418	29.82	1.63	0.00	1.63	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
419	29.88	1.63	0.00	1.63	0.92	0.251	1.68	0.149	0.92	1.10	2.000	Yes
420	29.96	1.63	0.00	1.63	0.92	0.251	1.68	0.149	0.92	1.10	2.000	Yes
421	30.06	1.64	0.00	1.64	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
422	30.13	1.64	0.00	1.64	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
423	30.18	1.65	0.01	1.64	0.92	0.252	1.68	0.150	0.92	1.10	0.180	No
424	30.28	1.65	0.01	1.64	0.92	0.252	1.68	0.150	0.92	1.10	0.180	No
425	30.37	1.66	0.01	1.65	0.92	0.253	1.68	0.150	0.92	1.10	0.180	No
426	30.47	1.66	0.01	1.65	0.92	0.253	1.68	0.150	0.92	1.10	0.181	No
427	30.57	1.67	0.02	1.65	0.92	0.253	1.68	0.151	0.91	1.10	0.181	No
428	30.66	1.68	0.02	1.65	0.92	0.254	1.68	0.151	0.91	1.10	0.181	No
429	30.74	1.68	0.02	1.66	0.92	0.254	1.68	0.151	0.91	1.10	0.181	No
430	30.82	1.68	0.03	1.66	0.92	0.254	1.68	0.151	0.91	1.10	0.182	No
431	30.90	1.69	0.03	1.66	0.92	0.254	1.68	0.151	0.91	1.10	0.182	No
432	31.01	1.70	0.03	1.66	0.92	0.255	1.68	0.151	0.91	1.10	0.182	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	31.10	1.70	0.03	1.67	0.91	0.255	1.68	0.151	0.91	1.10	0.183	No
434	31.19	1.71	0.04	1.67	0.91	0.255	1.68	0.152	0.91	1.10	0.183	No
435	31.28	1.71	0.04	1.67	0.91	0.255	1.68	0.152	0.91	1.10	0.183	No
436	31.35	1.72	0.04	1.67	0.91	0.256	1.68	0.152	0.91	1.10	0.183	No
437	31.43	1.72	0.04	1.68	0.91	0.256	1.68	0.152	0.91	1.10	0.183	No
438	31.53	1.73	0.05	1.68	0.91	0.256	1.68	0.152	0.91	1.10	0.184	No
439	31.60	1.73	0.05	1.68	0.91	0.256	1.68	0.152	0.91	1.10	0.184	No
440	31.67	1.74	0.05	1.68	0.91	0.257	1.68	0.153	0.91	1.10	0.184	No
441	31.77	1.74	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.184	No
442	31.84	1.75	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.185	No
443	31.91	1.75	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.185	No
444	31.98	1.76	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.185	No
445	31.98	1.76	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.185	No
446	32.04	1.76	0.06	1.70	0.91	0.258	1.68	0.153	0.91	1.10	0.185	No
447	32.12	1.76	0.07	1.70	0.91	0.258	1.68	0.153	0.91	1.10	2.000	Yes
448	32.16	1.77	0.07	1.70	0.91	0.258	1.68	0.153	0.91	1.10	2.000	Yes
449	32.27	1.77	0.07	1.70	0.91	0.258	1.68	0.153	0.91	1.10	2.000	Yes
450	32.33	1.78	0.07	1.70	0.91	0.258	1.68	0.154	0.91	1.10	2.000	Yes
451	32.41	1.78	0.08	1.71	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
452	32.50	1.79	0.08	1.71	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
453	32.58	1.79	0.08	1.71	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
454	32.66	1.80	0.08	1.71	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
455	32.74	1.80	0.09	1.72	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
456	32.84	1.81	0.09	1.72	0.90	0.260	1.68	0.154	0.91	1.10	2.000	Yes
457	32.90	1.81	0.09	1.72	0.90	0.260	1.68	0.154	0.91	1.10	2.000	Yes
458	32.98	1.82	0.09	1.72	0.90	0.260	1.68	0.155	0.91	1.10	2.000	Yes
459	33.08	1.82	0.10	1.73	0.90	0.260	1.68	0.155	0.91	1.10	0.188	No
460	33.14	1.83	0.10	1.73	0.90	0.260	1.68	0.155	0.91	1.10	0.188	No
461	33.22	1.83	0.10	1.73	0.90	0.261	1.68	0.155	0.91	1.10	0.188	No
462	33.32	1.84	0.10	1.73	0.90	0.261	1.68	0.155	0.91	1.10	0.188	No
463	33.37	1.84	0.11	1.73	0.90	0.261	1.68	0.155	0.91	1.10	0.188	No
464	33.47	1.84	0.11	1.74	0.90	0.261	1.68	0.155	0.91	1.10	0.189	No
465	33.56	1.85	0.11	1.74	0.90	0.261	1.68	0.155	0.91	1.10	0.189	No
466	33.63	1.85	0.11	1.74	0.90	0.262	1.68	0.156	0.91	1.10	0.189	No
467	33.71	1.86	0.12	1.74	0.90	0.262	1.68	0.156	0.91	1.10	0.189	No
468	33.81	1.86	0.12	1.74	0.90	0.262	1.68	0.156	0.90	1.10	0.189	No
469	33.90	1.87	0.12	1.75	0.90	0.262	1.68	0.156	0.90	1.10	0.190	No
470	33.95	1.87	0.12	1.75	0.90	0.262	1.68	0.156	0.90	1.10	0.190	No
471	34.04	1.88	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
472	34.14	1.88	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
473	34.17	1.88	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
474	34.20	1.88	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
475	34.26	1.89	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
476	34.35	1.89	0.14	1.76	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
477	34.43	1.90	0.14	1.76	0.89	0.263	1.68	0.157	0.90	1.10	0.191	No
478	34.49	1.90	0.14	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No
479	34.59	1.90	0.14	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No
480	34.69	1.91	0.15	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	34.73	1.91	0.15	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No
482	34.83	1.92	0.15	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No
483	34.90	1.92	0.15	1.77	0.89	0.264	1.68	0.157	0.90	1.10	0.192	No
484	34.98	1.92	0.16	1.77	0.89	0.265	1.68	0.157	0.90	1.10	0.192	No
485	35.07	1.93	0.16	1.77	0.89	0.265	1.68	0.157	0.90	1.10	0.192	No
486	35.16	1.93	0.16	1.77	0.89	0.265	1.68	0.157	0.90	1.10	0.192	No
487	35.26	1.94	0.16	1.77	0.89	0.265	1.68	0.158	0.90	1.10	0.192	No
488	35.33	1.94	0.17	1.78	0.89	0.265	1.68	0.158	0.90	1.10	0.192	No
489	35.40	1.95	0.17	1.78	0.89	0.265	1.68	0.158	0.90	1.10	0.192	No
490	35.50	1.95	0.17	1.78	0.89	0.266	1.68	0.158	0.90	1.10	0.193	No
491	35.57	1.96	0.17	1.78	0.89	0.266	1.68	0.158	0.90	1.10	0.193	No
492	35.65	1.96	0.18	1.78	0.89	0.266	1.68	0.158	0.90	1.10	0.193	No
493	35.71	1.96	0.18	1.79	0.89	0.266	1.68	0.158	0.90	1.10	0.193	No
494	35.79	1.97	0.18	1.79	0.88	0.266	1.68	0.158	0.90	1.10	0.193	No
495	35.85	1.97	0.18	1.79	0.88	0.266	1.68	0.158	0.90	1.10	0.193	No
496	35.94	1.98	0.19	1.79	0.88	0.266	1.68	0.158	0.90	1.10	0.193	No
497	35.99	1.98	0.19	1.79	0.88	0.266	1.68	0.158	0.90	1.10	0.194	No
498	36.08	1.99	0.19	1.80	0.88	0.266	1.68	0.158	0.90	1.10	0.194	No
499	36.17	1.99	0.19	1.80	0.88	0.267	1.68	0.158	0.90	1.10	0.194	No
500	36.24	1.99	0.19	1.80	0.88	0.267	1.68	0.159	0.90	1.10	0.194	No
501	36.33	2.00	0.20	1.80	0.88	0.267	1.68	0.159	0.90	1.10	0.194	No
502	36.42	2.00	0.20	1.80	0.88	0.267	1.68	0.159	0.90	1.10	0.194	No
503	36.52	2.01	0.20	1.81	0.88	0.267	1.68	0.159	0.90	1.10	0.194	No
504	36.61	2.02	0.21	1.81	0.88	0.267	1.68	0.159	0.90	1.10	0.195	No
505	36.70	2.02	0.21	1.81	0.88	0.267	1.68	0.159	0.90	1.10	0.195	No
506	36.78	2.02	0.21	1.81	0.88	0.268	1.68	0.159	0.90	1.10	0.195	No
507	36.85	2.03	0.21	1.82	0.88	0.268	1.68	0.159	0.90	1.10	0.195	No
508	36.87	2.03	0.21	1.82	0.88	0.268	1.68	0.159	0.90	1.10	0.195	No
509	36.91	2.03	0.22	1.82	0.88	0.268	1.68	0.159	0.90	1.10	0.195	No
510	36.97	2.04	0.22	1.82	0.88	0.268	1.68	0.159	0.90	1.10	2.000	Yes
511	37.06	2.04	0.22	1.82	0.88	0.268	1.68	0.159	0.90	1.10	2.000	Yes
512	37.12	2.04	0.22	1.82	0.87	0.268	1.68	0.159	0.90	1.10	2.000	Yes
513	37.20	2.05	0.22	1.82	0.87	0.268	1.68	0.159	0.90	1.10	2.000	Yes
514	37.27	2.05	0.23	1.83	0.87	0.268	1.68	0.159	0.90	1.10	2.000	Yes
515	37.35	2.06	0.23	1.83	0.87	0.268	1.68	0.159	0.90	1.10	2.000	Yes
516	37.44	2.06	0.23	1.83	0.87	0.268	1.68	0.160	0.90	1.10	2.000	Yes
517	37.49	2.07	0.23	1.83	0.87	0.268	1.68	0.160	0.90	1.10	2.000	Yes
518	37.59	2.07	0.24	1.84	0.87	0.269	1.68	0.160	0.90	1.10	2.000	Yes
519	37.64	2.08	0.24	1.84	0.87	0.269	1.68	0.160	0.90	1.10	2.000	Yes
520	37.70	2.08	0.24	1.84	0.87	0.269	1.68	0.160	0.90	1.10	2.000	Yes
521	37.78	2.09	0.24	1.84	0.87	0.269	1.68	0.160	0.89	1.10	2.000	Yes
522	37.83	2.09	0.24	1.84	0.87	0.269	1.68	0.160	0.89	1.10	2.000	Yes
523	37.92	2.09	0.25	1.85	0.87	0.269	1.68	0.160	0.89	1.10	2.000	Yes
524	37.97	2.10	0.25	1.85	0.87	0.269	1.68	0.160	0.89	1.10	2.000	Yes
525	38.07	2.10	0.25	1.85	0.87	0.269	1.68	0.160	0.89	1.10	0.197	No
526	38.14	2.11	0.25	1.85	0.87	0.269	1.68	0.160	0.89	1.10	0.197	No
527	38.22	2.11	0.26	1.86	0.87	0.269	1.68	0.160	0.89	1.10	0.197	No
528	38.31	2.12	0.26	1.86	0.87	0.269	1.68	0.160	0.89	1.10	0.197	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	38.41	2.12	0.26	1.86	0.86	0.269	1.68	0.160	0.89	1.10	0.197	No
530	38.52	2.13	0.27	1.87	0.86	0.269	1.68	0.160	0.89	1.10	0.197	No
531	38.64	2.14	0.27	1.87	0.86	0.269	1.68	0.160	0.89	1.10	0.197	No
532	38.74	2.15	0.27	1.87	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
533	38.80	2.15	0.27	1.88	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
534	38.89	2.16	0.28	1.88	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
535	38.94	2.16	0.28	1.88	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
536	39.03	2.17	0.28	1.88	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
537	39.13	2.17	0.28	1.89	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
538	39.23	2.18	0.29	1.89	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
539	39.35	2.19	0.29	1.89	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
540	39.42	2.19	0.29	1.90	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
541	39.51	2.20	0.30	1.90	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
542	39.60	2.20	0.30	1.90	0.85	0.270	1.68	0.160	0.89	1.10	0.199	No
543	39.70	2.21	0.30	1.91	0.85	0.270	1.68	0.161	0.89	1.10	0.199	No
544	39.78	2.21	0.31	1.91	0.85	0.270	1.68	0.161	0.89	1.10	0.199	No
545	39.90	2.22	0.31	1.91	0.85	0.270	1.68	0.161	0.89	1.10	0.199	No
546	39.99	2.23	0.31	1.92	0.85	0.270	1.68	0.161	0.89	1.10	0.199	No
547	40.09	2.23	0.31	1.92	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
548	40.18	2.24	0.32	1.92	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
549	40.23	2.24	0.32	1.92	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
550	40.33	2.25	0.32	1.93	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
551	40.43	2.26	0.33	1.93	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
552	40.52	2.26	0.33	1.93	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
553	40.61	2.27	0.33	1.94	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
554	40.69	2.27	0.33	1.94	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
555	40.80	2.28	0.34	1.94	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
556	40.87	2.28	0.34	1.94	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
557	40.95	2.29	0.34	1.95	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
558	40.97	2.29	0.34	1.95	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
559	41.01	2.29	0.34	1.95	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
560	41.07	2.30	0.35	1.95	0.84	0.270	1.68	0.161	0.88	1.10	2.000	Yes
561	41.15	2.30	0.35	1.95	0.84	0.270	1.68	0.161	0.88	1.10	2.000	Yes
562	41.26	2.31	0.35	1.96	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
563	41.35	2.31	0.35	1.96	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
564	41.47	2.32	0.36	1.96	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
565	41.59	2.33	0.36	1.97	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
566	41.69	2.33	0.36	1.97	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
567	41.78	2.34	0.37	1.97	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
568	41.88	2.34	0.37	1.97	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
569	41.98	2.35	0.37	1.98	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
570	42.08	2.36	0.38	1.98	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
571	42.16	2.36	0.38	1.98	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
572	42.24	2.37	0.38	1.98	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
573	42.31	2.37	0.38	1.99	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
574	42.45	2.38	0.39	1.99	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
575	42.55	2.38	0.39	1.99	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
576	42.60	2.39	0.39	1.99	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	42.70	2.39	0.40	2.00	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
578	42.81	2.40	0.40	2.00	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
579	42.89	2.41	0.40	2.00	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
580	42.98	2.41	0.41	2.01	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
581	43.08	2.42	0.41	2.01	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
582	43.17	2.42	0.41	2.01	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
583	43.27	2.43	0.41	2.01	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
584	43.37	2.43	0.42	2.02	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
585	43.50	2.44	0.42	2.02	0.82	0.270	1.68	0.160	0.88	1.10	0.201	No
586	43.61	2.45	0.42	2.02	0.82	0.270	1.68	0.160	0.88	1.10	0.201	No
587	43.74	2.46	0.43	2.03	0.82	0.270	1.68	0.160	0.88	1.10	0.201	No
588	43.79	2.46	0.43	2.03	0.82	0.270	1.68	0.160	0.88	1.10	0.201	No
589	43.86	2.46	0.43	2.03	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
590	43.94	2.47	0.43	2.03	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
591	44.00	2.47	0.44	2.04	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
592	44.08	2.48	0.44	2.04	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
593	44.17	2.48	0.44	2.04	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
594	44.27	2.49	0.45	2.04	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
595	44.42	2.50	0.45	2.05	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
596	44.52	2.50	0.45	2.05	0.81	0.269	1.68	0.160	0.88	1.10	0.201	No
597	44.61	2.51	0.46	2.05	0.81	0.269	1.68	0.160	0.88	1.10	0.201	No
598	44.71	2.51	0.46	2.06	0.81	0.269	1.68	0.160	0.88	1.10	0.201	No
599	44.85	2.52	0.46	2.06	0.81	0.269	1.68	0.160	0.88	1.10	0.201	No
600	44.95	2.53	0.47	2.06	0.80	0.269	1.68	0.160	0.88	1.10	0.201	No
601	45.09	2.54	0.47	2.07	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
602	45.19	2.54	0.47	2.07	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
603	45.33	2.55	0.48	2.07	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
604	45.42	2.56	0.48	2.08	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
605	45.57	2.57	0.49	2.08	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
606	45.68	2.57	0.49	2.08	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
607	45.81	2.58	0.49	2.09	0.80	0.268	1.68	0.160	0.87	1.10	0.201	No
608	45.92	2.59	0.50	2.09	0.79	0.268	1.68	0.160	0.87	1.10	0.201	No
609	46.05	2.59	0.50	2.09	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
610	46.16	2.60	0.50	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
611	46.17	2.60	0.50	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
612	46.23	2.60	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
613	46.29	2.61	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
614	46.34	2.61	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
615	46.42	2.62	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
616	46.48	2.62	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
617	46.52	2.62	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
618	46.60	2.63	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
619	46.67	2.63	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
620	46.74	2.63	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
621	46.82	2.64	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
622	46.88	2.64	0.53	2.11	0.78	0.268	1.68	0.159	0.87	1.10	0.201	No
623	46.96	2.64	0.53	2.12	0.78	0.268	1.68	0.159	0.87	1.10	0.201	No
624	47.06	2.65	0.53	2.12	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	47.15	2.65	0.54	2.12	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
626	47.24	2.66	0.54	2.12	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
627	47.35	2.67	0.54	2.12	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
628	47.49	2.67	0.55	2.13	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
629	47.58	2.68	0.55	2.13	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
630	47.73	2.69	0.55	2.13	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
631	47.83	2.69	0.56	2.14	0.77	0.267	1.68	0.158	0.87	1.10	0.201	No
632	47.87	2.70	0.56	2.14	0.77	0.267	1.68	0.158	0.87	1.10	0.201	No
633	47.89	2.70	0.56	2.14	0.77	0.267	1.68	0.158	0.87	1.10	0.201	No
634	47.94	2.70	0.56	2.14	0.77	0.267	1.68	0.158	0.87	1.10	0.201	No
635	48.02	2.70	0.56	2.14	0.77	0.266	1.68	0.158	0.87	1.10	0.201	No
636	48.07	2.71	0.56	2.14	0.77	0.266	1.68	0.158	0.87	1.10	0.201	No
637	48.12	2.71	0.57	2.14	0.77	0.266	1.68	0.158	0.87	1.10	0.201	No
638	48.18	2.71	0.57	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.201	No
639	48.26	2.72	0.57	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
640	48.31	2.72	0.57	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
641	48.38	2.72	0.57	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
642	48.46	2.73	0.58	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
643	48.52	2.73	0.58	2.16	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
644	48.60	2.74	0.58	2.16	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
645	48.68	2.74	0.58	2.16	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
646	48.74	2.75	0.58	2.16	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
647	48.82	2.75	0.59	2.16	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
648	48.89	2.75	0.59	2.16	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
649	48.99	2.76	0.59	2.17	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
650	49.05	2.76	0.59	2.17	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
651	49.12	2.77	0.60	2.17	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
652	49.18	2.77	0.60	2.17	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
653	49.27	2.77	0.60	2.17	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
654	49.32	2.78	0.60	2.17	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
655	49.42	2.78	0.61	2.18	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
656	49.48	2.78	0.61	2.18	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
657	49.56	2.79	0.61	2.18	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
658	49.66	2.79	0.61	2.18	0.76	0.264	1.68	0.157	0.87	1.10	0.200	No
659	49.76	2.80	0.62	2.18	0.76	0.264	1.68	0.157	0.87	1.10	0.200	No
660	49.85	2.80	0.62	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
661	49.99	2.81	0.62	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
662	50.09	2.82	0.63	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
663	50.21	2.82	0.63	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
664	50.24	2.82	0.63	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
665	50.29	2.83	0.63	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
666	50.38	2.83	0.64	2.20	0.75	0.264	1.68	0.157	0.86	1.10	0.199	No
667	50.47	2.84	0.64	2.20	0.75	0.264	1.68	0.157	0.86	1.10	0.199	No
668	50.52	2.84	0.64	2.20	0.75	0.263	1.68	0.157	0.86	1.10	0.199	No
669	50.62	2.84	0.64	2.20	0.75	0.263	1.68	0.157	0.86	1.10	0.199	No
670	50.66	2.85	0.64	2.20	0.75	0.263	1.68	0.156	0.86	1.10	0.199	No
671	50.76	2.85	0.65	2.20	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
672	50.83	2.85	0.65	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	50.91	2.86	0.65	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
674	51.00	2.86	0.66	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
675	51.06	2.87	0.66	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
676	51.15	2.87	0.66	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
677	51.24	2.88	0.66	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
678	51.31	2.88	0.67	2.22	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
679	51.39	2.89	0.67	2.22	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
680	51.48	2.89	0.67	2.22	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
681	51.58	2.90	0.67	2.22	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
682	51.68	2.90	0.68	2.23	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
683	51.77	2.91	0.68	2.23	0.73	0.262	1.68	0.156	0.86	1.10	0.199	No
684	51.90	2.92	0.68	2.23	0.73	0.262	1.68	0.155	0.86	1.10	0.199	No
685	52.01	2.92	0.69	2.24	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
686	52.11	2.93	0.69	2.24	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
687	52.26	2.94	0.69	2.24	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
688	52.30	2.94	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
689	52.33	2.94	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
690	52.35	2.95	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
691	52.40	2.95	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
692	52.45	2.95	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
693	52.50	2.96	0.70	2.25	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
694	52.55	2.96	0.70	2.26	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
695	52.60	2.96	0.71	2.26	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
696	52.65	2.97	0.71	2.26	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
697	52.71	2.97	0.71	2.26	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
698	52.77	2.97	0.71	2.26	0.72	0.260	1.68	0.155	0.86	1.10	0.198	No
699	52.82	2.98	0.71	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
700	52.88	2.98	0.71	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
701	52.93	2.99	0.72	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
702	52.98	2.99	0.72	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
703	53.03	2.99	0.72	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
704	53.08	2.99	0.72	2.27	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
705	53.12	3.00	0.72	2.28	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
706	53.17	3.00	0.72	2.28	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
707	53.23	3.01	0.72	2.28	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
708	53.28	3.01	0.73	2.28	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
709	53.37	3.01	0.73	2.29	0.72	0.259	1.68	0.154	0.86	1.10	0.197	No
710	53.42	3.02	0.73	2.29	0.72	0.259	1.68	0.154	0.86	1.10	0.197	No
711	53.46	3.02	0.73	2.29	0.72	0.259	1.68	0.154	0.86	1.10	0.197	No
712	53.53	3.03	0.73	2.29	0.72	0.259	1.68	0.154	0.86	1.10	0.197	No
713	53.61	3.03	0.74	2.29	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
714	53.62	3.03	0.74	2.30	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
715	53.65	3.03	0.74	2.30	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
716	53.67	3.04	0.74	2.30	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
717	53.70	3.04	0.74	2.30	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
718	53.74	3.04	0.74	2.30	0.72	0.258	1.68	0.153	0.86	1.10	0.197	No
719	53.76	3.04	0.74	2.30	0.72	0.258	1.68	0.153	0.86	1.10	0.197	No
720	53.80	3.04	0.74	2.30	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	53.84	3.05	0.74	2.30	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
722	53.90	3.05	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
723	53.91	3.05	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
724	53.95	3.05	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
725	53.96	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
726	53.98	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
727	53.99	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
728	54.01	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
729	54.02	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
730	54.03	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
731	54.04	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
732	54.05	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
733	54.09	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
734	54.10	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
735	54.13	3.07	0.75	2.31	0.71	0.257	1.68	0.153	0.86	1.10	0.197	No
736	54.14	3.07	0.75	2.31	0.71	0.257	1.68	0.153	0.86	1.10	0.197	No
737	54.19	3.07	0.75	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
738	54.19	3.07	0.75	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
739	54.24	3.07	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
740	54.29	3.08	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
741	54.33	3.08	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
742	54.38	3.08	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
743	54.39	3.09	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
744	54.43	3.09	0.76	2.33	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
745	54.48	3.09	0.76	2.33	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
746	54.52	3.09	0.77	2.33	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
747	54.58	3.10	0.77	2.33	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
748	54.62	3.10	0.77	2.33	0.71	0.257	1.68	0.152	0.85	1.10	0.196	No
749	54.65	3.10	0.77	2.33	0.71	0.257	1.68	0.152	0.85	1.10	0.196	No
750	54.67	3.10	0.77	2.33	0.71	0.256	1.68	0.152	0.85	1.10	0.196	No
751	54.71	3.11	0.77	2.34	0.71	0.256	1.68	0.152	0.85	1.10	0.196	No
752	54.77	3.11	0.77	2.34	0.71	0.256	1.68	0.152	0.85	1.10	0.196	No
753	54.81	3.11	0.77	2.34	0.71	0.256	1.68	0.152	0.85	1.10	0.196	No
754	54.85	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
755	54.86	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
756	54.87	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
757	54.91	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
758	54.96	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
759	55.00	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
760	55.01	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
761	55.05	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
762	55.10	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
763	55.12	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
764	55.13	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
765	55.14	3.14	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
766	55.19	3.14	0.79	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
767	55.20	3.14	0.79	2.35	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
768	55.25	3.14	0.79	2.35	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	55.29	3.14	0.79	2.36	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
770	55.33	3.15	0.79	2.36	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
771	55.38	3.15	0.79	2.36	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
772	55.48	3.16	0.80	2.36	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
773	55.57	3.16	0.80	2.37	0.70	0.255	1.68	0.151	0.85	1.10	0.196	No
774	55.63	3.17	0.80	2.37	0.70	0.255	1.68	0.151	0.85	1.10	0.196	No
775	55.72	3.17	0.80	2.37	0.70	0.255	1.68	0.151	0.85	1.10	0.196	No
776	55.80	3.18	0.80	2.37	0.70	0.254	1.68	0.151	0.85	1.10	0.195	No
777	55.86	3.18	0.81	2.38	0.70	0.254	1.68	0.151	0.85	1.10	0.195	No
778	55.97	3.19	0.81	2.38	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
779	56.01	3.19	0.81	2.38	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
780	56.06	3.20	0.81	2.38	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
781	56.11	3.20	0.81	2.39	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
782	56.15	3.20	0.82	2.39	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
783	56.20	3.21	0.82	2.39	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
784	56.27	3.21	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
785	56.27	3.21	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
786	56.30	3.21	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
787	56.33	3.22	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
788	56.35	3.22	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
789	56.40	3.22	0.82	2.40	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
790	56.41	3.22	0.82	2.40	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
791	56.44	3.22	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
792	56.49	3.23	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
793	56.54	3.23	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
794	56.58	3.23	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
795	56.59	3.23	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
796	56.64	3.24	0.83	2.41	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
797	56.69	3.24	0.83	2.41	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
798	56.73	3.24	0.83	2.41	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
799	56.78	3.25	0.84	2.41	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
800	56.83	3.25	0.84	2.41	0.69	0.252	1.68	0.150	0.85	1.10	0.195	No
801	56.88	3.25	0.84	2.41	0.69	0.252	1.68	0.150	0.85	1.10	0.195	No
802	56.89	3.25	0.84	2.42	0.69	0.252	1.68	0.150	0.85	1.10	0.195	No
803	56.95	3.26	0.84	2.42	0.69	0.252	1.68	0.150	0.85	1.10	0.195	No
804	57.01	3.26	0.84	2.42	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
805	57.07	3.27	0.84	2.42	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
806	57.11	3.27	0.85	2.42	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
807	57.17	3.27	0.85	2.43	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
808	57.26	3.28	0.85	2.43	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
809	57.31	3.28	0.85	2.43	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
810	57.37	3.29	0.85	2.43	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
811	57.45	3.29	0.86	2.43	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
812	57.51	3.30	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
813	57.53	3.30	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
814	57.59	3.30	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
815	57.63	3.30	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
816	57.68	3.31	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	57.73	3.31	0.87	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
818	57.78	3.31	0.87	2.45	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
819	57.86	3.32	0.87	2.45	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
820	57.92	3.32	0.87	2.45	0.68	0.250	1.68	0.149	0.85	1.10	2.000	Yes
821	57.98	3.33	0.87	2.45	0.68	0.250	1.68	0.149	0.85	1.10	2.000	Yes
822	58.06	3.33	0.88	2.45	0.68	0.250	1.68	0.149	0.85	1.10	2.000	Yes
823	58.12	3.33	0.88	2.46	0.68	0.250	1.68	0.149	0.84	1.10	2.000	Yes
824	58.21	3.34	0.88	2.46	0.67	0.250	1.68	0.149	0.84	1.10	2.000	Yes
825	58.26	3.34	0.88	2.46	0.67	0.250	1.68	0.149	0.84	1.10	2.000	Yes
826	58.35	3.35	0.88	2.46	0.67	0.250	1.68	0.148	0.84	1.10	2.000	Yes
827	58.41	3.35	0.89	2.47	0.67	0.250	1.68	0.148	0.84	1.10	2.000	Yes
828	58.50	3.36	0.89	2.47	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
829	58.56	3.36	0.89	2.47	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
830	58.64	3.37	0.89	2.47	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
831	58.73	3.37	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
832	58.80	3.38	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
833	58.84	3.38	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
834	58.85	3.38	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	0.193	No
835	58.93	3.38	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	0.193	No
836	58.98	3.39	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	0.193	No
837	59.02	3.39	0.91	2.48	0.67	0.249	1.68	0.148	0.84	1.10	0.193	No
838	59.12	3.40	0.91	2.49	0.67	0.248	1.68	0.148	0.84	1.10	0.193	No
839	59.17	3.40	0.91	2.49	0.67	0.248	1.68	0.148	0.84	1.10	0.193	No
840	59.27	3.40	0.91	2.49	0.67	0.248	1.68	0.148	0.84	1.10	0.193	No
841	59.31	3.41	0.91	2.49	0.66	0.248	1.68	0.147	0.84	1.10	0.193	No
842	59.41	3.41	0.92	2.50	0.66	0.248	1.68	0.147	0.84	1.10	0.192	No
843	59.46	3.42	0.92	2.50	0.66	0.248	1.68	0.147	0.84	1.10	0.192	No
844	59.55	3.42	0.92	2.50	0.66	0.248	1.68	0.147	0.84	1.10	0.192	No
845	59.65	3.43	0.93	2.50	0.66	0.248	1.68	0.147	0.84	1.10	0.192	No
846	59.70	3.43	0.93	2.50	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
847	59.80	3.44	0.93	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
848	59.89	3.44	0.93	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
849	59.94	3.44	0.93	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
850	60.01	3.45	0.94	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
851	60.02	3.45	0.94	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
852	60.08	3.45	0.94	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
853	60.12	3.46	0.94	2.52	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
854	60.17	3.46	0.94	2.52	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
855	60.27	3.46	0.94	2.52	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
856	60.31	3.47	0.95	2.52	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
857	60.37	3.47	0.95	2.52	0.66	0.246	1.68	0.146	0.84	1.10	0.192	No
858	60.46	3.47	0.95	2.52	0.66	0.246	1.68	0.146	0.84	1.10	0.192	No
859	60.51	3.48	0.95	2.53	0.66	0.246	1.68	0.146	0.84	1.10	0.192	No
860	60.61	3.48	0.95	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.192	No
861	60.65	3.49	0.96	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.192	No
862	60.75	3.49	0.96	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No
863	60.81	3.49	0.96	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No
864	60.89	3.50	0.96	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	60.94	3.50	0.97	2.54	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No
866	61.03	3.51	0.97	2.54	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No
867	61.09	3.51	0.97	2.54	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
868	61.19	3.51	0.97	2.54	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
869	61.24	3.52	0.97	2.54	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
870	61.33	3.52	0.98	2.54	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
871	61.38	3.52	0.98	2.55	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
872	61.47	3.53	0.98	2.55	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
873	61.53	3.53	0.98	2.55	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
874	61.62	3.54	0.99	2.55	0.65	0.245	1.68	0.145	0.84	1.10	0.191	No
875	61.70	3.54	0.99	2.55	0.65	0.245	1.68	0.145	0.84	1.10	0.191	No
876	61.77	3.55	0.99	2.56	0.65	0.244	1.68	0.145	0.84	1.10	0.191	No
877	61.86	3.55	0.99	2.56	0.64	0.244	1.68	0.145	0.84	1.10	0.191	No
878	61.95	3.56	1.00	2.56	0.64	0.244	1.68	0.145	0.84	1.10	0.191	No
879	61.97	3.56	1.00	2.56	0.64	0.244	1.68	0.145	0.84	1.10	0.191	No
880	62.01	3.56	1.00	2.56	0.64	0.244	1.68	0.145	0.84	1.10	2.000	No
881	62.10	3.57	1.00	2.57	0.64	0.244	1.68	0.145	0.84	1.10	2.000	Yes
882	62.24	3.58	1.01	2.57	0.64	0.244	1.68	0.145	0.84	1.10	2.000	Yes
883	62.34	3.58	1.01	2.57	0.64	0.244	1.68	0.145	0.84	1.10	2.000	Yes
884	62.49	3.59	1.01	2.58	0.64	0.243	1.68	0.145	0.84	1.10	2.000	Yes
885	62.54	3.60	1.02	2.58	0.64	0.243	1.68	0.145	0.84	1.10	2.000	Yes
886	62.66	3.60	1.02	2.58	0.64	0.243	1.68	0.144	0.84	1.10	2.000	Yes
887	62.74	3.61	1.02	2.59	0.64	0.243	1.68	0.144	0.84	1.10	2.000	Yes
888	62.87	3.62	1.03	2.59	0.64	0.243	1.68	0.144	0.84	1.10	2.000	No
889	62.92	3.62	1.03	2.59	0.64	0.243	1.68	0.144	0.84	1.10	2.000	No
890	63.03	3.63	1.03	2.60	0.64	0.243	1.68	0.144	0.84	1.10	2.000	No
891	63.15	3.63	1.03	2.60	0.63	0.242	1.68	0.144	0.84	1.10	2.000	No
892	63.26	3.64	1.04	2.60	0.63	0.242	1.68	0.144	0.84	1.10	2.000	No
893	63.37	3.65	1.04	2.61	0.63	0.242	1.68	0.144	0.83	1.10	2.000	No
894	63.45	3.65	1.04	2.61	0.63	0.242	1.68	0.144	0.83	1.10	2.000	No
895	63.54	3.66	1.05	2.61	0.63	0.242	1.68	0.144	0.83	1.10	2.000	No
896	63.61	3.66	1.05	2.61	0.63	0.242	1.68	0.144	0.83	1.10	2.000	Yes
897	63.69	3.67	1.05	2.62	0.63	0.241	1.68	0.144	0.83	1.10	2.000	Yes
898	63.79	3.67	1.05	2.62	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
899	63.89	3.68	1.06	2.62	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
900	63.98	3.69	1.06	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
901	64.07	3.69	1.06	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
902	64.15	3.70	1.07	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
903	64.23	3.70	1.07	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	No
904	64.26	3.70	1.07	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	No
905	64.29	3.70	1.07	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	No
906	64.33	3.71	1.07	2.64	0.63	0.241	1.68	0.143	0.83	1.10	2.000	No
907	64.43	3.71	1.07	2.64	0.63	0.240	1.68	0.143	0.83	1.10	2.000	No
908	64.47	3.71	1.08	2.64	0.63	0.240	1.68	0.143	0.83	1.10	2.000	No
909	64.53	3.72	1.08	2.64	0.63	0.240	1.68	0.143	0.83	1.10	2.000	No
910	64.62	3.72	1.08	2.64	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No
911	64.72	3.73	1.08	2.64	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No
912	64.78	3.73	1.09	2.65	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	64.86	3.74	1.09	2.65	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No
914	64.96	3.74	1.09	2.65	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No
915	65.06	3.75	1.09	2.65	0.62	0.240	1.68	0.142	0.83	1.10	2.000	No
916	65.11	3.75	1.10	2.65	0.62	0.240	1.68	0.142	0.83	1.10	2.000	No
917	65.21	3.76	1.10	2.66	0.62	0.240	1.68	0.142	0.83	1.10	2.000	No
918	65.31	3.76	1.10	2.66	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
919	65.40	3.77	1.10	2.66	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
920	65.50	3.77	1.11	2.66	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
921	65.58	3.78	1.11	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
922	65.68	3.78	1.11	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
923	65.78	3.79	1.12	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
924	65.84	3.79	1.12	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
925	65.86	3.79	1.12	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
926	65.87	3.79	1.12	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
927	65.98	3.80	1.12	2.68	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
928	66.10	3.80	1.13	2.68	0.61	0.238	1.68	0.142	0.83	1.10	2.000	No
929	66.21	3.81	1.13	2.68	0.61	0.238	1.68	0.142	0.83	1.10	2.000	No
930	66.34	3.82	1.13	2.68	0.61	0.238	1.68	0.142	0.83	1.10	2.000	No
931	66.48	3.83	1.14	2.69	0.61	0.238	1.68	0.141	0.83	1.10	2.000	No
932	66.62	3.83	1.14	2.69	0.61	0.238	1.68	0.141	0.83	1.10	2.000	No
933	66.68	3.84	1.14	2.69	0.61	0.238	1.68	0.141	0.83	1.10	2.000	No
934	66.87	3.85	1.15	2.70	0.61	0.238	1.68	0.141	0.83	1.10	2.000	No
935	66.96	3.85	1.15	2.70	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
936	67.11	3.86	1.16	2.70	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
937	67.21	3.87	1.16	2.71	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
938	67.35	3.87	1.17	2.71	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
939	67.45	3.88	1.17	2.71	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
940	67.59	3.89	1.17	2.72	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
941	67.68	3.89	1.18	2.72	0.61	0.237	1.68	0.141	0.83	1.10	2.000	Yes
942	67.83	3.90	1.18	2.72	0.60	0.236	1.68	0.141	0.83	1.10	2.000	Yes
943	67.92	3.91	1.18	2.73	0.60	0.236	1.68	0.140	0.83	1.10	2.000	Yes
944	68.02	3.92	1.19	2.73	0.60	0.236	1.68	0.140	0.83	1.10	2.000	Yes
945	68.07	3.92	1.19	2.73	0.60	0.236	1.68	0.140	0.83	1.10	2.000	Yes
946	68.16	3.93	1.19	2.73	0.60	0.236	1.68	0.140	0.83	1.10	2.000	No
947	68.26	3.93	1.19	2.74	0.60	0.236	1.68	0.140	0.83	1.10	2.000	No
948	68.35	3.94	1.20	2.74	0.60	0.236	1.68	0.140	0.83	1.10	2.000	No
949	68.45	3.94	1.20	2.74	0.60	0.236	1.68	0.140	0.83	1.10	2.000	No
950	68.55	3.95	1.20	2.75	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
951	68.65	3.96	1.21	2.75	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
952	68.78	3.97	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
953	68.78	3.97	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
954	68.79	3.97	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
955	68.83	3.97	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
956	68.93	3.98	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
957	68.98	3.98	1.22	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
958	69.04	3.98	1.22	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
959	69.12	3.99	1.22	2.77	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
960	69.22	3.99	1.22	2.77	0.60	0.235	1.68	0.139	0.82	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	69.28	4.00	1.23	2.77	0.60	0.235	1.68	0.139	0.82	1.10	2.000	No
962	69.36	4.00	1.23	2.77	0.60	0.234	1.68	0.139	0.82	1.10	2.000	No
963	69.45	4.01	1.23	2.78	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
964	69.60	4.02	1.24	2.78	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
965	69.70	4.02	1.24	2.79	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
966	69.80	4.03	1.24	2.79	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
967	69.89	4.04	1.24	2.79	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
968	69.98	4.04	1.25	2.79	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
969	70.08	4.05	1.25	2.80	0.59	0.234	1.68	0.139	0.82	1.10	2.000	Yes
970	70.18	4.05	1.25	2.80	0.59	0.234	1.68	0.139	0.82	1.10	2.000	Yes
971	70.32	4.06	1.26	2.80	0.59	0.233	1.68	0.139	0.82	1.10	2.000	Yes
972	70.42	4.07	1.26	2.81	0.59	0.233	1.68	0.139	0.82	1.10	2.000	Yes
973	70.54	4.08	1.26	2.81	0.59	0.233	1.68	0.139	0.82	1.10	2.000	Yes
974	70.66	4.08	1.27	2.81	0.59	0.233	1.68	0.139	0.82	1.10	2.000	No
975	70.75	4.09	1.27	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
976	70.80	4.09	1.27	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
977	70.89	4.10	1.28	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
978	70.99	4.10	1.28	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
979	71.08	4.11	1.28	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
980	71.17	4.11	1.28	2.83	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
981	71.23	4.11	1.29	2.83	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
982	71.33	4.12	1.29	2.83	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
983	71.42	4.12	1.29	2.83	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
984	71.52	4.13	1.30	2.83	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
985	71.58	4.13	1.30	2.83	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
986	71.67	4.14	1.30	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
987	71.81	4.14	1.30	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
988	71.82	4.14	1.30	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
989	71.86	4.15	1.31	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
990	71.91	4.15	1.31	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
991	71.97	4.15	1.31	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
992	72.05	4.16	1.31	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
993	72.10	4.16	1.31	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
994	72.20	4.17	1.32	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
995	72.25	4.17	1.32	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
996	72.34	4.17	1.32	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
997	72.44	4.18	1.32	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
998	72.53	4.18	1.33	2.86	0.58	0.231	1.68	0.138	0.82	1.10	2.000	No
999	72.63	4.19	1.33	2.86	0.58	0.231	1.68	0.138	0.82	1.10	2.000	No
1000	72.69	4.19	1.33	2.86	0.58	0.231	1.68	0.138	0.82	1.10	2.000	No
1001	72.82	4.20	1.34	2.86	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1002	72.92	4.20	1.34	2.87	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1003	73.06	4.21	1.34	2.87	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1004	73.16	4.22	1.35	2.87	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1005	73.30	4.23	1.35	2.87	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1006	73.35	4.23	1.35	2.88	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1007	73.38	4.23	1.35	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1008	73.47	4.24	1.36	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	73.53	4.24	1.36	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1010	73.62	4.24	1.36	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1011	73.71	4.25	1.36	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1012	73.77	4.25	1.37	2.89	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1013	73.86	4.26	1.37	2.89	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1014	73.96	4.26	1.37	2.89	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1015	74.06	4.27	1.37	2.89	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1016	74.13	4.27	1.38	2.90	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1017	74.24	4.28	1.38	2.90	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1018	74.34	4.28	1.38	2.90	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1019	74.44	4.29	1.39	2.90	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1020	74.58	4.30	1.39	2.91	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1021	74.68	4.30	1.39	2.91	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1022	74.80	4.31	1.40	2.91	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1023	74.92	4.32	1.40	2.91	0.57	0.230	1.68	0.136	0.82	1.10	2.000	No
1024	75.07	4.32	1.41	2.92	0.57	0.230	1.68	0.136	0.82	1.10	2.000	No
1025	75.08	4.32	1.41	2.92	0.57	0.230	1.68	0.136	0.82	1.10	2.000	No
1026	75.11	4.33	1.41	2.92	0.57	0.230	1.68	0.136	0.82	1.10	2.000	No
1027	75.16	4.33	1.41	2.92	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1028	75.25	4.33	1.41	2.92	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1029	75.32	4.34	1.41	2.92	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1030	75.40	4.34	1.42	2.93	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1031	75.50	4.35	1.42	2.93	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1032	75.59	4.35	1.42	2.93	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1033	75.69	4.36	1.43	2.93	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1034	75.78	4.36	1.43	2.93	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1035	75.88	4.37	1.43	2.94	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1036	75.96	4.37	1.43	2.94	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1037	76.05	4.38	1.44	2.94	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1038	76.14	4.38	1.44	2.94	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1039	76.26	4.39	1.44	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1040	76.36	4.39	1.45	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1041	76.41	4.40	1.45	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1042	76.51	4.40	1.45	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1043	76.65	4.41	1.46	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1044	76.72	4.41	1.46	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1045	76.79	4.42	1.46	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1046	76.89	4.42	1.46	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1047	76.98	4.43	1.47	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1048	77.08	4.43	1.47	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1049	77.18	4.44	1.47	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1050	77.28	4.44	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1051	77.37	4.45	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1052	77.42	4.45	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1053	77.42	4.45	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1054	77.44	4.45	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1055	77.48	4.46	1.48	2.98	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1056	77.52	4.46	1.48	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1057	77.54	4.46	1.48	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1058	77.57	4.46	1.48	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1059	77.62	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1060	77.65	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1061	77.67	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1062	77.71	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1063	77.71	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1064	77.76	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1065	77.81	4.48	1.49	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1066	77.90	4.48	1.49	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1067	77.95	4.49	1.50	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1068	78.01	4.49	1.50	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1069	78.10	4.49	1.50	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1070	78.16	4.50	1.50	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1071	78.24	4.50	1.51	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1072	78.29	4.51	1.51	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1073	78.39	4.51	1.51	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1074	78.47	4.52	1.51	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1075	78.53	4.52	1.51	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1076	78.62	4.53	1.52	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1077	78.68	4.53	1.52	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1078	78.69	4.53	1.52	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1079	78.78	4.54	1.52	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1080	78.81	4.54	1.52	3.02	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1081	78.92	4.55	1.53	3.02	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1082	79.03	4.55	1.53	3.02	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1083	79.16	4.56	1.53	3.03	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1084	79.26	4.57	1.54	3.03	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1085	79.35	4.57	1.54	3.03	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1086	79.45	4.58	1.54	3.04	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1087	79.54	4.58	1.55	3.04	0.55	0.226	1.68	0.135	0.81	1.10	2.000	No
1088	79.64	4.59	1.55	3.04	0.55	0.226	1.68	0.135	0.81	1.10	2.000	No
1089	79.74	4.60	1.55	3.05	0.55	0.226	1.68	0.135	0.81	1.10	2.000	No
1090	79.88	4.61	1.56	3.05	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1091	79.98	4.61	1.56	3.05	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1092	80.12	4.62	1.56	3.06	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1093	80.22	4.63	1.57	3.06	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1094	80.36	4.64	1.57	3.07	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1095	80.46	4.64	1.57	3.07	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1096	80.60	4.65	1.58	3.07	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1097	80.70	4.66	1.58	3.08	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1098	80.83	4.67	1.59	3.08	0.55	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1099	80.94	4.67	1.59	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1100	81.01	4.68	1.59	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1101	81.04	4.68	1.59	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1102	81.09	4.68	1.59	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1103	81.13	4.69	1.60	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1104	81.18	4.69	1.60	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1105	81.23	4.69	1.60	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1106	81.28	4.70	1.60	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1107	81.33	4.70	1.60	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1108	81.37	4.70	1.60	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1109	81.42	4.70	1.60	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1110	81.47	4.71	1.61	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1111	81.52	4.71	1.61	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1112	81.56	4.71	1.61	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1113	81.61	4.72	1.61	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1114	81.64	4.72	1.61	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1115	81.70	4.72	1.61	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1116	81.75	4.73	1.61	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1117	81.79	4.73	1.62	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1118	81.82	4.73	1.62	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1119	81.86	4.73	1.62	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1120	81.91	4.74	1.62	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1121	81.95	4.74	1.62	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1122	82.00	4.74	1.62	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1123	82.09	4.75	1.63	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1124	82.15	4.75	1.63	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1125	82.19	4.75	1.63	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1126	82.26	4.76	1.63	3.13	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1127	82.34	4.76	1.63	3.13	0.54	0.225	1.68	0.133	0.81	1.10	2.000	No
1128	82.39	4.76	1.63	3.13	0.54	0.225	1.68	0.133	0.81	1.10	2.000	No
1129	82.48	4.77	1.64	3.13	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1130	82.58	4.77	1.64	3.13	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1131	82.62	4.78	1.64	3.13	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1132	82.70	4.78	1.64	3.14	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1133	82.77	4.78	1.65	3.14	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1134	82.87	4.79	1.65	3.14	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1135	82.96	4.80	1.65	3.14	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1136	83.06	4.80	1.66	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1137	83.16	4.81	1.66	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1138	83.25	4.81	1.66	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1139	83.34	4.82	1.66	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1140	83.44	4.82	1.67	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1141	83.54	4.83	1.67	3.16	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1142	83.64	4.83	1.67	3.16	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1143	83.73	4.84	1.68	3.16	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1144	83.83	4.84	1.68	3.16	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1145	83.85	4.85	1.68	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1146	83.89	4.85	1.68	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1147	83.94	4.85	1.68	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1148	84.04	4.86	1.69	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1149	84.09	4.86	1.69	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1150	84.13	4.86	1.69	3.17	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1151	84.18	4.87	1.69	3.17	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1152	84.25	4.87	1.69	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1153	84.33	4.87	1.69	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1154	84.37	4.88	1.70	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1155	84.46	4.88	1.70	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1156	84.52	4.89	1.70	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1157	84.57	4.89	1.70	3.19	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1158	84.67	4.89	1.71	3.19	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1159	84.71	4.90	1.71	3.19	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1160	84.81	4.90	1.71	3.19	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1161	84.86	4.91	1.71	3.19	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1162	84.91	4.91	1.71	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1163	85.00	4.91	1.72	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1164	85.05	4.92	1.72	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1165	85.15	4.92	1.72	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1166	85.19	4.93	1.72	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1167	85.29	4.93	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1168	85.35	4.94	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1169	85.42	4.94	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1170	85.48	4.94	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1171	85.55	4.95	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1172	85.63	4.95	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1173	85.68	4.95	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1174	85.77	4.96	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1175	85.82	4.96	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1176	85.89	4.97	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1177	85.96	4.97	1.75	3.22	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1178	86.03	4.97	1.75	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1179	86.11	4.98	1.75	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1180	86.16	4.98	1.75	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1181	86.25	4.99	1.76	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1182	86.36	4.99	1.76	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1183	86.50	5.00	1.76	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1184	86.51	5.00	1.76	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1185	86.52	5.00	1.76	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1186	86.57	5.01	1.76	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1187	86.65	5.01	1.77	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1188	86.71	5.01	1.77	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1189	86.80	5.02	1.77	3.25	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1190	86.90	5.02	1.78	3.25	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1191	86.99	5.03	1.78	3.25	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1192	87.04	5.03	1.78	3.25	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1193	87.14	5.04	1.78	3.25	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1194	87.19	5.04	1.78	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1195	87.28	5.04	1.79	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1196	87.38	5.05	1.79	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1197	87.43	5.05	1.79	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1198	87.52	5.06	1.79	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1199	87.61	5.06	1.80	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1200	87.66	5.07	1.80	3.27	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1201	87.76	5.07	1.80	3.27	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1202	87.84	5.07	1.80	3.27	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1203	87.91	5.08	1.81	3.27	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1204	88.00	5.08	1.81	3.27	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1205	88.11	5.09	1.81	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1206	88.19	5.09	1.82	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1207	88.25	5.10	1.82	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1208	88.34	5.10	1.82	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1209	88.44	5.11	1.82	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1210	88.54	5.11	1.83	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1211	88.64	5.12	1.83	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1212	88.72	5.12	1.83	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1213	88.82	5.13	1.84	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1214	88.91	5.13	1.84	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1215	89.01	5.14	1.84	3.30	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1216	89.10	5.14	1.84	3.30	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1217	89.19	5.15	1.85	3.30	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1218	89.30	5.15	1.85	3.30	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1219	89.39	5.16	1.85	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1220	89.49	5.16	1.86	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1221	89.59	5.17	1.86	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1222	89.69	5.17	1.86	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1223	89.73	5.18	1.86	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1224	89.78	5.18	1.87	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1225	89.83	5.18	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1226	89.88	5.19	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1227	89.93	5.19	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1228	90.00	5.19	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1229	90.07	5.20	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1230	90.12	5.20	1.88	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1231	90.22	5.20	1.88	3.33	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1232	90.27	5.21	1.88	3.33	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1233	90.36	5.21	1.88	3.33	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1234	90.46	5.22	1.89	3.33	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1235	90.50	5.22	1.89	3.33	0.52	0.222	1.68	0.132	0.79	1.10	2.000	No
1236	90.61	5.23	1.89	3.34	0.52	0.222	1.68	0.132	0.79	1.10	2.000	No
1237	90.66	5.23	1.89	3.34	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1238	90.75	5.23	1.90	3.34	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1239	90.84	5.24	1.90	3.34	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1240	90.89	5.24	1.90	3.34	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1241	90.99	5.25	1.90	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1242	91.04	5.25	1.90	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1243	91.14	5.26	1.91	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1244	91.22	5.26	1.91	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1245	91.28	5.26	1.91	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1246	91.37	5.27	1.91	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1247	91.47	5.28	1.92	3.36	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1248	91.61	5.28	1.92	3.36	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1249	91.71	5.29	1.93	3.36	0.52	0.221	1.68	0.131	0.79	1.10	2.000	No
1250	91.81	5.29	1.93	3.37	0.52	0.221	1.68	0.131	0.79	1.10	2.000	No
1251	91.87	5.30	1.93	3.37	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1252	92.00	5.30	1.93	3.37	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1253	92.10	5.31	1.94	3.37	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1254	92.20	5.32	1.94	3.37	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1255	92.33	5.32	1.94	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1256	92.38	5.33	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1257	92.43	5.33	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1258	92.48	5.33	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1259	92.56	5.33	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1260	92.63	5.34	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1261	92.67	5.34	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1262	92.72	5.34	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1263	92.77	5.35	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1264	92.86	5.35	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1265	92.92	5.35	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1266	92.97	5.36	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1267	93.05	5.36	1.97	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1268	93.10	5.37	1.97	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1269	93.16	5.37	1.97	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1270	93.25	5.37	1.97	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1271	93.35	5.38	1.98	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1272	93.40	5.38	1.98	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1273	93.49	5.39	1.98	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1274	93.56	5.39	1.98	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1275	93.64	5.40	1.99	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1276	93.73	5.40	1.99	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1277	93.83	5.41	1.99	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1278	93.88	5.41	1.99	3.42	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1279	93.97	5.41	2.00	3.42	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1280	94.07	5.42	2.00	3.42	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1281	94.17	5.43	2.00	3.42	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1282	94.26	5.43	2.01	3.43	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1283	94.36	5.44	2.01	3.43	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1284	94.45	5.44	2.01	3.43	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1285	94.55	5.45	2.01	3.43	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1286	94.64	5.45	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1287	94.72	5.46	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1288	94.74	5.46	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1289	94.77	5.46	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1290	94.85	5.47	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1291	94.90	5.47	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1292	94.95	5.47	2.03	3.45	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1293	95.01	5.48	2.03	3.45	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1294	95.09	5.48	2.03	3.45	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1295	95.14	5.48	2.03	3.45	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1296	95.23	5.49	2.04	3.46	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1297	95.29	5.49	2.04	3.46	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1298	95.38	5.50	2.04	3.46	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1299	95.43	5.50	2.04	3.46	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1300	95.52	5.51	2.04	3.47	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1301	95.57	5.51	2.05	3.47	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1302	95.67	5.52	2.05	3.47	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1303	95.77	5.53	2.05	3.47	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1304	95.86	5.53	2.05	3.48	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1305	95.95	5.54	2.06	3.48	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1306	96.03	5.54	2.06	3.48	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1307	96.11	5.55	2.06	3.48	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1308	96.20	5.55	2.07	3.49	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1309	96.30	5.56	2.07	3.49	0.51	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1310	96.39	5.57	2.07	3.49	0.51	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1311	96.50	5.57	2.07	3.50	0.51	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1312	96.59	5.58	2.08	3.50	0.50	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1313	96.69	5.58	2.08	3.50	0.50	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1314	96.78	5.59	2.08	3.51	0.50	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1315	96.87	5.60	2.09	3.51	0.50	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1316	96.98	5.60	2.09	3.51	0.50	0.220	1.68	0.130	0.79	1.10	2.000	No
1317	97.02	5.61	2.09	3.51	0.50	0.220	1.68	0.130	0.79	1.10	2.000	No
1318	97.06	5.61	2.09	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1319	97.12	5.61	2.09	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1320	97.16	5.62	2.10	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1321	97.21	5.62	2.10	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1322	97.27	5.62	2.10	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1323	97.33	5.63	2.10	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1324	97.40	5.63	2.10	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1325	97.45	5.63	2.10	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1326	97.50	5.64	2.11	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1327	97.58	5.64	2.11	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1328	97.65	5.65	2.11	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1329	97.69	5.65	2.11	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1330	97.74	5.65	2.11	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1331	97.81	5.66	2.12	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1332	97.88	5.66	2.12	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1333	97.93	5.67	2.12	3.55	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1334	98.03	5.67	2.12	3.55	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1335	98.15	5.68	2.13	3.55	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1336	98.21	5.68	2.13	3.56	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1337	98.32	5.69	2.13	3.56	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1338	98.42	5.70	2.13	3.56	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1339	98.47	5.70	2.14	3.56	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1340	98.57	5.71	2.14	3.57	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1341	98.70	5.71	2.14	3.57	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1342	98.78	5.72	2.15	3.57	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1343	98.85	5.72	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1344	98.86	5.72	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1345	98.92	5.73	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1346	98.98	5.73	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1347	99.03	5.74	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1348	99.11	5.74	2.16	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1349	99.18	5.74	2.16	3.59	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1350	99.23	5.75	2.16	3.59	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1351	99.32	5.75	2.16	3.59	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1352	99.37	5.76	2.16	3.59	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1353	99.45	5.76	2.17	3.60	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1354	99.56	5.77	2.17	3.60	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1355	99.64	5.77	2.17	3.60	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1356	99.71	5.78	2.17	3.60	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1357	99.75	5.78	2.18	3.61	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1358	99.90	5.79	2.18	3.61	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1359	99.95	5.80	2.18	3.61	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1360	100.04	5.80	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1361	100.14	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1362	100.14	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1363	100.15	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1364	100.19	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1365	100.21	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1366	100.24	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1367	100.28	5.82	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1368	100.31	5.82	2.19	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1369	100.33	5.82	2.19	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1370	100.38	5.82	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1371	100.39	5.82	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1372	100.43	5.82	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1373	100.48	5.83	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1374	100.53	5.83	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1375	100.57	5.83	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1376	100.60	5.83	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.04	0.10	4.06	37.76	1.00	0.16	54.25	8.56	4.000	No	Yes	2.00
2	0.10	0.13	4.06	31.79	1.00	0.21	54.25	11.25	4.000	No	Yes	2.00
3	0.11	0.23	4.06	19.95	1.00	0.37	54.25	19.92	4.000	No	Yes	2.00
4	0.16	0.54	4.06	8.78	1.00	0.85	54.25	46.18	4.000	No	Yes	2.00
5	0.19	1.28	3.64	3.82	1.00	2.04	26.86	54.86	4.000	No	Yes	2.00
6	0.24	2.83	3.19	1.88	1.00	4.54	12.41	56.29	4.000	No	Yes	2.00
7	0.31	4.93	2.89	1.26	0.88	7.89	7.08	55.92	4.000	No	Yes	2.00
8	0.38	6.68	2.74	1.06	0.83	10.70	5.13	54.91	4.000	No	Yes	2.00
9	0.43	7.56	2.68	1.02	0.81	12.11	4.55	55.04	4.000	No	Yes	2.00
10	0.49	7.32	2.72	1.13	0.82	11.72	4.88	57.26	4.000	No	Yes	2.00
11	0.58	6.81	2.78	1.31	0.84	10.90	5.56	60.65	4.000	No	Yes	2.00
12	0.63	6.24	2.85	1.60	0.86	9.98	6.53	65.19	4.000	No	Yes	2.00
13	0.67	6.05	2.90	1.88	0.88	9.68	7.19	69.56	4.000	No	Yes	2.00
14	0.72	6.02	2.92	2.08	0.89	9.62	7.57	72.80	4.000	Yes	Yes	2.00
15	0.72	6.70	2.91	2.29	0.88	10.70	7.32	78.32	4.000	Yes	Yes	2.00
16	0.84	9.28	2.77	2.08	0.84	14.84	5.43	80.63	4.000	Yes	Yes	2.00
17	0.96	15.82	2.50	1.53	0.76	25.35	2.97	75.23	4.000	Yes	No	2.00
18	1.06	22.64	2.32	1.27	0.71	36.29	2.02	73.35	4.000	Yes	No	2.00
19	1.24	27.97	2.21	1.11	0.67	44.84	1.65	74.08	4.000	Yes	No	2.00
20	1.30	31.48	2.14	0.98	0.65	50.47	1.49	75.12	4.000	Yes	No	2.00
21	1.48	37.28	2.04	0.82	0.62	59.78	1.34	80.22	4.000	Yes	No	2.00
22	1.59	42.14	1.98	0.77	0.60	67.57	1.29	87.16	4.000	Yes	No	2.00
23	1.69	47.40	1.93	0.75	0.59	76.02	1.26	95.52	4.000	Yes	No	2.00
24	1.69	49.80	1.91	0.76	0.58	79.87	1.25	99.55	4.000	Yes	No	2.00
25	1.74	53.24	1.88	0.73	0.57	85.40	1.22	104.46	4.000	Yes	No	2.00
26	1.79	53.78	1.88	0.73	0.57	86.26	1.22	105.40	4.000	No	No	2.00
27	1.84	52.90	1.89	0.73	0.57	84.84	1.23	104.08	4.000	No	No	2.00
28	1.88	51.25	1.89	0.73	0.58	82.18	1.23	101.34	4.000	No	No	2.00
29	1.93	49.46	1.90	0.71	0.58	79.31	1.24	98.11	4.000	No	No	2.00
30	1.99	48.69	1.90	0.68	0.58	78.06	1.23	96.29	4.000	No	No	2.00
31	2.03	48.08	1.89	0.65	0.58	77.07	1.23	94.90	4.000	No	No	2.00
32	2.08	47.67	1.89	0.64	0.57	76.42	1.23	93.98	4.000	No	No	2.00
33	2.13	46.86	1.90	0.64	0.58	75.11	1.23	92.67	4.000	No	No	2.00
34	2.22	45.85	1.90	0.64	0.58	73.48	1.24	91.09	4.000	No	No	2.00
35	2.27	44.97	1.91	0.64	0.58	72.07	1.24	89.70	4.000	No	No	2.00
36	2.33	44.77	1.91	0.63	0.58	71.74	1.24	89.16	4.000	No	No	2.00
37	2.42	45.44	1.90	0.61	0.58	72.81	1.24	89.96	4.000	No	No	2.00
38	2.48	46.73	1.88	0.60	0.57	74.86	1.22	91.66	4.000	No	No	2.00
39	2.56	48.41	1.86	0.59	0.57	77.57	1.21	94.03	4.000	No	No	2.00
40	2.65	49.43	1.86	0.59	0.56	79.19	1.21	95.47	4.000	No	No	2.00
41	2.72	48.72	1.87	0.60	0.57	78.04	1.21	94.74	4.000	No	No	2.00
42	2.80	46.02	1.90	0.62	0.58	73.70	1.23	90.99	4.000	No	No	2.00
43	2.89	42.44	1.94	0.65	0.59	67.94	1.26	85.67	4.000	No	No	2.00
44	2.94	39.03	1.98	0.69	0.60	62.46	1.29	80.64	4.000	No	No	2.00
45	3.04	35.90	2.02	0.71	0.61	57.42	1.32	76.04	4.000	No	No	2.00
46	3.14	32.32	2.07	0.73	0.63	51.66	1.37	70.91	4.000	No	No	2.00
47	3.23	29.01	2.10	0.73	0.64	46.34	1.42	65.97	4.000	No	No	2.00
48	3.31	25.74	2.15	0.73	0.65	41.07	1.50	61.64	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	3.37	23.04	2.19	0.72	0.66	36.73	1.59	58.33	4.000	No	No	2.00
50	3.48	20.38	2.23	0.72	0.68	32.44	1.71	55.35	4.000	No	No	2.00
51	3.57	18.79	2.25	0.67	0.68	29.89	1.76	52.71	4.000	No	No	2.00
52	3.65	18.02	2.26	0.63	0.69	28.64	1.78	50.93	4.000	No	No	2.00
53	3.71	18.02	2.26	0.63	0.68	28.64	1.77	50.70	4.000	No	No	2.00
54	3.82	18.63	2.26	0.67	0.68	29.60	1.77	52.47	4.000	No	No	2.00
55	3.91	20.18	2.23	0.70	0.68	32.09	1.71	54.73	4.000	No	No	2.00
56	4.00	22.81	2.20	0.73	0.67	36.30	1.60	58.22	4.000	No	No	2.00
57	4.10	26.38	2.09	0.58	0.64	42.04	1.41	59.10	4.000	No	No	2.00
58	4.19	31.21	1.98	0.46	0.60	49.79	1.00	49.79	4.000	No	No	2.00
59	4.26	37.92	1.86	0.36	0.57	60.57	1.00	60.57	4.000	No	No	2.00
60	4.35	45.62	1.79	0.37	0.54	72.92	1.00	72.92	4.000	No	No	2.00
61	4.44	49.80	1.77	0.39	0.54	79.63	1.00	79.63	4.000	No	No	2.00
62	4.52	51.39	1.76	0.41	0.54	82.17	1.00	82.17	4.000	No	No	2.00
63	4.53	52.26	1.76	0.41	0.54	83.58	1.00	83.58	4.000	No	No	2.00
64	4.58	55.03	1.73	0.39	0.53	88.02	1.00	88.02	4.000	No	No	2.00
65	4.63	57.76	1.71	0.39	0.52	92.41	1.00	92.41	4.000	No	No	2.00
66	4.68	58.84	1.70	0.39	0.52	94.14	1.00	94.14	4.000	No	No	2.00
67	4.72	59.28	1.71	0.41	0.52	94.84	1.00	94.84	4.000	No	No	2.00
68	4.77	59.08	1.72	0.42	0.52	94.51	1.00	94.51	4.000	No	No	2.00
69	4.82	58.07	1.73	0.44	0.53	92.88	1.00	92.88	4.000	No	No	2.00
70	4.88	56.21	1.76	0.47	0.54	89.89	1.00	89.89	4.000	No	No	2.00
71	4.96	53.61	1.79	0.50	0.55	85.71	1.14	97.96	4.000	No	No	2.00
72	5.01	50.54	1.83	0.54	0.56	80.78	1.18	95.67	4.000	No	No	2.00
73	5.08	47.44	1.87	0.59	0.57	75.78	1.22	92.32	4.000	No	No	2.00
74	5.16	44.81	1.91	0.63	0.58	71.55	1.24	88.93	4.000	No	No	2.00
75	5.21	43.27	1.93	0.65	0.59	69.07	1.26	86.85	4.000	No	No	2.00
76	5.30	42.68	1.94	0.66	0.59	68.12	1.26	86.01	4.000	No	No	2.00
77	5.37	42.65	1.94	0.66	0.59	68.06	1.26	85.96	4.000	No	No	2.00
78	5.45	42.70	1.94	0.66	0.59	68.13	1.26	86.01	4.000	No	No	2.00
79	5.52	42.44	1.94	0.66	0.59	67.72	1.26	85.64	4.000	No	No	2.00
80	5.59	41.70	1.95	0.67	0.59	66.52	1.27	84.54	4.000	No	No	2.00
81	5.65	40.15	1.97	0.69	0.60	64.02	1.28	82.25	4.000	No	No	2.00
82	5.74	38.46	1.99	0.71	0.61	61.30	1.30	79.83	4.000	No	No	2.00
83	5.83	37.08	2.02	0.73	0.61	59.07	1.32	77.99	4.000	No	No	2.00
84	5.89	36.30	2.03	0.75	0.62	57.82	1.33	77.16	4.000	No	No	2.00
85	5.97	35.66	2.04	0.77	0.62	56.79	1.35	76.43	4.000	No	No	2.00
86	6.07	34.52	2.06	0.79	0.63	54.94	1.37	75.11	4.000	No	No	2.00
87	6.12	32.56	2.10	0.84	0.64	51.79	1.41	73.14	4.000	No	No	2.00
88	6.22	29.76	2.15	0.92	0.65	47.28	1.51	71.19	4.000	No	No	2.00
89	6.28	26.56	2.22	1.04	0.67	42.13	1.67	70.33	4.000	No	No	2.00
90	6.36	23.45	2.29	1.15	0.70	37.14	1.90	70.41	4.000	No	No	2.00
91	6.46	21.29	2.34	1.22	0.71	33.66	2.09	70.43	4.000	No	No	2.00
92	6.52	20.72	2.33	1.14	0.71	32.73	2.06	67.56	4.000	No	No	2.00
93	6.60	22.07	2.26	0.92	0.69	34.89	1.79	62.55	4.000	No	No	2.00
94	6.70	23.55	2.18	0.72	0.66	37.27	1.57	58.59	4.000	No	No	2.00
95	6.76	23.01	2.17	0.66	0.66	36.39	1.55	56.58	4.000	Yes	No	2.00
96	6.84	19.64	2.27	0.77	0.69	30.96	1.81	55.94	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	6.94	14.91	2.44	1.05	0.74	23.37	2.60	60.83	4.000	Yes	No	2.00
98	7.03	10.86	2.63	1.42	0.80	16.85	4.02	67.75	4.000	Yes	Yes	2.00
99	7.13	8.23	2.79	1.78	0.84	12.62	5.71	72.04	4.000	Yes	Yes	2.00
100	7.19	6.62	2.88	1.83	0.87	10.02	6.93	69.39	4.000	Yes	Yes	2.00
101	7.32	5.77	2.88	1.39	0.87	8.65	6.87	59.40	4.000	No	Yes	2.00
102	7.42	5.17	2.80	0.72	0.85	7.67	5.87	44.99	4.000	No	Yes	2.00
103	7.49	4.93	2.63	0.13	0.80	7.28	4.02	29.29	4.000	No	Yes	2.00
104	7.57	4.73	N/A	-0.03	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
105	7.66	4.56	N/A	-0.01	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
106	7.76	4.44	2.68	0.13	0.81	6.47	4.48	29.00	4.000	No	Yes	2.00
107	7.77	4.39	2.72	0.22	0.82	6.39	4.95	31.63	4.000	No	Yes	2.00
108	7.78	4.42	2.73	0.25	0.83	6.44	5.05	32.53	4.000	No	Yes	2.00
109	7.82	4.44	2.76	0.33	0.84	6.47	5.36	34.69	4.000	No	Yes	2.00
110	7.87	4.45	2.80	0.46	0.85	6.49	5.86	38.07	4.000	No	Yes	2.00
111	7.92	4.45	2.85	0.63	0.86	6.49	6.45	41.83	4.000	No	Yes	2.00
112	7.97	4.49	2.88	0.80	0.87	6.54	6.96	45.53	4.000	No	Yes	2.00
113	8.01	4.59	2.91	1.01	0.88	6.70	7.41	49.66	4.000	No	Yes	2.00
114	8.06	4.76	2.92	1.17	0.89	6.97	7.58	52.81	4.000	No	Yes	2.00
115	8.11	4.93	2.93	1.29	0.89	7.24	7.65	55.42	4.000	No	Yes	2.00
116	8.20	5.06	2.93	1.38	0.89	7.45	7.68	57.24	4.000	No	Yes	2.00
117	8.26	5.16	2.94	1.51	0.89	7.60	7.84	59.63	4.000	No	Yes	2.00
118	8.35	5.23	2.95	1.61	1.00	7.70	7.98	61.50	4.000	No	Yes	2.00
119	8.40	5.30	2.95	1.67	1.00	7.81	8.02	62.65	4.000	No	Yes	2.00
120	8.49	5.37	2.95	1.68	0.89	7.91	7.96	62.99	4.000	No	Yes	2.00
121	8.54	5.51	2.94	1.69	0.89	8.13	7.81	63.54	4.000	No	Yes	2.00
122	8.64	5.71	2.93	1.68	0.89	8.45	7.58	64.06	4.000	No	Yes	2.00
123	8.69	5.91	2.91	1.68	0.88	8.77	7.37	64.63	4.000	No	Yes	2.00
124	8.79	6.18	2.92	1.87	0.88	9.19	7.46	68.57	4.000	No	Yes	2.00
125	8.84	6.48	2.93	2.12	0.89	9.68	7.59	73.49	4.000	No	Yes	2.00
126	8.93	6.89	2.92	2.28	0.88	10.32	7.50	77.37	4.000	No	Yes	2.00
127	9.03	7.13	2.92	2.39	0.88	10.69	7.46	79.83	4.000	No	Yes	2.00
128	9.08	7.21	2.92	2.47	0.88	10.83	7.52	81.47	4.000	No	Yes	2.00
129	9.11	7.16	2.94	2.63	0.89	10.75	7.78	83.66	4.000	No	Yes	2.00
130	9.12	7.13	2.95	2.68	0.89	10.69	7.89	84.32	4.000	No	Yes	2.00
131	9.17	7.07	2.95	2.75	1.00	10.60	8.03	85.13	4.000	No	Yes	2.00
132	9.22	7.12	2.96	2.81	1.00	10.67	8.09	86.32	4.000	No	Yes	2.00
133	9.31	6.92	2.99	3.02	1.00	10.34	8.56	88.56	4.000	No	Yes	2.00
134	9.36	7.16	2.98	3.04	1.00	10.72	8.37	89.76	4.000	No	Yes	2.00
135	9.40	7.46	2.95	2.98	1.00	11.20	8.04	90.10	4.000	No	Yes	2.00
136	9.46	8.14	2.90	2.76	0.88	12.28	7.25	89.07	4.000	No	Yes	2.00
137	9.51	8.47	2.88	2.68	0.87	12.82	6.92	88.75	4.000	No	Yes	2.00
138	9.55	8.78	2.86	2.65	0.87	13.30	6.70	89.10	4.000	No	Yes	2.00
139	9.61	8.98	2.86	2.71	0.87	13.63	6.65	90.65	4.000	No	Yes	2.00
140	9.69	9.12	2.87	2.83	0.87	13.84	6.73	93.09	4.000	No	Yes	2.00
141	9.74	9.18	2.88	2.97	0.87	13.94	6.87	95.71	4.000	No	Yes	2.00
142	9.81	9.39	2.88	3.05	0.87	14.26	6.85	97.70	4.000	No	Yes	2.00
143	9.89	9.76	2.86	3.02	0.87	14.85	6.62	98.33	4.000	No	Yes	2.00
144	9.94	10.06	2.84	2.98	0.86	15.33	6.42	98.43	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	10.03	10.23	2.83	2.93	0.86	15.59	6.28	97.94	4.000	No	Yes	2.00
146	10.08	10.23	2.80	2.62	0.85	15.59	5.91	92.18	4.000	No	Yes	2.00
147	10.18	10.23	2.76	2.21	0.84	15.58	5.40	84.12	4.000	No	Yes	2.00
148	10.23	10.23	2.73	1.94	0.83	15.58	5.05	78.62	4.000	No	Yes	2.00
149	10.33	10.23	2.74	2.03	0.83	15.57	5.17	80.55	4.000	No	Yes	2.00
150	10.40	10.23	2.77	2.31	0.84	15.56	5.54	86.20	4.000	No	Yes	2.00
151	10.47	10.08	2.80	2.55	0.85	15.32	5.91	90.44	4.000	No	Yes	2.00
152	10.51	10.06	2.83	2.76	0.86	15.28	6.18	94.42	4.000	No	Yes	2.00
153	10.56	10.03	2.84	2.94	0.86	15.23	6.41	97.63	4.000	No	Yes	2.00
154	10.61	10.21	2.85	3.10	0.86	15.52	6.51	100.97	4.000	No	Yes	2.00
155	10.67	10.16	2.88	3.41	0.87	15.43	6.88	106.14	4.000	No	Yes	2.00
156	10.75	10.13	2.90	3.70	0.88	15.37	7.21	110.80	4.000	No	Yes	2.00
157	10.80	9.99	2.92	3.91	0.88	15.15	7.50	113.70	4.000	No	Yes	2.00
158	10.85	9.89	2.93	3.98	0.89	14.99	7.63	114.35	4.000	No	Yes	2.00
159	10.90	9.72	2.94	4.07	0.89	14.71	7.82	115.05	4.000	No	Yes	2.00
160	11.00	9.45	2.96	4.21	1.00	14.27	8.13	116.05	4.000	No	Yes	2.00
161	11.05	9.05	2.99	4.36	1.00	13.61	8.55	116.32	4.000	No	Yes	2.00
162	11.14	8.61	3.01	4.54	1.00	12.90	9.04	116.64	4.000	No	Yes	2.00
163	11.21	8.27	3.04	4.77	1.00	12.36	9.53	117.80	4.000	No	Yes	2.00
164	11.29	8.24	3.05	4.86	1.00	12.30	9.66	118.79	4.000	No	Yes	2.00
165	11.38	8.41	3.04	4.86	1.00	12.56	9.53	119.67	4.000	No	Yes	2.00
166	11.46	8.68	3.02	4.71	1.00	12.98	9.18	119.19	4.000	No	Yes	2.00
167	11.52	8.88	3.01	4.64	1.00	13.30	8.96	119.26	4.000	No	Yes	2.00
168	11.60	8.98	3.00	4.60	1.00	13.46	8.85	119.12	4.000	No	Yes	2.00
169	11.67	9.05	3.00	4.58	1.00	13.56	8.79	119.24	4.000	No	Yes	2.00
170	11.72	9.12	3.00	4.58	1.00	13.67	8.75	119.52	4.000	No	Yes	2.00
171	11.81	9.32	2.99	4.50	1.00	13.98	8.54	119.37	4.000	No	Yes	2.00
172	11.86	9.35	2.98	4.50	1.00	14.03	8.52	119.54	4.000	No	Yes	2.00
173	11.96	9.42	2.98	4.48	1.00	14.07	8.48	119.37	4.000	No	Yes	2.00
174	12.01	9.45	2.98	4.50	1.00	14.06	8.50	119.58	4.000	No	Yes	2.00
175	12.10	9.69	2.97	4.05	0.89	13.55	8.25	111.75	4.000	No	Yes	2.00
176	12.16	10.07	2.91	3.44	0.88	13.97	7.41	103.51	4.000	No	Yes	2.00
177	12.24	10.47	2.88	3.08	0.87	14.38	6.85	98.49	4.000	No	Yes	2.00
178	12.32	10.87	2.88	3.24	0.87	14.89	6.86	102.09	4.000	No	Yes	2.00
179	12.39	11.18	2.90	3.63	0.88	15.29	7.16	109.53	4.000	No	Yes	2.00
180	12.48	10.64	2.95	4.13	0.89	14.47	7.97	115.36	4.000	No	Yes	2.00
181	12.50	10.23	2.97	4.52	1.00	14.64	8.30	121.50	4.000	No	Yes	2.00
182	12.54	10.74	2.96	4.40	0.89	14.58	8.20	119.55	4.000	No	Yes	2.00
183	12.64	12.36	2.89	3.89	0.87	16.65	7.01	116.68	4.000	No	Yes	2.00
184	12.68	14.04	2.81	3.45	0.85	18.79	6.01	113.05	4.000	No	Yes	2.00
185	12.77	14.72	2.78	3.24	0.84	19.54	5.64	110.30	4.000	No	Yes	2.00
186	12.82	14.75	2.78	3.14	0.84	19.48	5.55	108.15	4.000	No	Yes	2.00
187	12.89	14.21	2.79	3.12	0.84	18.67	5.71	106.60	4.000	No	Yes	2.00
188	12.97	13.37	2.82	3.26	0.85	17.49	6.13	107.25	4.000	No	Yes	2.00
189	13.03	12.49	2.86	3.45	0.87	16.30	6.66	108.51	4.000	No	Yes	2.00
190	13.12	11.72	2.90	3.66	0.88	15.20	7.22	109.85	4.000	No	Yes	2.00
191	13.16	11.21	2.93	3.77	0.89	14.50	7.58	109.96	4.000	No	Yes	2.00
192	13.26	10.91	2.93	3.69	0.89	13.99	7.68	107.43	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	13.34	10.84	2.92	3.42	0.88	13.79	7.45	102.72	4.000	No	Yes	2.00
194	13.41	10.74	2.90	3.11	0.88	13.56	7.18	97.27	4.000	No	Yes	2.00
195	13.50	10.60	2.89	2.96	0.88	13.27	7.10	94.19	4.000	No	Yes	2.00
196	13.60	10.33	2.90	2.95	0.88	12.84	7.26	93.25	4.000	No	Yes	2.00
197	13.65	10.13	2.92	3.04	0.88	12.55	7.49	94.05	4.000	No	Yes	2.00
198	13.75	10.03	2.93	3.14	0.89	12.35	7.71	95.17	4.000	No	Yes	2.00
199	13.80	10.10	2.92	3.04	0.89	12.37	7.57	93.67	4.000	No	Yes	2.00
200	13.89	10.23	2.92	3.06	0.89	12.47	7.55	94.18	4.000	No	Yes	2.00
201	13.94	10.63	2.92	3.15	0.88	12.95	7.46	96.59	4.000	No	Yes	2.00
202	14.03	10.80	2.95	3.59	0.89	13.13	7.91	103.87	4.000	No	Yes	2.00
203	14.11	11.23	2.95	3.82	0.89	13.59	7.98	108.45	4.000	No	Yes	2.00
204	14.13	11.53	2.95	3.97	0.89	13.97	7.99	111.61	4.000	No	Yes	2.00
205	14.18	12.27	2.92	3.86	0.89	14.85	7.55	112.19	4.000	No	Yes	2.00
206	14.22	12.83	2.91	3.88	0.88	15.50	7.35	113.98	4.000	No	Yes	2.00
207	14.28	13.44	2.90	3.92	0.88	16.19	7.18	116.20	4.000	No	Yes	2.00
208	14.37	14.01	2.89	3.98	0.88	16.81	7.06	118.62	4.000	No	Yes	2.00
209	14.44	14.79	2.87	3.97	0.87	17.68	6.80	120.24	4.000	No	Yes	2.00
210	14.51	15.63	2.85	3.90	0.86	18.60	6.50	120.95	4.000	No	Yes	2.00
211	14.60	16.31	2.83	3.86	0.86	19.30	6.30	121.55	4.000	No	Yes	2.00
212	14.65	16.58	2.83	3.91	0.86	19.57	6.28	122.89	4.000	No	Yes	2.00
213	14.75	16.56	2.84	3.99	0.86	19.44	6.39	124.23	4.000	No	Yes	2.00
214	14.85	16.48	2.85	4.06	0.86	19.22	6.50	124.95	4.000	No	Yes	2.00
215	14.91	16.44	2.85	4.07	0.86	19.11	6.54	124.89	4.000	No	Yes	2.00
216	14.99	17.00	2.83	3.89	0.86	19.64	6.25	122.73	4.000	Yes	Yes	2.00
217	15.09	18.30	2.79	3.60	0.84	21.01	5.69	119.59	4.000	Yes	Yes	2.00
218	15.18	20.29	2.72	3.20	0.82	23.13	4.94	114.33	4.000	Yes	Yes	2.00
219	15.25	22.28	2.66	2.79	0.80	25.25	4.26	107.53	4.000	Yes	Yes	2.00
220	15.33	24.50	2.58	2.38	0.78	27.58	3.60	99.22	4.000	Yes	No	2.00
221	15.43	27.51	2.50	1.99	0.76	30.70	2.96	90.92	4.000	Yes	No	2.00
222	15.51	31.32	2.41	1.70	0.73	34.70	2.45	84.95	4.000	Yes	No	2.00
223	15.59	34.63	2.35	1.53	0.71	38.13	2.14	81.77	4.000	Yes	No	2.00
224	15.67	36.18	2.33	1.46	0.71	39.65	2.03	80.65	4.000	Yes	No	2.00
225	15.76	35.13	2.35	1.53	0.71	38.36	2.14	81.98	4.000	Yes	No	2.00
226	15.86	32.03	2.41	1.71	0.73	34.86	2.45	85.36	4.000	Yes	No	2.00
227	15.95	27.64	2.51	2.00	0.76	30.01	3.03	90.95	4.000	Yes	No	2.00
228	16.05	23.08	2.61	2.33	0.79	24.94	3.85	95.91	4.000	Yes	Yes	2.00
229	16.14	19.31	2.71	2.64	0.82	20.73	4.79	99.32	4.000	Yes	Yes	2.00
230	16.20	16.85	2.78	2.83	0.84	17.98	5.55	99.84	4.000	Yes	Yes	2.00
231	16.28	15.33	2.82	2.95	0.85	16.24	6.13	99.52	4.000	Yes	Yes	2.00
232	16.34	14.21	2.85	2.97	0.86	14.97	6.52	97.62	4.000	Yes	Yes	2.00
233	16.44	12.93	2.89	3.04	0.88	13.48	7.12	95.96	4.000	Yes	Yes	2.00
234	16.50	11.61	2.93	3.03	0.89	12.00	7.73	92.73	4.000	Yes	Yes	2.00
235	16.58	10.17	2.96	2.83	1.00	10.54	8.19	86.31	4.000	Yes	Yes	2.00
236	16.73	8.75	2.98	2.31	1.00	8.85	8.43	74.57	4.000	No	Yes	2.00
237	16.82	7.60	2.96	1.61	1.00	7.51	8.14	61.14	4.000	No	Yes	2.00
238	16.92	7.06	2.97	1.45	1.00	6.86	8.35	57.29	4.000	No	Yes	2.00
239	17.01	6.56	3.09	2.09	1.00	6.26	10.33	64.67	4.000	No	Yes	2.00
240	17.11	6.20	3.19	2.99	1.00	5.84	12.54	73.17	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	17.12	5.73	3.28	3.81	1.00	5.31	14.74	78.30	4.000	No	Yes	2.00
242	17.14	6.34	3.23	3.66	1.00	5.97	13.44	80.31	4.000	No	Yes	2.00
243	17.19	7.13	3.17	3.53	1.00	6.82	12.15	82.92	4.000	No	Yes	2.00
244	17.28	7.94	3.13	3.46	1.00	7.67	11.16	85.58	4.000	No	Yes	2.00
245	17.33	8.01	3.14	3.72	1.00	7.71	11.48	88.52	4.000	No	Yes	2.00
246	17.43	7.87	3.16	3.90	1.00	7.52	11.93	89.67	4.000	No	Yes	2.00
247	17.47	7.74	3.17	3.85	1.00	7.35	12.03	88.37	4.000	No	Yes	2.00
248	17.57	7.57	3.16	3.62	1.00	7.12	11.95	85.14	4.000	No	Yes	2.00
249	17.65	7.47	3.15	3.35	1.00	6.98	11.70	81.63	4.000	No	Yes	2.00
250	17.72	7.40	3.16	3.37	1.00	6.88	11.84	81.46	4.000	No	Yes	2.00
251	17.81	7.57	3.16	3.48	1.00	7.02	11.86	83.22	4.000	No	Yes	2.00
252	17.86	7.87	3.17	3.79	1.00	7.32	11.98	87.65	4.000	No	Yes	2.00
253	17.95	8.31	3.16	4.07	1.00	7.73	11.95	92.32	4.000	No	Yes	2.00
254	18.05	8.78	3.16	4.29	1.00	8.18	11.81	96.52	4.000	No	Yes	2.00
255	18.10	9.22	3.15	4.49	1.00	8.61	11.67	100.43	4.000	No	Yes	2.00
256	18.20	9.66	3.14	4.65	1.00	9.01	11.52	103.80	4.000	No	Yes	2.00
257	18.30	9.90	3.15	4.85	1.00	9.20	11.60	106.76	4.000	No	Yes	2.00
258	18.39	10.13	3.14	4.89	1.00	9.38	11.50	107.91	4.000	No	Yes	2.00
259	18.48	10.27	3.14	4.83	1.00	9.47	11.38	107.71	4.000	No	Yes	2.00
260	18.58	10.30	3.14	4.82	1.00	9.44	11.38	107.46	4.000	No	Yes	2.00
261	18.66	10.20	3.14	4.82	1.00	9.30	11.49	106.87	4.000	No	Yes	2.00
262	18.74	10.07	3.14	4.69	1.00	9.12	11.49	104.74	4.000	No	Yes	2.00
263	18.87	9.90	3.11	3.92	1.00	8.88	10.73	95.26	4.000	No	Yes	2.00
264	18.97	9.66	3.07	3.27	1.00	8.59	10.09	86.69	4.000	No	Yes	2.00
265	19.06	9.56	3.05	2.85	1.00	8.45	9.58	80.90	4.000	No	Yes	2.00
266	19.16	9.83	3.06	3.14	1.00	8.66	9.84	85.25	4.000	No	Yes	2.00
267	19.25	10.13	3.06	3.34	1.00	8.91	9.93	88.50	4.000	No	Yes	2.00
268	19.27	10.23	3.08	3.58	1.00	9.00	10.18	91.69	4.000	No	Yes	2.00
269	19.30	10.37	3.09	3.79	1.00	9.12	10.39	94.70	4.000	No	Yes	2.00
270	19.34	10.57	3.10	4.04	1.00	9.29	10.57	98.19	4.000	No	Yes	2.00
271	19.39	10.84	3.09	4.12	1.00	9.53	10.50	100.00	4.000	No	Yes	2.00
272	19.49	10.78	3.10	4.12	1.00	9.41	10.57	99.51	4.000	No	Yes	2.00
273	19.55	10.51	3.10	4.04	1.00	9.12	10.70	97.54	4.000	No	Yes	2.00
274	19.63	10.17	3.11	3.94	1.00	8.75	10.86	95.04	4.000	No	Yes	2.00
275	19.68	9.87	3.11	3.78	1.00	8.43	10.91	92.04	4.000	No	Yes	2.00
276	19.74	9.77	3.10	3.54	1.00	8.31	10.69	88.83	4.000	No	Yes	2.00
277	19.83	9.73	3.10	3.44	1.00	8.24	10.61	87.40	4.000	No	Yes	2.00
278	19.87	9.73	3.10	3.38	1.00	8.22	10.55	86.67	4.000	No	Yes	2.00
279	19.94	9.73	3.11	3.54	1.00	8.19	10.80	88.39	4.000	No	Yes	2.00
280	20.02	9.80	3.12	3.73	1.00	8.21	11.04	90.64	4.000	No	Yes	2.00
281	20.07	10.17	3.13	4.13	1.00	8.54	11.28	96.33	4.000	No	Yes	2.00
282	20.17	11.42	3.09	4.10	1.00	9.65	10.38	100.21	4.000	No	Yes	2.00
283	20.21	14.18	2.97	3.57	1.00	12.20	8.30	101.25	4.000	Yes	Yes	2.00
284	20.28	18.74	2.80	2.81	0.85	16.43	5.92	97.16	4.000	Yes	Yes	2.00
285	20.36	24.88	2.64	2.22	0.80	22.08	4.11	90.84	4.000	Yes	Yes	2.00
286	20.41	31.73	2.51	1.86	0.76	28.40	3.02	85.89	4.000	Yes	No	2.00
287	20.48	38.64	2.40	1.64	0.73	34.74	2.39	83.15	4.000	Yes	No	2.00
288	20.55	44.99	2.33	1.49	0.71	40.52	2.02	82.00	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	20.60	49.88	2.27	1.39	0.69	44.99	1.82	81.90	4.000	Yes	No	2.00
290	20.70	52.55	2.25	1.34	0.68	47.28	1.74	82.23	4.000	No	No	2.00
291	20.74	52.68	2.25	1.37	0.68	47.32	1.75	82.97	4.000	No	No	2.00
292	20.79	51.17	2.28	1.45	0.69	45.83	1.84	84.31	4.000	No	No	2.00
293	20.89	48.70	2.33	1.63	0.71	43.39	2.03	87.95	4.000	No	No	2.00
294	20.96	46.86	2.33	1.59	0.71	41.58	2.06	85.66	4.000	No	No	2.00
295	21.04	45.83	2.34	1.58	0.71	40.52	2.09	84.84	4.000	No	No	2.00
296	21.13	45.80	2.33	1.51	0.71	40.36	2.05	82.71	4.000	No	No	2.00
297	21.22	49.22	2.31	1.55	0.70	43.31	1.97	85.52	4.000	No	No	2.00
298	21.29	52.71	2.28	1.51	0.69	46.38	1.86	86.23	4.000	No	No	2.00
299	21.35	62.13	2.19	1.30	0.66	54.84	1.58	86.56	4.000	No	No	2.00
300	21.37	71.37	2.10	1.15	0.64	63.21	1.42	89.97	4.000	No	No	2.00
301	21.42	83.72	2.01	0.98	0.61	74.37	1.31	97.64	4.000	No	No	2.00
302	21.47	92.73	1.95	0.89	0.59	82.47	1.27	104.48	4.000	No	No	2.00
303	21.48	100.66	1.90	0.82	0.58	89.69	1.23	110.65	4.000	No	No	2.00
304	21.52	107.37	1.85	0.77	0.56	95.73	1.20	115.32	4.000	No	No	2.00
305	21.57	113.24	1.82	0.73	0.55	100.98	1.17	118.63	4.000	No	No	2.00
306	21.62	118.81	1.79	0.69	0.54	105.91	1.14	120.85	4.000	No	No	2.00
307	21.66	124.00	1.76	0.65	0.54	110.52	1.10	122.11	4.000	No	No	2.00
308	21.71	128.79	1.74	0.63	0.53	114.75	1.07	122.79	4.000	No	No	2.00
309	21.76	132.64	1.73	0.62	0.53	118.10	1.04	123.42	4.000	No	No	2.00
310	21.81	135.34	1.72	0.63	0.52	120.38	1.03	124.51	4.000	No	No	2.00
311	21.85	136.99	1.72	0.64	0.53	121.70	1.04	126.15	4.000	No	No	2.00
312	21.91	137.80	1.73	0.66	0.53	122.24	1.05	127.87	4.000	No	No	2.00
313	21.95	138.11	1.73	0.67	0.53	122.32	1.06	129.40	4.000	No	No	2.00
314	22.00	138.24	1.74	0.69	0.53	122.26	1.07	130.49	4.000	No	No	2.00
315	22.05	138.18	1.75	0.70	0.53	122.02	1.08	131.33	4.000	No	No	2.00
316	22.10	138.24	1.75	0.71	0.53	121.90	1.08	132.00	4.000	No	No	2.00
317	22.15	138.31	1.75	0.72	0.53	121.77	1.09	132.56	4.000	No	No	2.00
318	22.19	138.68	1.75	0.72	0.53	121.94	1.09	133.12	4.000	No	No	2.00
319	22.24	139.25	1.76	0.75	0.54	122.24	1.11	135.35	4.000	No	No	2.00
320	22.29	139.86	1.77	0.77	0.54	122.58	1.11	136.60	4.000	No	No	2.00
321	22.34	140.20	1.77	0.78	0.54	122.70	1.12	137.16	4.000	No	No	2.00
322	22.39	140.06	1.77	0.76	0.54	122.45	1.11	135.89	4.000	No	No	2.00
323	22.43	139.42	1.77	0.76	0.54	121.72	1.11	135.26	4.000	No	No	2.00
324	22.48	138.34	1.77	0.76	0.54	120.56	1.12	135.08	4.000	No	No	2.00
325	22.55	136.79	1.78	0.78	0.54	118.95	1.13	134.76	4.000	No	No	2.00
326	22.62	130.08	1.82	0.82	0.55	112.68	1.17	131.90	4.000	No	No	2.00
327	22.63	127.95	1.83	0.83	0.56	110.75	1.18	130.57	4.000	No	No	2.00
328	22.72	125.56	1.83	0.84	0.56	108.31	1.19	128.61	4.000	No	No	2.00
329	22.77	128.09	1.82	0.81	0.55	110.46	1.17	129.57	4.000	No	No	2.00
330	22.83	126.13	1.83	0.83	0.56	108.51	1.19	128.59	4.000	No	No	2.00
331	22.91	124.21	1.85	0.86	0.56	106.52	1.20	127.55	4.000	No	No	2.00
332	22.96	121.74	1.86	0.88	0.57	104.15	1.21	126.09	4.000	No	No	2.00
333	23.02	118.20	1.88	0.91	0.57	100.84	1.22	123.45	4.000	No	No	2.00
334	23.10	113.85	1.90	0.94	0.58	96.74	1.24	119.96	4.000	No	No	2.00
335	23.16	108.42	1.93	0.98	0.59	91.79	1.26	115.60	4.000	No	No	2.00
336	23.20	102.21	1.97	1.03	0.60	86.20	1.28	110.62	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	23.26	95.46	2.01	1.08	0.61	80.15	1.31	105.23	4.000	No	No	2.00
338	23.35	88.68	2.05	1.15	0.62	74.00	1.36	100.36	4.000	No	No	2.00
339	23.39	81.66	2.10	1.23	0.64	67.80	1.42	95.97	4.000	No	No	2.00
340	23.48	74.68	2.15	1.34	0.65	61.55	1.51	93.11	4.000	No	No	2.00
341	23.54	68.33	2.20	1.41	0.67	55.99	1.61	90.41	4.000	No	No	2.00
342	23.63	63.44	2.23	1.41	0.68	51.67	1.69	87.24	4.000	No	No	2.00
343	23.69	60.07	2.21	1.21	0.67	48.84	1.63	79.68	4.000	No	No	2.00
344	23.78	58.37	2.19	1.08	0.66	47.34	1.59	75.09	4.000	No	No	2.00
345	23.87	57.71	2.18	1.00	0.66	46.70	1.56	72.76	4.000	No	No	2.00
346	23.88	57.81	2.20	1.11	0.67	46.69	1.62	75.51	4.000	No	No	2.00
347	23.93	57.42	2.23	1.22	0.68	46.23	1.69	78.05	4.000	No	No	2.00
348	24.02	57.22	2.25	1.33	0.68	45.85	1.76	80.73	4.000	No	No	2.00
349	24.04	56.97	2.27	1.41	0.69	45.57	1.82	82.98	4.000	No	No	2.00
350	24.05	57.34	2.28	1.47	0.69	45.82	1.85	84.83	4.000	No	No	2.00
351	24.15	58.27	2.28	1.52	0.69	46.42	1.87	86.71	4.000	No	No	2.00
352	24.20	60.11	2.28	1.55	0.69	47.86	1.85	88.32	4.000	No	No	2.00
353	24.30	62.64	2.25	1.45	0.68	49.86	1.75	87.06	4.000	No	No	2.00
354	24.40	65.07	2.21	1.31	0.67	51.83	1.63	84.41	4.000	No	No	2.00
355	24.46	66.59	2.16	1.15	0.66	53.10	1.53	81.44	4.000	No	No	2.00
356	24.54	66.42	2.15	1.08	0.65	52.90	1.50	79.49	4.000	No	No	2.00
357	24.64	64.09	2.17	1.11	0.66	50.78	1.55	78.59	4.000	Yes	No	2.00
358	24.73	59.94	2.22	1.24	0.68	47.12	1.68	79.13	4.000	Yes	No	2.00
359	24.78	54.64	2.30	1.43	0.70	42.55	1.92	81.62	4.000	Yes	No	2.00
360	24.88	48.57	2.38	1.66	0.72	37.36	2.28	85.25	4.000	Yes	No	2.00
361	24.94	41.92	2.47	1.90	0.75	31.81	2.80	89.16	4.000	Yes	No	2.00
362	25.02	35.00	2.57	2.14	0.78	26.12	3.52	92.04	4.000	Yes	No	2.00
363	25.12	28.43	2.69	2.46	0.81	20.76	4.59	95.35	4.000	Yes	Yes	2.00
364	25.17	22.86	2.81	2.88	0.85	16.30	6.02	98.17	4.000	Yes	Yes	2.00
365	25.27	18.41	2.93	3.27	0.89	12.75	7.69	98.13	4.000	Yes	Yes	2.00
366	25.36	15.13	3.04	3.56	1.00	9.96	9.50	94.69	4.000	No	Yes	2.00
367	25.43	12.60	3.13	3.75	1.00	8.11	11.16	90.44	4.000	No	Yes	2.00
368	25.50	10.88	3.20	3.97	1.00	6.84	12.76	87.31	4.000	No	Yes	2.00
369	25.60	9.77	3.25	4.08	1.00	6.01	14.03	84.31	4.000	No	Yes	2.00
370	25.64	9.26	3.27	4.02	1.00	5.64	14.52	81.86	4.000	No	Yes	2.00
371	25.67	9.06	3.28	3.90	1.00	5.48	14.58	79.98	4.000	No	Yes	2.00
372	25.71	8.86	3.27	3.61	1.00	5.33	14.38	76.65	4.000	No	Yes	2.00
373	25.79	8.52	3.26	3.26	1.00	5.07	14.25	72.22	4.000	No	Yes	2.00
374	25.93	8.18	3.26	2.95	1.00	4.80	14.17	68.01	4.000	No	Yes	2.00
375	26.03	8.02	3.25	2.70	1.00	4.66	13.97	65.11	4.000	No	Yes	2.00
376	26.13	8.02	3.24	2.57	1.00	4.64	13.74	63.74	4.000	No	Yes	2.00
377	26.24	8.08	3.23	2.50	1.00	4.67	13.54	63.18	4.000	No	Yes	2.00
378	26.37	8.18	3.23	2.51	1.00	4.71	13.48	63.49	4.000	No	Yes	2.00
379	26.47	8.25	3.23	2.56	1.00	4.73	13.53	64.09	4.000	No	Yes	2.00
380	26.60	8.25	3.22	2.39	1.00	4.71	13.24	62.33	4.000	No	Yes	2.00
381	26.71	8.38	3.19	2.15	1.00	4.78	12.59	60.15	4.000	No	Yes	2.00
382	26.85	8.75	3.16	1.96	1.00	5.00	11.78	58.94	4.000	No	Yes	2.00
383	26.95	8.96	3.18	2.26	1.00	5.12	12.24	62.69	4.000	No	Yes	2.00
384	27.04	9.60	3.18	2.57	1.00	5.54	12.21	67.66	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	27.09	10.14	3.18	2.92	1.00	5.90	12.33	72.68	4.000	No	Yes	2.00
386	27.19	10.95	3.16	2.98	1.00	6.42	11.76	75.49	4.000	No	Yes	2.00
387	27.23	11.18	3.16	3.16	1.00	6.56	11.88	78.01	4.000	No	Yes	2.00
388	27.33	11.42	3.17	3.32	1.00	6.70	11.98	80.22	4.000	No	Yes	2.00
389	27.40	11.76	3.16	3.46	1.00	6.91	11.94	82.48	4.000	No	Yes	2.00
390	27.47	12.30	3.15	3.56	1.00	7.25	11.72	84.94	4.000	No	Yes	2.00
391	27.57	12.97	3.14	3.59	1.00	7.66	11.34	86.93	4.000	No	Yes	2.00
392	27.66	13.85	3.12	3.70	1.00	8.22	10.99	90.36	4.000	No	Yes	2.00
393	27.77	14.96	3.10	3.87	1.00	8.93	10.64	94.93	4.000	No	Yes	2.00
394	27.86	16.28	3.08	4.09	1.00	9.76	10.29	100.42	4.000	No	Yes	2.00
395	27.96	17.39	3.07	4.27	1.00	10.45	10.06	105.14	4.000	No	Yes	2.00
396	28.06	17.73	3.08	4.52	1.00	10.63	10.22	108.70	4.000	No	Yes	2.00
397	28.15	17.29	3.10	4.70	1.00	10.31	10.64	109.63	4.000	No	Yes	2.00
398	28.25	17.04	3.08	4.30	1.00	10.10	10.32	104.18	4.000	No	Yes	2.00
399	28.34	16.50	3.07	3.92	1.00	9.71	10.12	98.29	4.000	No	Yes	2.00
400	28.44	16.94	3.04	3.53	1.00	9.96	9.46	94.21	4.000	No	Yes	2.00
401	28.54	16.11	3.09	4.00	1.00	9.38	10.45	98.03	4.000	No	Yes	2.00
402	28.62	17.46	3.06	4.02	1.00	10.22	9.90	101.19	4.000	No	Yes	2.00
403	28.71	18.34	3.05	4.14	1.00	10.74	9.72	104.45	4.000	No	Yes	2.00
404	28.77	20.26	3.01	4.01	1.00	11.95	8.92	106.63	4.000	No	Yes	2.00
405	28.86	20.73	3.01	4.13	1.00	12.21	8.93	109.00	4.000	No	Yes	2.00
406	28.91	21.34	3.00	4.15	1.00	12.56	8.78	110.37	4.000	No	Yes	2.00
407	28.97	22.04	2.99	4.19	1.00	12.99	8.63	112.06	4.000	No	Yes	2.00
408	29.04	22.92	2.98	4.23	1.00	13.50	8.45	114.13	4.000	No	Yes	2.00
409	29.10	23.97	2.97	4.28	1.00	14.13	8.26	116.69	4.000	No	Yes	2.00
410	29.15	25.15	2.96	4.38	1.00	14.85	8.08	120.01	4.000	No	Yes	2.00
411	29.25	26.40	2.93	4.48	0.89	16.30	7.69	125.36	4.000	No	Yes	2.00
412	29.34	27.38	2.93	4.58	0.89	16.91	7.60	128.48	4.000	No	Yes	2.00
413	29.38	27.75	2.93	4.68	0.89	17.12	7.63	130.55	4.000	No	Yes	2.00
414	29.48	27.72	2.95	4.76	1.00	16.25	7.97	129.55	4.000	No	Yes	2.00
415	29.55	27.48	2.96	4.80	1.00	16.06	8.07	129.61	4.000	Yes	Yes	2.00
416	29.63	27.41	2.93	4.54	0.89	16.75	7.61	127.50	4.000	Yes	Yes	2.00
417	29.72	28.43	2.81	3.17	0.85	17.61	6.01	105.80	4.000	Yes	Yes	2.00
418	29.82	31.56	2.63	1.83	0.80	20.09	3.98	79.94	4.000	Yes	Yes	2.00
419	29.88	36.83	2.39	0.90	0.73	24.31	2.33	56.65	4.000	Yes	No	2.00
420	29.96	45.23	2.29	0.81	0.69	30.47	1.87	56.98	4.000	Yes	No	2.00
421	30.06	49.92	2.25	0.82	0.68	33.83	1.75	59.16	4.000	Yes	No	2.00
422	30.13	54.67	2.21	0.81	0.67	37.29	1.64	60.99	4.000	Yes	No	2.00
423	30.18	56.02	2.21	0.84	0.67	38.21	1.63	62.30	0.102	No	No	0.57
424	30.28	58.72	2.20	0.87	0.67	40.06	1.61	64.44	0.105	No	No	0.58
425	30.37	59.53	2.22	0.98	0.67	40.40	1.67	67.53	0.109	No	No	0.60
426	30.47	60.51	2.25	1.10	0.68	40.85	1.74	71.05	0.113	No	No	0.63
427	30.57	63.28	2.24	1.15	0.68	42.69	1.73	73.87	0.117	No	No	0.65
428	30.66	67.26	2.22	1.17	0.67	45.46	1.67	76.12	0.121	No	No	0.67
429	30.74	71.34	2.20	1.17	0.67	48.33	1.62	78.31	0.125	No	No	0.69
430	30.82	74.51	2.19	1.19	0.67	50.51	1.59	80.52	0.129	No	No	0.71
431	30.90	76.30	2.20	1.26	0.67	51.60	1.61	82.93	0.133	No	No	0.73
432	31.01	76.90	2.22	1.35	0.67	51.74	1.66	85.67	0.138	No	No	0.76

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	31.10	77.02	2.24	1.50	0.68	51.51	1.74	89.47	0.147	No	No	0.80
434	31.19	77.06	2.28	1.66	0.69	51.19	1.84	93.96	0.157	No	No	0.86
435	31.28	77.57	2.30	1.81	0.70	51.24	1.92	98.21	0.168	No	No	0.92
436	31.35	78.53	2.31	1.92	0.70	51.70	1.97	101.82	0.178	No	No	0.97
437	31.43	80.52	2.31	1.98	0.70	52.90	1.98	104.59	0.186	No	No	1.02
438	31.53	83.11	2.31	2.04	0.70	54.53	1.97	107.28	0.195	No	No	1.06
439	31.60	85.91	2.26	1.77	0.69	56.74	1.78	101.10	0.176	No	No	0.96
440	31.67	88.07	2.21	1.54	0.67	58.52	1.64	95.74	0.162	No	No	0.88
441	31.77	89.46	2.16	1.33	0.66	59.74	1.53	91.18	0.150	No	No	0.82
442	31.84	89.86	2.18	1.41	0.66	59.77	1.56	93.40	0.156	No	No	0.84
443	31.91	86.18	2.22	1.57	0.68	56.78	1.68	95.19	0.160	No	No	0.87
444	31.98	79.10	2.29	1.77	0.70	51.41	1.89	97.23	0.165	No	No	0.89
445	31.98	77.21	2.32	1.87	0.70	49.95	1.99	99.23	0.171	No	No	0.92
446	32.04	78.73	2.31	1.90	0.70	50.91	1.98	100.65	0.175	No	No	0.94
447	32.12	82.68	2.30	1.89	0.70	53.56	1.91	102.19	4.000	Yes	No	2.00
448	32.16	80.04	2.33	2.05	0.71	51.46	2.05	105.63	4.000	Yes	No	2.00
449	32.27	75.66	2.38	2.23	0.72	48.11	2.26	108.77	4.000	Yes	No	2.00
450	32.33	70.76	2.42	2.40	0.74	44.53	2.50	111.51	4.000	Yes	No	2.00
451	32.41	66.31	2.46	2.50	0.75	41.33	2.72	112.40	4.000	Yes	No	2.00
452	32.50	61.79	2.49	2.55	0.76	38.14	2.93	111.66	4.000	Yes	No	2.00
453	32.58	56.66	2.53	2.59	0.77	34.61	3.18	110.12	4.000	Yes	No	2.00
454	32.66	50.22	2.58	2.66	0.78	30.23	3.59	108.68	4.000	Yes	No	2.00
455	32.74	43.30	2.65	2.79	0.80	25.56	4.22	107.79	4.000	Yes	Yes	2.00
456	32.84	36.12	2.75	3.04	0.83	20.76	5.20	107.96	4.000	Yes	Yes	2.00
457	32.90	29.88	2.85	3.36	0.86	16.68	6.45	107.62	4.000	Yes	Yes	2.00
458	32.98	24.92	2.96	3.68	1.00	12.71	8.19	104.08	4.000	Yes	Yes	2.00
459	33.08	20.77	3.06	4.02	1.00	10.40	9.80	101.84	3.600	No	Yes	2.00
460	33.14	17.05	3.16	4.51	1.00	8.34	11.93	99.50	3.600	No	Yes	2.00
461	33.22	14.12	3.27	5.00	1.00	6.71	14.31	96.06	3.600	No	Yes	2.00
462	33.32	12.19	3.34	5.20	1.00	5.64	16.21	91.43	3.600	No	Yes	2.00
463	33.37	11.28	3.35	4.81	1.00	5.14	16.60	85.28	3.600	No	Yes	2.00
464	33.47	11.05	3.34	4.46	1.00	4.99	16.37	81.70	3.600	No	Yes	2.00
465	33.56	11.66	3.30	4.00	1.00	5.30	15.06	79.85	3.600	No	Yes	2.00
466	33.63	12.43	3.26	3.78	1.00	5.71	14.04	80.15	3.600	No	Yes	2.00
467	33.71	12.67	3.23	3.53	1.00	5.82	13.47	78.37	3.600	No	Yes	2.00
468	33.81	11.99	3.22	3.07	1.00	5.44	13.27	72.19	3.600	No	Yes	2.00
469	33.90	11.05	3.23	2.64	1.00	4.92	13.35	65.65	3.600	No	Yes	2.00
470	33.95	10.31	3.23	2.27	1.00	4.51	13.36	60.28	3.600	No	Yes	2.00
471	34.04	10.07	3.24	2.29	1.00	4.37	13.69	59.84	3.600	No	Yes	2.00
472	34.14	9.87	3.25	2.32	1.00	4.25	14.01	59.54	3.600	No	Yes	2.00
473	34.17	9.81	3.26	2.35	1.00	4.21	14.16	59.63	3.600	No	Yes	2.00
474	34.20	10.07	3.24	2.31	1.00	4.35	13.78	59.92	3.600	No	Yes	2.00
475	34.26	10.38	3.23	2.26	1.00	4.50	13.36	60.14	3.600	No	Yes	2.00
476	34.35	10.61	3.21	2.19	1.00	4.61	12.99	59.91	3.600	No	Yes	2.00
477	34.43	10.41	3.22	2.20	1.00	4.49	13.24	59.45	3.600	No	Yes	2.00
478	34.49	10.27	3.22	2.15	1.00	4.41	13.28	58.59	3.600	No	Yes	2.00
479	34.59	10.17	3.22	2.05	1.00	4.34	13.18	57.25	3.600	No	Yes	2.00
480	34.69	10.07	3.21	1.94	1.00	4.28	13.07	55.91	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	34.73	9.90	3.22	1.88	1.00	4.18	13.12	54.88	3.600	No	Yes	2.00
482	34.83	9.80	3.22	1.86	1.00	4.12	13.19	54.34	3.600	No	Yes	2.00
483	34.90	9.74	3.23	1.89	1.00	4.07	13.37	54.48	3.600	No	Yes	2.00
484	34.98	9.84	3.23	1.97	1.00	4.12	13.48	55.47	3.600	No	Yes	2.00
485	35.07	10.14	3.24	2.18	1.00	4.26	13.68	58.28	3.600	No	Yes	2.00
486	35.16	10.58	3.27	2.77	1.00	4.47	14.49	64.79	3.600	No	Yes	2.00
487	35.26	11.29	3.32	3.92	1.00	4.82	15.85	76.48	3.600	No	Yes	2.00
488	35.33	13.25	3.31	4.84	1.00	5.82	15.42	89.71	3.600	No	Yes	2.00
489	35.40	16.76	3.22	5.02	1.00	7.61	13.28	101.03	3.600	No	Yes	2.00
490	35.50	20.84	3.12	4.66	1.00	9.67	11.03	106.70	3.600	No	Yes	2.00
491	35.57	23.37	3.07	4.51	1.00	10.95	10.02	109.72	3.600	No	Yes	2.00
492	35.65	23.77	3.07	4.67	1.00	11.12	10.10	112.36	3.600	No	Yes	2.00
493	35.71	22.86	3.11	5.08	1.00	10.64	10.83	115.22	3.600	No	Yes	2.00
494	35.79	21.65	3.15	5.43	1.00	9.99	11.64	116.27	3.600	No	Yes	2.00
495	35.85	20.37	3.18	5.49	1.00	9.32	12.22	113.90	3.600	No	Yes	2.00
496	35.94	19.29	3.19	5.34	1.00	8.75	12.53	109.71	3.600	No	Yes	2.00
497	35.99	18.31	3.19	4.97	1.00	8.24	12.58	103.66	3.600	No	Yes	2.00
498	36.08	17.16	3.19	4.47	1.00	7.64	12.55	95.94	3.600	No	Yes	2.00
499	36.17	15.54	3.21	4.09	1.00	6.80	12.98	88.35	3.600	No	Yes	2.00
500	36.24	14.22	3.23	3.84	1.00	6.13	13.50	82.76	3.600	No	Yes	2.00
501	36.33	13.58	3.25	3.84	1.00	5.79	14.00	81.11	3.600	No	Yes	2.00
502	36.42	13.58	3.26	3.97	1.00	5.77	14.22	82.08	3.600	No	Yes	2.00
503	36.52	14.05	3.21	3.32	1.00	5.99	12.88	77.16	3.600	No	Yes	2.00
504	36.61	15.40	3.13	2.85	1.00	6.64	11.27	74.88	3.600	No	Yes	2.00
505	36.70	17.73	3.06	2.69	1.00	7.78	9.87	76.79	3.600	No	Yes	2.00
506	36.78	20.23	3.06	3.31	1.00	8.99	9.83	88.43	3.600	No	Yes	2.00
507	36.85	18.24	3.19	4.64	1.00	7.99	12.41	99.18	3.600	No	Yes	2.00
508	36.87	20.20	3.15	4.68	1.00	8.95	11.61	103.88	3.600	No	Yes	2.00
509	36.91	23.23	3.07	4.28	1.00	10.43	10.08	105.17	3.600	No	Yes	2.00
510	36.97	31.40	2.86	3.30	0.87	15.73	6.66	104.77	4.000	Yes	Yes	2.00
511	37.06	35.24	2.80	3.11	0.85	17.97	5.86	105.20	4.000	Yes	Yes	2.00
512	37.12	38.62	2.76	3.10	0.84	19.91	5.42	107.91	4.000	Yes	Yes	2.00
513	37.20	42.40	2.74	3.17	0.83	22.04	5.10	112.33	4.000	Yes	Yes	2.00
514	37.27	47.56	2.69	3.09	0.81	25.06	4.56	114.30	4.000	Yes	Yes	2.00
515	37.35	52.21	2.63	2.89	0.80	27.88	4.03	112.42	4.000	Yes	Yes	2.00
516	37.44	55.22	2.59	2.66	0.78	29.75	3.64	108.21	4.000	Yes	No	2.00
517	37.49	58.42	2.53	2.39	0.77	31.83	3.23	102.76	4.000	Yes	No	2.00
518	37.59	67.19	2.43	2.02	0.74	37.46	2.56	95.81	4.000	Yes	No	2.00
519	37.64	85.65	2.27	1.57	0.69	49.64	1.82	90.11	4.000	Yes	No	2.00
520	37.70	111.29	2.10	1.20	0.64	67.10	1.41	94.79	4.000	Yes	No	2.00
521	37.78	136.59	1.96	0.98	0.60	84.81	1.28	108.37	4.000	Yes	No	2.00
522	37.83	155.69	1.88	0.87	0.57	98.45	1.22	120.19	4.000	Yes	No	2.00
523	37.92	167.53	1.83	0.82	0.56	106.83	1.19	126.68	4.000	Yes	No	2.00
524	37.97	174.58	1.81	0.81	0.55	111.69	1.17	130.53	4.000	Yes	No	2.00
525	38.07	178.80	1.81	0.82	0.55	114.34	1.16	133.13	0.299	No	No	1.52
526	38.14	181.84	1.81	0.85	0.55	116.07	1.17	135.64	0.312	No	No	1.59
527	38.22	185.72	1.82	0.88	0.55	118.33	1.17	138.68	0.328	No	No	1.67
528	38.31	191.72	1.82	0.92	0.55	121.94	1.17	143.23	0.353	No	No	1.79

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	38.41	201.37	1.80	0.92	0.55	128.37	1.16	148.66	0.386	No	No	1.96
530	38.52	212.64	1.79	0.92	0.54	135.94	1.14	154.32	0.422	No	No	2.00
531	38.64	221.04	1.77	0.91	0.54	141.59	1.11	157.41	0.443	No	No	2.00
532	38.74	217.87	1.79	0.95	0.54	138.67	1.14	158.10	0.448	No	No	2.00
533	38.80	214.19	1.81	0.99	0.55	135.62	1.16	157.57	0.444	No	No	2.00
534	38.89	210.42	1.83	1.04	0.56	132.43	1.18	156.57	0.437	No	No	2.00
535	38.94	213.65	1.83	1.05	0.56	134.37	1.18	158.84	0.453	No	No	2.00
536	39.03	213.59	1.84	1.10	0.56	133.74	1.19	159.69	0.459	No	No	2.00
537	39.13	213.25	1.86	1.15	0.57	132.81	1.21	160.46	0.464	No	No	2.00
538	39.23	211.36	1.88	1.22	0.57	130.76	1.22	160.12	0.462	No	No	2.00
539	39.35	207.85	1.90	1.28	0.58	127.69	1.24	158.27	0.449	No	No	2.00
540	39.42	201.04	1.93	1.34	0.59	122.59	1.26	154.08	0.420	No	No	2.00
541	39.51	192.09	1.96	1.40	0.60	116.15	1.28	148.22	0.383	No	No	1.93
542	39.60	181.50	1.99	1.45	0.61	108.71	1.30	141.37	0.343	No	No	1.73
543	39.70	172.83	2.02	1.50	0.61	102.65	1.32	135.85	0.313	No	No	1.58
544	39.78	164.63	2.04	1.53	0.62	97.07	1.35	130.75	0.288	No	No	1.45
545	39.90	157.35	2.06	1.56	0.63	92.05	1.37	126.28	0.267	No	No	1.34
546	39.99	149.05	2.09	1.60	0.64	86.44	1.41	121.65	0.247	No	No	1.24
547	40.09	141.42	2.12	1.64	0.64	81.31	1.45	117.75	4.000	Yes	No	2.00
548	40.18	133.79	2.15	1.68	0.65	76.23	1.50	114.33	4.000	Yes	No	2.00
549	40.23	126.04	2.18	1.74	0.66	71.16	1.56	111.30	4.000	Yes	No	2.00
550	40.33	118.01	2.22	1.81	0.67	65.88	1.65	108.90	4.000	Yes	No	2.00
551	40.43	110.12	2.25	1.88	0.68	60.74	1.76	107.17	4.000	Yes	No	2.00
552	40.52	101.85	2.31	2.03	0.70	55.31	1.95	107.68	4.000	Yes	No	2.00
553	40.61	92.44	2.36	2.12	0.71	49.44	2.15	106.53	4.000	Yes	No	2.00
554	40.69	80.59	2.43	2.30	0.74	42.14	2.54	106.96	4.000	Yes	No	2.00
555	40.80	68.65	2.51	2.44	0.76	35.01	3.03	106.21	4.000	Yes	No	2.00
556	40.87	59.91	2.58	2.61	0.78	29.84	3.59	107.20	4.000	Yes	No	2.00
557	40.95	53.47	2.64	2.76	0.80	26.09	4.12	107.50	4.000	Yes	Yes	2.00
558	40.97	51.37	2.65	2.73	0.80	24.94	4.24	105.79	4.000	Yes	Yes	2.00
559	41.01	54.31	2.61	2.50	0.79	26.70	3.81	101.77	4.000	Yes	Yes	2.00
560	41.07	61.80	2.51	2.12	0.76	31.20	3.04	94.92	4.000	Yes	No	2.00
561	41.15	67.40	2.44	1.89	0.74	34.61	2.61	90.47	4.000	Yes	No	2.00
562	41.26	67.13	2.44	1.87	0.74	34.39	2.61	89.74	0.147	No	No	0.74
563	41.35	63.05	2.48	1.98	0.75	31.86	2.87	91.40	0.151	No	No	0.76
564	41.47	60.28	2.52	2.09	0.76	30.09	3.10	93.27	0.155	No	No	0.78
565	41.59	59.67	2.53	2.13	0.77	29.62	3.18	94.19	0.158	No	No	0.79
566	41.69	60.42	2.53	2.16	0.77	29.94	3.18	95.29	0.160	No	No	0.80
567	41.78	59.17	2.55	2.27	0.77	29.08	3.36	97.63	0.167	No	No	0.83
568	41.88	54.75	2.61	2.48	0.79	26.41	3.82	100.94	3.600	No	Yes	2.00
569	41.98	49.45	2.67	2.69	0.81	23.32	4.43	103.21	3.600	No	Yes	2.00
570	42.08	45.13	2.72	2.83	0.83	20.88	4.96	103.54	3.600	No	Yes	2.00
571	42.16	44.32	2.73	2.78	0.83	20.43	4.99	102.01	3.600	No	Yes	2.00
572	42.24	47.12	2.68	2.60	0.81	21.98	4.53	99.69	3.600	No	Yes	2.00
573	42.31	52.25	2.62	2.38	0.79	24.86	3.91	97.23	3.600	No	Yes	2.00
574	42.45	56.94	2.57	2.24	0.78	27.44	3.48	95.61	0.161	No	No	0.80
575	42.55	59.37	2.54	2.18	0.77	28.78	3.30	94.91	0.160	No	No	0.80
576	42.60	59.78	2.54	2.18	0.77	28.96	3.29	95.14	0.160	No	No	0.80

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	42.70	59.34	2.55	2.25	0.77	28.59	3.38	96.60	0.164	No	No	0.82
578	42.81	57.38	2.59	2.39	0.78	27.33	3.64	99.43	0.171	No	No	0.85
579	42.89	53.57	2.64	2.62	0.80	25.06	4.12	103.15	3.600	No	Yes	2.00
580	42.98	48.27	2.71	2.91	0.82	22.02	4.84	106.61	3.600	No	Yes	2.00
581	43.08	43.14	2.79	3.21	0.84	19.16	5.69	108.99	3.600	No	Yes	2.00
582	43.17	40.44	2.83	3.35	0.86	17.68	6.18	109.35	3.600	No	Yes	2.00
583	43.27	41.05	2.81	3.20	0.85	18.01	5.94	107.03	3.600	No	Yes	2.00
584	43.37	43.81	2.71	2.52	0.82	19.71	4.84	95.48	3.600	No	Yes	2.00
585	43.50	46.82	2.61	1.93	0.79	21.62	3.86	83.44	3.600	No	Yes	2.00
586	43.61	48.54	2.54	1.53	0.77	22.85	3.24	73.95	0.118	No	No	0.59
587	43.74	49.31	2.54	1.57	0.77	23.16	3.25	75.29	0.120	No	No	0.60
588	43.79	49.31	2.56	1.72	0.78	22.99	3.44	79.06	0.126	No	No	0.63
589	43.86	48.47	2.60	1.95	0.79	22.31	3.79	84.59	3.600	No	Yes	2.00
590	43.94	47.05	2.66	2.26	0.81	21.30	4.28	91.16	3.600	No	Yes	2.00
591	44.00	44.89	2.72	2.63	0.82	19.92	4.92	98.08	3.600	No	Yes	2.00
592	44.08	42.33	2.78	2.98	0.84	18.39	5.62	103.37	3.600	No	Yes	2.00
593	44.17	38.85	2.85	3.30	0.86	16.48	6.45	106.26	3.600	No	Yes	2.00
594	44.27	35.44	2.90	3.43	0.88	14.71	7.14	105.00	3.600	No	Yes	2.00
595	44.42	34.16	2.90	3.25	0.88	14.09	7.15	100.72	3.600	No	Yes	2.00
596	44.52	37.10	2.82	2.76	0.85	15.69	6.06	95.03	3.600	No	Yes	2.00
597	44.61	44.15	2.68	2.18	0.81	19.52	4.49	87.72	3.600	No	Yes	2.00
598	44.71	51.91	2.57	1.87	0.78	23.77	3.51	83.46	0.134	No	No	0.67
599	44.85	56.66	2.53	1.83	0.77	26.27	3.19	83.87	0.135	No	No	0.67
600	44.95	57.30	2.55	1.98	0.77	26.40	3.34	88.11	0.144	No	No	0.71
601	45.09	54.98	2.59	2.17	0.79	24.92	3.69	92.06	0.153	No	No	0.76
602	45.19	50.09	2.66	2.39	0.81	22.17	4.29	95.00	3.600	No	Yes	2.00
603	45.33	43.44	2.76	2.73	0.83	18.53	5.31	98.48	3.600	No	Yes	2.00
604	45.42	37.17	2.85	3.08	0.86	15.25	6.56	100.02	3.600	No	Yes	2.00
605	45.57	34.20	2.90	3.17	0.88	13.74	7.18	98.64	3.600	No	Yes	2.00
606	45.68	32.58	2.91	3.02	0.88	12.98	7.29	94.66	3.600	No	Yes	2.00
607	45.81	30.45	2.91	2.71	0.88	12.02	7.30	87.72	3.600	No	Yes	2.00
608	45.92	26.54	3.01	2.83	1.00	9.26	8.96	82.93	3.600	No	Yes	2.00
609	46.05	22.29	3.11	3.22	1.00	7.59	10.87	82.51	3.600	No	Yes	2.00
610	46.16	19.32	3.23	4.05	1.00	6.43	13.40	86.12	3.600	No	Yes	2.00
611	46.17	17.73	3.28	4.34	1.00	5.82	14.71	85.57	3.600	No	Yes	2.00
612	46.23	17.46	3.28	4.24	1.00	5.70	14.75	84.09	3.600	No	Yes	2.00
613	46.29	16.85	3.29	4.16	1.00	5.46	15.02	82.02	3.600	No	Yes	2.00
614	46.34	16.04	3.31	3.98	1.00	5.15	15.32	78.81	3.600	No	Yes	2.00
615	46.42	15.30	3.31	3.71	1.00	4.85	15.44	74.90	3.600	No	Yes	2.00
616	46.48	14.90	3.30	3.33	1.00	4.69	15.10	70.80	3.600	No	Yes	2.00
617	46.52	14.69	3.28	3.04	1.00	4.61	14.73	67.86	3.600	No	Yes	2.00
618	46.60	14.56	3.27	2.84	1.00	4.55	14.47	65.79	3.600	No	Yes	2.00
619	46.67	14.49	3.26	2.68	1.00	4.51	14.23	64.21	3.600	No	Yes	2.00
620	46.74	14.45	3.25	2.57	1.00	4.49	14.03	63.02	3.600	No	Yes	2.00
621	46.82	14.42	3.25	2.46	1.00	4.47	13.84	61.88	3.600	No	Yes	2.00
622	46.88	14.19	3.25	2.42	1.00	4.37	13.96	61.07	3.600	No	Yes	2.00
623	46.96	14.10	3.25	2.39	1.00	4.33	13.99	60.61	3.600	No	Yes	2.00
624	47.06	13.97	3.26	2.41	1.00	4.27	14.16	60.52	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	47.15	14.11	3.26	2.45	1.00	4.31	14.15	61.03	3.600	No	Yes	2.00
626	47.24	14.43	3.28	2.83	1.00	4.42	14.72	65.10	3.600	No	Yes	2.00
627	47.35	16.18	3.29	3.62	1.00	5.07	14.87	75.39	3.600	No	Yes	2.00
628	47.49	19.69	3.20	3.51	1.00	6.36	12.67	80.67	3.600	No	Yes	2.00
629	47.58	24.11	3.09	3.10	1.00	8.00	10.33	82.65	3.600	No	Yes	2.00
630	47.73	26.03	3.03	2.80	1.00	8.69	9.32	80.95	3.600	No	Yes	2.00
631	47.83	27.06	3.02	2.79	1.00	9.05	9.05	81.84	3.600	No	Yes	2.00
632	47.87	26.18	3.04	2.97	1.00	8.71	9.55	83.19	3.600	No	Yes	2.00
633	47.89	26.93	3.02	2.82	1.00	8.98	9.14	82.12	3.600	No	Yes	2.00
634	47.94	26.64	3.02	2.81	1.00	8.87	9.20	81.59	3.600	No	Yes	2.00
635	48.02	26.81	3.02	2.75	1.00	8.91	9.08	80.90	3.600	No	Yes	2.00
636	48.07	26.40	3.03	2.79	1.00	8.75	9.26	81.07	3.600	No	Yes	2.00
637	48.12	25.97	3.05	2.94	1.00	8.58	9.61	82.45	3.600	No	Yes	2.00
638	48.18	25.43	3.07	3.12	1.00	8.37	10.05	84.09	3.600	No	Yes	2.00
639	48.26	25.01	3.09	3.28	1.00	8.20	10.42	85.42	3.600	No	Yes	2.00
640	48.31	24.60	3.10	3.27	1.00	8.04	10.54	84.77	3.600	No	Yes	2.00
641	48.38	24.56	3.08	3.09	1.00	8.01	10.30	82.58	3.600	No	Yes	2.00
642	48.46	24.71	3.06	2.82	1.00	8.05	9.85	79.31	3.600	No	Yes	2.00
643	48.52	24.41	3.05	2.59	1.00	7.93	9.58	75.99	3.600	No	Yes	2.00
644	48.60	23.16	3.05	2.42	1.00	7.46	9.70	72.40	3.600	No	Yes	2.00
645	48.68	20.77	3.10	2.41	1.00	6.57	10.59	69.64	3.600	No	Yes	2.00
646	48.74	18.20	3.17	2.55	1.00	5.63	12.04	67.76	3.600	No	Yes	2.00
647	48.82	15.94	3.25	2.86	1.00	4.80	14.01	67.24	3.600	No	Yes	2.00
648	48.89	14.56	3.31	3.07	1.00	4.29	15.49	66.41	3.600	No	Yes	2.00
649	48.99	13.82	3.34	3.08	1.00	4.01	16.21	64.98	3.600	No	Yes	2.00
650	49.05	13.65	3.32	2.83	1.00	3.94	15.85	62.48	3.600	No	Yes	2.00
651	49.12	13.51	3.31	2.54	1.00	3.89	15.38	59.74	3.600	No	Yes	2.00
652	49.18	13.55	3.28	2.25	1.00	3.89	14.70	57.20	3.600	No	Yes	2.00
653	49.27	13.75	3.26	2.06	1.00	3.96	14.08	55.71	3.600	No	Yes	2.00
654	49.32	13.92	3.24	1.91	1.00	4.01	13.56	54.42	3.600	No	Yes	2.00
655	49.42	13.55	3.25	1.92	1.00	3.87	13.92	53.88	3.600	No	Yes	2.00
656	49.48	13.11	3.27	1.97	1.00	3.71	14.46	53.63	3.600	No	Yes	2.00
657	49.56	13.01	3.28	2.04	1.00	3.66	14.76	54.09	3.600	No	Yes	2.00
658	49.66	13.28	3.28	2.12	1.00	3.75	14.73	55.25	3.600	No	Yes	2.00
659	49.76	13.68	3.27	2.16	1.00	3.89	14.49	56.33	3.600	No	Yes	2.00
660	49.85	14.06	3.23	1.87	1.00	4.01	13.46	54.00	3.600	No	Yes	2.00
661	49.99	14.87	3.17	1.52	1.00	4.29	11.96	51.28	3.600	No	Yes	2.00
662	50.09	14.43	3.16	1.38	1.00	4.12	11.90	49.07	3.600	No	Yes	2.00
663	50.21	13.82	3.21	1.57	1.00	3.89	12.94	50.39	3.600	No	Yes	2.00
664	50.24	13.21	3.24	1.66	1.00	3.68	13.72	50.47	3.600	No	Yes	2.00
665	50.29	13.59	3.21	1.54	1.00	3.81	13.05	49.66	3.600	No	Yes	2.00
666	50.38	13.69	3.20	1.45	1.00	3.83	12.73	48.82	3.600	No	Yes	2.00
667	50.47	13.39	3.21	1.45	1.00	3.72	13.00	48.36	3.600	No	Yes	2.00
668	50.52	12.98	3.24	1.53	1.00	3.57	13.61	48.61	3.600	No	Yes	2.00
669	50.62	13.01	3.24	1.57	1.00	3.58	13.73	49.09	3.600	No	Yes	2.00
670	50.66	13.15	3.24	1.60	1.00	3.62	13.70	49.58	3.600	No	Yes	2.00
671	50.76	13.28	3.24	1.64	1.00	3.66	13.70	50.11	3.600	No	Yes	2.00
672	50.83	14.13	3.21	1.63	1.00	3.95	12.99	51.29	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	50.91	14.30	3.23	1.81	1.00	4.00	13.34	53.36	3.600	No	Yes	2.00
674	51.00	15.61	3.19	1.82	1.00	4.45	12.42	55.29	3.600	No	Yes	2.00
675	51.06	17.36	3.13	1.78	1.00	5.06	11.27	56.99	3.600	No	Yes	2.00
676	51.15	17.67	3.16	2.10	1.00	5.15	11.86	61.08	3.600	No	Yes	2.00
677	51.24	16.35	3.27	2.96	1.00	4.68	14.43	67.57	3.600	No	Yes	2.00
678	51.31	12.88	3.51	5.15	1.00	3.47	21.69	75.27	3.600	No	Yes	2.00
679	51.39	18.55	3.28	3.96	1.00	5.43	14.77	80.15	3.600	No	Yes	2.00
680	51.48	32.14	2.90	2.47	0.88	11.43	7.23	82.64	3.600	No	Yes	2.00
681	51.58	35.38	2.87	2.60	0.87	12.78	6.83	87.30	3.600	No	Yes	2.00
682	51.68	27.82	3.10	3.71	1.00	8.59	10.70	91.85	3.600	No	Yes	2.00
683	51.77	17.84	3.45	6.98	1.00	5.13	19.49	100.06	3.600	No	Yes	2.00
684	51.90	36.80	3.02	4.07	1.00	11.62	9.16	106.47	3.600	No	Yes	2.00
685	52.01	74.42	2.58	2.71	0.78	30.49	3.61	110.20	4.000	Yes	No	2.00
686	52.11	128.50	2.34	2.42	0.71	57.50	2.11	121.05	4.000	Yes	No	2.00
687	52.26	161.87	2.25	2.35	0.68	74.64	1.77	131.90	4.000	Yes	No	2.00
688	52.30	209.17	2.12	2.06	0.65	100.78	1.45	146.55	4.000	Yes	No	2.00
689	52.33	248.44	2.00	1.70	0.61	124.60	1.31	162.63	4.000	Yes	No	2.00
690	52.35	302.93	1.87	1.40	0.57	158.50	1.21	192.22	4.000	Yes	No	2.00
691	52.40	347.53	1.78	1.23	0.54	187.07	1.12	209.95	4.000	Yes	No	2.00
692	52.45	381.51	1.72	1.16	0.53	208.63	1.04	216.58	4.000	Yes	No	2.00
693	52.50	415.58	1.69	1.13	0.51	229.89	1.00	229.89	4.000	No	No	2.00
694	52.55	447.33	1.67	1.14	0.51	248.98	1.00	248.98	4.000	No	No	2.00
695	52.60	486.53	1.63	1.11	0.50	273.15	1.00	273.15	4.000	No	No	2.00
696	52.65	516.02	1.60	1.04	0.50	289.64	1.00	289.64	4.000	No	No	2.00
697	52.71	531.14	1.57	0.97	0.50	297.95	1.00	297.95	4.000	No	No	2.00
698	52.77	541.83	1.53	0.90	0.50	303.79	1.00	303.79	4.000	No	No	2.00
699	52.82	558.50	1.51	0.85	0.50	312.99	1.00	312.99	4.000	No	No	2.00
700	52.88	578.13	1.48	0.81	0.50	323.84	1.00	323.84	4.000	No	No	2.00
701	52.93	592.07	1.46	0.79	0.50	331.46	1.00	331.46	4.000	No	No	2.00
702	52.98	605.70	1.46	0.78	0.50	338.95	1.00	338.95	4.000	No	No	2.00
703	53.03	608.64	1.46	0.79	0.50	340.39	1.00	340.39	4.000	No	No	2.00
704	53.08	608.27	1.46	0.80	0.50	340.01	1.00	340.01	4.000	No	No	2.00
705	53.12	601.01	1.47	0.80	0.50	335.78	1.00	335.78	4.000	No	No	2.00
706	53.17	598.22	1.46	0.78	0.50	333.99	1.00	333.99	4.000	No	No	2.00
707	53.23	600.71	1.45	0.76	0.50	335.19	1.00	335.19	4.000	No	No	2.00
708	53.28	596.23	1.47	0.79	0.50	332.45	1.00	332.45	4.000	No	No	2.00
709	53.37	588.50	1.48	0.83	0.50	327.80	1.00	327.80	4.000	No	No	2.00
710	53.42	584.11	1.50	0.86	0.50	325.17	1.00	325.17	4.000	No	No	2.00
711	53.46	586.81	1.52	0.90	0.50	326.50	1.00	326.50	4.000	No	No	2.00
712	53.53	599.03	1.53	0.96	0.50	333.09	1.00	333.09	4.000	No	No	2.00
713	53.61	597.34	1.56	1.05	0.50	331.84	1.00	331.84	4.000	No	No	2.00
714	53.62	582.26	1.60	1.13	0.50	323.39	1.00	323.39	4.000	No	No	2.00
715	53.65	574.05	1.60	1.15	0.50	318.67	1.00	318.67	4.000	No	No	2.00
716	53.67	571.35	1.61	1.16	0.50	317.12	1.00	317.12	4.000	No	No	2.00
717	53.70	583.83	1.59	1.12	0.50	323.95	1.00	323.95	4.000	No	No	2.00
718	53.74	582.83	1.60	1.14	0.50	323.26	1.00	323.26	4.000	No	No	2.00
719	53.76	583.81	1.60	1.14	0.50	323.74	1.00	323.74	4.000	No	No	2.00
720	53.80	581.08	1.59	1.13	0.50	322.06	1.00	322.06	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	53.84	577.81	1.59	1.10	0.50	320.07	1.00	320.07	4.000	No	No	2.00
722	53.90	578.23	1.58	1.07	0.50	320.12	1.00	320.12	4.000	No	No	2.00
723	53.91	570.20	1.59	1.08	0.50	315.61	1.00	315.61	4.000	No	No	2.00
724	53.95	573.64	1.58	1.08	0.50	317.38	1.00	317.38	4.000	No	No	2.00
725	53.96	579.94	1.58	1.07	0.50	320.83	1.00	320.83	4.000	No	No	2.00
726	53.98	601.06	1.56	1.04	0.50	332.48	1.00	332.48	4.000	No	No	2.00
727	53.99	602.95	1.56	1.03	0.50	333.50	1.00	333.50	4.000	No	No	2.00
728	54.01	592.15	1.57	1.05	0.50	327.46	1.00	327.46	4.000	No	No	2.00
729	54.02	579.33	1.58	1.08	0.50	320.31	1.00	320.31	4.000	No	No	2.00
730	54.03	553.15	1.61	1.13	0.50	305.74	1.00	305.74	4.000	No	No	2.00
731	54.04	504.84	1.67	1.24	0.51	276.21	1.00	276.21	4.000	No	No	2.00
732	54.05	452.17	1.75	1.40	0.53	241.19	1.08	260.14	4.000	No	No	2.00
733	54.09	422.63	1.79	1.51	0.55	221.81	1.15	254.46	4.000	No	No	2.00
734	54.10	421.59	1.80	1.53	0.55	220.94	1.15	254.57	4.000	No	No	2.00
735	54.13	421.89	1.80	1.53	0.55	221.06	1.15	254.64	4.000	No	No	2.00
736	54.14	420.96	1.80	1.54	0.55	220.34	1.16	254.59	4.000	No	No	2.00
737	54.19	422.82	1.80	1.54	0.55	221.19	1.16	255.77	4.000	No	No	2.00
738	54.19	428.79	1.80	1.55	0.55	224.52	1.15	258.95	4.000	No	No	2.00
739	54.24	439.22	1.77	1.47	0.54	231.86	1.12	259.93	4.000	No	No	2.00
740	54.29	456.97	1.71	1.29	0.52	245.94	1.02	249.88	4.000	No	No	2.00
741	54.33	474.10	1.64	1.08	0.50	261.31	1.00	261.31	4.000	No	No	2.00
742	54.38	494.95	1.57	0.92	0.50	272.80	1.00	272.80	4.000	No	No	2.00
743	54.39	512.70	1.53	0.85	0.50	282.62	1.00	282.62	4.000	No	No	2.00
744	54.43	529.13	1.52	0.84	0.50	291.66	1.00	291.66	4.000	No	No	2.00
745	54.48	543.10	1.44	0.67	0.50	299.32	1.00	299.32	4.000	No	No	2.00
746	54.52	556.66	1.36	0.53	0.50	306.76	1.00	306.76	4.000	No	No	2.00
747	54.58	573.87	1.26	0.38	0.50	316.20	1.00	316.20	4.000	No	No	2.00
748	54.62	587.13	1.28	0.42	0.50	323.46	1.00	323.46	4.000	No	No	2.00
749	54.65	604.44	1.29	0.46	0.50	333.00	1.00	333.00	4.000	No	No	2.00
750	54.67	623.33	1.30	0.48	0.50	343.41	1.00	343.41	4.000	No	No	2.00
751	54.71	658.15	1.28	0.48	0.50	362.60	1.00	362.60	4.000	No	No	2.00
752	54.77	679.34	1.20	0.37	0.50	374.21	1.00	374.21	4.000	No	No	2.00
753	54.81	702.99	1.11	0.28	0.50	387.19	1.00	387.19	4.000	No	No	2.00
754	54.85	704.07	1.04	0.22	0.50	387.70	1.00	387.70	4.000	No	No	2.00
755	54.86	709.13	1.06	0.24	0.50	390.48	1.00	390.48	4.000	No	No	2.00
756	54.87	703.33	1.09	0.27	0.50	387.26	1.00	387.26	4.000	No	No	2.00
757	54.91	703.66	1.13	0.30	0.50	387.35	1.00	387.35	4.000	No	No	2.00
758	54.96	707.14	1.16	0.34	0.50	389.17	1.00	389.17	4.000	No	No	2.00
759	55.00	703.19	1.18	0.36	0.50	386.89	1.00	386.89	4.000	No	No	2.00
760	55.01	695.84	1.19	0.37	0.50	382.82	1.00	382.82	4.000	No	No	2.00
761	55.05	679.11	1.21	0.39	0.50	373.47	1.00	373.47	4.000	No	No	2.00
762	55.10	651.07	1.24	0.42	0.50	357.87	1.00	357.87	4.000	No	No	2.00
763	55.12	603.77	1.29	0.46	0.50	331.72	1.00	331.72	4.000	No	No	2.00
764	55.13	570.97	1.33	0.49	0.50	313.58	1.00	313.58	4.000	No	No	2.00
765	55.14	563.11	1.33	0.48	0.50	309.22	1.00	309.22	4.000	No	No	2.00
766	55.19	576.91	1.31	0.46	0.50	316.75	1.00	316.75	4.000	No	No	2.00
767	55.20	576.27	1.31	0.46	0.50	316.38	1.00	316.38	4.000	No	No	2.00
768	55.25	562.13	1.33	0.48	0.50	308.48	1.00	308.48	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	55.29	546.07	1.37	0.52	0.50	299.55	1.00	299.55	4.000	No	No	2.00
770	55.33	519.69	1.42	0.59	0.50	284.92	1.00	284.92	4.000	No	No	2.00
771	55.38	481.16	1.52	0.76	0.50	263.59	1.00	263.59	4.000	No	No	2.00
772	55.48	439.32	1.63	0.99	0.50	240.38	1.00	240.38	4.000	No	No	2.00
773	55.57	411.39	1.73	1.22	0.53	218.55	1.04	227.87	4.000	No	No	2.00
774	55.63	398.09	1.80	1.45	0.55	206.42	1.15	237.94	4.000	No	No	2.00
775	55.72	402.04	1.83	1.60	0.56	206.08	1.19	244.53	4.000	No	No	2.00
776	55.80	431.09	1.82	1.63	0.55	221.88	1.17	260.68	4.000	No	No	2.00
777	55.86	480.55	1.67	1.19	0.51	259.76	1.00	259.76	4.000	No	No	2.00
778	55.97	527.85	1.51	0.79	0.50	288.32	1.00	288.32	4.000	No	No	2.00
779	56.01	560.55	1.34	0.49	0.50	306.20	1.00	306.20	4.000	No	No	2.00
780	56.06	587.84	1.50	0.47	1.00	186.61	1.00	186.61	0.684	No	No	2.00
781	56.11	613.11	1.50	0.51	1.00	194.57	1.00	194.57	0.765	No	No	2.00
782	56.15	640.71	1.51	0.55	1.00	203.27	1.00	203.27	4.000	No	No	2.00
783	56.20	660.92	1.52	0.59	1.00	209.60	1.00	209.60	4.000	No	No	2.00
784	56.27	663.16	1.53	0.63	1.00	210.15	1.00	210.15	4.000	No	No	2.00
785	56.27	664.17	1.56	0.69	1.00	210.45	1.00	210.45	4.000	No	No	2.00
786	56.30	642.20	1.61	0.79	1.00	203.39	1.00	203.39	4.000	No	No	2.00
787	56.33	649.54	1.64	0.87	1.00	205.64	1.00	205.64	4.000	No	No	2.00
788	56.35	647.65	1.66	0.92	1.00	205.00	1.00	205.00	4.000	No	No	2.00
789	56.40	667.86	1.64	0.90	1.00	211.31	1.00	211.31	4.000	No	No	2.00
790	56.41	669.34	1.64	0.90	1.00	211.76	1.00	211.76	4.000	No	No	2.00
791	56.44	681.53	1.63	0.88	1.00	215.53	1.00	215.53	4.000	No	No	2.00
792	56.49	695.19	1.62	0.87	1.00	219.75	1.00	219.75	4.000	No	No	2.00
793	56.54	717.49	1.61	0.87	1.00	226.71	1.00	226.71	4.000	No	No	2.00
794	56.58	737.23	1.61	0.89	1.00	232.85	1.00	232.85	4.000	No	No	2.00
795	56.59	750.18	1.61	0.91	1.00	236.93	1.00	236.93	4.000	No	No	2.00
796	56.64	757.34	1.60	0.90	1.00	239.07	1.00	239.07	4.000	No	No	2.00
797	56.69	764.80	1.60	0.90	1.00	241.29	1.00	241.29	4.000	No	No	2.00
798	56.73	778.16	1.59	0.88	1.00	245.40	1.00	245.40	4.000	No	No	2.00
799	56.78	778.56	1.58	0.86	1.00	245.38	1.00	245.38	4.000	No	No	2.00
800	56.83	759.53	1.58	0.83	1.00	239.22	1.00	239.22	4.000	No	No	2.00
801	56.88	731.80	1.58	0.82	1.00	230.32	1.00	230.32	4.000	No	No	2.00
802	56.89	708.89	1.60	0.82	1.00	223.03	1.00	223.03	4.000	No	No	2.00
803	56.95	692.53	1.59	0.80	1.00	217.71	1.00	217.71	4.000	No	No	2.00
804	57.01	668.00	1.59	0.77	1.00	209.81	1.00	209.81	4.000	No	No	2.00
805	57.07	645.94	1.58	0.71	1.00	202.70	1.00	202.70	4.000	No	No	2.00
806	57.11	619.45	1.52	0.54	1.00	194.25	1.00	194.25	0.762	No	No	2.00
807	57.17	598.63	1.46	0.41	1.00	187.56	1.00	187.56	0.694	No	No	2.00
808	57.26	574.07	1.37	0.26	1.00	179.66	1.00	179.66	0.619	No	No	2.00
809	57.31	547.05	1.43	0.31	1.00	171.06	1.00	171.06	0.546	No	No	2.00
810	57.37	520.16	1.45	0.32	1.00	162.50	1.00	162.50	0.479	No	No	2.00
811	57.45	490.27	1.51	0.38	1.00	152.96	1.00	152.96	0.413	No	No	2.00
812	57.51	451.30	1.55	0.39	1.00	140.63	1.00	140.63	0.339	No	No	1.75
813	57.53	421.54	1.59	0.41	1.00	131.27	1.00	131.27	0.290	No	No	1.50
814	57.59	401.40	1.62	0.43	1.00	124.87	1.00	124.87	0.261	No	No	1.35
815	57.63	398.96	1.62	0.43	1.00	124.05	1.00	124.05	0.258	No	No	1.33
816	57.68	391.51	1.63	0.44	1.00	121.66	1.00	121.66	0.247	No	No	1.28

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	57.73	386.48	1.64	0.44	1.00	120.01	1.00	120.01	0.241	No	No	1.24
818	57.78	379.02	1.65	0.44	1.00	117.62	1.00	117.62	0.231	No	No	1.19
819	57.86	359.96	1.66	0.43	1.00	111.55	1.00	111.55	0.209	No	No	1.08
820	57.92	326.32	1.71	0.47	1.00	100.97	1.00	100.97	4.000	Yes	No	2.00
821	57.98	290.83	1.76	0.47	1.00	89.82	1.00	89.82	4.000	Yes	No	2.00
822	58.06	263.33	1.82	0.53	1.00	81.16	1.18	95.51	4.000	Yes	No	2.00
823	58.12	242.92	1.90	0.64	1.00	74.75	1.24	92.39	4.000	Yes	No	2.00
824	58.21	222.41	1.99	0.82	1.00	68.28	1.30	88.73	4.000	Yes	No	2.00
825	58.26	204.43	2.06	0.97	1.00	62.64	1.37	85.71	4.000	Yes	No	2.00
826	58.35	180.37	2.14	1.08	1.00	55.10	1.48	81.38	4.000	Yes	No	2.00
827	58.41	154.93	2.19	1.08	1.00	47.15	1.59	74.91	4.000	Yes	No	2.00
828	58.50	122.84	2.29	1.16	1.00	37.13	1.90	70.73	4.000	Yes	No	2.00
829	58.56	98.18	2.38	1.18	1.00	29.45	2.28	67.27	4.000	Yes	No	2.00
830	58.64	77.90	2.53	1.55	1.00	23.14	3.23	74.61	4.000	Yes	No	2.00
831	58.73	63.67	2.66	1.93	1.00	18.70	4.34	81.15	4.000	Yes	Yes	2.00
832	58.80	51.12	2.80	2.41	1.00	14.80	5.89	87.16	4.000	Yes	Yes	2.00
833	58.84	42.24	2.93	2.94	1.00	12.04	7.59	91.44	4.000	Yes	Yes	2.00
834	58.85	43.79	2.90	2.86	1.00	12.52	7.27	91.06	3.600	No	Yes	2.00
835	58.93	50.50	2.81	2.45	1.00	14.59	6.00	87.49	3.600	No	Yes	2.00
836	58.98	58.12	2.72	2.06	1.00	16.94	4.87	82.49	3.600	No	Yes	2.00
837	59.02	61.77	2.67	1.86	1.00	18.06	4.38	79.02	3.600	No	Yes	2.00
838	59.12	63.39	2.65	1.79	1.00	18.54	4.19	77.74	3.600	No	Yes	2.00
839	59.17	65.41	2.64	1.79	1.00	19.15	4.09	78.34	3.600	No	Yes	2.00
840	59.27	67.33	2.63	1.85	1.00	19.73	4.06	80.06	3.600	No	Yes	2.00
841	59.31	67.64	2.64	1.94	1.00	19.81	4.15	82.31	3.600	No	Yes	2.00
842	59.41	64.84	2.68	2.06	1.00	18.93	4.46	84.40	3.600	No	Yes	2.00
843	59.46	57.99	2.74	2.22	1.00	16.81	5.11	85.91	3.600	No	Yes	2.00
844	59.55	48.77	2.83	2.45	1.00	13.96	6.20	86.53	3.600	No	Yes	2.00
845	59.65	39.66	2.91	2.48	1.00	11.14	7.37	82.12	3.600	No	Yes	2.00
846	59.70	34.25	2.97	2.47	1.00	9.47	8.28	78.48	3.600	No	Yes	2.00
847	59.80	32.07	2.99	2.40	1.00	8.80	8.61	75.77	3.600	No	Yes	2.00
848	59.89	32.04	3.01	2.66	1.00	8.78	9.03	79.29	3.600	No	Yes	2.00
849	59.94	31.04	3.06	2.98	1.00	8.47	9.76	82.68	3.600	No	Yes	2.00
850	60.01	30.35	3.09	3.25	1.00	8.25	10.33	85.21	3.600	No	Yes	2.00
851	60.02	32.64	3.04	3.10	1.00	8.95	9.57	85.70	3.600	No	Yes	2.00
852	60.08	35.54	2.99	2.84	1.00	9.83	8.61	84.70	3.600	No	Yes	2.00
853	60.12	36.56	2.97	2.70	1.00	10.14	8.23	83.40	3.600	No	Yes	2.00
854	60.17	32.87	3.01	2.76	1.00	9.01	9.03	81.32	3.600	No	Yes	2.00
855	60.27	28.56	3.07	2.73	1.00	7.68	10.03	76.99	3.600	No	Yes	2.00
856	60.31	24.81	3.12	2.61	1.00	6.53	11.00	71.83	3.600	No	Yes	2.00
857	60.37	22.21	3.15	2.46	1.00	5.73	11.72	67.16	3.600	No	Yes	2.00
858	60.46	20.93	3.17	2.32	1.00	5.33	12.03	64.16	3.600	No	Yes	2.00
859	60.51	20.76	3.15	2.06	1.00	5.28	11.57	61.05	3.600	No	Yes	2.00
860	60.61	21.43	3.11	1.87	1.00	5.48	10.86	59.48	3.600	No	Yes	2.00
861	60.65	21.84	3.09	1.76	1.00	5.60	10.44	58.49	3.600	No	Yes	2.00
862	60.75	22.18	3.08	1.74	1.00	5.70	10.27	58.52	3.600	No	Yes	2.00
863	60.81	22.25	3.08	1.74	1.00	5.72	10.24	58.52	3.600	No	Yes	2.00
864	60.89	22.21	3.08	1.71	1.00	5.70	10.20	58.14	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	60.94	22.45	3.07	1.71	1.00	5.77	10.12	58.37	3.600	No	Yes	2.00
866	61.03	22.62	3.08	1.77	1.00	5.81	10.19	59.27	3.600	No	Yes	2.00
867	61.09	22.65	3.08	1.79	1.00	5.82	10.23	59.56	3.600	No	Yes	2.00
868	61.19	22.38	3.08	1.78	1.00	5.74	10.30	59.09	3.600	No	Yes	2.00
869	61.24	22.96	3.06	1.69	1.00	5.91	9.90	58.48	3.600	No	Yes	2.00
870	61.33	24.51	3.03	1.68	1.00	6.37	9.35	59.55	3.600	No	Yes	2.00
871	61.38	24.20	3.09	2.19	1.00	6.28	10.50	65.92	3.600	No	Yes	2.00
872	61.47	23.16	3.18	2.97	1.00	5.95	12.35	73.50	3.600	No	Yes	2.00
873	61.53	21.88	3.28	3.99	1.00	5.56	14.59	81.14	3.600	No	Yes	2.00
874	61.62	27.61	3.13	3.27	1.00	7.29	11.24	81.97	3.600	No	Yes	2.00
875	61.70	44.48	2.86	2.37	1.00	12.39	6.68	82.73	3.600	No	Yes	2.00
876	61.77	66.81	2.67	2.07	1.00	19.14	4.44	84.93	3.600	No	Yes	2.00
877	61.86	81.96	2.60	2.12	1.00	23.70	3.78	89.66	3.600	No	Yes	2.00
878	61.95	81.02	2.63	2.34	1.00	23.39	4.06	94.89	3.600	No	Yes	2.00
879	61.97	72.62	2.69	2.53	1.00	20.85	4.65	96.91	3.600	No	Yes	2.00
880	62.01	62.36	2.78	2.84	1.00	17.75	5.62	99.66	4.000	No	Yes	2.00
881	62.10	52.17	2.87	3.09	1.00	14.66	6.77	99.23	4.000	Yes	Yes	2.00
882	62.24	55.41	2.79	2.50	1.00	15.61	5.76	89.92	4.000	Yes	Yes	2.00
883	62.34	87.70	2.48	1.40	1.00	25.31	2.83	71.54	4.000	Yes	No	2.00
884	62.49	127.58	2.25	0.95	1.00	37.26	1.74	64.77	4.000	Yes	No	2.00
885	62.54	164.52	2.11	0.82	1.00	48.34	1.44	69.68	4.000	Yes	No	2.00
886	62.66	181.39	2.07	0.78	1.00	53.35	1.37	73.33	4.000	Yes	No	2.00
887	62.74	199.68	2.02	0.75	1.00	58.78	1.33	77.94	4.000	Yes	No	2.00
888	62.87	211.65	1.99	0.72	1.00	62.29	1.30	80.99	4.000	No	No	2.00
889	62.92	217.18	1.98	0.72	1.00	63.92	1.29	82.65	4.000	No	No	2.00
890	63.03	219.18	1.98	0.73	1.00	64.44	1.29	83.41	4.000	No	No	2.00
891	63.15	218.06	1.99	0.76	1.00	64.03	1.30	83.38	4.000	No	No	2.00
892	63.26	213.11	2.01	0.79	1.00	62.49	1.32	82.35	4.000	No	No	2.00
893	63.37	206.70	2.03	0.82	1.00	60.51	1.34	80.92	4.000	No	No	2.00
894	63.45	200.15	2.04	0.79	1.00	58.51	1.34	78.49	4.000	No	No	2.00
895	63.54	197.59	2.02	0.71	1.00	57.70	1.32	76.31	4.000	No	No	2.00
896	63.61	190.30	2.02	0.68	1.00	55.49	1.33	73.61	4.000	Yes	No	2.00
897	63.69	172.04	2.08	0.74	1.00	50.02	1.39	69.47	4.000	Yes	No	2.00
898	63.79	141.71	2.22	0.97	1.00	40.98	1.65	67.77	4.000	Yes	No	2.00
899	63.89	106.15	2.36	1.15	1.00	30.39	2.20	66.74	4.000	Yes	No	2.00
900	63.98	75.22	2.55	1.47	1.00	21.20	3.37	71.48	4.000	Yes	No	2.00
901	64.07	53.15	2.72	1.67	1.00	14.65	4.91	71.91	4.000	Yes	Yes	2.00
902	64.15	39.12	2.91	2.21	1.00	10.48	7.30	76.48	4.000	Yes	Yes	2.00
903	64.23	29.98	3.07	2.76	1.00	7.77	10.00	77.68	4.000	No	Yes	2.00
904	64.26	25.15	3.18	3.28	1.00	6.34	12.34	78.26	4.000	No	Yes	2.00
905	64.29	23.57	3.22	3.48	1.00	5.87	13.31	78.14	4.000	No	Yes	2.00
906	64.33	23.37	3.21	3.17	1.00	5.81	12.89	74.86	4.000	No	Yes	2.00
907	64.43	22.99	3.19	2.81	1.00	5.69	12.43	70.78	4.000	No	Yes	2.00
908	64.47	22.29	3.17	2.45	1.00	5.48	12.05	66.07	4.000	No	Yes	2.00
909	64.53	21.82	3.17	2.32	1.00	5.34	12.01	64.15	4.000	No	Yes	2.00
910	64.62	20.60	3.20	2.39	1.00	4.98	12.74	63.40	4.000	No	Yes	2.00
911	64.72	19.12	3.25	2.57	1.00	4.53	13.95	63.23	4.000	No	Yes	2.00
912	64.78	18.00	3.30	2.81	1.00	4.20	15.17	63.74	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	64.86	18.21	3.30	2.92	1.00	4.26	15.26	65.01	4.000	No	Yes	2.00
914	64.96	18.78	3.31	3.20	1.00	4.42	15.44	68.31	4.000	No	Yes	2.00
915	65.06	19.22	3.32	3.52	1.00	4.55	15.74	71.61	4.000	No	Yes	2.00
916	65.11	19.22	3.34	3.90	1.00	4.55	16.41	74.58	4.000	No	Yes	2.00
917	65.21	18.85	3.37	4.16	1.00	4.43	17.13	75.90	4.000	No	Yes	2.00
918	65.31	18.45	3.39	4.32	1.00	4.31	17.70	76.26	4.000	No	Yes	2.00
919	65.40	18.28	3.37	3.90	1.00	4.25	17.10	72.77	4.000	No	Yes	2.00
920	65.50	18.58	3.32	3.22	1.00	4.34	15.67	67.97	4.000	No	Yes	2.00
921	65.58	19.02	3.26	2.59	1.00	4.46	14.15	63.13	4.000	No	Yes	2.00
922	65.68	19.05	3.24	2.38	1.00	4.47	13.69	61.17	4.000	No	Yes	2.00
923	65.78	17.67	3.29	2.52	1.00	4.06	14.89	60.45	4.000	No	Yes	2.00
924	65.84	16.40	3.34	2.66	1.00	3.69	16.19	59.69	4.000	No	Yes	2.00
925	65.86	15.56	3.38	2.83	1.00	3.44	17.33	59.62	4.000	No	Yes	2.00
926	65.87	16.51	3.33	2.60	1.00	3.72	15.97	59.36	4.000	No	Yes	2.00
927	65.98	17.26	3.29	2.44	1.00	3.93	15.03	59.09	4.000	No	Yes	2.00
928	66.10	17.84	3.28	2.46	1.00	4.09	14.69	60.13	4.000	No	Yes	2.00
929	66.21	18.21	3.29	2.65	1.00	4.20	14.85	62.32	4.000	No	Yes	2.00
930	66.34	18.48	3.28	2.68	1.00	4.27	14.76	63.01	4.000	No	Yes	2.00
931	66.48	19.00	3.27	2.66	1.00	4.42	14.39	63.55	4.000	No	Yes	2.00
932	66.62	18.46	3.28	2.63	1.00	4.25	14.69	62.45	4.000	No	Yes	2.00
933	66.68	18.67	3.29	2.78	1.00	4.31	14.87	64.07	4.000	No	Yes	2.00
934	66.87	18.92	3.31	3.19	1.00	4.37	15.53	67.94	4.000	No	Yes	2.00
935	66.96	19.16	3.35	3.89	1.00	4.44	16.65	73.89	4.000	No	Yes	2.00
936	67.11	18.25	3.42	4.74	1.00	4.17	18.76	78.15	4.000	No	Yes	2.00
937	67.21	16.83	3.47	4.99	1.00	3.75	20.42	76.60	4.000	No	Yes	2.00
938	67.35	16.22	3.48	4.67	1.00	3.57	20.50	73.18	4.000	No	Yes	2.00
939	67.45	16.16	3.52	5.49	1.00	3.55	21.95	77.86	4.000	No	Yes	2.00
940	67.59	27.42	3.21	4.13	1.00	6.79	13.06	88.71	4.000	No	Yes	2.00
941	67.68	77.39	2.62	1.95	1.00	21.19	3.95	83.67	4.000	Yes	Yes	2.00
942	67.83	159.77	2.22	1.13	1.00	44.89	1.66	74.68	4.000	Yes	No	2.00
943	67.92	241.25	1.99	0.82	1.00	68.29	1.30	88.64	4.000	Yes	No	2.00
944	68.02	283.19	1.90	0.72	1.00	80.28	1.24	99.35	4.000	Yes	No	2.00
945	68.07	299.01	1.88	0.72	1.00	84.78	1.22	103.71	4.000	Yes	No	2.00
946	68.16	305.70	1.87	0.71	1.00	86.62	1.22	105.26	4.000	No	No	2.00
947	68.26	310.93	1.86	0.70	1.00	88.04	1.21	106.54	4.000	No	No	2.00
948	68.35	307.75	1.88	0.74	1.00	87.05	1.22	106.44	4.000	No	No	2.00
949	68.45	299.96	1.91	0.81	1.00	84.74	1.24	105.37	4.000	No	No	2.00
950	68.55	291.49	1.94	0.86	1.00	82.23	1.26	103.72	4.000	No	No	2.00
951	68.65	271.72	1.98	0.91	1.00	76.50	1.29	98.57	4.000	No	No	2.00
952	68.78	253.59	2.02	0.98	1.00	71.23	1.32	94.35	4.000	No	No	2.00
953	68.78	238.18	2.05	1.03	1.00	66.83	1.36	90.91	4.000	No	No	2.00
954	68.79	234.24	2.06	1.02	1.00	65.70	1.37	89.70	4.000	No	No	2.00
955	68.83	237.70	2.03	0.94	1.00	66.66	1.34	89.08	4.000	No	No	2.00
956	68.93	243.69	1.99	0.81	1.00	68.30	1.30	88.59	4.000	No	No	2.00
957	68.98	253.54	1.93	0.67	1.00	71.08	1.25	89.18	4.000	No	No	2.00
958	69.04	257.79	1.89	0.60	1.00	72.25	1.23	89.05	4.000	No	No	2.00
959	69.12	259.28	1.89	0.58	1.00	72.61	1.23	89.10	4.000	No	No	2.00
960	69.22	255.36	1.90	0.59	1.00	71.43	1.24	88.23	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	69.28	247.73	1.91	0.61	1.00	69.22	1.25	86.25	4.000	No	No	2.00
962	69.36	237.41	1.93	0.61	1.00	66.24	1.26	83.22	4.000	No	No	2.00
963	69.45	223.58	1.95	0.61	1.00	62.26	1.27	79.21	4.000	No	No	2.00
964	69.60	210.12	1.98	0.61	1.00	58.37	1.29	75.34	4.000	No	No	2.00
965	69.70	198.18	2.01	0.62	1.00	54.94	1.31	72.05	4.000	No	No	2.00
966	69.80	193.42	2.01	0.62	1.00	53.54	1.32	70.68	4.000	No	No	2.00
967	69.89	192.07	2.02	0.62	1.00	53.12	1.32	70.30	4.000	No	No	2.00
968	69.98	190.15	2.02	0.63	1.00	52.53	1.33	69.82	4.000	No	No	2.00
969	70.08	181.88	2.04	0.63	1.00	50.15	1.35	67.53	4.000	Yes	No	2.00
970	70.18	159.82	2.12	0.71	1.00	43.89	1.45	63.51	4.000	Yes	No	2.00
971	70.32	124.32	2.27	0.89	1.00	33.85	1.81	61.16	4.000	Yes	No	2.00
972	70.42	84.31	2.50	1.27	1.00	22.56	2.96	66.77	4.000	Yes	No	2.00
973	70.54	51.82	2.77	1.84	1.00	13.41	5.53	74.19	4.000	Yes	Yes	2.00
974	70.66	31.85	3.05	2.58	1.00	7.79	9.69	75.54	4.000	No	Yes	2.00
975	70.75	23.52	3.23	3.11	1.00	5.45	13.34	72.70	4.000	No	Yes	2.00
976	70.80	21.80	3.23	2.72	1.00	4.97	13.43	66.71	4.000	No	Yes	2.00
977	70.89	22.64	3.14	1.98	1.00	5.20	11.52	59.87	4.000	No	Yes	2.00
978	70.99	22.34	3.09	1.45	1.00	5.11	10.38	53.00	4.000	No	Yes	2.00
979	71.08	21.63	3.07	1.23	1.00	4.90	10.09	49.46	4.000	No	Yes	2.00
980	71.17	21.43	3.06	1.12	1.00	4.84	9.87	47.79	4.000	No	Yes	2.00
981	71.23	20.92	3.07	1.10	1.00	4.70	10.01	47.05	4.000	No	Yes	2.00
982	71.33	21.09	3.05	1.03	1.00	4.74	9.74	46.20	4.000	No	Yes	2.00
983	71.42	21.73	3.02	0.90	1.00	4.92	9.08	44.64	4.000	No	Yes	2.00
984	71.52	22.81	2.97	0.78	1.00	5.22	8.26	43.06	4.000	No	Yes	2.00
985	71.58	23.21	2.97	0.82	1.00	5.33	8.27	44.01	4.000	No	Yes	2.00
986	71.67	22.88	3.02	1.04	1.00	5.23	9.07	47.43	4.000	No	Yes	2.00
987	71.81	22.47	3.06	1.28	1.00	5.11	9.94	50.76	4.000	No	Yes	2.00
988	71.82	22.24	3.09	1.43	1.00	5.04	10.42	52.55	4.000	No	Yes	2.00
989	71.86	21.97	3.10	1.47	1.00	4.96	10.64	52.82	4.000	No	Yes	2.00
990	71.91	21.83	3.11	1.49	1.00	4.92	10.75	52.95	4.000	No	Yes	2.00
991	71.97	21.60	3.12	1.53	1.00	4.86	10.97	53.27	4.000	No	Yes	2.00
992	72.05	21.36	3.13	1.58	1.00	4.79	11.22	53.72	4.000	No	Yes	2.00
993	72.10	21.13	3.14	1.65	1.00	4.72	11.52	54.35	4.000	No	Yes	2.00
994	72.20	20.99	3.15	1.70	1.00	4.68	11.71	54.79	4.000	No	Yes	2.00
995	72.25	20.99	3.16	1.76	1.00	4.67	11.87	55.49	4.000	No	Yes	2.00
996	72.34	21.09	3.17	1.88	1.00	4.70	12.12	56.94	4.000	No	Yes	2.00
997	72.44	21.09	3.19	2.06	1.00	4.69	12.53	58.80	4.000	No	Yes	2.00
998	72.53	20.89	3.21	2.23	1.00	4.63	13.04	60.40	4.000	No	Yes	2.00
999	72.63	20.79	3.22	2.32	1.00	4.60	13.29	61.13	4.000	No	Yes	2.00
1000	72.69	20.48	3.23	2.36	1.00	4.51	13.55	61.14	4.000	No	Yes	2.00
1001	72.82	20.69	3.23	2.31	1.00	4.56	13.34	60.87	4.000	No	Yes	2.00
1002	72.92	21.13	3.20	2.18	1.00	4.68	12.83	60.05	4.000	No	Yes	2.00
1003	73.06	22.11	3.17	2.01	1.00	4.95	11.98	59.27	4.000	No	Yes	2.00
1004	73.16	22.34	3.16	2.02	1.00	5.01	11.90	59.57	4.000	No	Yes	2.00
1005	73.30	20.86	3.22	2.28	1.00	4.59	13.21	60.65	4.000	No	Yes	2.00
1006	73.35	19.88	3.26	2.50	1.00	4.32	14.25	61.53	4.000	No	Yes	2.00
1007	73.38	19.20	3.29	2.56	1.00	4.13	14.83	61.23	4.000	No	Yes	2.00
1008	73.47	20.02	3.25	2.39	1.00	4.35	13.95	60.67	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	73.53	20.08	3.24	2.33	1.00	4.37	13.79	60.20	4.000	No	Yes	2.00
1010	73.62	20.18	3.24	2.30	1.00	4.39	13.66	59.95	4.000	No	Yes	2.00
1011	73.71	19.95	3.25	2.36	1.00	4.32	13.95	60.28	4.000	No	Yes	2.00
1012	73.77	19.61	3.28	2.54	1.00	4.23	14.55	61.46	4.000	No	Yes	2.00
1013	73.86	19.34	3.30	2.76	1.00	4.15	15.21	63.08	4.000	No	Yes	2.00
1014	73.96	19.38	3.31	2.94	1.00	4.15	15.56	64.61	4.000	No	Yes	2.00
1015	74.06	19.58	3.32	3.02	1.00	4.20	15.60	65.59	4.000	No	Yes	2.00
1016	74.13	20.02	3.31	3.02	1.00	4.32	15.32	66.22	4.000	No	Yes	2.00
1017	74.24	20.36	3.30	3.02	1.00	4.41	15.12	66.66	4.000	No	Yes	2.00
1018	74.34	20.56	3.30	3.06	1.00	4.46	15.08	67.26	4.000	No	Yes	2.00
1019	74.44	20.42	3.31	3.15	1.00	4.42	15.35	67.81	4.000	No	Yes	2.00
1020	74.58	20.37	3.30	3.10	1.00	4.40	15.30	67.28	4.000	No	Yes	2.00
1021	74.68	20.30	3.27	2.60	1.00	4.38	14.35	62.80	4.000	No	Yes	2.00
1022	74.80	20.47	3.22	2.16	1.00	4.42	13.30	58.74	4.000	No	Yes	2.00
1023	74.92	20.26	3.21	1.96	1.00	4.35	12.97	56.43	4.000	No	Yes	2.00
1024	75.07	20.06	3.24	2.18	1.00	4.29	13.60	58.35	4.000	No	Yes	2.00
1025	75.08	19.75	3.26	2.32	1.00	4.21	14.10	59.34	4.000	No	Yes	2.00
1026	75.11	19.62	3.26	2.36	1.00	4.17	14.28	59.53	4.000	No	Yes	2.00
1027	75.16	19.55	3.27	2.45	1.00	4.15	14.53	60.28	4.000	No	Yes	2.00
1028	75.25	19.31	3.30	2.65	1.00	4.08	15.14	61.74	4.000	No	Yes	2.00
1029	75.32	19.14	3.32	2.86	1.00	4.03	15.69	63.23	4.000	No	Yes	2.00
1030	75.40	18.98	3.33	2.95	1.00	3.98	16.00	63.73	4.000	No	Yes	2.00
1031	75.50	18.81	3.33	2.87	1.00	3.93	15.96	62.77	4.000	No	Yes	2.00
1032	75.59	18.30	3.33	2.72	1.00	3.79	16.02	60.75	4.000	No	Yes	2.00
1033	75.69	17.56	3.34	2.60	1.00	3.59	16.34	58.60	4.000	No	Yes	2.00
1034	75.78	16.85	3.35	2.48	1.00	3.39	16.66	56.46	4.000	No	Yes	2.00
1035	75.88	16.41	3.36	2.34	1.00	3.27	16.73	54.66	4.000	No	Yes	2.00
1036	75.96	16.11	3.35	2.19	1.00	3.18	16.62	52.90	4.000	No	Yes	2.00
1037	76.05	16.04	3.34	2.06	1.00	3.16	16.34	51.65	4.000	No	Yes	2.00
1038	76.14	15.97	3.34	1.99	1.00	3.14	16.25	51.00	4.000	No	Yes	2.00
1039	76.26	16.07	3.34	1.99	1.00	3.16	16.16	51.09	4.000	No	Yes	2.00
1040	76.36	16.07	3.34	2.03	1.00	3.16	16.26	51.38	4.000	No	Yes	2.00
1041	76.41	16.07	3.34	2.04	1.00	3.16	16.31	51.50	4.000	No	Yes	2.00
1042	76.51	15.84	3.35	2.05	1.00	3.09	16.56	51.17	4.000	No	Yes	2.00
1043	76.65	15.50	3.37	2.09	1.00	2.99	17.04	51.04	4.000	No	Yes	2.00
1044	76.72	15.26	3.38	2.15	1.00	2.93	17.45	51.12	4.000	No	Yes	2.00
1045	76.79	15.16	3.39	2.21	1.00	2.90	17.72	51.39	4.000	No	Yes	2.00
1046	76.89	15.23	3.41	2.47	1.00	2.91	18.36	53.53	4.000	No	Yes	2.00
1047	76.98	15.47	3.48	3.62	1.00	2.98	20.80	61.89	4.000	No	Yes	2.00
1048	77.08	18.00	3.43	4.02	1.00	3.65	19.05	69.60	4.000	No	Yes	2.00
1049	77.18	22.18	3.34	4.06	1.00	4.77	16.19	77.29	4.000	No	Yes	2.00
1050	77.28	26.73	3.26	4.08	1.00	5.99	14.06	84.26	4.000	No	Yes	2.00
1051	77.37	27.88	3.29	4.98	1.00	6.30	14.87	93.62	4.000	No	Yes	2.00
1052	77.42	28.76	3.31	5.68	1.00	6.53	15.41	100.64	4.000	No	Yes	2.00
1053	77.42	30.22	3.30	5.86	1.00	6.92	15.09	104.44	4.000	No	Yes	2.00
1054	77.44	34.00	3.23	5.50	1.00	7.94	13.49	107.05	4.000	No	Yes	2.00
1055	77.48	37.40	3.19	5.36	1.00	8.85	12.47	110.31	4.000	No	Yes	2.00
1056	77.52	40.61	3.15	5.24	1.00	9.70	11.65	113.00	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	77.54	42.94	3.12	5.12	1.00	10.33	11.08	114.44	4.000	No	Yes	2.00
1058	77.57	43.37	3.12	5.18	1.00	10.44	11.07	115.54	4.000	No	Yes	2.00
1059	77.62	42.26	3.14	5.33	1.00	10.14	11.44	115.93	4.000	No	Yes	2.00
1060	77.65	40.10	3.17	5.56	1.00	9.55	12.10	115.64	4.000	No	Yes	2.00
1061	77.67	38.72	3.18	5.50	1.00	9.18	12.34	113.32	4.000	No	Yes	2.00
1062	77.71	37.91	3.19	5.40	1.00	8.96	12.41	111.24	4.000	No	Yes	2.00
1063	77.71	37.03	3.18	5.16	1.00	8.73	12.35	107.78	4.000	No	Yes	2.00
1064	77.76	34.77	3.20	5.10	1.00	8.12	12.85	104.25	4.000	No	Yes	2.00
1065	77.81	31.76	3.23	4.96	1.00	7.31	13.53	98.88	4.000	No	Yes	2.00
1066	77.90	29.03	3.27	4.92	1.00	6.57	14.40	94.60	4.000	No	Yes	2.00
1067	77.95	27.32	3.30	4.97	1.00	6.11	15.14	92.44	4.000	No	Yes	2.00
1068	78.01	26.34	3.32	5.03	1.00	5.84	15.63	91.29	4.000	No	Yes	2.00
1069	78.10	27.59	3.27	4.56	1.00	6.17	14.49	89.37	4.000	No	Yes	2.00
1070	78.16	36.29	3.07	3.14	1.00	8.49	9.98	84.71	4.000	No	Yes	2.00
1071	78.24	48.94	2.86	2.21	1.00	11.86	6.66	79.05	4.000	Yes	Yes	2.00
1072	78.29	64.83	2.68	1.67	1.00	16.10	4.54	73.14	4.000	Yes	Yes	2.00
1073	78.39	77.42	2.58	1.42	1.00	19.44	3.56	69.27	4.000	Yes	No	2.00
1074	78.47	87.30	2.52	1.35	1.00	22.06	3.11	68.51	4.000	Yes	No	2.00
1075	78.53	92.74	2.51	1.44	1.00	23.49	3.05	71.72	4.000	Yes	No	2.00
1076	78.62	94.25	2.54	1.65	1.00	23.88	3.25	77.71	4.000	Yes	No	2.00
1077	78.68	91.22	2.59	1.91	1.00	23.06	3.64	84.02	4.000	Yes	No	2.00
1078	78.69	92.97	2.61	2.12	1.00	23.52	3.81	89.57	4.000	Yes	Yes	2.00
1079	78.78	93.95	2.63	2.33	1.00	23.76	4.00	95.10	4.000	No	Yes	2.00
1080	78.81	94.86	2.65	2.61	1.00	24.00	4.25	102.04	4.000	No	Yes	2.00
1081	78.92	85.28	2.73	2.97	1.00	21.43	5.01	107.35	4.000	No	Yes	2.00
1082	79.03	72.83	2.81	3.21	1.00	18.11	5.93	107.43	4.000	No	Yes	2.00
1083	79.16	68.41	2.80	2.88	1.00	16.91	5.87	99.26	4.000	Yes	Yes	2.00
1084	79.26	78.39	2.68	2.21	1.00	19.54	4.53	88.45	4.000	Yes	Yes	2.00
1085	79.35	97.35	2.56	1.87	1.00	24.54	3.42	83.92	4.000	Yes	No	2.00
1086	79.45	114.43	2.50	1.84	1.00	29.03	2.95	85.78	4.000	Yes	No	2.00
1087	79.54	124.25	2.48	1.92	1.00	31.60	2.84	89.58	4.000	No	No	2.00
1088	79.64	131.23	2.47	1.97	1.00	33.41	2.75	91.91	4.000	No	No	2.00
1089	79.74	153.43	2.40	1.91	1.00	39.23	2.39	93.85	4.000	No	No	2.00
1090	79.88	186.93	2.31	1.77	1.00	48.00	1.98	94.86	4.000	No	No	2.00
1091	79.98	228.94	2.20	1.52	1.00	59.00	1.62	95.73	4.000	No	No	2.00
1092	80.12	248.77	2.14	1.34	1.00	64.13	1.48	95.14	4.000	No	No	2.00
1093	80.22	253.19	2.09	1.12	1.00	65.23	1.40	91.22	4.000	No	No	2.00
1094	80.36	244.79	2.06	0.97	1.00	62.94	1.37	86.07	4.000	No	No	2.00
1095	80.46	238.82	2.02	0.78	1.00	61.33	1.32	81.11	4.000	No	No	2.00
1096	80.60	231.84	1.99	0.66	1.00	59.42	1.30	77.21	4.000	No	No	2.00
1097	80.70	223.91	1.99	0.62	1.00	57.30	1.30	74.37	4.000	No	No	2.00
1098	80.83	213.12	2.02	0.65	1.00	54.42	1.32	72.04	4.000	Yes	No	2.00
1099	80.94	194.49	2.09	0.77	1.00	49.51	1.41	69.62	4.000	Yes	No	2.00
1100	81.01	177.96	2.15	0.85	1.00	45.17	1.50	67.91	4.000	Yes	No	2.00
1101	81.04	164.23	2.19	0.91	1.00	41.58	1.60	66.50	4.000	Yes	No	2.00
1102	81.09	158.43	2.21	0.93	1.00	40.05	1.65	65.97	4.000	Yes	No	2.00
1103	81.13	149.59	2.25	0.99	1.00	37.74	1.75	66.04	4.000	Yes	No	2.00
1104	81.18	136.87	2.31	1.12	1.00	34.41	1.98	67.98	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1105	81.23	123.31	2.39	1.33	1.00	30.87	2.34	72.13	4.000	Yes	No	2.00
1106	81.28	109.41	2.48	1.58	1.00	27.24	2.85	77.64	4.000	Yes	No	2.00
1107	81.33	98.17	2.57	1.89	1.00	24.30	3.46	84.19	4.000	Yes	No	2.00
1108	81.37	88.49	2.65	2.30	1.00	21.78	4.25	92.48	4.000	Yes	Yes	2.00
1109	81.42	81.24	2.73	2.74	1.00	19.88	5.05	100.46	4.000	Yes	Yes	2.00
1110	81.47	75.77	2.79	3.12	1.00	18.46	5.75	106.15	4.000	Yes	Yes	2.00
1111	81.52	71.99	2.83	3.36	1.00	17.47	6.25	109.13	4.000	Yes	Yes	2.00
1112	81.56	70.98	2.85	3.50	1.00	17.20	6.46	111.09	4.000	Yes	Yes	2.00
1113	81.61	70.58	2.86	3.61	1.00	17.08	6.60	112.75	4.000	No	Yes	2.00
1114	81.64	68.79	2.88	3.76	1.00	16.62	6.89	114.41	4.000	No	Yes	2.00
1115	81.70	62.18	2.94	4.16	1.00	14.89	7.85	116.91	4.000	No	Yes	2.00
1116	81.75	54.38	3.03	4.72	1.00	12.87	9.25	118.94	4.000	No	Yes	2.00
1117	81.79	46.89	3.11	5.33	1.00	10.92	10.91	119.14	4.000	No	Yes	2.00
1118	81.82	41.90	3.17	5.62	1.00	9.62	12.12	116.62	4.000	No	Yes	2.00
1119	81.86	37.62	3.22	5.76	1.00	8.51	13.21	112.49	4.000	No	Yes	2.00
1120	81.91	34.01	3.26	5.79	1.00	7.57	14.21	107.66	4.000	No	Yes	2.00
1121	81.95	30.63	3.30	5.75	1.00	6.70	15.27	102.27	4.000	No	Yes	2.00
1122	82.00	27.33	3.34	5.61	1.00	5.84	16.41	95.81	4.000	No	Yes	2.00
1123	82.09	24.26	3.39	5.48	1.00	5.04	17.74	89.46	4.000	No	Yes	2.00
1124	82.15	21.66	3.44	5.50	1.00	4.37	19.38	84.64	4.000	No	Yes	2.00
1125	82.19	19.83	3.48	5.52	1.00	3.89	20.80	81.03	4.000	No	Yes	2.00
1126	82.26	18.38	3.52	5.48	1.00	3.52	22.06	77.56	4.000	No	Yes	2.00
1127	82.34	17.00	3.56	5.45	1.00	3.16	23.49	74.17	4.000	No	Yes	2.00
1128	82.39	15.65	3.61	5.65	1.00	2.81	25.58	71.81	4.000	No	Yes	2.00
1129	82.48	14.77	3.64	5.76	1.00	2.58	27.14	69.97	4.000	No	Yes	2.00
1130	82.58	14.64	3.64	5.47	1.00	2.54	26.84	68.21	4.000	No	Yes	2.00
1131	82.62	14.74	3.62	5.09	1.00	2.57	25.95	66.60	4.000	No	Yes	2.00
1132	82.70	14.88	3.60	4.83	1.00	2.60	25.23	65.56	4.000	No	Yes	2.00
1133	82.77	14.81	3.59	4.65	1.00	2.58	24.98	64.46	4.000	No	Yes	2.00
1134	82.87	15.08	3.57	4.45	1.00	2.65	24.19	64.01	4.000	No	Yes	2.00
1135	82.96	16.23	3.51	3.90	1.00	2.94	21.57	63.38	4.000	No	Yes	2.00
1136	83.06	18.22	3.41	3.33	1.00	3.45	18.38	63.34	4.000	No	Yes	2.00
1137	83.16	21.39	3.29	2.70	1.00	4.26	14.82	63.10	4.000	No	Yes	2.00
1138	83.25	24.46	3.19	2.32	1.00	5.04	12.49	62.94	4.000	No	Yes	2.00
1139	83.34	27.20	3.11	2.06	1.00	5.74	10.91	62.57	4.000	No	Yes	2.00
1140	83.44	28.34	3.10	2.06	1.00	6.03	10.55	63.55	4.000	No	Yes	2.00
1141	83.54	28.75	3.10	2.14	1.00	6.12	10.60	64.89	4.000	No	Yes	2.00
1142	83.64	28.61	3.12	2.29	1.00	6.08	10.93	66.49	4.000	No	Yes	2.00
1143	83.73	27.70	3.15	2.52	1.00	5.84	11.68	68.29	4.000	No	Yes	2.00
1144	83.83	27.26	3.18	2.77	1.00	5.73	12.30	70.46	4.000	No	Yes	2.00
1145	83.85	26.83	3.21	3.11	1.00	5.62	13.07	73.38	4.000	No	Yes	2.00
1146	83.89	27.47	3.22	3.29	1.00	5.78	13.14	75.93	4.000	No	Yes	2.00
1147	83.94	28.11	3.24	3.78	1.00	5.94	13.69	81.26	4.000	No	Yes	2.00
1148	84.04	29.26	3.25	4.14	1.00	6.23	13.80	85.92	4.000	No	Yes	2.00
1149	84.09	30.40	3.25	4.44	1.00	6.51	13.83	90.10	4.000	No	Yes	2.00
1150	84.13	31.28	3.24	4.51	1.00	6.74	13.65	91.94	4.000	No	Yes	2.00
1151	84.18	31.68	3.24	4.64	1.00	6.83	13.70	93.61	4.000	No	Yes	2.00
1152	84.25	31.52	3.25	4.81	1.00	6.79	13.97	94.85	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1153	84.33	30.64	3.28	5.04	1.00	6.56	14.57	95.60	4.000	No	Yes	2.00
1154	84.37	29.46	3.31	5.29	1.00	6.26	15.33	95.90	4.000	No	Yes	2.00
1155	84.46	28.35	3.33	5.40	1.00	5.97	15.91	94.98	4.000	No	Yes	2.00
1156	84.52	27.50	3.34	5.37	1.00	5.75	16.25	93.43	4.000	No	Yes	2.00
1157	84.57	26.90	3.34	5.22	1.00	5.59	16.32	91.27	4.000	No	Yes	2.00
1158	84.67	26.52	3.34	5.14	1.00	5.49	16.38	90.00	4.000	No	Yes	2.00
1159	84.71	26.15	3.35	5.18	1.00	5.40	16.62	89.72	4.000	No	Yes	2.00
1160	84.81	25.58	3.38	5.48	1.00	5.25	17.32	90.86	4.000	No	Yes	2.00
1161	84.86	24.84	3.41	5.93	1.00	5.06	18.32	92.62	4.000	No	Yes	2.00
1162	84.91	24.06	3.44	6.37	1.00	4.86	19.36	94.03	4.000	No	Yes	2.00
1163	85.00	23.42	3.47	6.69	1.00	4.69	20.18	94.63	4.000	No	Yes	2.00
1164	85.05	22.81	3.48	6.79	1.00	4.53	20.72	93.94	4.000	No	Yes	2.00
1165	85.15	22.34	3.49	6.69	1.00	4.41	20.94	92.30	4.000	No	Yes	2.00
1166	85.19	21.80	3.49	6.36	1.00	4.27	20.88	89.13	4.000	No	Yes	2.00
1167	85.29	21.33	3.48	6.00	1.00	4.15	20.74	85.98	4.000	No	Yes	2.00
1168	85.35	20.72	3.49	5.75	1.00	3.99	20.84	83.14	4.000	No	Yes	2.00
1169	85.42	20.08	3.50	5.71	1.00	3.82	21.32	81.54	4.000	No	Yes	2.00
1170	85.48	19.40	3.52	5.78	1.00	3.65	22.03	80.45	4.000	No	Yes	2.00
1171	85.55	18.77	3.54	5.87	1.00	3.49	22.80	79.50	4.000	No	Yes	2.00
1172	85.63	18.19	3.56	5.98	1.00	3.34	23.58	78.76	4.000	No	Yes	2.00
1173	85.68	17.62	3.58	6.16	1.00	3.19	24.50	78.25	4.000	No	Yes	2.00
1174	85.77	17.18	3.60	6.34	1.00	3.08	25.34	78.03	4.000	No	Yes	2.00
1175	85.82	17.04	3.61	6.47	1.00	3.04	25.74	78.34	4.000	No	Yes	2.00
1176	85.89	17.42	3.60	6.38	1.00	3.13	25.13	78.79	4.000	No	Yes	2.00
1177	85.96	18.33	3.56	5.99	1.00	3.36	23.51	79.01	4.000	No	Yes	2.00
1178	86.03	19.71	3.49	5.35	1.00	3.71	21.16	78.44	4.000	No	Yes	2.00
1179	86.11	21.06	3.44	4.76	1.00	4.04	19.14	77.40	4.000	No	Yes	2.00
1180	86.16	22.11	3.39	4.32	1.00	4.30	17.71	76.21	4.000	No	Yes	2.00
1181	86.25	21.67	3.40	4.38	1.00	4.19	18.09	75.81	4.000	No	Yes	2.00
1182	86.36	19.98	3.45	4.62	1.00	3.76	19.76	74.32	4.000	No	Yes	2.00
1183	86.50	18.16	3.52	4.99	1.00	3.30	22.08	72.85	4.000	No	Yes	2.00
1184	86.51	17.25	3.55	5.00	1.00	3.07	23.09	70.91	4.000	No	Yes	2.00
1185	86.52	17.32	3.53	4.74	1.00	3.09	22.53	69.58	4.000	No	Yes	2.00
1186	86.57	17.35	3.51	4.25	1.00	3.10	21.58	66.80	4.000	No	Yes	2.00
1187	86.65	17.39	3.48	3.72	1.00	3.10	20.48	63.50	4.000	No	Yes	2.00
1188	86.71	17.35	3.45	3.31	1.00	3.09	19.65	60.73	4.000	No	Yes	2.00
1189	86.80	17.08	3.45	3.15	1.00	3.02	19.57	59.11	4.000	No	Yes	2.00
1190	86.90	16.48	3.46	3.06	1.00	2.87	20.04	57.42	4.000	No	Yes	2.00
1191	86.99	15.77	3.48	3.01	1.00	2.69	20.75	55.74	4.000	No	Yes	2.00
1192	87.04	15.26	3.50	2.94	1.00	2.56	21.24	54.32	4.000	No	Yes	2.00
1193	87.14	15.16	3.49	2.85	1.00	2.53	21.16	53.51	4.000	No	Yes	2.00
1194	87.19	15.36	3.48	2.77	1.00	2.58	20.70	53.36	4.000	No	Yes	2.00
1195	87.28	15.87	3.46	2.79	1.00	2.70	20.13	54.40	4.000	No	Yes	2.00
1196	87.38	16.51	3.45	2.81	1.00	2.86	19.47	55.67	4.000	No	Yes	2.00
1197	87.43	17.18	3.42	2.82	1.00	3.03	18.79	56.85	4.000	No	Yes	2.00
1198	87.52	17.76	3.40	2.76	1.00	3.17	18.12	57.36	4.000	No	Yes	2.00
1199	87.61	18.23	3.38	2.70	1.00	3.28	17.55	57.58	4.000	No	Yes	2.00
1200	87.66	18.53	3.37	2.63	1.00	3.35	17.13	57.47	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1201	87.76	18.57	3.37	2.58	1.00	3.36	17.00	57.12	4.000	No	Yes	2.00
1202	87.84	18.43	3.37	2.54	1.00	3.32	17.02	56.58	4.000	No	Yes	2.00
1203	87.91	18.13	3.37	2.53	1.00	3.25	17.27	56.08	4.000	No	Yes	2.00
1204	88.00	17.79	3.39	2.53	1.00	3.16	17.58	55.54	4.000	No	Yes	2.00
1205	88.11	17.46	3.40	2.56	1.00	3.07	17.98	55.23	4.000	No	Yes	2.00
1206	88.19	17.22	3.41	2.58	1.00	3.01	18.27	55.01	4.000	No	Yes	2.00
1207	88.25	17.08	3.41	2.59	1.00	2.98	18.42	54.79	4.000	No	Yes	2.00
1208	88.34	17.02	3.41	2.53	1.00	2.96	18.36	54.27	4.000	No	Yes	2.00
1209	88.44	16.98	3.41	2.45	1.00	2.94	18.20	53.59	4.000	No	Yes	2.00
1210	88.54	16.98	3.40	2.37	1.00	2.94	17.99	52.93	4.000	No	Yes	2.00
1211	88.64	16.95	3.40	2.33	1.00	2.93	17.92	52.52	4.000	No	Yes	2.00
1212	88.72	16.88	3.40	2.33	1.00	2.91	18.00	52.42	4.000	No	Yes	2.00
1213	88.82	16.82	3.40	2.36	1.00	2.89	18.16	52.53	4.000	No	Yes	2.00
1214	88.91	16.72	3.41	2.41	1.00	2.87	18.42	52.79	4.000	No	Yes	2.00
1215	89.01	16.62	3.42	2.47	1.00	2.84	18.68	53.02	4.000	No	Yes	2.00
1216	89.10	16.49	3.43	2.53	1.00	2.80	18.99	53.22	4.000	No	Yes	2.00
1217	89.19	16.32	3.44	2.53	1.00	2.76	19.19	52.91	4.000	No	Yes	2.00
1218	89.30	16.21	3.41	2.22	1.00	2.73	18.48	50.44	4.000	No	Yes	2.00
1219	89.39	16.31	3.39	2.02	1.00	2.75	17.80	48.98	4.000	No	Yes	2.00
1220	89.49	16.62	3.38	2.03	1.00	2.82	17.53	49.49	4.000	No	Yes	2.00
1221	89.59	16.90	3.41	2.39	1.00	2.89	18.25	52.76	4.000	No	Yes	2.00
1222	89.69	17.04	3.42	2.65	1.00	2.92	18.79	54.90	4.000	No	Yes	2.00
1223	89.73	17.68	3.40	2.64	1.00	3.08	18.14	55.86	4.000	No	Yes	2.00
1224	89.78	18.48	3.37	2.53	1.00	3.27	17.18	56.23	4.000	No	Yes	2.00
1225	89.83	19.36	3.34	2.42	1.00	3.49	16.22	56.56	4.000	No	Yes	2.00
1226	89.88	19.63	3.33	2.44	1.00	3.55	16.06	57.05	4.000	No	Yes	2.00
1227	89.93	19.86	3.33	2.48	1.00	3.61	16.01	57.77	4.000	No	Yes	2.00
1228	90.00	20.24	3.33	2.55	1.00	3.70	15.90	58.79	4.000	No	Yes	2.00
1229	90.07	20.88	3.31	2.57	1.00	3.85	15.53	59.82	4.000	No	Yes	2.00
1230	90.12	21.62	3.30	2.62	1.00	4.03	15.19	61.24	4.000	No	Yes	2.00
1231	90.22	22.26	3.29	2.71	1.00	4.19	15.01	62.84	4.000	No	Yes	2.00
1232	90.27	23.04	3.29	2.93	1.00	4.37	15.02	65.70	4.000	No	Yes	2.00
1233	90.36	24.99	3.26	2.95	1.00	4.85	14.09	68.34	4.000	No	Yes	2.00
1234	90.46	27.46	3.21	2.86	1.00	5.45	12.89	70.27	4.000	No	Yes	2.00
1235	90.50	29.28	3.17	2.76	1.00	5.89	12.05	71.01	4.000	No	Yes	2.00
1236	90.61	29.48	3.17	2.77	1.00	5.94	12.02	71.39	4.000	No	Yes	2.00
1237	90.66	28.70	3.18	2.82	1.00	5.75	12.38	71.12	4.000	No	Yes	2.00
1238	90.75	27.62	3.20	2.80	1.00	5.48	12.73	69.74	4.000	No	Yes	2.00
1239	90.84	26.17	3.22	2.78	1.00	5.12	13.28	67.94	4.000	No	Yes	2.00
1240	90.89	24.72	3.25	2.77	1.00	4.76	13.90	66.20	4.000	No	Yes	2.00
1241	90.99	23.48	3.28	2.82	1.00	4.45	14.63	65.12	4.000	No	Yes	2.00
1242	91.04	22.50	3.30	2.86	1.00	4.21	15.24	64.21	4.000	No	Yes	2.00
1243	91.14	21.59	3.33	2.94	1.00	3.99	15.98	63.69	4.000	No	Yes	2.00
1244	91.22	20.75	3.36	3.03	1.00	3.78	16.73	63.19	4.000	No	Yes	2.00
1245	91.28	19.83	3.39	3.13	1.00	3.55	17.61	62.55	4.000	No	Yes	2.00
1246	91.37	19.26	3.40	3.14	1.00	3.41	18.11	61.75	4.000	No	Yes	2.00
1247	91.47	18.99	3.40	3.07	1.00	3.34	18.18	60.75	4.000	No	Yes	2.00
1248	91.61	19.26	3.39	2.94	1.00	3.40	17.69	60.19	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1249	91.71	19.40	3.38	2.89	1.00	3.43	17.48	59.97	4.000	No	Yes	2.00
1250	91.81	19.50	3.38	2.88	1.00	3.45	17.39	60.03	4.000	No	Yes	2.00
1251	91.87	19.36	3.38	2.86	1.00	3.42	17.46	59.68	4.000	No	Yes	2.00
1252	92.00	19.38	3.36	2.58	1.00	3.42	16.82	57.50	4.000	No	Yes	2.00
1253	92.10	19.41	3.34	2.37	1.00	3.42	16.30	55.77	4.000	No	Yes	2.00
1254	92.20	19.62	3.32	2.25	1.00	3.47	15.85	54.98	4.000	No	Yes	2.00
1255	92.33	19.76	3.33	2.39	1.00	3.50	16.12	56.37	4.000	No	Yes	2.00
1256	92.38	19.89	3.34	2.50	1.00	3.53	16.27	57.43	4.000	No	Yes	2.00
1257	92.43	20.03	3.34	2.54	1.00	3.56	16.28	57.96	4.000	No	Yes	2.00
1258	92.48	19.98	3.35	2.62	1.00	3.55	16.52	58.57	4.000	No	Yes	2.00
1259	92.56	19.88	3.36	2.71	1.00	3.52	16.79	59.09	4.000	No	Yes	2.00
1260	92.63	19.64	3.37	2.79	1.00	3.46	17.17	59.41	4.000	No	Yes	2.00
1261	92.67	19.57	3.37	2.81	1.00	3.44	17.27	59.42	4.000	No	Yes	2.00
1262	92.72	19.54	3.38	2.81	1.00	3.43	17.30	59.38	4.000	No	Yes	2.00
1263	92.77	19.64	3.37	2.79	1.00	3.46	17.18	59.37	4.000	No	Yes	2.00
1264	92.86	19.84	3.37	2.77	1.00	3.50	16.99	59.49	4.000	No	Yes	2.00
1265	92.92	20.08	3.36	2.78	1.00	3.56	16.84	59.88	4.000	No	Yes	2.00
1266	92.97	20.21	3.37	2.90	1.00	3.59	17.01	61.03	4.000	No	Yes	2.00
1267	93.05	20.35	3.37	3.02	1.00	3.62	17.17	62.12	4.000	No	Yes	2.00
1268	93.10	20.62	3.37	3.09	1.00	3.68	17.13	63.07	4.000	No	Yes	2.00
1269	93.16	21.10	3.35	3.03	1.00	3.79	16.68	63.28	4.000	No	Yes	2.00
1270	93.25	21.70	3.33	2.92	1.00	3.94	16.06	63.20	4.000	No	Yes	2.00
1271	93.35	22.78	3.29	2.71	1.00	4.19	14.99	62.84	4.000	No	Yes	2.00
1272	93.40	23.19	3.27	2.59	1.00	4.29	14.52	62.27	4.000	No	Yes	2.00
1273	93.49	23.25	3.27	2.54	1.00	4.30	14.38	61.82	4.000	No	Yes	2.00
1274	93.56	22.71	3.28	2.58	1.00	4.17	14.77	61.55	4.000	No	Yes	2.00
1275	93.64	22.88	3.28	2.57	1.00	4.21	14.66	61.65	4.000	No	Yes	2.00
1276	93.73	23.63	3.27	2.60	1.00	4.38	14.34	62.81	4.000	No	Yes	2.00
1277	93.83	24.91	3.25	2.65	1.00	4.69	13.81	64.72	4.000	No	Yes	2.00
1278	93.88	26.43	3.23	2.80	1.00	5.05	13.44	67.85	4.000	No	Yes	2.00
1279	93.97	27.01	3.24	3.00	1.00	5.18	13.58	70.35	4.000	No	Yes	2.00
1280	94.07	26.43	3.27	3.36	1.00	5.04	14.48	72.95	4.000	No	Yes	2.00
1281	94.17	25.76	3.31	3.78	1.00	4.87	15.51	75.57	4.000	No	Yes	2.00
1282	94.26	26.70	3.29	3.75	1.00	5.09	15.04	76.60	4.000	No	Yes	2.00
1283	94.36	27.88	3.30	4.18	1.00	5.37	15.22	81.75	4.000	No	Yes	2.00
1284	94.45	29.47	3.30	4.56	1.00	5.75	15.14	87.02	4.000	No	Yes	2.00
1285	94.55	35.88	3.19	4.21	1.00	7.27	12.61	91.74	4.000	No	Yes	2.00
1286	94.64	48.46	3.00	3.11	1.00	10.27	8.71	89.52	4.000	No	Yes	2.00
1287	94.72	59.93	2.85	2.46	1.00	13.01	6.55	85.22	4.000	No	Yes	2.00
1288	94.74	73.87	2.72	1.96	1.00	16.33	4.89	79.85	4.000	No	Yes	2.00
1289	94.77	84.50	2.64	1.75	1.00	18.86	4.08	76.98	4.000	No	Yes	2.00
1290	94.85	97.35	2.56	1.57	1.00	21.92	3.39	74.39	4.000	No	No	2.00
1291	94.90	102.75	2.54	1.57	1.00	23.20	3.24	75.17	4.000	No	No	2.00
1292	94.95	105.32	2.54	1.66	1.00	23.80	3.27	77.89	4.000	No	No	2.00
1293	95.01	104.68	2.58	1.94	1.00	23.63	3.61	85.22	4.000	No	No	2.00
1294	95.09	100.83	2.64	2.34	1.00	22.70	4.16	94.37	4.000	No	Yes	2.00
1295	95.14	94.49	2.73	2.97	1.00	21.18	5.05	107.02	4.000	No	Yes	2.00
1296	95.23	86.42	2.82	3.64	1.00	19.25	6.10	117.34	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1297	95.29	78.06	2.91	4.43	1.00	17.25	7.36	126.89	4.000	No	Yes	2.00
1298	95.38	71.11	2.98	5.04	1.00	15.59	8.45	131.69	4.000	No	Yes	2.00
1299	95.43	67.53	3.02	5.36	1.00	14.73	9.06	133.43	4.000	No	Yes	2.00
1300	95.52	67.83	3.01	5.27	1.00	14.79	8.96	132.50	4.000	No	Yes	2.00
1301	95.57	70.23	2.98	4.89	1.00	15.35	8.40	128.95	4.000	No	Yes	2.00
1302	95.67	71.24	2.95	4.48	1.00	15.58	7.93	123.49	4.000	No	Yes	2.00
1303	95.77	66.52	2.97	4.36	1.00	14.45	8.22	118.72	4.000	No	Yes	2.00
1304	95.86	56.97	3.06	4.90	1.00	12.17	9.76	118.80	4.000	No	Yes	2.00
1305	95.95	52.94	3.09	5.00	1.00	11.21	10.40	116.56	4.000	No	Yes	2.00
1306	96.03	46.73	3.17	5.75	1.00	9.74	12.16	118.40	4.000	No	Yes	2.00
1307	96.11	51.55	3.12	5.30	1.00	10.87	10.92	118.64	4.000	No	Yes	2.00
1308	96.20	59.20	3.06	5.23	1.00	12.66	9.84	124.65	4.000	No	Yes	2.00
1309	96.30	80.15	2.90	4.31	1.00	17.59	7.15	125.73	4.000	Yes	Yes	2.00
1310	96.39	101.37	2.77	3.72	1.00	22.58	5.51	124.50	4.000	Yes	Yes	2.00
1311	96.50	122.96	2.67	3.23	1.00	27.64	4.35	120.31	4.000	Yes	Yes	2.00
1312	96.59	144.96	2.54	2.51	1.00	32.80	3.25	106.72	4.000	Yes	No	2.00
1313	96.69	164.86	2.41	1.87	1.00	37.45	2.44	91.36	4.000	Yes	No	2.00
1314	96.78	180.18	2.29	1.32	1.00	41.02	1.89	77.51	4.000	Yes	No	2.00
1315	96.87	185.95	2.24	1.13	1.00	42.35	1.72	72.98	4.000	Yes	No	2.00
1316	96.98	185.28	2.23	1.08	1.00	42.15	1.69	71.40	4.000	No	No	2.00
1317	97.02	177.79	2.26	1.14	1.00	40.38	1.78	71.90	4.000	No	No	2.00
1318	97.06	176.40	2.27	1.20	1.00	40.04	1.83	73.47	4.000	No	No	2.00
1319	97.12	175.60	2.30	1.30	1.00	39.84	1.91	76.16	4.000	No	No	2.00
1320	97.16	176.98	2.31	1.41	1.00	40.15	1.98	79.48	4.000	No	No	2.00
1321	97.21	173.67	2.35	1.58	1.00	39.35	2.13	83.99	4.000	No	No	2.00
1322	97.27	170.50	2.39	1.77	1.00	38.59	2.31	89.17	4.000	No	No	2.00
1323	97.33	168.21	2.42	1.93	1.00	38.04	2.46	93.67	4.000	No	No	2.00
1324	97.40	165.98	2.44	2.03	1.00	37.49	2.57	96.33	4.000	No	No	2.00
1325	97.45	163.92	2.45	2.09	1.00	37.00	2.64	97.51	4.000	Yes	No	2.00
1326	97.50	161.39	2.47	2.20	1.00	36.39	2.76	100.38	4.000	Yes	No	2.00
1327	97.58	155.82	2.50	2.38	1.00	35.06	2.99	104.78	4.000	Yes	No	2.00
1328	97.65	146.95	2.55	2.64	1.00	32.97	3.34	110.26	4.000	Yes	No	2.00
1329	97.69	134.43	2.60	2.87	1.00	30.04	3.79	113.95	4.000	Yes	Yes	2.00
1330	97.74	121.75	2.66	3.06	1.00	27.07	4.27	115.68	4.000	Yes	Yes	2.00
1331	97.81	110.51	2.71	3.22	1.00	24.44	4.76	116.42	4.000	Yes	Yes	2.00
1332	97.88	103.09	2.74	3.33	1.00	22.69	5.14	116.63	4.000	Yes	Yes	2.00
1333	97.93	108.66	2.70	3.05	1.00	23.98	4.67	111.98	4.000	Yes	Yes	2.00
1334	98.03	138.72	2.52	2.22	1.00	30.95	3.15	97.35	4.000	Yes	No	2.00
1335	98.15	182.62	2.33	1.53	1.00	41.12	2.03	83.50	4.000	Yes	No	2.00
1336	98.21	228.43	2.15	1.06	1.00	51.75	1.51	78.05	4.000	Yes	No	2.00
1337	98.32	264.20	2.03	0.81	1.00	60.00	1.34	80.19	4.000	Yes	No	2.00
1338	98.42	301.85	1.92	0.62	1.00	68.69	1.25	85.96	4.000	Yes	No	2.00
1339	98.47	349.59	1.79	0.45	1.00	79.73	1.00	79.73	4.000	Yes	No	2.00
1340	98.57	388.76	1.69	0.32	1.00	88.75	1.00	88.75	4.000	No	No	2.00
1341	98.70	411.84	1.61	0.24	1.00	94.00	1.00	94.00	4.000	No	No	2.00
1342	98.78	404.01	1.62	0.24	1.00	92.13	1.00	92.13	4.000	No	No	2.00
1343	98.85	372.43	1.67	0.27	1.00	84.79	1.00	84.79	4.000	No	No	2.00
1344	98.86	337.78	1.74	0.31	1.00	76.77	1.00	76.77	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1345	98.92	322.73	1.77	0.33	1.00	73.26	1.00	73.26	4.000	No	No	2.00
1346	98.98	318.48	1.78	0.34	1.00	72.24	1.00	72.24	4.000	Yes	No	2.00
1347	99.03	309.41	1.81	0.38	1.00	70.12	1.00	70.12	4.000	Yes	No	2.00
1348	99.11	281.64	1.90	0.48	1.00	63.67	1.00	63.67	4.000	Yes	No	2.00
1349	99.18	255.32	1.99	0.62	1.00	57.57	1.30	74.69	4.000	Yes	No	2.00
1350	99.23	231.33	2.09	0.83	1.00	52.01	1.41	73.25	4.000	Yes	No	2.00
1351	99.32	209.84	2.20	1.12	1.00	47.02	1.62	76.01	4.000	Yes	No	2.00
1352	99.37	189.39	2.31	1.49	1.00	42.29	1.96	83.05	4.000	Yes	No	2.00
1353	99.45	170.57	2.40	1.81	1.00	37.93	2.37	90.04	4.000	Yes	No	2.00
1354	99.56	157.24	2.47	2.08	1.00	34.83	2.76	96.01	4.000	Yes	No	2.00
1355	99.64	147.39	2.52	2.34	1.00	32.55	3.13	101.90	4.000	Yes	No	2.00
1356	99.71	140.04	2.57	2.64	1.00	30.84	3.53	108.77	4.000	Yes	No	2.00
1357	99.75	128.26	2.63	2.93	1.00	28.12	4.04	113.72	4.000	Yes	Yes	2.00
1358	99.90	116.32	2.70	3.25	1.00	25.35	4.67	118.27	4.000	Yes	Yes	2.00
1359	99.95	101.78	2.79	3.87	1.00	22.01	5.75	126.55	4.000	Yes	Yes	2.00
1360	100.04	116.32	2.73	3.67	1.00	25.32	5.03	127.45	4.000	Yes	Yes	2.00
1361	100.14	159.30	2.55	2.82	1.00	35.14	3.33	116.89	4.000	Yes	No	2.00
1362	100.14	204.99	2.39	2.20	1.00	45.59	2.33	106.43	4.000	Yes	No	2.00
1363	100.15	235.79	2.32	2.02	1.00	52.64	2.00	105.52	4.000	Yes	No	2.00
1364	100.19	258.80	2.30	2.10	1.00	57.89	1.93	111.71	4.000	Yes	No	2.00
1365	100.21	298.07	2.26	2.14	1.00	66.86	1.78	119.29	4.000	Yes	No	2.00
1366	100.24	351.88	2.06	1.31	1.00	79.16	1.37	108.37	4.000	Yes	No	2.00
1367	100.28	410.56	1.80	0.59	1.00	92.54	1.15	106.62	4.000	Yes	No	2.00
1368	100.31	470.98	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1369	100.33	508.57	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1370	100.38	524.63	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1371	100.39	526.55	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1372	100.43	531.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1373	100.48	522.24	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1374	100.53	509.38	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1375	100.57	496.12	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1376	100.60	497.27	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.04	2.00	0.00	0.00	0.06	0.00	0.10	2.00	0.00	0.00	0.06	0.00
0.11	2.00	0.00	0.00	0.01	0.00	0.16	2.00	0.00	0.00	0.05	0.00
0.19	2.00	0.00	0.00	0.04	0.00	0.24	2.00	0.00	0.00	0.05	0.00
0.31	2.00	0.00	0.00	0.07	0.00	0.38	2.00	0.00	0.00	0.07	0.00
0.43	2.00	0.00	0.00	0.05	0.00	0.49	2.00	0.00	0.00	0.06	0.00
0.58	2.00	0.00	0.00	0.09	0.00	0.63	2.00	0.00	0.00	0.05	0.00
0.67	2.00	0.00	0.00	0.04	0.00	0.72	2.00	0.00	0.00	0.05	0.00
0.72	2.00	0.00	0.00	0.01	0.00	0.84	2.00	0.00	0.00	0.12	0.00
0.96	2.00	0.00	0.00	0.12	0.00	1.06	2.00	0.00	0.00	0.09	0.00
1.24	2.00	0.00	0.00	0.19	0.00	1.30	2.00	0.00	0.00	0.06	0.00
1.48	2.00	0.00	0.00	0.18	0.00	1.59	2.00	0.00	0.00	0.10	0.00
1.69	2.00	0.00	0.00	0.10	0.00	1.69	2.00	0.00	0.00	0.01	0.00
1.74	2.00	0.00	0.00	0.05	0.00	1.79	2.00	0.00	0.00	0.04	0.00
1.84	2.00	0.00	0.00	0.05	0.00	1.88	2.00	0.00	0.00	0.05	0.00
1.93	2.00	0.00	0.00	0.05	0.00	1.99	2.00	0.00	0.00	0.06	0.00
2.03	2.00	0.00	0.00	0.04	0.00	2.08	2.00	0.00	0.00	0.05	0.00
2.13	2.00	0.00	0.00	0.05	0.00	2.22	2.00	0.00	0.00	0.09	0.00
2.27	2.00	0.00	0.00	0.06	0.00	2.33	2.00	0.00	0.00	0.05	0.00
2.42	2.00	0.00	0.00	0.09	0.00	2.48	2.00	0.00	0.00	0.07	0.00
2.56	2.00	0.00	0.00	0.07	0.00	2.65	2.00	0.00	0.00	0.10	0.00
2.72	2.00	0.00	0.00	0.07	0.00	2.80	2.00	0.00	0.00	0.08	0.00
2.89	2.00	0.00	0.00	0.09	0.00	2.94	2.00	0.00	0.00	0.05	0.00
3.04	2.00	0.00	0.00	0.10	0.00	3.14	2.00	0.00	0.00	0.10	0.00
3.23	2.00	0.00	0.00	0.10	0.00	3.31	2.00	0.00	0.00	0.07	0.00
3.37	2.00	0.00	0.00	0.06	0.00	3.48	2.00	0.00	0.00	0.11	0.00
3.57	2.00	0.00	0.00	0.09	0.00	3.65	2.00	0.00	0.00	0.09	0.00
3.71	2.00	0.00	0.00	0.06	0.00	3.82	2.00	0.00	0.00	0.11	0.00
3.91	2.00	0.00	0.00	0.09	0.00	4.00	2.00	0.00	0.00	0.10	0.00
4.10	2.00	0.00	0.00	0.09	0.00	4.19	2.00	0.00	0.00	0.10	0.00
4.26	2.00	0.00	0.00	0.07	0.00	4.35	2.00	0.00	0.00	0.09	0.00
4.44	2.00	0.00	0.00	0.10	0.00	4.52	2.00	0.00	0.00	0.08	0.00
4.53	2.00	0.00	0.00	0.01	0.00	4.58	2.00	0.00	0.00	0.05	0.00
4.63	2.00	0.00	0.00	0.05	0.00	4.68	2.00	0.00	0.00	0.05	0.00
4.72	2.00	0.00	0.00	0.04	0.00	4.77	2.00	0.00	0.00	0.05	0.00
4.82	2.00	0.00	0.00	0.05	0.00	4.88	2.00	0.00	0.00	0.06	0.00
4.96	2.00	0.00	0.00	0.08	0.00	5.01	2.00	0.00	0.00	0.05	0.00
5.08	2.00	0.00	0.00	0.07	0.00	5.16	2.00	0.00	0.00	0.08	0.00
5.21	2.00	0.00	0.00	0.05	0.00	5.30	2.00	0.00	0.00	0.09	0.00
5.37	2.00	0.00	0.00	0.07	0.00	5.45	2.00	0.00	0.00	0.08	0.00
5.52	2.00	0.00	0.00	0.07	0.00	5.59	2.00	0.00	0.00	0.07	0.00
5.65	2.00	0.00	0.00	0.06	0.00	5.74	2.00	0.00	0.00	0.08	0.00
5.83	2.00	0.00	0.00	0.09	0.00	5.89	2.00	0.00	0.00	0.06	0.00
5.97	2.00	0.00	0.00	0.08	0.00	6.07	2.00	0.00	0.00	0.09	0.00
6.12	2.00	0.00	0.00	0.05	0.00	6.22	2.00	0.00	0.00	0.10	0.00
6.28	2.00	0.00	0.00	0.06	0.00	6.36	2.00	0.00	0.00	0.08	0.00
6.46	2.00	0.00	0.00	0.10	0.00	6.52	2.00	0.00	0.00	0.06	0.00
6.60	2.00	0.00	0.00	0.09	0.00	6.70	2.00	0.00	0.00	0.09	0.00
6.76	2.00	0.00	0.00	0.07	0.00	6.84	2.00	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
6.94	2.00	0.00	0.00	0.10	0.00	7.03	2.00	0.00	0.00	0.09	0.00
7.13	2.00	0.00	0.00	0.09	0.00	7.19	2.00	0.00	0.00	0.06	0.00
7.32	2.00	0.00	0.00	0.13	0.00	7.42	2.00	0.00	0.00	0.10	0.00
7.49	2.00	0.00	0.00	0.07	0.00	7.57	2.00	0.00	0.00	0.08	0.00
7.66	2.00	0.00	0.00	0.09	0.00	7.76	2.00	0.00	0.00	0.10	0.00
7.77	2.00	0.00	0.00	0.01	0.00	7.78	2.00	0.00	0.00	0.00	0.00
7.82	2.00	0.00	0.00	0.04	0.00	7.87	2.00	0.00	0.00	0.05	0.00
7.92	2.00	0.00	0.00	0.04	0.00	7.97	2.00	0.00	0.00	0.05	0.00
8.01	2.00	0.00	0.00	0.04	0.00	8.06	2.00	0.00	0.00	0.05	0.00
8.11	2.00	0.00	0.00	0.05	0.00	8.20	2.00	0.00	0.00	0.09	0.00
8.26	2.00	0.00	0.00	0.06	0.00	8.35	2.00	0.00	0.00	0.09	0.00
8.40	2.00	0.00	0.00	0.06	0.00	8.49	2.00	0.00	0.00	0.09	0.00
8.54	2.00	0.00	0.00	0.05	0.00	8.64	2.00	0.00	0.00	0.09	0.00
8.69	2.00	0.00	0.00	0.05	0.00	8.79	2.00	0.00	0.00	0.10	0.00
8.84	2.00	0.00	0.00	0.05	0.00	8.93	2.00	0.00	0.00	0.09	0.00
9.03	2.00	0.00	0.00	0.10	0.00	9.08	2.00	0.00	0.00	0.06	0.00
9.11	2.00	0.00	0.00	0.02	0.00	9.12	2.00	0.00	0.00	0.01	0.00
9.17	2.00	0.00	0.00	0.05	0.00	9.22	2.00	0.00	0.00	0.05	0.00
9.31	2.00	0.00	0.00	0.10	0.00	9.36	2.00	0.00	0.00	0.05	0.00
9.40	2.00	0.00	0.00	0.03	0.00	9.46	2.00	0.00	0.00	0.06	0.00
9.51	2.00	0.00	0.00	0.05	0.00	9.55	2.00	0.00	0.00	0.04	0.00
9.61	2.00	0.00	0.00	0.06	0.00	9.69	2.00	0.00	0.00	0.09	0.00
9.74	2.00	0.00	0.00	0.05	0.00	9.81	2.00	0.00	0.00	0.07	0.00
9.89	2.00	0.00	0.00	0.07	0.00	9.94	2.00	0.00	0.00	0.05	0.00
10.03	2.00	0.00	0.00	0.09	0.00	10.08	2.00	0.00	0.00	0.05	0.00
10.18	2.00	0.00	0.00	0.11	0.00	10.23	2.00	0.00	0.00	0.04	0.00
10.33	2.00	0.00	0.00	0.10	0.00	10.40	2.00	0.00	0.00	0.07	0.00
10.47	2.00	0.00	0.00	0.07	0.00	10.51	2.00	0.00	0.00	0.04	0.00
10.56	2.00	0.00	0.00	0.05	0.00	10.61	2.00	0.00	0.00	0.05	0.00
10.67	2.00	0.00	0.00	0.05	0.00	10.75	2.00	0.00	0.00	0.08	0.00
10.80	2.00	0.00	0.00	0.05	0.00	10.85	2.00	0.00	0.00	0.05	0.00
10.90	2.00	0.00	0.00	0.04	0.00	11.00	2.00	0.00	0.00	0.10	0.00
11.05	2.00	0.00	0.00	0.06	0.00	11.14	2.00	0.00	0.00	0.09	0.00
11.21	2.00	0.00	0.00	0.07	0.00	11.29	2.00	0.00	0.00	0.08	0.00
11.38	2.00	0.00	0.00	0.09	0.00	11.46	2.00	0.00	0.00	0.08	0.00
11.52	2.00	0.00	0.00	0.06	0.00	11.60	2.00	0.00	0.00	0.08	0.00
11.67	2.00	0.00	0.00	0.07	0.00	11.72	2.00	0.00	0.00	0.05	0.00
11.81	2.00	0.00	0.00	0.09	0.00	11.86	2.00	0.00	0.00	0.05	0.00
11.96	2.00	0.00	0.00	0.10	0.00	12.01	2.00	0.00	0.00	0.05	0.00
12.10	2.00	0.00	0.00	0.09	0.00	12.16	2.00	0.00	0.00	0.06	0.00
12.24	2.00	0.00	0.00	0.09	0.00	12.32	2.00	0.00	0.00	0.07	0.00
12.39	2.00	0.00	0.00	0.08	0.00	12.48	2.00	0.00	0.00	0.09	0.00
12.50	2.00	0.00	0.00	0.01	0.00	12.54	2.00	0.00	0.00	0.04	0.00
12.64	2.00	0.00	0.00	0.10	0.00	12.68	2.00	0.00	0.00	0.05	0.00
12.77	2.00	0.00	0.00	0.08	0.00	12.82	2.00	0.00	0.00	0.06	0.00
12.89	2.00	0.00	0.00	0.07	0.00	12.97	2.00	0.00	0.00	0.08	0.00
13.03	2.00	0.00	0.00	0.06	0.00	13.12	2.00	0.00	0.00	0.09	0.00
13.16	2.00	0.00	0.00	0.05	0.00	13.26	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
13.34	2.00	0.00	0.00	0.08	0.00	13.41	2.00	0.00	0.00	0.06	0.00
13.50	2.00	0.00	0.00	0.09	0.00	13.60	2.00	0.00	0.00	0.10	0.00
13.65	2.00	0.00	0.00	0.05	0.00	13.75	2.00	0.00	0.00	0.10	0.00
13.80	2.00	0.00	0.00	0.06	0.00	13.89	2.00	0.00	0.00	0.09	0.00
13.94	2.00	0.00	0.00	0.05	0.00	14.03	2.00	0.00	0.00	0.09	0.00
14.11	2.00	0.00	0.00	0.07	0.00	14.13	2.00	0.00	0.00	0.02	0.00
14.18	2.00	0.00	0.00	0.05	0.00	14.22	2.00	0.00	0.00	0.04	0.00
14.28	2.00	0.00	0.00	0.06	0.00	14.37	2.00	0.00	0.00	0.09	0.00
14.44	2.00	0.00	0.00	0.07	0.00	14.51	2.00	0.00	0.00	0.08	0.00
14.60	2.00	0.00	0.00	0.09	0.00	14.65	2.00	0.00	0.00	0.05	0.00
14.75	2.00	0.00	0.00	0.10	0.00	14.85	2.00	0.00	0.00	0.10	0.00
14.91	2.00	0.00	0.00	0.06	0.00	14.99	2.00	0.00	0.00	0.08	0.00
15.09	2.00	0.00	0.00	0.09	0.00	15.18	2.00	0.00	0.00	0.09	0.00
15.25	2.00	0.00	0.00	0.07	0.00	15.33	2.00	0.00	0.00	0.08	0.00
15.43	2.00	0.00	0.00	0.10	0.00	15.51	2.00	0.00	0.00	0.09	0.00
15.59	2.00	0.00	0.00	0.08	0.00	15.67	2.00	0.00	0.00	0.08	0.00
15.76	2.00	0.00	0.00	0.09	0.00	15.86	2.00	0.00	0.00	0.10	0.00
15.95	2.00	0.00	0.00	0.09	0.00	16.05	2.00	0.00	0.00	0.10	0.00
16.14	2.00	0.00	0.00	0.09	0.00	16.20	2.00	0.00	0.00	0.06	0.00
16.28	2.00	0.00	0.00	0.09	0.00	16.34	2.00	0.00	0.00	0.05	0.00
16.44	2.00	0.00	0.00	0.10	0.00	16.50	2.00	0.00	0.00	0.06	0.00
16.58	2.00	0.00	0.00	0.08	0.00	16.73	2.00	0.00	0.00	0.15	0.00
16.82	2.00	0.00	0.00	0.09	0.00	16.92	2.00	0.00	0.00	0.10	0.00
17.01	2.00	0.00	0.00	0.09	0.00	17.11	2.00	0.00	0.00	0.09	0.00
17.12	2.00	0.00	0.00	0.01	0.00	17.14	2.00	0.00	0.00	0.02	0.00
17.19	2.00	0.00	0.00	0.05	0.00	17.28	2.00	0.00	0.00	0.09	0.00
17.33	2.00	0.00	0.00	0.05	0.00	17.43	2.00	0.00	0.00	0.10	0.00
17.47	2.00	0.00	0.00	0.05	0.00	17.57	2.00	0.00	0.00	0.10	0.00
17.65	2.00	0.00	0.00	0.08	0.00	17.72	2.00	0.00	0.00	0.06	0.00
17.81	2.00	0.00	0.00	0.09	0.00	17.86	2.00	0.00	0.00	0.05	0.00
17.95	2.00	0.00	0.00	0.10	0.00	18.05	2.00	0.00	0.00	0.10	0.00
18.10	2.00	0.00	0.00	0.05	0.00	18.20	2.00	0.00	0.00	0.10	0.00
18.30	2.00	0.00	0.00	0.10	0.00	18.39	2.00	0.00	0.00	0.10	0.00
18.48	2.00	0.00	0.00	0.09	0.00	18.58	2.00	0.00	0.00	0.10	0.00
18.66	2.00	0.00	0.00	0.08	0.00	18.74	2.00	0.00	0.00	0.08	0.00
18.87	2.00	0.00	0.00	0.13	0.00	18.97	2.00	0.00	0.00	0.10	0.00
19.06	2.00	0.00	0.00	0.10	0.00	19.16	2.00	0.00	0.00	0.10	0.00
19.25	2.00	0.00	0.00	0.10	0.00	19.27	2.00	0.00	0.00	0.01	0.00
19.30	2.00	0.00	0.00	0.03	0.00	19.34	2.00	0.00	0.00	0.04	0.00
19.39	2.00	0.00	0.00	0.05	0.00	19.49	2.00	0.00	0.00	0.10	0.00
19.55	2.00	0.00	0.00	0.06	0.00	19.63	2.00	0.00	0.00	0.08	0.00
19.68	2.00	0.00	0.00	0.05	0.00	19.74	2.00	0.00	0.00	0.06	0.00
19.83	2.00	0.00	0.00	0.08	0.00	19.87	2.00	0.00	0.00	0.05	0.00
19.94	2.00	0.00	0.00	0.07	0.00	20.02	2.00	0.00	0.00	0.08	0.00
20.07	2.00	0.00	0.00	0.05	0.00	20.17	2.00	0.00	0.00	0.10	0.00
20.21	2.00	0.00	0.00	0.05	0.00	20.28	2.00	0.00	0.00	0.07	0.00
20.36	2.00	0.00	0.00	0.08	0.00	20.41	2.00	0.00	0.00	0.05	0.00
20.48	2.00	0.00	0.00	0.07	0.00	20.55	2.00	0.00	0.00	0.07	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
20.60	2.00	0.00	0.00	0.05	0.00	20.70	2.00	0.00	0.00	0.10	0.00
20.74	2.00	0.00	0.00	0.05	0.00	20.79	2.00	0.00	0.00	0.05	0.00
20.89	2.00	0.00	0.00	0.09	0.00	20.96	2.00	0.00	0.00	0.08	0.00
21.04	2.00	0.00	0.00	0.07	0.00	21.13	2.00	0.00	0.00	0.09	0.00
21.22	2.00	0.00	0.00	0.09	0.00	21.29	2.00	0.00	0.00	0.06	0.00
21.35	2.00	0.00	0.00	0.06	0.00	21.37	2.00	0.00	0.00	0.03	0.00
21.42	2.00	0.00	0.00	0.05	0.00	21.47	2.00	0.00	0.00	0.05	0.00
21.48	2.00	0.00	0.00	0.01	0.00	21.52	2.00	0.00	0.00	0.04	0.00
21.57	2.00	0.00	0.00	0.05	0.00	21.62	2.00	0.00	0.00	0.05	0.00
21.66	2.00	0.00	0.00	0.05	0.00	21.71	2.00	0.00	0.00	0.05	0.00
21.76	2.00	0.00	0.00	0.05	0.00	21.81	2.00	0.00	0.00	0.05	0.00
21.85	2.00	0.00	0.00	0.04	0.00	21.91	2.00	0.00	0.00	0.05	0.00
21.95	2.00	0.00	0.00	0.05	0.00	22.00	2.00	0.00	0.00	0.05	0.00
22.05	2.00	0.00	0.00	0.04	0.00	22.10	2.00	0.00	0.00	0.05	0.00
22.15	2.00	0.00	0.00	0.05	0.00	22.19	2.00	0.00	0.00	0.05	0.00
22.24	2.00	0.00	0.00	0.05	0.00	22.29	2.00	0.00	0.00	0.05	0.00
22.34	2.00	0.00	0.00	0.05	0.00	22.39	2.00	0.00	0.00	0.05	0.00
22.43	2.00	0.00	0.00	0.05	0.00	22.48	2.00	0.00	0.00	0.05	0.00
22.55	2.00	0.00	0.00	0.06	0.00	22.62	2.00	0.00	0.00	0.07	0.00
22.63	2.00	0.00	0.00	0.01	0.00	22.72	2.00	0.00	0.00	0.10	0.00
22.77	2.00	0.00	0.00	0.04	0.00	22.83	2.00	0.00	0.00	0.06	0.00
22.91	2.00	0.00	0.00	0.08	0.00	22.96	2.00	0.00	0.00	0.05	0.00
23.02	2.00	0.00	0.00	0.05	0.00	23.10	2.00	0.00	0.00	0.09	0.00
23.16	2.00	0.00	0.00	0.06	0.00	23.20	2.00	0.00	0.00	0.05	0.00
23.26	2.00	0.00	0.00	0.06	0.00	23.35	2.00	0.00	0.00	0.09	0.00
23.39	2.00	0.00	0.00	0.04	0.00	23.48	2.00	0.00	0.00	0.09	0.00
23.54	2.00	0.00	0.00	0.06	0.00	23.63	2.00	0.00	0.00	0.09	0.00
23.69	2.00	0.00	0.00	0.06	0.00	23.78	2.00	0.00	0.00	0.09	0.00
23.87	2.00	0.00	0.00	0.09	0.00	23.88	2.00	0.00	0.00	0.01	0.00
23.93	2.00	0.00	0.00	0.05	0.00	24.02	2.00	0.00	0.00	0.10	0.00
24.04	2.00	0.00	0.00	0.01	0.00	24.05	2.00	0.00	0.00	0.02	0.00
24.15	2.00	0.00	0.00	0.10	0.00	24.20	2.00	0.00	0.00	0.05	0.00
24.30	2.00	0.00	0.00	0.10	0.00	24.40	2.00	0.00	0.00	0.09	0.00
24.46	2.00	0.00	0.00	0.07	0.00	24.54	2.00	0.00	0.00	0.08	0.00
24.64	2.00	0.00	0.00	0.10	0.00	24.73	2.00	0.00	0.00	0.09	0.00
24.78	2.00	0.00	0.00	0.06	0.00	24.88	2.00	0.00	0.00	0.09	0.00
24.94	2.00	0.00	0.00	0.06	0.00	25.02	2.00	0.00	0.00	0.08	0.00
25.12	2.00	0.00	0.00	0.10	0.00	25.17	2.00	0.00	0.00	0.05	0.00
25.27	2.00	0.00	0.00	0.10	0.00	25.36	2.00	0.00	0.00	0.09	0.00
25.43	2.00	0.00	0.00	0.07	0.00	25.50	2.00	0.00	0.00	0.08	0.00
25.60	2.00	0.00	0.00	0.10	0.00	25.64	2.00	0.00	0.00	0.04	0.00
25.67	2.00	0.00	0.00	0.03	0.00	25.71	2.00	0.00	0.00	0.04	0.00
25.79	2.00	0.00	0.00	0.09	0.00	25.93	2.00	0.00	0.00	0.14	0.00
26.03	2.00	0.00	0.00	0.10	0.00	26.13	2.00	0.00	0.00	0.10	0.00
26.24	2.00	0.00	0.00	0.11	0.00	26.37	2.00	0.00	0.00	0.13	0.00
26.47	2.00	0.00	0.00	0.10	0.00	26.60	2.00	0.00	0.00	0.13	0.00
26.71	2.00	0.00	0.00	0.11	0.00	26.85	2.00	0.00	0.00	0.15	0.00
26.95	2.00	0.00	0.00	0.09	0.00	27.04	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
27.09	2.00	0.00	0.00	0.05	0.00	27.19	2.00	0.00	0.00	0.10	0.00
27.23	2.00	0.00	0.00	0.05	0.00	27.33	2.00	0.00	0.00	0.10	0.00
27.40	2.00	0.00	0.00	0.07	0.00	27.47	2.00	0.00	0.00	0.07	0.00
27.57	2.00	0.00	0.00	0.11	0.00	27.66	2.00	0.00	0.00	0.09	0.00
27.77	2.00	0.00	0.00	0.10	0.00	27.86	2.00	0.00	0.00	0.10	0.00
27.96	2.00	0.00	0.00	0.10	0.00	28.06	2.00	0.00	0.00	0.10	0.00
28.15	2.00	0.00	0.00	0.09	0.00	28.25	2.00	0.00	0.00	0.10	0.00
28.34	2.00	0.00	0.00	0.09	0.00	28.44	2.00	0.00	0.00	0.10	0.00
28.54	2.00	0.00	0.00	0.10	0.00	28.62	2.00	0.00	0.00	0.08	0.00
28.71	2.00	0.00	0.00	0.09	0.00	28.77	2.00	0.00	0.00	0.05	0.00
28.86	2.00	0.00	0.00	0.09	0.00	28.91	2.00	0.00	0.00	0.05	0.00
28.97	2.00	0.00	0.00	0.05	0.00	29.04	2.00	0.00	0.00	0.08	0.00
29.10	2.00	0.00	0.00	0.06	0.00	29.15	2.00	0.00	0.00	0.05	0.00
29.25	2.00	0.00	0.00	0.10	0.00	29.34	2.00	0.00	0.00	0.09	0.00
29.38	2.00	0.00	0.00	0.04	0.00	29.48	2.00	0.00	0.00	0.10	0.00
29.55	2.00	0.00	0.00	0.06	0.00	29.63	2.00	0.00	0.00	0.09	0.00
29.72	2.00	0.00	0.00	0.09	0.00	29.82	2.00	0.00	0.00	0.10	0.00
29.88	2.00	0.00	0.00	0.06	0.00	29.96	2.00	0.00	0.00	0.08	0.00
30.06	2.00	0.00	0.00	0.09	0.00	30.13	2.00	0.00	0.00	0.07	0.00
30.18	0.57	0.00	0.00	0.04	0.03	30.28	0.58	0.00	0.00	0.10	0.07
30.37	0.60	0.00	0.00	0.09	0.06	30.47	0.63	0.00	0.00	0.10	0.06
30.57	0.65	0.00	0.00	0.10	0.06	30.66	0.67	0.00	0.00	0.10	0.05
30.74	0.69	0.00	0.00	0.08	0.04	30.82	0.71	0.00	0.00	0.08	0.04
30.90	0.73	0.00	0.00	0.08	0.04	31.01	0.76	0.00	0.00	0.11	0.04
31.10	0.80	0.00	0.00	0.08	0.03	31.19	0.86	0.00	0.00	0.09	0.02
31.28	0.92	0.00	0.00	0.09	0.01	31.35	0.97	0.00	0.00	0.06	0.00
31.43	1.02	0.00	0.00	0.09	0.00	31.53	1.06	0.00	0.00	0.09	0.00
31.60	0.96	0.00	0.00	0.07	0.00	31.67	0.88	0.00	0.00	0.08	0.01
31.77	0.82	0.00	0.00	0.10	0.03	31.84	0.84	0.00	0.00	0.07	0.02
31.91	0.87	0.00	0.00	0.07	0.01	31.98	0.89	0.00	0.00	0.07	0.01
31.98	0.92	0.00	0.00	0.01	0.00	32.04	0.94	0.00	0.00	0.05	0.00
32.12	2.00	0.00	0.00	0.08	0.00	32.16	2.00	0.00	0.00	0.05	0.00
32.27	2.00	0.00	0.00	0.10	0.00	32.33	2.00	0.00	0.00	0.06	0.00
32.41	2.00	0.00	0.00	0.08	0.00	32.50	2.00	0.00	0.00	0.09	0.00
32.58	2.00	0.00	0.00	0.08	0.00	32.66	2.00	0.00	0.00	0.07	0.00
32.74	2.00	0.00	0.00	0.09	0.00	32.84	2.00	0.00	0.00	0.10	0.00
32.90	2.00	0.00	0.00	0.06	0.00	32.98	2.00	0.00	0.00	0.09	0.00
33.08	2.00	0.00	0.00	0.09	0.00	33.14	2.00	0.00	0.00	0.07	0.00
33.22	2.00	0.00	0.00	0.08	0.00	33.32	2.00	0.00	0.00	0.10	0.00
33.37	2.00	0.00	0.00	0.05	0.00	33.47	2.00	0.00	0.00	0.10	0.00
33.56	2.00	0.00	0.00	0.09	0.00	33.63	2.00	0.00	0.00	0.07	0.00
33.71	2.00	0.00	0.00	0.08	0.00	33.81	2.00	0.00	0.00	0.09	0.00
33.90	2.00	0.00	0.00	0.09	0.00	33.95	2.00	0.00	0.00	0.05	0.00
34.04	2.00	0.00	0.00	0.09	0.00	34.14	2.00	0.00	0.00	0.10	0.00
34.17	2.00	0.00	0.00	0.02	0.00	34.20	2.00	0.00	0.00	0.04	0.00
34.26	2.00	0.00	0.00	0.05	0.00	34.35	2.00	0.00	0.00	0.09	0.00
34.43	2.00	0.00	0.00	0.08	0.00	34.49	2.00	0.00	0.00	0.06	0.00
34.59	2.00	0.00	0.00	0.09	0.00	34.69	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
34.73	2.00	0.00	0.00	0.05	0.00	34.83	2.00	0.00	0.00	0.10	0.00
34.90	2.00	0.00	0.00	0.07	0.00	34.98	2.00	0.00	0.00	0.08	0.00
35.07	2.00	0.00	0.00	0.09	0.00	35.16	2.00	0.00	0.00	0.10	0.00
35.26	2.00	0.00	0.00	0.10	0.00	35.33	2.00	0.00	0.00	0.07	0.00
35.40	2.00	0.00	0.00	0.07	0.00	35.50	2.00	0.00	0.00	0.10	0.00
35.57	2.00	0.00	0.00	0.06	0.00	35.65	2.00	0.00	0.00	0.08	0.00
35.71	2.00	0.00	0.00	0.06	0.00	35.79	2.00	0.00	0.00	0.09	0.00
35.85	2.00	0.00	0.00	0.06	0.00	35.94	2.00	0.00	0.00	0.08	0.00
35.99	2.00	0.00	0.00	0.06	0.00	36.08	2.00	0.00	0.00	0.08	0.00
36.17	2.00	0.00	0.00	0.10	0.00	36.24	2.00	0.00	0.00	0.07	0.00
36.33	2.00	0.00	0.00	0.08	0.00	36.42	2.00	0.00	0.00	0.09	0.00
36.52	2.00	0.00	0.00	0.10	0.00	36.61	2.00	0.00	0.00	0.09	0.00
36.70	2.00	0.00	0.00	0.09	0.00	36.78	2.00	0.00	0.00	0.08	0.00
36.85	2.00	0.00	0.00	0.07	0.00	36.87	2.00	0.00	0.00	0.01	0.00
36.91	2.00	0.00	0.00	0.05	0.00	36.97	2.00	0.00	0.00	0.06	0.00
37.06	2.00	0.00	0.00	0.09	0.00	37.12	2.00	0.00	0.00	0.06	0.00
37.20	2.00	0.00	0.00	0.08	0.00	37.27	2.00	0.00	0.00	0.08	0.00
37.35	2.00	0.00	0.00	0.07	0.00	37.44	2.00	0.00	0.00	0.09	0.00
37.49	2.00	0.00	0.00	0.05	0.00	37.59	2.00	0.00	0.00	0.10	0.00
37.64	2.00	0.00	0.00	0.05	0.00	37.70	2.00	0.00	0.00	0.07	0.00
37.78	2.00	0.00	0.00	0.08	0.00	37.83	2.00	0.00	0.00	0.05	0.00
37.92	2.00	0.00	0.00	0.09	0.00	37.97	2.00	0.00	0.00	0.05	0.00
38.07	1.52	0.00	0.00	0.09	0.00	38.14	1.59	0.00	0.00	0.07	0.00
38.22	1.67	0.00	0.00	0.08	0.00	38.31	1.79	0.00	0.00	0.09	0.00
38.41	1.96	0.00	0.00	0.09	0.00	38.52	2.00	0.00	0.00	0.11	0.00
38.64	2.00	0.00	0.00	0.13	0.00	38.74	2.00	0.00	0.00	0.10	0.00
38.80	2.00	0.00	0.00	0.06	0.00	38.89	2.00	0.00	0.00	0.08	0.00
38.94	2.00	0.00	0.00	0.05	0.00	39.03	2.00	0.00	0.00	0.09	0.00
39.13	2.00	0.00	0.00	0.10	0.00	39.23	2.00	0.00	0.00	0.10	0.00
39.35	2.00	0.00	0.00	0.12	0.00	39.42	2.00	0.00	0.00	0.07	0.00
39.51	1.93	0.00	0.00	0.09	0.00	39.60	1.73	0.00	0.00	0.09	0.00
39.70	1.58	0.00	0.00	0.10	0.00	39.78	1.45	0.00	0.00	0.07	0.00
39.90	1.34	0.00	0.00	0.12	0.00	39.99	1.24	0.00	0.00	0.09	0.00
40.09	2.00	0.00	0.00	0.10	0.00	40.18	2.00	0.00	0.00	0.09	0.00
40.23	2.00	0.00	0.00	0.05	0.00	40.33	2.00	0.00	0.00	0.10	0.00
40.43	2.00	0.00	0.00	0.10	0.00	40.52	2.00	0.00	0.00	0.09	0.00
40.61	2.00	0.00	0.00	0.08	0.00	40.69	2.00	0.00	0.00	0.09	0.00
40.80	2.00	0.00	0.00	0.10	0.00	40.87	2.00	0.00	0.00	0.08	0.00
40.95	2.00	0.00	0.00	0.08	0.00	40.97	2.00	0.00	0.00	0.02	0.00
41.01	2.00	0.00	0.00	0.04	0.00	41.07	2.00	0.00	0.00	0.06	0.00
41.15	2.00	0.00	0.00	0.08	0.00	41.26	0.74	0.00	0.00	0.11	0.03
41.35	0.76	0.00	0.00	0.09	0.02	41.47	0.78	0.00	0.00	0.12	0.03
41.59	0.79	0.00	0.00	0.12	0.03	41.69	0.80	0.00	0.00	0.10	0.02
41.78	0.83	0.00	0.00	0.09	0.02	41.88	2.00	0.00	0.00	0.10	0.00
41.98	2.00	0.00	0.00	0.10	0.00	42.08	2.00	0.00	0.00	0.10	0.00
42.16	2.00	0.00	0.00	0.08	0.00	42.24	2.00	0.00	0.00	0.08	0.00
42.31	2.00	0.00	0.00	0.07	0.00	42.45	0.80	0.00	0.00	0.14	0.03
42.55	0.80	0.00	0.00	0.09	0.02	42.60	0.80	0.00	0.00	0.05	0.01

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
42.70	0.82	0.00	0.00	0.10	0.02	42.81	0.85	0.00	0.00	0.11	0.02
42.89	2.00	0.00	0.00	0.08	0.00	42.98	2.00	0.00	0.00	0.10	0.00
43.08	2.00	0.00	0.00	0.10	0.00	43.17	2.00	0.00	0.00	0.09	0.00
43.27	2.00	0.00	0.00	0.10	0.00	43.37	2.00	0.00	0.00	0.09	0.00
43.50	2.00	0.00	0.00	0.14	0.00	43.61	0.59	0.00	0.00	0.10	0.04
43.74	0.60	0.00	0.00	0.13	0.06	43.79	0.63	0.00	0.00	0.05	0.02
43.86	2.00	0.00	0.00	0.07	0.00	43.94	2.00	0.00	0.00	0.07	0.00
44.00	2.00	0.00	0.00	0.06	0.00	44.08	2.00	0.00	0.00	0.08	0.00
44.17	2.00	0.00	0.00	0.09	0.00	44.27	2.00	0.00	0.00	0.10	0.00
44.42	2.00	0.00	0.00	0.14	0.00	44.52	2.00	0.00	0.00	0.10	0.00
44.61	2.00	0.00	0.00	0.10	0.00	44.71	0.67	0.00	0.00	0.09	0.03
44.85	0.67	0.00	0.00	0.14	0.05	44.95	0.71	0.00	0.00	0.10	0.03
45.09	0.76	0.00	0.00	0.14	0.03	45.19	2.00	0.00	0.00	0.10	0.00
45.33	2.00	0.00	0.00	0.14	0.00	45.42	2.00	0.00	0.00	0.10	0.00
45.57	2.00	0.00	0.00	0.14	0.00	45.68	2.00	0.00	0.00	0.11	0.00
45.81	2.00	0.00	0.00	0.14	0.00	45.92	2.00	0.00	0.00	0.11	0.00
46.05	2.00	0.00	0.00	0.13	0.00	46.16	2.00	0.00	0.00	0.10	0.00
46.17	2.00	0.00	0.00	0.01	0.00	46.23	2.00	0.00	0.00	0.06	0.00
46.29	2.00	0.00	0.00	0.05	0.00	46.34	2.00	0.00	0.00	0.05	0.00
46.42	2.00	0.00	0.00	0.09	0.00	46.48	2.00	0.00	0.00	0.05	0.00
46.52	2.00	0.00	0.00	0.05	0.00	46.60	2.00	0.00	0.00	0.08	0.00
46.67	2.00	0.00	0.00	0.07	0.00	46.74	2.00	0.00	0.00	0.07	0.00
46.82	2.00	0.00	0.00	0.08	0.00	46.88	2.00	0.00	0.00	0.06	0.00
46.96	2.00	0.00	0.00	0.09	0.00	47.06	2.00	0.00	0.00	0.09	0.00
47.15	2.00	0.00	0.00	0.10	0.00	47.24	2.00	0.00	0.00	0.09	0.00
47.35	2.00	0.00	0.00	0.10	0.00	47.49	2.00	0.00	0.00	0.14	0.00
47.58	2.00	0.00	0.00	0.09	0.00	47.73	2.00	0.00	0.00	0.15	0.00
47.83	2.00	0.00	0.00	0.10	0.00	47.87	2.00	0.00	0.00	0.04	0.00
47.89	2.00	0.00	0.00	0.02	0.00	47.94	2.00	0.00	0.00	0.05	0.00
48.02	2.00	0.00	0.00	0.08	0.00	48.07	2.00	0.00	0.00	0.05	0.00
48.12	2.00	0.00	0.00	0.05	0.00	48.18	2.00	0.00	0.00	0.06	0.00
48.26	2.00	0.00	0.00	0.08	0.00	48.31	2.00	0.00	0.00	0.06	0.00
48.38	2.00	0.00	0.00	0.06	0.00	48.46	2.00	0.00	0.00	0.08	0.00
48.52	2.00	0.00	0.00	0.06	0.00	48.60	2.00	0.00	0.00	0.08	0.00
48.68	2.00	0.00	0.00	0.08	0.00	48.74	2.00	0.00	0.00	0.06	0.00
48.82	2.00	0.00	0.00	0.08	0.00	48.89	2.00	0.00	0.00	0.07	0.00
48.99	2.00	0.00	0.00	0.10	0.00	49.05	2.00	0.00	0.00	0.06	0.00
49.12	2.00	0.00	0.00	0.08	0.00	49.18	2.00	0.00	0.00	0.06	0.00
49.27	2.00	0.00	0.00	0.09	0.00	49.32	2.00	0.00	0.00	0.05	0.00
49.42	2.00	0.00	0.00	0.09	0.00	49.48	2.00	0.00	0.00	0.06	0.00
49.56	2.00	0.00	0.00	0.09	0.00	49.66	2.00	0.00	0.00	0.10	0.00
49.76	2.00	0.00	0.00	0.09	0.00	49.85	2.00	0.00	0.00	0.09	0.00
49.99	2.00	0.00	0.00	0.14	0.00	50.09	2.00	0.00	0.00	0.10	0.00
50.21	2.00	0.00	0.00	0.12	0.00	50.24	2.00	0.00	0.00	0.03	0.00
50.29	2.00	0.00	0.00	0.05	0.00	50.38	2.00	0.00	0.00	0.09	0.00
50.47	2.00	0.00	0.00	0.09	0.00	50.52	2.00	0.00	0.00	0.05	0.00
50.62	2.00	0.00	0.00	0.10	0.00	50.66	2.00	0.00	0.00	0.05	0.00
50.76	2.00	0.00	0.00	0.10	0.00	50.83	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
50.91	2.00	0.00	0.00	0.09	0.00	51.00	2.00	0.00	0.00	0.09	0.00
51.06	2.00	0.00	0.00	0.06	0.00	51.15	2.00	0.00	0.00	0.08	0.00
51.24	2.00	0.00	0.00	0.10	0.00	51.31	2.00	0.00	0.00	0.07	0.00
51.39	2.00	0.00	0.00	0.08	0.00	51.48	2.00	0.00	0.00	0.09	0.00
51.58	2.00	0.00	0.00	0.10	0.00	51.68	2.00	0.00	0.00	0.10	0.00
51.77	2.00	0.00	0.00	0.10	0.00	51.90	2.00	0.00	0.00	0.13	0.00
52.01	2.00	0.00	0.00	0.11	0.00	52.11	2.00	0.00	0.00	0.10	0.00
52.26	2.00	0.00	0.00	0.14	0.00	52.30	2.00	0.00	0.00	0.05	0.00
52.33	2.00	0.00	0.00	0.03	0.00	52.35	2.00	0.00	0.00	0.02	0.00
52.40	2.00	0.00	0.00	0.05	0.00	52.45	2.00	0.00	0.00	0.05	0.00
52.50	2.00	0.00	0.00	0.05	0.00	52.55	2.00	0.00	0.00	0.05	0.00
52.60	2.00	0.00	0.00	0.05	0.00	52.65	2.00	0.00	0.00	0.05	0.00
52.71	2.00	0.00	0.00	0.07	0.00	52.77	2.00	0.00	0.00	0.05	0.00
52.82	2.00	0.00	0.00	0.05	0.00	52.88	2.00	0.00	0.00	0.06	0.00
52.93	2.00	0.00	0.00	0.06	0.00	52.98	2.00	0.00	0.00	0.05	0.00
53.03	2.00	0.00	0.00	0.05	0.00	53.08	2.00	0.00	0.00	0.05	0.00
53.12	2.00	0.00	0.00	0.04	0.00	53.17	2.00	0.00	0.00	0.05	0.00
53.23	2.00	0.00	0.00	0.05	0.00	53.28	2.00	0.00	0.00	0.06	0.00
53.37	2.00	0.00	0.00	0.09	0.00	53.42	2.00	0.00	0.00	0.05	0.00
53.46	2.00	0.00	0.00	0.05	0.00	53.53	2.00	0.00	0.00	0.06	0.00
53.61	2.00	0.00	0.00	0.08	0.00	53.62	2.00	0.00	0.00	0.01	0.00
53.65	2.00	0.00	0.00	0.04	0.00	53.67	2.00	0.00	0.00	0.01	0.00
53.70	2.00	0.00	0.00	0.04	0.00	53.74	2.00	0.00	0.00	0.04	0.00
53.76	2.00	0.00	0.00	0.02	0.00	53.80	2.00	0.00	0.00	0.04	0.00
53.84	2.00	0.00	0.00	0.05	0.00	53.90	2.00	0.00	0.00	0.05	0.00
53.91	2.00	0.00	0.00	0.01	0.00	53.95	2.00	0.00	0.00	0.04	0.00
53.96	2.00	0.00	0.00	0.01	0.00	53.98	2.00	0.00	0.00	0.02	0.00
53.99	2.00	0.00	0.00	0.01	0.00	54.01	2.00	0.00	0.00	0.01	0.00
54.02	2.00	0.00	0.00	0.01	0.00	54.03	2.00	0.00	0.00	0.01	0.00
54.04	2.00	0.00	0.00	0.01	0.00	54.05	2.00	0.00	0.00	0.01	0.00
54.09	2.00	0.00	0.00	0.04	0.00	54.10	2.00	0.00	0.00	0.01	0.00
54.13	2.00	0.00	0.00	0.04	0.00	54.14	2.00	0.00	0.00	0.01	0.00
54.19	2.00	0.00	0.00	0.05	0.00	54.19	2.00	0.00	0.00	0.01	0.00
54.24	2.00	0.00	0.00	0.05	0.00	54.29	2.00	0.00	0.00	0.04	0.00
54.33	2.00	0.00	0.00	0.05	0.00	54.38	2.00	0.00	0.00	0.05	0.00
54.39	2.00	0.00	0.00	0.01	0.00	54.43	2.00	0.00	0.00	0.04	0.00
54.48	2.00	0.00	0.00	0.05	0.00	54.52	2.00	0.00	0.00	0.05	0.00
54.58	2.00	0.00	0.00	0.05	0.00	54.62	2.00	0.00	0.00	0.04	0.00
54.65	2.00	0.00	0.00	0.03	0.00	54.67	2.00	0.00	0.00	0.02	0.00
54.71	2.00	0.00	0.00	0.04	0.00	54.77	2.00	0.00	0.00	0.05	0.00
54.81	2.00	0.00	0.00	0.05	0.00	54.85	2.00	0.00	0.00	0.04	0.00
54.86	2.00	0.00	0.00	0.01	0.00	54.87	2.00	0.00	0.00	0.01	0.00
54.91	2.00	0.00	0.00	0.04	0.00	54.96	2.00	0.00	0.00	0.04	0.00
55.00	2.00	0.00	0.00	0.04	0.00	55.01	2.00	0.00	0.00	0.01	0.00
55.05	2.00	0.00	0.00	0.05	0.00	55.10	2.00	0.00	0.00	0.05	0.00
55.12	2.00	0.00	0.00	0.01	0.00	55.13	2.00	0.00	0.00	0.02	0.00
55.14	2.00	0.00	0.00	0.01	0.00	55.19	2.00	0.00	0.00	0.05	0.00
55.20	2.00	0.00	0.00	0.01	0.00	55.25	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
55.29	2.00	0.00	0.00	0.04	0.00	55.33	2.00	0.00	0.00	0.04	0.00
55.38	2.00	0.00	0.00	0.05	0.00	55.48	2.00	0.00	0.00	0.10	0.00
55.57	2.00	0.00	0.00	0.09	0.00	55.63	2.00	0.00	0.00	0.05	0.00
55.72	2.00	0.00	0.00	0.10	0.00	55.80	2.00	0.00	0.00	0.08	0.00
55.86	2.00	0.00	0.00	0.06	0.00	55.97	2.00	0.00	0.00	0.10	0.00
56.01	2.00	0.00	0.00	0.05	0.00	56.06	2.00	0.00	0.00	0.05	0.00
56.11	2.00	0.00	0.00	0.05	0.00	56.15	2.00	0.00	0.00	0.04	0.00
56.20	2.00	0.00	0.00	0.05	0.00	56.27	2.00	0.00	0.00	0.06	0.00
56.27	2.00	0.00	0.00	0.01	0.00	56.30	2.00	0.00	0.00	0.03	0.00
56.33	2.00	0.00	0.00	0.03	0.00	56.35	2.00	0.00	0.00	0.01	0.00
56.40	2.00	0.00	0.00	0.05	0.00	56.41	2.00	0.00	0.00	0.01	0.00
56.44	2.00	0.00	0.00	0.04	0.00	56.49	2.00	0.00	0.00	0.05	0.00
56.54	2.00	0.00	0.00	0.04	0.00	56.58	2.00	0.00	0.00	0.05	0.00
56.59	2.00	0.00	0.00	0.01	0.00	56.64	2.00	0.00	0.00	0.05	0.00
56.69	2.00	0.00	0.00	0.05	0.00	56.73	2.00	0.00	0.00	0.04	0.00
56.78	2.00	0.00	0.00	0.05	0.00	56.83	2.00	0.00	0.00	0.05	0.00
56.88	2.00	0.00	0.00	0.05	0.00	56.89	2.00	0.00	0.00	0.02	0.00
56.95	2.00	0.00	0.00	0.06	0.00	57.01	2.00	0.00	0.00	0.06	0.00
57.07	2.00	0.00	0.00	0.06	0.00	57.11	2.00	0.00	0.00	0.05	0.00
57.17	2.00	0.00	0.00	0.06	0.00	57.26	2.00	0.00	0.00	0.09	0.00
57.31	2.00	0.00	0.00	0.05	0.00	57.37	2.00	0.00	0.00	0.06	0.00
57.45	2.00	0.00	0.00	0.08	0.00	57.51	1.75	0.00	0.00	0.06	0.00
57.53	1.50	0.00	0.00	0.02	0.00	57.59	1.35	0.00	0.00	0.05	0.00
57.63	1.33	0.00	0.00	0.05	0.00	57.68	1.28	0.00	0.00	0.05	0.00
57.73	1.24	0.00	0.00	0.05	0.00	57.78	1.19	0.00	0.00	0.05	0.00
57.86	1.08	0.00	0.00	0.08	0.00	57.92	2.00	0.00	0.00	0.06	0.00
57.98	2.00	0.00	0.00	0.06	0.00	58.06	2.00	0.00	0.00	0.08	0.00
58.12	2.00	0.00	0.00	0.05	0.00	58.21	2.00	0.00	0.00	0.09	0.00
58.26	2.00	0.00	0.00	0.05	0.00	58.35	2.00	0.00	0.00	0.09	0.00
58.41	2.00	0.00	0.00	0.06	0.00	58.50	2.00	0.00	0.00	0.09	0.00
58.56	2.00	0.00	0.00	0.06	0.00	58.64	2.00	0.00	0.00	0.08	0.00
58.73	2.00	0.00	0.00	0.09	0.00	58.80	2.00	0.00	0.00	0.07	0.00
58.84	2.00	0.00	0.00	0.03	0.00	58.85	2.00	0.00	0.00	0.01	0.00
58.93	2.00	0.00	0.00	0.08	0.00	58.98	2.00	0.00	0.00	0.05	0.00
59.02	2.00	0.00	0.00	0.05	0.00	59.12	2.00	0.00	0.00	0.10	0.00
59.17	2.00	0.00	0.00	0.05	0.00	59.27	2.00	0.00	0.00	0.09	0.00
59.31	2.00	0.00	0.00	0.05	0.00	59.41	2.00	0.00	0.00	0.09	0.00
59.46	2.00	0.00	0.00	0.05	0.00	59.55	2.00	0.00	0.00	0.09	0.00
59.65	2.00	0.00	0.00	0.10	0.00	59.70	2.00	0.00	0.00	0.05	0.00
59.80	2.00	0.00	0.00	0.10	0.00	59.89	2.00	0.00	0.00	0.09	0.00
59.94	2.00	0.00	0.00	0.05	0.00	60.01	2.00	0.00	0.00	0.07	0.00
60.02	2.00	0.00	0.00	0.02	0.00	60.08	2.00	0.00	0.00	0.05	0.00
60.12	2.00	0.00	0.00	0.04	0.00	60.17	2.00	0.00	0.00	0.05	0.00
60.27	2.00	0.00	0.00	0.10	0.00	60.31	2.00	0.00	0.00	0.04	0.00
60.37	2.00	0.00	0.00	0.06	0.00	60.46	2.00	0.00	0.00	0.09	0.00
60.51	2.00	0.00	0.00	0.05	0.00	60.61	2.00	0.00	0.00	0.10	0.00
60.65	2.00	0.00	0.00	0.05	0.00	60.75	2.00	0.00	0.00	0.10	0.00
60.81	2.00	0.00	0.00	0.05	0.00	60.89	2.00	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
60.94	2.00	0.00	0.00	0.05	0.00	61.03	2.00	0.00	0.00	0.09	0.00
61.09	2.00	0.00	0.00	0.06	0.00	61.19	2.00	0.00	0.00	0.09	0.00
61.24	2.00	0.00	0.00	0.06	0.00	61.33	2.00	0.00	0.00	0.08	0.00
61.38	2.00	0.00	0.00	0.05	0.00	61.47	2.00	0.00	0.00	0.10	0.00
61.53	2.00	0.00	0.00	0.06	0.00	61.62	2.00	0.00	0.00	0.09	0.00
61.70	2.00	0.00	0.00	0.09	0.00	61.77	2.00	0.00	0.00	0.06	0.00
61.86	2.00	0.00	0.00	0.09	0.00	61.95	2.00	0.00	0.00	0.10	0.00
61.97	2.00	0.00	0.00	0.02	0.00	62.01	2.00	0.00	0.00	0.04	0.00
62.10	2.00	0.00	0.00	0.09	0.00	62.24	2.00	0.00	0.00	0.14	0.00
62.34	2.00	0.00	0.00	0.10	0.00	62.49	2.00	0.00	0.00	0.14	0.00
62.54	2.00	0.00	0.00	0.05	0.00	62.66	2.00	0.00	0.00	0.12	0.00
62.74	2.00	0.00	0.00	0.08	0.00	62.87	2.00	0.00	0.00	0.13	0.00
62.92	2.00	0.00	0.00	0.05	0.00	63.03	2.00	0.00	0.00	0.11	0.00
63.15	2.00	0.00	0.00	0.12	0.00	63.26	2.00	0.00	0.00	0.11	0.00
63.37	2.00	0.00	0.00	0.11	0.00	63.45	2.00	0.00	0.00	0.08	0.00
63.54	2.00	0.00	0.00	0.10	0.00	63.61	2.00	0.00	0.00	0.07	0.00
63.69	2.00	0.00	0.00	0.08	0.00	63.79	2.00	0.00	0.00	0.09	0.00
63.89	2.00	0.00	0.00	0.10	0.00	63.98	2.00	0.00	0.00	0.09	0.00
64.07	2.00	0.00	0.00	0.09	0.00	64.15	2.00	0.00	0.00	0.08	0.00
64.23	2.00	0.00	0.00	0.08	0.00	64.26	2.00	0.00	0.00	0.03	0.00
64.29	2.00	0.00	0.00	0.02	0.00	64.33	2.00	0.00	0.00	0.05	0.00
64.43	2.00	0.00	0.00	0.10	0.00	64.47	2.00	0.00	0.00	0.04	0.00
64.53	2.00	0.00	0.00	0.05	0.00	64.62	2.00	0.00	0.00	0.10	0.00
64.72	2.00	0.00	0.00	0.09	0.00	64.78	2.00	0.00	0.00	0.06	0.00
64.86	2.00	0.00	0.00	0.09	0.00	64.96	2.00	0.00	0.00	0.10	0.00
65.06	2.00	0.00	0.00	0.09	0.00	65.11	2.00	0.00	0.00	0.05	0.00
65.21	2.00	0.00	0.00	0.10	0.00	65.31	2.00	0.00	0.00	0.10	0.00
65.40	2.00	0.00	0.00	0.09	0.00	65.50	2.00	0.00	0.00	0.10	0.00
65.58	2.00	0.00	0.00	0.09	0.00	65.68	2.00	0.00	0.00	0.10	0.00
65.78	2.00	0.00	0.00	0.10	0.00	65.84	2.00	0.00	0.00	0.07	0.00
65.86	2.00	0.00	0.00	0.01	0.00	65.87	2.00	0.00	0.00	0.01	0.00
65.98	2.00	0.00	0.00	0.11	0.00	66.10	2.00	0.00	0.00	0.12	0.00
66.21	2.00	0.00	0.00	0.11	0.00	66.34	2.00	0.00	0.00	0.13	0.00
66.48	2.00	0.00	0.00	0.14	0.00	66.62	2.00	0.00	0.00	0.14	0.00
66.68	2.00	0.00	0.00	0.06	0.00	66.87	2.00	0.00	0.00	0.19	0.00
66.96	2.00	0.00	0.00	0.09	0.00	67.11	2.00	0.00	0.00	0.15	0.00
67.21	2.00	0.00	0.00	0.10	0.00	67.35	2.00	0.00	0.00	0.14	0.00
67.45	2.00	0.00	0.00	0.10	0.00	67.59	2.00	0.00	0.00	0.14	0.00
67.68	2.00	0.00	0.00	0.09	0.00	67.83	2.00	0.00	0.00	0.15	0.00
67.92	2.00	0.00	0.00	0.10	0.00	68.02	2.00	0.00	0.00	0.09	0.00
68.07	2.00	0.00	0.00	0.05	0.00	68.16	2.00	0.00	0.00	0.09	0.00
68.26	2.00	0.00	0.00	0.10	0.00	68.35	2.00	0.00	0.00	0.09	0.00
68.45	2.00	0.00	0.00	0.10	0.00	68.55	2.00	0.00	0.00	0.10	0.00
68.65	2.00	0.00	0.00	0.10	0.00	68.78	2.00	0.00	0.00	0.13	0.00
68.78	2.00	0.00	0.00	0.01	0.00	68.79	2.00	0.00	0.00	0.01	0.00
68.83	2.00	0.00	0.00	0.04	0.00	68.93	2.00	0.00	0.00	0.09	0.00
68.98	2.00	0.00	0.00	0.05	0.00	69.04	2.00	0.00	0.00	0.06	0.00
69.12	2.00	0.00	0.00	0.08	0.00	69.22	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
69.28	2.00	0.00	0.00	0.07	0.00	69.36	2.00	0.00	0.00	0.08	0.00
69.45	2.00	0.00	0.00	0.09	0.00	69.60	2.00	0.00	0.00	0.14	0.00
69.70	2.00	0.00	0.00	0.10	0.00	69.80	2.00	0.00	0.00	0.09	0.00
69.89	2.00	0.00	0.00	0.10	0.00	69.98	2.00	0.00	0.00	0.09	0.00
70.08	2.00	0.00	0.00	0.10	0.00	70.18	2.00	0.00	0.00	0.10	0.00
70.32	2.00	0.00	0.00	0.14	0.00	70.42	2.00	0.00	0.00	0.10	0.00
70.54	2.00	0.00	0.00	0.12	0.00	70.66	2.00	0.00	0.00	0.12	0.00
70.75	2.00	0.00	0.00	0.09	0.00	70.80	2.00	0.00	0.00	0.05	0.00
70.89	2.00	0.00	0.00	0.09	0.00	70.99	2.00	0.00	0.00	0.10	0.00
71.08	2.00	0.00	0.00	0.09	0.00	71.17	2.00	0.00	0.00	0.09	0.00
71.23	2.00	0.00	0.00	0.05	0.00	71.33	2.00	0.00	0.00	0.10	0.00
71.42	2.00	0.00	0.00	0.09	0.00	71.52	2.00	0.00	0.00	0.10	0.00
71.58	2.00	0.00	0.00	0.06	0.00	71.67	2.00	0.00	0.00	0.08	0.00
71.81	2.00	0.00	0.00	0.14	0.00	71.82	2.00	0.00	0.00	0.01	0.00
71.86	2.00	0.00	0.00	0.04	0.00	71.91	2.00	0.00	0.00	0.05	0.00
71.97	2.00	0.00	0.00	0.06	0.00	72.05	2.00	0.00	0.00	0.08	0.00
72.10	2.00	0.00	0.00	0.05	0.00	72.20	2.00	0.00	0.00	0.10	0.00
72.25	2.00	0.00	0.00	0.05	0.00	72.34	2.00	0.00	0.00	0.10	0.00
72.44	2.00	0.00	0.00	0.10	0.00	72.53	2.00	0.00	0.00	0.09	0.00
72.63	2.00	0.00	0.00	0.10	0.00	72.69	2.00	0.00	0.00	0.06	0.00
72.82	2.00	0.00	0.00	0.13	0.00	72.92	2.00	0.00	0.00	0.09	0.00
73.06	2.00	0.00	0.00	0.14	0.00	73.16	2.00	0.00	0.00	0.10	0.00
73.30	2.00	0.00	0.00	0.14	0.00	73.35	2.00	0.00	0.00	0.05	0.00
73.38	2.00	0.00	0.00	0.03	0.00	73.47	2.00	0.00	0.00	0.09	0.00
73.53	2.00	0.00	0.00	0.06	0.00	73.62	2.00	0.00	0.00	0.09	0.00
73.71	2.00	0.00	0.00	0.09	0.00	73.77	2.00	0.00	0.00	0.06	0.00
73.86	2.00	0.00	0.00	0.09	0.00	73.96	2.00	0.00	0.00	0.09	0.00
74.06	2.00	0.00	0.00	0.10	0.00	74.13	2.00	0.00	0.00	0.07	0.00
74.24	2.00	0.00	0.00	0.11	0.00	74.34	2.00	0.00	0.00	0.10	0.00
74.44	2.00	0.00	0.00	0.10	0.00	74.58	2.00	0.00	0.00	0.14	0.00
74.68	2.00	0.00	0.00	0.10	0.00	74.80	2.00	0.00	0.00	0.13	0.00
74.92	2.00	0.00	0.00	0.12	0.00	75.07	2.00	0.00	0.00	0.14	0.00
75.08	2.00	0.00	0.00	0.01	0.00	75.11	2.00	0.00	0.00	0.03	0.00
75.16	2.00	0.00	0.00	0.05	0.00	75.25	2.00	0.00	0.00	0.09	0.00
75.32	2.00	0.00	0.00	0.07	0.00	75.40	2.00	0.00	0.00	0.08	0.00
75.50	2.00	0.00	0.00	0.10	0.00	75.59	2.00	0.00	0.00	0.09	0.00
75.69	2.00	0.00	0.00	0.10	0.00	75.78	2.00	0.00	0.00	0.09	0.00
75.88	2.00	0.00	0.00	0.09	0.00	75.96	2.00	0.00	0.00	0.09	0.00
76.05	2.00	0.00	0.00	0.08	0.00	76.14	2.00	0.00	0.00	0.09	0.00
76.26	2.00	0.00	0.00	0.12	0.00	76.36	2.00	0.00	0.00	0.10	0.00
76.41	2.00	0.00	0.00	0.05	0.00	76.51	2.00	0.00	0.00	0.10	0.00
76.65	2.00	0.00	0.00	0.14	0.00	76.72	2.00	0.00	0.00	0.07	0.00
76.79	2.00	0.00	0.00	0.07	0.00	76.89	2.00	0.00	0.00	0.10	0.00
76.98	2.00	0.00	0.00	0.09	0.00	77.08	2.00	0.00	0.00	0.10	0.00
77.18	2.00	0.00	0.00	0.10	0.00	77.28	2.00	0.00	0.00	0.10	0.00
77.37	2.00	0.00	0.00	0.10	0.00	77.42	2.00	0.00	0.00	0.04	0.00
77.42	2.00	0.00	0.00	0.01	0.00	77.44	2.00	0.00	0.00	0.01	0.00
77.48	2.00	0.00	0.00	0.04	0.00	77.52	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
77.54	2.00	0.00	0.00	0.02	0.00	77.57	2.00	0.00	0.00	0.03	0.00
77.62	2.00	0.00	0.00	0.05	0.00	77.65	2.00	0.00	0.00	0.04	0.00
77.67	2.00	0.00	0.00	0.01	0.00	77.71	2.00	0.00	0.00	0.04	0.00
77.71	2.00	0.00	0.00	0.01	0.00	77.76	2.00	0.00	0.00	0.05	0.00
77.81	2.00	0.00	0.00	0.05	0.00	77.90	2.00	0.00	0.00	0.09	0.00
77.95	2.00	0.00	0.00	0.05	0.00	78.01	2.00	0.00	0.00	0.06	0.00
78.10	2.00	0.00	0.00	0.09	0.00	78.16	2.00	0.00	0.00	0.06	0.00
78.24	2.00	0.00	0.00	0.08	0.00	78.29	2.00	0.00	0.00	0.05	0.00
78.39	2.00	0.00	0.00	0.10	0.00	78.47	2.00	0.00	0.00	0.08	0.00
78.53	2.00	0.00	0.00	0.06	0.00	78.62	2.00	0.00	0.00	0.09	0.00
78.68	2.00	0.00	0.00	0.05	0.00	78.69	2.00	0.00	0.00	0.01	0.00
78.78	2.00	0.00	0.00	0.09	0.00	78.81	2.00	0.00	0.00	0.04	0.00
78.92	2.00	0.00	0.00	0.11	0.00	79.03	2.00	0.00	0.00	0.11	0.00
79.16	2.00	0.00	0.00	0.13	0.00	79.26	2.00	0.00	0.00	0.10	0.00
79.35	2.00	0.00	0.00	0.09	0.00	79.45	2.00	0.00	0.00	0.10	0.00
79.54	2.00	0.00	0.00	0.09	0.00	79.64	2.00	0.00	0.00	0.10	0.00
79.74	2.00	0.00	0.00	0.10	0.00	79.88	2.00	0.00	0.00	0.14	0.00
79.98	2.00	0.00	0.00	0.10	0.00	80.12	2.00	0.00	0.00	0.14	0.00
80.22	2.00	0.00	0.00	0.09	0.00	80.36	2.00	0.00	0.00	0.14	0.00
80.46	2.00	0.00	0.00	0.10	0.00	80.60	2.00	0.00	0.00	0.14	0.00
80.70	2.00	0.00	0.00	0.10	0.00	80.83	2.00	0.00	0.00	0.13	0.00
80.94	2.00	0.00	0.00	0.11	0.00	81.01	2.00	0.00	0.00	0.07	0.00
81.04	2.00	0.00	0.00	0.03	0.00	81.09	2.00	0.00	0.00	0.06	0.00
81.13	2.00	0.00	0.00	0.04	0.00	81.18	2.00	0.00	0.00	0.05	0.00
81.23	2.00	0.00	0.00	0.05	0.00	81.28	2.00	0.00	0.00	0.05	0.00
81.33	2.00	0.00	0.00	0.05	0.00	81.37	2.00	0.00	0.00	0.05	0.00
81.42	2.00	0.00	0.00	0.04	0.00	81.47	2.00	0.00	0.00	0.05	0.00
81.52	2.00	0.00	0.00	0.05	0.00	81.56	2.00	0.00	0.00	0.05	0.00
81.61	2.00	0.00	0.00	0.04	0.00	81.64	2.00	0.00	0.00	0.04	0.00
81.70	2.00	0.00	0.00	0.06	0.00	81.75	2.00	0.00	0.00	0.05	0.00
81.79	2.00	0.00	0.00	0.04	0.00	81.82	2.00	0.00	0.00	0.03	0.00
81.86	2.00	0.00	0.00	0.04	0.00	81.91	2.00	0.00	0.00	0.05	0.00
81.95	2.00	0.00	0.00	0.04	0.00	82.00	2.00	0.00	0.00	0.05	0.00
82.09	2.00	0.00	0.00	0.09	0.00	82.15	2.00	0.00	0.00	0.06	0.00
82.19	2.00	0.00	0.00	0.04	0.00	82.26	2.00	0.00	0.00	0.07	0.00
82.34	2.00	0.00	0.00	0.08	0.00	82.39	2.00	0.00	0.00	0.05	0.00
82.48	2.00	0.00	0.00	0.10	0.00	82.58	2.00	0.00	0.00	0.09	0.00
82.62	2.00	0.00	0.00	0.04	0.00	82.70	2.00	0.00	0.00	0.08	0.00
82.77	2.00	0.00	0.00	0.07	0.00	82.87	2.00	0.00	0.00	0.10	0.00
82.96	2.00	0.00	0.00	0.09	0.00	83.06	2.00	0.00	0.00	0.10	0.00
83.16	2.00	0.00	0.00	0.10	0.00	83.25	2.00	0.00	0.00	0.09	0.00
83.34	2.00	0.00	0.00	0.09	0.00	83.44	2.00	0.00	0.00	0.10	0.00
83.54	2.00	0.00	0.00	0.10	0.00	83.64	2.00	0.00	0.00	0.09	0.00
83.73	2.00	0.00	0.00	0.10	0.00	83.83	2.00	0.00	0.00	0.09	0.00
83.85	2.00	0.00	0.00	0.02	0.00	83.89	2.00	0.00	0.00	0.04	0.00
83.94	2.00	0.00	0.00	0.05	0.00	84.04	2.00	0.00	0.00	0.10	0.00
84.09	2.00	0.00	0.00	0.05	0.00	84.13	2.00	0.00	0.00	0.04	0.00
84.18	2.00	0.00	0.00	0.05	0.00	84.25	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
84.33	2.00	0.00	0.00	0.08	0.00	84.37	2.00	0.00	0.00	0.05	0.00
84.46	2.00	0.00	0.00	0.08	0.00	84.52	2.00	0.00	0.00	0.06	0.00
84.57	2.00	0.00	0.00	0.05	0.00	84.67	2.00	0.00	0.00	0.10	0.00
84.71	2.00	0.00	0.00	0.04	0.00	84.81	2.00	0.00	0.00	0.10	0.00
84.86	2.00	0.00	0.00	0.05	0.00	84.91	2.00	0.00	0.00	0.06	0.00
85.00	2.00	0.00	0.00	0.09	0.00	85.05	2.00	0.00	0.00	0.05	0.00
85.15	2.00	0.00	0.00	0.10	0.00	85.19	2.00	0.00	0.00	0.05	0.00
85.29	2.00	0.00	0.00	0.10	0.00	85.35	2.00	0.00	0.00	0.06	0.00
85.42	2.00	0.00	0.00	0.07	0.00	85.48	2.00	0.00	0.00	0.06	0.00
85.55	2.00	0.00	0.00	0.06	0.00	85.63	2.00	0.00	0.00	0.08	0.00
85.68	2.00	0.00	0.00	0.05	0.00	85.77	2.00	0.00	0.00	0.09	0.00
85.82	2.00	0.00	0.00	0.05	0.00	85.89	2.00	0.00	0.00	0.07	0.00
85.96	2.00	0.00	0.00	0.08	0.00	86.03	2.00	0.00	0.00	0.07	0.00
86.11	2.00	0.00	0.00	0.07	0.00	86.16	2.00	0.00	0.00	0.06	0.00
86.25	2.00	0.00	0.00	0.09	0.00	86.36	2.00	0.00	0.00	0.11	0.00
86.50	2.00	0.00	0.00	0.14	0.00	86.51	2.00	0.00	0.00	0.01	0.00
86.52	2.00	0.00	0.00	0.01	0.00	86.57	2.00	0.00	0.00	0.05	0.00
86.65	2.00	0.00	0.00	0.09	0.00	86.71	2.00	0.00	0.00	0.06	0.00
86.80	2.00	0.00	0.00	0.09	0.00	86.90	2.00	0.00	0.00	0.09	0.00
86.99	2.00	0.00	0.00	0.09	0.00	87.04	2.00	0.00	0.00	0.05	0.00
87.14	2.00	0.00	0.00	0.09	0.00	87.19	2.00	0.00	0.00	0.06	0.00
87.28	2.00	0.00	0.00	0.09	0.00	87.38	2.00	0.00	0.00	0.09	0.00
87.43	2.00	0.00	0.00	0.06	0.00	87.52	2.00	0.00	0.00	0.09	0.00
87.61	2.00	0.00	0.00	0.09	0.00	87.66	2.00	0.00	0.00	0.05	0.00
87.76	2.00	0.00	0.00	0.10	0.00	87.84	2.00	0.00	0.00	0.08	0.00
87.91	2.00	0.00	0.00	0.07	0.00	88.00	2.00	0.00	0.00	0.09	0.00
88.11	2.00	0.00	0.00	0.11	0.00	88.19	2.00	0.00	0.00	0.08	0.00
88.25	2.00	0.00	0.00	0.06	0.00	88.34	2.00	0.00	0.00	0.09	0.00
88.44	2.00	0.00	0.00	0.10	0.00	88.54	2.00	0.00	0.00	0.11	0.00
88.64	2.00	0.00	0.00	0.10	0.00	88.72	2.00	0.00	0.00	0.09	0.00
88.82	2.00	0.00	0.00	0.10	0.00	88.91	2.00	0.00	0.00	0.09	0.00
89.01	2.00	0.00	0.00	0.10	0.00	89.10	2.00	0.00	0.00	0.09	0.00
89.19	2.00	0.00	0.00	0.09	0.00	89.30	2.00	0.00	0.00	0.11	0.00
89.39	2.00	0.00	0.00	0.09	0.00	89.49	2.00	0.00	0.00	0.10	0.00
89.59	2.00	0.00	0.00	0.09	0.00	89.69	2.00	0.00	0.00	0.10	0.00
89.73	2.00	0.00	0.00	0.05	0.00	89.78	2.00	0.00	0.00	0.04	0.00
89.83	2.00	0.00	0.00	0.06	0.00	89.88	2.00	0.00	0.00	0.05	0.00
89.93	2.00	0.00	0.00	0.05	0.00	90.00	2.00	0.00	0.00	0.07	0.00
90.07	2.00	0.00	0.00	0.08	0.00	90.12	2.00	0.00	0.00	0.05	0.00
90.22	2.00	0.00	0.00	0.09	0.00	90.27	2.00	0.00	0.00	0.05	0.00
90.36	2.00	0.00	0.00	0.09	0.00	90.46	2.00	0.00	0.00	0.10	0.00
90.50	2.00	0.00	0.00	0.04	0.00	90.61	2.00	0.00	0.00	0.10	0.00
90.66	2.00	0.00	0.00	0.05	0.00	90.75	2.00	0.00	0.00	0.09	0.00
90.84	2.00	0.00	0.00	0.09	0.00	90.89	2.00	0.00	0.00	0.05	0.00
90.99	2.00	0.00	0.00	0.10	0.00	91.04	2.00	0.00	0.00	0.05	0.00
91.14	2.00	0.00	0.00	0.09	0.00	91.22	2.00	0.00	0.00	0.09	0.00
91.28	2.00	0.00	0.00	0.06	0.00	91.37	2.00	0.00	0.00	0.09	0.00
91.47	2.00	0.00	0.00	0.10	0.00	91.61	2.00	0.00	0.00	0.14	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
91.71	2.00	0.00	0.00	0.10	0.00	91.81	2.00	0.00	0.00	0.10	0.00
91.87	2.00	0.00	0.00	0.06	0.00	92.00	2.00	0.00	0.00	0.13	0.00
92.10	2.00	0.00	0.00	0.10	0.00	92.20	2.00	0.00	0.00	0.10	0.00
92.33	2.00	0.00	0.00	0.13	0.00	92.38	2.00	0.00	0.00	0.05	0.00
92.43	2.00	0.00	0.00	0.05	0.00	92.48	2.00	0.00	0.00	0.05	0.00
92.56	2.00	0.00	0.00	0.08	0.00	92.63	2.00	0.00	0.00	0.07	0.00
92.67	2.00	0.00	0.00	0.05	0.00	92.72	2.00	0.00	0.00	0.04	0.00
92.77	2.00	0.00	0.00	0.05	0.00	92.86	2.00	0.00	0.00	0.10	0.00
92.92	2.00	0.00	0.00	0.05	0.00	92.97	2.00	0.00	0.00	0.05	0.00
93.05	2.00	0.00	0.00	0.08	0.00	93.10	2.00	0.00	0.00	0.06	0.00
93.16	2.00	0.00	0.00	0.06	0.00	93.25	2.00	0.00	0.00	0.09	0.00
93.35	2.00	0.00	0.00	0.10	0.00	93.40	2.00	0.00	0.00	0.05	0.00
93.49	2.00	0.00	0.00	0.10	0.00	93.56	2.00	0.00	0.00	0.07	0.00
93.64	2.00	0.00	0.00	0.08	0.00	93.73	2.00	0.00	0.00	0.09	0.00
93.83	2.00	0.00	0.00	0.10	0.00	93.88	2.00	0.00	0.00	0.05	0.00
93.97	2.00	0.00	0.00	0.09	0.00	94.07	2.00	0.00	0.00	0.10	0.00
94.17	2.00	0.00	0.00	0.10	0.00	94.26	2.00	0.00	0.00	0.10	0.00
94.36	2.00	0.00	0.00	0.09	0.00	94.45	2.00	0.00	0.00	0.09	0.00
94.55	2.00	0.00	0.00	0.10	0.00	94.64	2.00	0.00	0.00	0.09	0.00
94.72	2.00	0.00	0.00	0.07	0.00	94.74	2.00	0.00	0.00	0.03	0.00
94.77	2.00	0.00	0.00	0.02	0.00	94.85	2.00	0.00	0.00	0.08	0.00
94.90	2.00	0.00	0.00	0.05	0.00	94.95	2.00	0.00	0.00	0.05	0.00
95.01	2.00	0.00	0.00	0.06	0.00	95.09	2.00	0.00	0.00	0.08	0.00
95.14	2.00	0.00	0.00	0.05	0.00	95.23	2.00	0.00	0.00	0.09	0.00
95.29	2.00	0.00	0.00	0.06	0.00	95.38	2.00	0.00	0.00	0.09	0.00
95.43	2.00	0.00	0.00	0.05	0.00	95.52	2.00	0.00	0.00	0.09	0.00
95.57	2.00	0.00	0.00	0.05	0.00	95.67	2.00	0.00	0.00	0.10	0.00
95.77	2.00	0.00	0.00	0.09	0.00	95.86	2.00	0.00	0.00	0.10	0.00
95.95	2.00	0.00	0.00	0.09	0.00	96.03	2.00	0.00	0.00	0.08	0.00
96.11	2.00	0.00	0.00	0.08	0.00	96.20	2.00	0.00	0.00	0.09	0.00
96.30	2.00	0.00	0.00	0.10	0.00	96.39	2.00	0.00	0.00	0.09	0.00
96.50	2.00	0.00	0.00	0.11	0.00	96.59	2.00	0.00	0.00	0.09	0.00
96.69	2.00	0.00	0.00	0.10	0.00	96.78	2.00	0.00	0.00	0.09	0.00
96.87	2.00	0.00	0.00	0.09	0.00	96.98	2.00	0.00	0.00	0.11	0.00
97.02	2.00	0.00	0.00	0.04	0.00	97.06	2.00	0.00	0.00	0.05	0.00
97.12	2.00	0.00	0.00	0.05	0.00	97.16	2.00	0.00	0.00	0.04	0.00
97.21	2.00	0.00	0.00	0.05	0.00	97.27	2.00	0.00	0.00	0.06	0.00
97.33	2.00	0.00	0.00	0.06	0.00	97.40	2.00	0.00	0.00	0.07	0.00
97.45	2.00	0.00	0.00	0.05	0.00	97.50	2.00	0.00	0.00	0.05	0.00
97.58	2.00	0.00	0.00	0.08	0.00	97.65	2.00	0.00	0.00	0.07	0.00
97.69	2.00	0.00	0.00	0.04	0.00	97.74	2.00	0.00	0.00	0.05	0.00
97.81	2.00	0.00	0.00	0.07	0.00	97.88	2.00	0.00	0.00	0.08	0.00
97.93	2.00	0.00	0.00	0.05	0.00	98.03	2.00	0.00	0.00	0.10	0.00
98.15	2.00	0.00	0.00	0.12	0.00	98.21	2.00	0.00	0.00	0.06	0.00
98.32	2.00	0.00	0.00	0.11	0.00	98.42	2.00	0.00	0.00	0.09	0.00
98.47	2.00	0.00	0.00	0.05	0.00	98.57	2.00	0.00	0.00	0.10	0.00
98.70	2.00	0.00	0.00	0.13	0.00	98.78	2.00	0.00	0.00	0.08	0.00
98.85	2.00	0.00	0.00	0.06	0.00	98.86	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
98.92	2.00	0.00	0.00	0.06	0.00	98.98	2.00	0.00	0.00	0.06	0.00
99.03	2.00	0.00	0.00	0.05	0.00	99.11	2.00	0.00	0.00	0.07	0.00
99.18	2.00	0.00	0.00	0.07	0.00	99.23	2.00	0.00	0.00	0.05	0.00
99.32	2.00	0.00	0.00	0.09	0.00	99.37	2.00	0.00	0.00	0.05	0.00
99.45	2.00	0.00	0.00	0.08	0.00	99.56	2.00	0.00	0.00	0.11	0.00
99.64	2.00	0.00	0.00	0.07	0.00	99.71	2.00	0.00	0.00	0.07	0.00
99.75	2.00	0.00	0.00	0.04	0.00	99.90	2.00	0.00	0.00	0.15	0.00
99.95	2.00	0.00	0.00	0.05	0.00	100.04	2.00	0.00	0.00	0.09	0.00
100.14	2.00	0.00	0.00	0.09	0.00	100.14	2.00	0.00	0.00	0.00	0.00
100.15	2.00	0.00	0.00	0.01	0.00	100.19	2.00	0.00	0.00	0.03	0.00
100.21	2.00	0.00	0.00	0.02	0.00	100.24	2.00	0.00	0.00	0.03	0.00
100.28	2.00	0.00	0.00	0.05	0.00	100.31	2.00	0.00	0.00	0.02	0.00
100.33	2.00	0.00	0.00	0.02	0.00	100.38	2.00	0.00	0.00	0.05	0.00
100.39	2.00	0.00	0.00	0.01	0.00	100.43	2.00	0.00	0.00	0.03	0.00
100.48	2.00	0.00	0.00	0.05	0.00	100.53	2.00	0.00	0.00	0.05	0.00
100.57	2.00	0.00	0.00	0.05	0.00	100.60	2.00	0.00	0.00	0.02	0.00

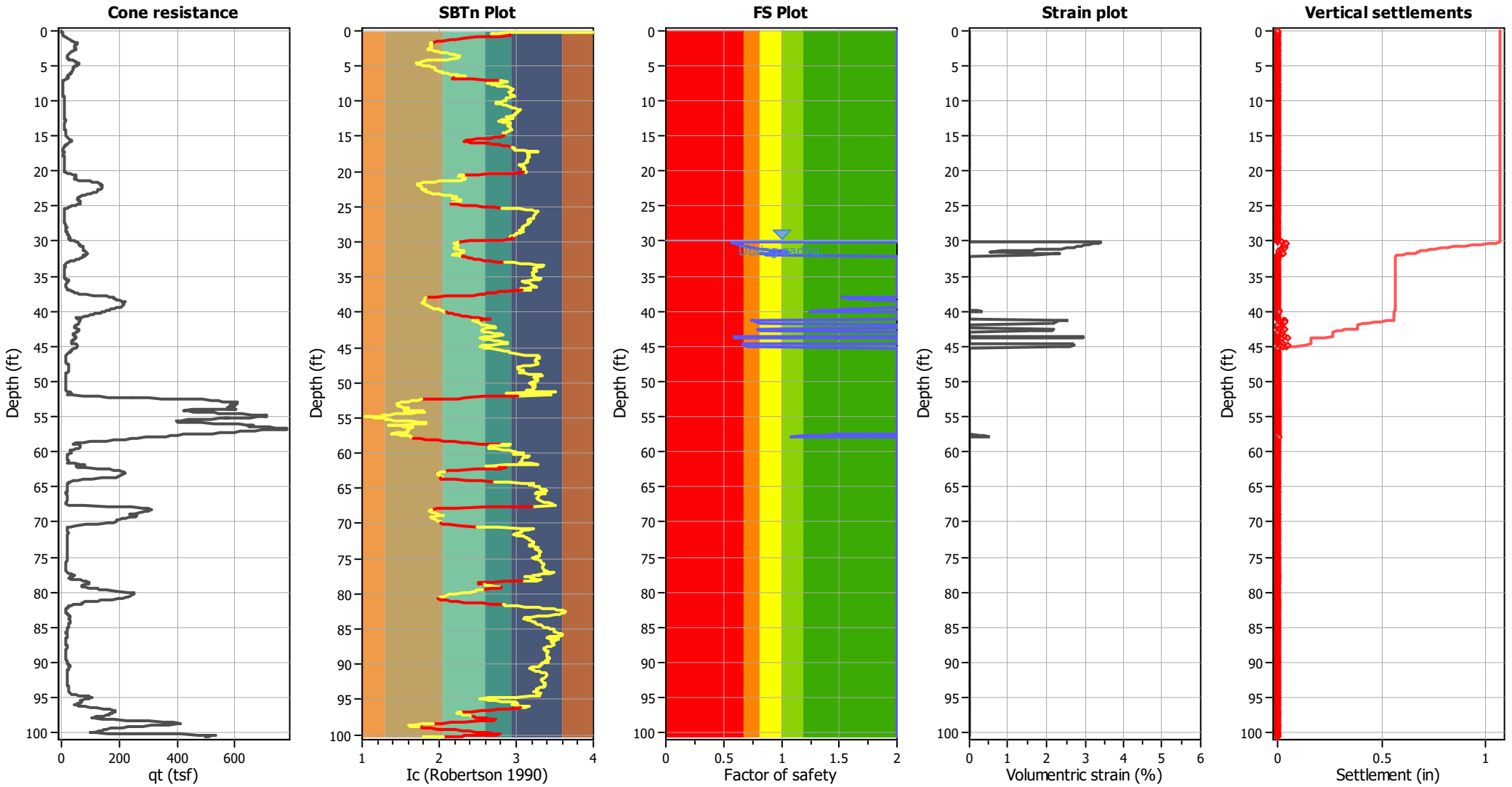
Overall liquefaction potential: 1.15

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.06	59.16	2.00	0.00	1.00	0.00	30.13	60.99	2.00	0.00	1.00	0.00
30.18	62.30	0.57	3.44	1.00	0.02	30.28	64.44	0.58	3.35	1.00	0.04
30.37	67.53	0.60	3.22	1.00	0.04	30.47	71.05	0.63	3.09	1.00	0.04
30.57	73.87	0.65	3.00	1.00	0.04	30.66	76.12	0.67	2.92	1.00	0.03
30.74	78.31	0.69	2.86	1.00	0.03	30.82	80.52	0.71	2.79	1.00	0.03
30.90	82.93	0.73	2.72	1.00	0.03	31.01	85.67	0.76	2.55	1.00	0.03
31.10	89.47	0.80	2.39	1.00	0.02	31.19	93.96	0.86	1.72	1.00	0.02
31.28	98.21	0.92	1.61	1.00	0.02	31.35	101.82	0.97	0.87	1.00	0.01
31.43	104.59	1.02	0.85	1.00	0.01	31.53	107.28	1.06	0.53	1.00	0.01
31.60	101.10	0.96	0.87	1.00	0.01	31.67	95.74	0.88	1.67	1.00	0.02
31.77	91.18	0.82	2.33	1.00	0.03	31.84	93.40	0.84	2.24	1.00	0.02
31.91	95.19	0.87	1.69	1.00	0.01	31.98	97.23	0.89	1.63	1.00	0.01
31.98	99.23	0.92	1.59	1.00	0.00	32.04	100.65	0.94	1.55	1.00	0.01
32.12	102.19	2.00	0.00	1.00	0.00	32.16	105.63	2.00	0.00	1.00	0.00
32.27	108.77	2.00	0.00	1.00	0.00	32.33	111.51	2.00	0.00	1.00	0.00
32.41	112.40	2.00	0.00	1.00	0.00	32.50	111.66	2.00	0.00	1.00	0.00
32.58	110.12	2.00	0.00	1.00	0.00	32.66	108.68	2.00	0.00	1.00	0.00
32.74	107.79	2.00	0.00	1.00	0.00	32.84	107.96	2.00	0.00	1.00	0.00
32.90	107.62	2.00	0.00	1.00	0.00	32.98	104.08	2.00	0.00	1.00	0.00
33.08	101.84	2.00	0.00	1.00	0.00	33.14	99.50	2.00	0.00	1.00	0.00
33.22	96.06	2.00	0.00	1.00	0.00	33.32	91.43	2.00	0.00	1.00	0.00
33.37	85.28	2.00	0.00	1.00	0.00	33.47	81.70	2.00	0.00	1.00	0.00
33.56	79.85	2.00	0.00	1.00	0.00	33.63	80.15	2.00	0.00	1.00	0.00
33.71	78.37	2.00	0.00	1.00	0.00	33.81	72.19	2.00	0.00	1.00	0.00
33.90	65.65	2.00	0.00	1.00	0.00	33.95	60.28	2.00	0.00	1.00	0.00
34.04	59.84	2.00	0.00	1.00	0.00	34.14	59.54	2.00	0.00	1.00	0.00
34.17	59.63	2.00	0.00	1.00	0.00	34.20	59.92	2.00	0.00	1.00	0.00
34.26	60.14	2.00	0.00	1.00	0.00	34.35	59.91	2.00	0.00	1.00	0.00
34.43	59.45	2.00	0.00	1.00	0.00	34.49	58.59	2.00	0.00	1.00	0.00
34.59	57.25	2.00	0.00	1.00	0.00	34.69	55.91	2.00	0.00	1.00	0.00
34.73	54.88	2.00	0.00	1.00	0.00	34.83	54.34	2.00	0.00	1.00	0.00
34.90	54.48	2.00	0.00	1.00	0.00	34.98	55.47	2.00	0.00	1.00	0.00
35.07	58.28	2.00	0.00	1.00	0.00	35.16	64.79	2.00	0.00	1.00	0.00
35.26	76.48	2.00	0.00	1.00	0.00	35.33	89.71	2.00	0.00	1.00	0.00
35.40	101.03	2.00	0.00	1.00	0.00	35.50	106.70	2.00	0.00	1.00	0.00
35.57	109.72	2.00	0.00	1.00	0.00	35.65	112.36	2.00	0.00	1.00	0.00
35.71	115.22	2.00	0.00	1.00	0.00	35.79	116.27	2.00	0.00	1.00	0.00
35.85	113.90	2.00	0.00	1.00	0.00	35.94	109.71	2.00	0.00	1.00	0.00
35.99	103.66	2.00	0.00	1.00	0.00	36.08	95.94	2.00	0.00	1.00	0.00
36.17	88.35	2.00	0.00	1.00	0.00	36.24	82.76	2.00	0.00	1.00	0.00
36.33	81.11	2.00	0.00	1.00	0.00	36.42	82.08	2.00	0.00	1.00	0.00
36.52	77.16	2.00	0.00	1.00	0.00	36.61	74.88	2.00	0.00	1.00	0.00
36.70	76.79	2.00	0.00	1.00	0.00	36.78	88.43	2.00	0.00	1.00	0.00
36.85	99.18	2.00	0.00	1.00	0.00	36.87	103.88	2.00	0.00	1.00	0.00
36.91	105.17	2.00	0.00	1.00	0.00	36.97	104.77	2.00	0.00	1.00	0.00
37.06	105.20	2.00	0.00	1.00	0.00	37.12	107.91	2.00	0.00	1.00	0.00
37.20	112.33	2.00	0.00	1.00	0.00	37.27	114.30	2.00	0.00	1.00	0.00
37.35	112.42	2.00	0.00	1.00	0.00	37.44	108.21	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
37.49	102.76	2.00	0.00	1.00	0.00	37.59	95.81	2.00	0.00	1.00	0.00
37.64	90.11	2.00	0.00	1.00	0.00	37.70	94.79	2.00	0.00	1.00	0.00
37.78	108.37	2.00	0.00	1.00	0.00	37.83	120.19	2.00	0.00	1.00	0.00
37.92	126.68	2.00	0.00	1.00	0.00	37.97	130.53	2.00	0.00	1.00	0.00
38.07	133.13	1.52	0.00	1.00	0.00	38.14	135.64	1.59	0.00	1.00	0.00
38.22	138.68	1.67	0.00	1.00	0.00	38.31	143.23	1.79	0.00	1.00	0.00
38.41	148.66	1.96	0.00	1.00	0.00	38.52	154.32	2.00	0.00	1.00	0.00
38.64	157.41	2.00	0.00	1.00	0.00	38.74	158.10	2.00	0.00	1.00	0.00
38.80	157.57	2.00	0.00	1.00	0.00	38.89	156.57	2.00	0.00	1.00	0.00
38.94	158.84	2.00	0.00	1.00	0.00	39.03	159.69	2.00	0.00	1.00	0.00
39.13	160.46	2.00	0.00	1.00	0.00	39.23	160.12	2.00	0.00	1.00	0.00
39.35	158.27	2.00	0.00	1.00	0.00	39.42	154.08	2.00	0.00	1.00	0.00
39.51	148.22	1.93	0.00	1.00	0.00	39.60	141.37	1.73	0.00	1.00	0.00
39.70	135.85	1.58	0.00	1.00	0.00	39.78	130.75	1.45	0.00	1.00	0.00
39.90	126.28	1.34	0.24	1.00	0.00	39.99	121.65	1.24	0.35	1.00	0.00
40.09	117.75	2.00	0.00	1.00	0.00	40.18	114.33	2.00	0.00	1.00	0.00
40.23	111.30	2.00	0.00	1.00	0.00	40.33	108.90	2.00	0.00	1.00	0.00
40.43	107.17	2.00	0.00	1.00	0.00	40.52	107.68	2.00	0.00	1.00	0.00
40.61	106.53	2.00	0.00	1.00	0.00	40.69	106.96	2.00	0.00	1.00	0.00
40.80	106.21	2.00	0.00	1.00	0.00	40.87	107.20	2.00	0.00	1.00	0.00
40.95	107.50	2.00	0.00	1.00	0.00	40.97	105.79	2.00	0.00	1.00	0.00
41.01	101.77	2.00	0.00	1.00	0.00	41.07	94.92	2.00	0.00	1.00	0.00
41.15	90.47	2.00	0.00	1.00	0.00	41.26	89.74	0.74	2.55	1.00	0.03
41.35	91.40	0.76	2.32	1.00	0.02	41.47	93.27	0.78	2.25	1.00	0.03
41.59	94.19	0.79	2.22	1.00	0.03	41.69	95.29	0.80	2.18	1.00	0.03
41.78	97.63	0.83	2.10	1.00	0.02	41.88	100.94	2.00	0.00	1.00	0.00
41.98	103.21	2.00	0.00	1.00	0.00	42.08	103.54	2.00	0.00	1.00	0.00
42.16	102.01	2.00	0.00	1.00	0.00	42.24	99.69	2.00	0.00	1.00	0.00
42.31	97.23	2.00	0.00	1.00	0.00	42.45	95.61	0.80	2.17	1.00	0.04
42.55	94.91	0.80	2.19	1.00	0.02	42.60	95.14	0.80	2.19	1.00	0.01
42.70	96.60	0.82	2.14	1.00	0.03	42.81	99.43	0.85	1.58	1.00	0.02
42.89	103.15	2.00	0.00	1.00	0.00	42.98	106.61	2.00	0.00	1.00	0.00
43.08	108.99	2.00	0.00	1.00	0.00	43.17	109.35	2.00	0.00	1.00	0.00
43.27	107.03	2.00	0.00	1.00	0.00	43.37	95.48	2.00	0.00	1.00	0.00
43.50	83.44	2.00	0.00	1.00	0.00	43.61	73.95	0.59	2.99	1.00	0.04
43.74	75.29	0.60	2.95	1.00	0.05	43.79	79.06	0.63	2.83	1.00	0.02
43.86	84.59	2.00	0.00	1.00	0.00	43.94	91.16	2.00	0.00	1.00	0.00
44.00	98.08	2.00	0.00	1.00	0.00	44.08	103.37	2.00	0.00	1.00	0.00
44.17	106.26	2.00	0.00	1.00	0.00	44.27	105.00	2.00	0.00	1.00	0.00
44.42	100.72	2.00	0.00	1.00	0.00	44.52	95.03	2.00	0.00	1.00	0.00
44.61	87.72	2.00	0.00	1.00	0.00	44.71	83.46	0.67	2.71	1.00	0.03
44.85	83.87	0.67	2.70	1.00	0.05	44.95	88.11	0.71	2.59	1.00	0.03
45.09	92.06	0.76	2.29	1.00	0.04	45.19	95.00	2.00	0.00	1.00	0.00
45.33	98.48	2.00	0.00	1.00	0.00	45.42	100.02	2.00	0.00	1.00	0.00
45.57	98.64	2.00	0.00	1.00	0.00	45.68	94.66	2.00	0.00	1.00	0.00
45.81	87.72	2.00	0.00	1.00	0.00	45.92	82.93	2.00	0.00	1.00	0.00
46.05	82.51	2.00	0.00	1.00	0.00	46.16	86.12	2.00	0.00	1.00	0.00
46.17	85.57	2.00	0.00	1.00	0.00	46.23	84.09	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
46.29	82.02	2.00	0.00	1.00	0.00	46.34	78.81	2.00	0.00	1.00	0.00
46.42	74.90	2.00	0.00	1.00	0.00	46.48	70.80	2.00	0.00	1.00	0.00
46.52	67.86	2.00	0.00	1.00	0.00	46.60	65.79	2.00	0.00	1.00	0.00
46.67	64.21	2.00	0.00	1.00	0.00	46.74	63.02	2.00	0.00	1.00	0.00
46.82	61.88	2.00	0.00	1.00	0.00	46.88	61.07	2.00	0.00	1.00	0.00
46.96	60.61	2.00	0.00	1.00	0.00	47.06	60.52	2.00	0.00	1.00	0.00
47.15	61.03	2.00	0.00	1.00	0.00	47.24	65.10	2.00	0.00	1.00	0.00
47.35	75.39	2.00	0.00	1.00	0.00	47.49	80.67	2.00	0.00	1.00	0.00
47.58	82.65	2.00	0.00	1.00	0.00	47.73	80.95	2.00	0.00	1.00	0.00
47.83	81.84	2.00	0.00	1.00	0.00	47.87	83.19	2.00	0.00	1.00	0.00
47.89	82.12	2.00	0.00	1.00	0.00	47.94	81.59	2.00	0.00	1.00	0.00
48.02	80.90	2.00	0.00	1.00	0.00	48.07	81.07	2.00	0.00	1.00	0.00
48.12	82.45	2.00	0.00	1.00	0.00	48.18	84.09	2.00	0.00	1.00	0.00
48.26	85.42	2.00	0.00	1.00	0.00	48.31	84.77	2.00	0.00	1.00	0.00
48.38	82.58	2.00	0.00	1.00	0.00	48.46	79.31	2.00	0.00	1.00	0.00
48.52	75.99	2.00	0.00	1.00	0.00	48.60	72.40	2.00	0.00	1.00	0.00
48.68	69.64	2.00	0.00	1.00	0.00	48.74	67.76	2.00	0.00	1.00	0.00
48.82	67.24	2.00	0.00	1.00	0.00	48.89	66.41	2.00	0.00	1.00	0.00
48.99	64.98	2.00	0.00	1.00	0.00	49.05	62.48	2.00	0.00	1.00	0.00
49.12	59.74	2.00	0.00	1.00	0.00	49.18	57.20	2.00	0.00	1.00	0.00
49.27	55.71	2.00	0.00	1.00	0.00	49.32	54.42	2.00	0.00	1.00	0.00
49.42	53.88	2.00	0.00	1.00	0.00	49.48	53.63	2.00	0.00	1.00	0.00
49.56	54.09	2.00	0.00	1.00	0.00	49.66	55.25	2.00	0.00	1.00	0.00
49.76	56.33	2.00	0.00	1.00	0.00	49.85	54.00	2.00	0.00	1.00	0.00
49.99	51.28	2.00	0.00	1.00	0.00	50.09	49.07	2.00	0.00	1.00	0.00
50.21	50.39	2.00	0.00	1.00	0.00	50.24	50.47	2.00	0.00	1.00	0.00
50.29	49.66	2.00	0.00	1.00	0.00	50.38	48.82	2.00	0.00	1.00	0.00
50.47	48.36	2.00	0.00	1.00	0.00	50.52	48.61	2.00	0.00	1.00	0.00
50.62	49.09	2.00	0.00	1.00	0.00	50.66	49.58	2.00	0.00	1.00	0.00
50.76	50.11	2.00	0.00	1.00	0.00	50.83	51.29	2.00	0.00	1.00	0.00
50.91	53.36	2.00	0.00	1.00	0.00	51.00	55.29	2.00	0.00	1.00	0.00
51.06	56.99	2.00	0.00	1.00	0.00	51.15	61.08	2.00	0.00	1.00	0.00
51.24	67.57	2.00	0.00	1.00	0.00	51.31	75.27	2.00	0.00	1.00	0.00
51.39	80.15	2.00	0.00	1.00	0.00	51.48	82.64	2.00	0.00	1.00	0.00
51.58	87.30	2.00	0.00	1.00	0.00	51.68	91.85	2.00	0.00	1.00	0.00
51.77	100.06	2.00	0.00	1.00	0.00	51.90	106.47	2.00	0.00	1.00	0.00
52.01	110.20	2.00	0.00	1.00	0.00	52.11	121.05	2.00	0.00	1.00	0.00
52.26	131.90	2.00	0.00	1.00	0.00	52.30	146.55	2.00	0.00	1.00	0.00
52.33	162.63	2.00	0.00	1.00	0.00	52.35	192.22	2.00	0.00	1.00	0.00
52.40	209.95	2.00	0.00	1.00	0.00	52.45	216.58	2.00	0.00	1.00	0.00
52.50	229.89	2.00	0.00	1.00	0.00	52.55	248.98	2.00	0.00	1.00	0.00
52.60	273.15	2.00	0.00	1.00	0.00	52.65	289.64	2.00	0.00	1.00	0.00
52.71	297.95	2.00	0.00	1.00	0.00	52.77	303.79	2.00	0.00	1.00	0.00
52.82	312.99	2.00	0.00	1.00	0.00	52.88	323.84	2.00	0.00	1.00	0.00
52.93	331.46	2.00	0.00	1.00	0.00	52.98	338.95	2.00	0.00	1.00	0.00
53.03	340.39	2.00	0.00	1.00	0.00	53.08	340.01	2.00	0.00	1.00	0.00
53.12	335.78	2.00	0.00	1.00	0.00	53.17	333.99	2.00	0.00	1.00	0.00
53.23	335.19	2.00	0.00	1.00	0.00	53.28	332.45	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
53.37	327.80	2.00	0.00	1.00	0.00	53.42	325.17	2.00	0.00	1.00	0.00
53.46	326.50	2.00	0.00	1.00	0.00	53.53	333.09	2.00	0.00	1.00	0.00
53.61	331.84	2.00	0.00	1.00	0.00	53.62	323.39	2.00	0.00	1.00	0.00
53.65	318.67	2.00	0.00	1.00	0.00	53.67	317.12	2.00	0.00	1.00	0.00
53.70	323.95	2.00	0.00	1.00	0.00	53.74	323.26	2.00	0.00	1.00	0.00
53.76	323.74	2.00	0.00	1.00	0.00	53.80	322.06	2.00	0.00	1.00	0.00
53.84	320.07	2.00	0.00	1.00	0.00	53.90	320.12	2.00	0.00	1.00	0.00
53.91	315.61	2.00	0.00	1.00	0.00	53.95	317.38	2.00	0.00	1.00	0.00
53.96	320.83	2.00	0.00	1.00	0.00	53.98	332.48	2.00	0.00	1.00	0.00
53.99	333.50	2.00	0.00	1.00	0.00	54.01	327.46	2.00	0.00	1.00	0.00
54.02	320.31	2.00	0.00	1.00	0.00	54.03	305.74	2.00	0.00	1.00	0.00
54.04	276.21	2.00	0.00	1.00	0.00	54.05	260.14	2.00	0.00	1.00	0.00
54.09	254.46	2.00	0.00	1.00	0.00	54.10	254.57	2.00	0.00	1.00	0.00
54.13	254.64	2.00	0.00	1.00	0.00	54.14	254.59	2.00	0.00	1.00	0.00
54.19	255.77	2.00	0.00	1.00	0.00	54.19	258.95	2.00	0.00	1.00	0.00
54.24	259.93	2.00	0.00	1.00	0.00	54.29	249.88	2.00	0.00	1.00	0.00
54.33	261.31	2.00	0.00	1.00	0.00	54.38	272.80	2.00	0.00	1.00	0.00
54.39	282.62	2.00	0.00	1.00	0.00	54.43	291.66	2.00	0.00	1.00	0.00
54.48	299.32	2.00	0.00	1.00	0.00	54.52	306.76	2.00	0.00	1.00	0.00
54.58	316.20	2.00	0.00	1.00	0.00	54.62	323.46	2.00	0.00	1.00	0.00
54.65	333.00	2.00	0.00	1.00	0.00	54.67	343.41	2.00	0.00	1.00	0.00
54.71	362.60	2.00	0.00	1.00	0.00	54.77	374.21	2.00	0.00	1.00	0.00
54.81	387.19	2.00	0.00	1.00	0.00	54.85	387.70	2.00	0.00	1.00	0.00
54.86	390.48	2.00	0.00	1.00	0.00	54.87	387.26	2.00	0.00	1.00	0.00
54.91	387.35	2.00	0.00	1.00	0.00	54.96	389.17	2.00	0.00	1.00	0.00
55.00	386.89	2.00	0.00	1.00	0.00	55.01	382.82	2.00	0.00	1.00	0.00
55.05	373.47	2.00	0.00	1.00	0.00	55.10	357.87	2.00	0.00	1.00	0.00
55.12	331.72	2.00	0.00	1.00	0.00	55.13	313.58	2.00	0.00	1.00	0.00
55.14	309.22	2.00	0.00	1.00	0.00	55.19	316.75	2.00	0.00	1.00	0.00
55.20	316.38	2.00	0.00	1.00	0.00	55.25	308.48	2.00	0.00	1.00	0.00
55.29	299.55	2.00	0.00	1.00	0.00	55.33	284.92	2.00	0.00	1.00	0.00
55.38	263.59	2.00	0.00	1.00	0.00	55.48	240.38	2.00	0.00	1.00	0.00
55.57	227.87	2.00	0.00	1.00	0.00	55.63	237.94	2.00	0.00	1.00	0.00
55.72	244.53	2.00	0.00	1.00	0.00	55.80	260.68	2.00	0.00	1.00	0.00
55.86	259.76	2.00	0.00	1.00	0.00	55.97	288.32	2.00	0.00	1.00	0.00
56.01	306.20	2.00	0.00	1.00	0.00	56.06	186.61	2.00	0.00	1.00	0.00
56.11	194.57	2.00	0.00	1.00	0.00	56.15	203.27	2.00	0.00	1.00	0.00
56.20	209.60	2.00	0.00	1.00	0.00	56.27	210.15	2.00	0.00	1.00	0.00
56.27	210.45	2.00	0.00	1.00	0.00	56.30	203.39	2.00	0.00	1.00	0.00
56.33	205.64	2.00	0.00	1.00	0.00	56.35	205.00	2.00	0.00	1.00	0.00
56.40	211.31	2.00	0.00	1.00	0.00	56.41	211.76	2.00	0.00	1.00	0.00
56.44	215.53	2.00	0.00	1.00	0.00	56.49	219.75	2.00	0.00	1.00	0.00
56.54	226.71	2.00	0.00	1.00	0.00	56.58	232.85	2.00	0.00	1.00	0.00
56.59	236.93	2.00	0.00	1.00	0.00	56.64	239.07	2.00	0.00	1.00	0.00
56.69	241.29	2.00	0.00	1.00	0.00	56.73	245.40	2.00	0.00	1.00	0.00
56.78	245.38	2.00	0.00	1.00	0.00	56.83	239.22	2.00	0.00	1.00	0.00
56.88	230.32	2.00	0.00	1.00	0.00	56.89	223.03	2.00	0.00	1.00	0.00
56.95	217.71	2.00	0.00	1.00	0.00	57.01	209.81	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
57.07	202.70	2.00	0.00	1.00	0.00	57.11	194.25	2.00	0.00	1.00	0.00
57.17	187.56	2.00	0.00	1.00	0.00	57.26	179.66	2.00	0.00	1.00	0.00
57.31	171.06	2.00	0.00	1.00	0.00	57.37	162.50	2.00	0.00	1.00	0.00
57.45	152.96	2.00	0.00	1.00	0.00	57.51	140.63	1.75	0.00	1.00	0.00
57.53	131.27	1.50	0.00	1.00	0.00	57.59	124.87	1.35	0.25	1.00	0.00
57.63	124.05	1.33	0.25	1.00	0.00	57.68	121.66	1.28	0.25	1.00	0.00
57.73	120.01	1.24	0.36	1.00	0.00	57.78	117.62	1.19	0.36	1.00	0.00
57.86	111.55	1.08	0.51	1.00	0.01	57.92	100.97	2.00	0.00	1.00	0.00
57.98	89.82	2.00	0.00	1.00	0.00	58.06	95.51	2.00	0.00	1.00	0.00
58.12	92.39	2.00	0.00	1.00	0.00	58.21	88.73	2.00	0.00	1.00	0.00
58.26	85.71	2.00	0.00	1.00	0.00	58.35	81.38	2.00	0.00	1.00	0.00
58.41	74.91	2.00	0.00	1.00	0.00	58.50	70.73	2.00	0.00	1.00	0.00
58.56	67.27	2.00	0.00	1.00	0.00	58.64	74.61	2.00	0.00	1.00	0.00
58.73	81.15	2.00	0.00	1.00	0.00	58.80	87.16	2.00	0.00	1.00	0.00
58.84	91.44	2.00	0.00	1.00	0.00	58.85	91.06	2.00	0.00	1.00	0.00
58.93	87.49	2.00	0.00	1.00	0.00	58.98	82.49	2.00	0.00	1.00	0.00
59.02	79.02	2.00	0.00	1.00	0.00	59.12	77.74	2.00	0.00	1.00	0.00
59.17	78.34	2.00	0.00	1.00	0.00	59.27	80.06	2.00	0.00	1.00	0.00
59.31	82.31	2.00	0.00	1.00	0.00	59.41	84.40	2.00	0.00	1.00	0.00
59.46	85.91	2.00	0.00	1.00	0.00	59.55	86.53	2.00	0.00	1.00	0.00
59.65	82.12	2.00	0.00	1.00	0.00	59.70	78.48	2.00	0.00	1.00	0.00
59.80	75.77	2.00	0.00	1.00	0.00	59.89	79.29	2.00	0.00	1.00	0.00
59.94	82.68	2.00	0.00	1.00	0.00	60.01	85.21	2.00	0.00	1.00	0.00
60.02	85.70	2.00	0.00	1.00	0.00	60.08	84.70	2.00	0.00	1.00	0.00
60.12	83.40	2.00	0.00	1.00	0.00	60.17	81.32	2.00	0.00	1.00	0.00
60.27	76.99	2.00	0.00	1.00	0.00	60.31	71.83	2.00	0.00	1.00	0.00
60.37	67.16	2.00	0.00	1.00	0.00	60.46	64.16	2.00	0.00	1.00	0.00
60.51	61.05	2.00	0.00	1.00	0.00	60.61	59.48	2.00	0.00	1.00	0.00
60.65	58.49	2.00	0.00	1.00	0.00	60.75	58.52	2.00	0.00	1.00	0.00
60.81	58.52	2.00	0.00	1.00	0.00	60.89	58.14	2.00	0.00	1.00	0.00
60.94	58.37	2.00	0.00	1.00	0.00	61.03	59.27	2.00	0.00	1.00	0.00
61.09	59.56	2.00	0.00	1.00	0.00	61.19	59.09	2.00	0.00	1.00	0.00
61.24	58.48	2.00	0.00	1.00	0.00	61.33	59.55	2.00	0.00	1.00	0.00
61.38	65.92	2.00	0.00	1.00	0.00	61.47	73.50	2.00	0.00	1.00	0.00
61.53	81.14	2.00	0.00	1.00	0.00	61.62	81.97	2.00	0.00	1.00	0.00
61.70	82.73	2.00	0.00	1.00	0.00	61.77	84.93	2.00	0.00	1.00	0.00
61.86	89.66	2.00	0.00	1.00	0.00	61.95	94.89	2.00	0.00	1.00	0.00
61.97	96.91	2.00	0.00	1.00	0.00	62.01	99.66	2.00	0.00	1.00	0.00
62.10	99.23	2.00	0.00	1.00	0.00	62.24	89.92	2.00	0.00	1.00	0.00
62.34	71.54	2.00	0.00	1.00	0.00	62.49	64.77	2.00	0.00	1.00	0.00
62.54	69.68	2.00	0.00	1.00	0.00	62.66	73.33	2.00	0.00	1.00	0.00
62.74	77.94	2.00	0.00	1.00	0.00	62.87	80.99	2.00	0.00	1.00	0.00
62.92	82.65	2.00	0.00	1.00	0.00	63.03	83.41	2.00	0.00	1.00	0.00
63.15	83.38	2.00	0.00	1.00	0.00	63.26	82.35	2.00	0.00	1.00	0.00
63.37	80.92	2.00	0.00	1.00	0.00	63.45	78.49	2.00	0.00	1.00	0.00
63.54	76.31	2.00	0.00	1.00	0.00	63.61	73.61	2.00	0.00	1.00	0.00
63.69	69.47	2.00	0.00	1.00	0.00	63.79	67.77	2.00	0.00	1.00	0.00
63.89	66.74	2.00	0.00	1.00	0.00	63.98	71.48	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
64.07	71.91	2.00	0.00	1.00	0.00	64.15	76.48	2.00	0.00	1.00	0.00
64.23	77.68	2.00	0.00	1.00	0.00	64.26	78.26	2.00	0.00	1.00	0.00
64.29	78.14	2.00	0.00	1.00	0.00	64.33	74.86	2.00	0.00	1.00	0.00
64.43	70.78	2.00	0.00	1.00	0.00	64.47	66.07	2.00	0.00	1.00	0.00
64.53	64.15	2.00	0.00	1.00	0.00	64.62	63.40	2.00	0.00	1.00	0.00
64.72	63.23	2.00	0.00	1.00	0.00	64.78	63.74	2.00	0.00	1.00	0.00
64.86	65.01	2.00	0.00	1.00	0.00	64.96	68.31	2.00	0.00	1.00	0.00
65.06	71.61	2.00	0.00	1.00	0.00	65.11	74.58	2.00	0.00	1.00	0.00
65.21	75.90	2.00	0.00	1.00	0.00	65.31	76.26	2.00	0.00	1.00	0.00
65.40	72.77	2.00	0.00	1.00	0.00	65.50	67.97	2.00	0.00	1.00	0.00
65.58	63.13	2.00	0.00	1.00	0.00	65.68	61.17	2.00	0.00	1.00	0.00
65.78	60.45	2.00	0.00	1.00	0.00	65.84	59.69	2.00	0.00	1.00	0.00
65.86	59.62	2.00	0.00	1.00	0.00	65.87	59.36	2.00	0.00	1.00	0.00
65.98	59.09	2.00	0.00	1.00	0.00	66.10	60.13	2.00	0.00	1.00	0.00
66.21	62.32	2.00	0.00	1.00	0.00	66.34	63.01	2.00	0.00	1.00	0.00
66.48	63.55	2.00	0.00	1.00	0.00	66.62	62.45	2.00	0.00	1.00	0.00
66.68	64.07	2.00	0.00	1.00	0.00	66.87	67.94	2.00	0.00	1.00	0.00
66.96	73.89	2.00	0.00	1.00	0.00	67.11	78.15	2.00	0.00	1.00	0.00
67.21	76.60	2.00	0.00	1.00	0.00	67.35	73.18	2.00	0.00	1.00	0.00
67.45	77.86	2.00	0.00	1.00	0.00	67.59	88.71	2.00	0.00	1.00	0.00
67.68	83.67	2.00	0.00	1.00	0.00	67.83	74.68	2.00	0.00	1.00	0.00
67.92	88.64	2.00	0.00	1.00	0.00	68.02	99.35	2.00	0.00	1.00	0.00
68.07	103.71	2.00	0.00	1.00	0.00	68.16	105.26	2.00	0.00	1.00	0.00
68.26	106.54	2.00	0.00	1.00	0.00	68.35	106.44	2.00	0.00	1.00	0.00
68.45	105.37	2.00	0.00	1.00	0.00	68.55	103.72	2.00	0.00	1.00	0.00
68.65	98.57	2.00	0.00	1.00	0.00	68.78	94.35	2.00	0.00	1.00	0.00
68.78	90.91	2.00	0.00	1.00	0.00	68.79	89.70	2.00	0.00	1.00	0.00
68.83	89.08	2.00	0.00	1.00	0.00	68.93	88.59	2.00	0.00	1.00	0.00
68.98	89.18	2.00	0.00	1.00	0.00	69.04	89.05	2.00	0.00	1.00	0.00
69.12	89.10	2.00	0.00	1.00	0.00	69.22	88.23	2.00	0.00	1.00	0.00
69.28	86.25	2.00	0.00	1.00	0.00	69.36	83.22	2.00	0.00	1.00	0.00
69.45	79.21	2.00	0.00	1.00	0.00	69.60	75.34	2.00	0.00	1.00	0.00
69.70	72.05	2.00	0.00	1.00	0.00	69.80	70.68	2.00	0.00	1.00	0.00
69.89	70.30	2.00	0.00	1.00	0.00	69.98	69.82	2.00	0.00	1.00	0.00
70.08	67.53	2.00	0.00	1.00	0.00	70.18	63.51	2.00	0.00	1.00	0.00
70.32	61.16	2.00	0.00	1.00	0.00	70.42	66.77	2.00	0.00	1.00	0.00
70.54	74.19	2.00	0.00	1.00	0.00	70.66	75.54	2.00	0.00	1.00	0.00
70.75	72.70	2.00	0.00	1.00	0.00	70.80	66.71	2.00	0.00	1.00	0.00
70.89	59.87	2.00	0.00	1.00	0.00	70.99	53.00	2.00	0.00	1.00	0.00
71.08	49.46	2.00	0.00	1.00	0.00	71.17	47.79	2.00	0.00	1.00	0.00
71.23	47.05	2.00	0.00	1.00	0.00	71.33	46.20	2.00	0.00	1.00	0.00
71.42	44.64	2.00	0.00	1.00	0.00	71.52	43.06	2.00	0.00	1.00	0.00
71.58	44.01	2.00	0.00	1.00	0.00	71.67	47.43	2.00	0.00	1.00	0.00
71.81	50.76	2.00	0.00	1.00	0.00	71.82	52.55	2.00	0.00	1.00	0.00
71.86	52.82	2.00	0.00	1.00	0.00	71.91	52.95	2.00	0.00	1.00	0.00
71.97	53.27	2.00	0.00	1.00	0.00	72.05	53.72	2.00	0.00	1.00	0.00
72.10	54.35	2.00	0.00	1.00	0.00	72.20	54.79	2.00	0.00	1.00	0.00
72.25	55.49	2.00	0.00	1.00	0.00	72.34	56.94	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
72.44	58.80	2.00	0.00	1.00	0.00	72.53	60.40	2.00	0.00	1.00	0.00
72.63	61.13	2.00	0.00	1.00	0.00	72.69	61.14	2.00	0.00	1.00	0.00
72.82	60.87	2.00	0.00	1.00	0.00	72.92	60.05	2.00	0.00	1.00	0.00
73.06	59.27	2.00	0.00	1.00	0.00	73.16	59.57	2.00	0.00	1.00	0.00
73.30	60.65	2.00	0.00	1.00	0.00	73.35	61.53	2.00	0.00	1.00	0.00
73.38	61.23	2.00	0.00	1.00	0.00	73.47	60.67	2.00	0.00	1.00	0.00
73.53	60.20	2.00	0.00	1.00	0.00	73.62	59.95	2.00	0.00	1.00	0.00
73.71	60.28	2.00	0.00	1.00	0.00	73.77	61.46	2.00	0.00	1.00	0.00
73.86	63.08	2.00	0.00	1.00	0.00	73.96	64.61	2.00	0.00	1.00	0.00
74.06	65.59	2.00	0.00	1.00	0.00	74.13	66.22	2.00	0.00	1.00	0.00
74.24	66.66	2.00	0.00	1.00	0.00	74.34	67.26	2.00	0.00	1.00	0.00
74.44	67.81	2.00	0.00	1.00	0.00	74.58	67.28	2.00	0.00	1.00	0.00
74.68	62.80	2.00	0.00	1.00	0.00	74.80	58.74	2.00	0.00	1.00	0.00
74.92	56.43	2.00	0.00	1.00	0.00	75.07	58.35	2.00	0.00	1.00	0.00
75.08	59.34	2.00	0.00	1.00	0.00	75.11	59.53	2.00	0.00	1.00	0.00
75.16	60.28	2.00	0.00	1.00	0.00	75.25	61.74	2.00	0.00	1.00	0.00
75.32	63.23	2.00	0.00	1.00	0.00	75.40	63.73	2.00	0.00	1.00	0.00
75.50	62.77	2.00	0.00	1.00	0.00	75.59	60.75	2.00	0.00	1.00	0.00
75.69	58.60	2.00	0.00	1.00	0.00	75.78	56.46	2.00	0.00	1.00	0.00
75.88	54.66	2.00	0.00	1.00	0.00	75.96	52.90	2.00	0.00	1.00	0.00
76.05	51.65	2.00	0.00	1.00	0.00	76.14	51.00	2.00	0.00	1.00	0.00
76.26	51.09	2.00	0.00	1.00	0.00	76.36	51.38	2.00	0.00	1.00	0.00
76.41	51.50	2.00	0.00	1.00	0.00	76.51	51.17	2.00	0.00	1.00	0.00
76.65	51.04	2.00	0.00	1.00	0.00	76.72	51.12	2.00	0.00	1.00	0.00
76.79	51.39	2.00	0.00	1.00	0.00	76.89	53.53	2.00	0.00	1.00	0.00
76.98	61.89	2.00	0.00	1.00	0.00	77.08	69.60	2.00	0.00	1.00	0.00
77.18	77.29	2.00	0.00	1.00	0.00	77.28	84.26	2.00	0.00	1.00	0.00
77.37	93.62	2.00	0.00	1.00	0.00	77.42	100.64	2.00	0.00	1.00	0.00
77.42	104.44	2.00	0.00	1.00	0.00	77.44	107.05	2.00	0.00	1.00	0.00
77.48	110.31	2.00	0.00	1.00	0.00	77.52	113.00	2.00	0.00	1.00	0.00
77.54	114.44	2.00	0.00	1.00	0.00	77.57	115.54	2.00	0.00	1.00	0.00
77.62	115.93	2.00	0.00	1.00	0.00	77.65	115.64	2.00	0.00	1.00	0.00
77.67	113.32	2.00	0.00	1.00	0.00	77.71	111.24	2.00	0.00	1.00	0.00
77.71	107.78	2.00	0.00	1.00	0.00	77.76	104.25	2.00	0.00	1.00	0.00
77.81	98.88	2.00	0.00	1.00	0.00	77.90	94.60	2.00	0.00	1.00	0.00
77.95	92.44	2.00	0.00	1.00	0.00	78.01	91.29	2.00	0.00	1.00	0.00
78.10	89.37	2.00	0.00	1.00	0.00	78.16	84.71	2.00	0.00	1.00	0.00
78.24	79.05	2.00	0.00	1.00	0.00	78.29	73.14	2.00	0.00	1.00	0.00
78.39	69.27	2.00	0.00	1.00	0.00	78.47	68.51	2.00	0.00	1.00	0.00
78.53	71.72	2.00	0.00	1.00	0.00	78.62	77.71	2.00	0.00	1.00	0.00
78.68	84.02	2.00	0.00	1.00	0.00	78.69	89.57	2.00	0.00	1.00	0.00
78.78	95.10	2.00	0.00	1.00	0.00	78.81	102.04	2.00	0.00	1.00	0.00
78.92	107.35	2.00	0.00	1.00	0.00	79.03	107.43	2.00	0.00	1.00	0.00
79.16	99.26	2.00	0.00	1.00	0.00	79.26	88.45	2.00	0.00	1.00	0.00
79.35	83.92	2.00	0.00	1.00	0.00	79.45	85.78	2.00	0.00	1.00	0.00
79.54	89.58	2.00	0.00	1.00	0.00	79.64	91.91	2.00	0.00	1.00	0.00
79.74	93.85	2.00	0.00	1.00	0.00	79.88	94.86	2.00	0.00	1.00	0.00
79.98	95.73	2.00	0.00	1.00	0.00	80.12	95.14	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
80.22	91.22	2.00	0.00	1.00	0.00	80.36	86.07	2.00	0.00	1.00	0.00
80.46	81.11	2.00	0.00	1.00	0.00	80.60	77.21	2.00	0.00	1.00	0.00
80.70	74.37	2.00	0.00	1.00	0.00	80.83	72.04	2.00	0.00	1.00	0.00
80.94	69.62	2.00	0.00	1.00	0.00	81.01	67.91	2.00	0.00	1.00	0.00
81.04	66.50	2.00	0.00	1.00	0.00	81.09	65.97	2.00	0.00	1.00	0.00
81.13	66.04	2.00	0.00	1.00	0.00	81.18	67.98	2.00	0.00	1.00	0.00
81.23	72.13	2.00	0.00	1.00	0.00	81.28	77.64	2.00	0.00	1.00	0.00
81.33	84.19	2.00	0.00	1.00	0.00	81.37	92.48	2.00	0.00	1.00	0.00
81.42	100.46	2.00	0.00	1.00	0.00	81.47	106.15	2.00	0.00	1.00	0.00
81.52	109.13	2.00	0.00	1.00	0.00	81.56	111.09	2.00	0.00	1.00	0.00
81.61	112.75	2.00	0.00	1.00	0.00	81.64	114.41	2.00	0.00	1.00	0.00
81.70	116.91	2.00	0.00	1.00	0.00	81.75	118.94	2.00	0.00	1.00	0.00
81.79	119.14	2.00	0.00	1.00	0.00	81.82	116.62	2.00	0.00	1.00	0.00
81.86	112.49	2.00	0.00	1.00	0.00	81.91	107.66	2.00	0.00	1.00	0.00
81.95	102.27	2.00	0.00	1.00	0.00	82.00	95.81	2.00	0.00	1.00	0.00
82.09	89.46	2.00	0.00	1.00	0.00	82.15	84.64	2.00	0.00	1.00	0.00
82.19	81.03	2.00	0.00	1.00	0.00	82.26	77.56	2.00	0.00	1.00	0.00
82.34	74.17	2.00	0.00	1.00	0.00	82.39	71.81	2.00	0.00	1.00	0.00
82.48	69.97	2.00	0.00	1.00	0.00	82.58	68.21	2.00	0.00	1.00	0.00
82.62	66.60	2.00	0.00	1.00	0.00	82.70	65.56	2.00	0.00	1.00	0.00
82.77	64.46	2.00	0.00	1.00	0.00	82.87	64.01	2.00	0.00	1.00	0.00
82.96	63.38	2.00	0.00	1.00	0.00	83.06	63.34	2.00	0.00	1.00	0.00
83.16	63.10	2.00	0.00	1.00	0.00	83.25	62.94	2.00	0.00	1.00	0.00
83.34	62.57	2.00	0.00	1.00	0.00	83.44	63.55	2.00	0.00	1.00	0.00
83.54	64.89	2.00	0.00	1.00	0.00	83.64	66.49	2.00	0.00	1.00	0.00
83.73	68.29	2.00	0.00	1.00	0.00	83.83	70.46	2.00	0.00	1.00	0.00
83.85	73.38	2.00	0.00	1.00	0.00	83.89	75.93	2.00	0.00	1.00	0.00
83.94	81.26	2.00	0.00	1.00	0.00	84.04	85.92	2.00	0.00	1.00	0.00
84.09	90.10	2.00	0.00	1.00	0.00	84.13	91.94	2.00	0.00	1.00	0.00
84.18	93.61	2.00	0.00	1.00	0.00	84.25	94.85	2.00	0.00	1.00	0.00
84.33	95.60	2.00	0.00	1.00	0.00	84.37	95.90	2.00	0.00	1.00	0.00
84.46	94.98	2.00	0.00	1.00	0.00	84.52	93.43	2.00	0.00	1.00	0.00
84.57	91.27	2.00	0.00	1.00	0.00	84.67	90.00	2.00	0.00	1.00	0.00
84.71	89.72	2.00	0.00	1.00	0.00	84.81	90.86	2.00	0.00	1.00	0.00
84.86	92.62	2.00	0.00	1.00	0.00	84.91	94.03	2.00	0.00	1.00	0.00
85.00	94.63	2.00	0.00	1.00	0.00	85.05	93.94	2.00	0.00	1.00	0.00
85.15	92.30	2.00	0.00	1.00	0.00	85.19	89.13	2.00	0.00	1.00	0.00
85.29	85.98	2.00	0.00	1.00	0.00	85.35	83.14	2.00	0.00	1.00	0.00
85.42	81.54	2.00	0.00	1.00	0.00	85.48	80.45	2.00	0.00	1.00	0.00
85.55	79.50	2.00	0.00	1.00	0.00	85.63	78.76	2.00	0.00	1.00	0.00
85.68	78.25	2.00	0.00	1.00	0.00	85.77	78.03	2.00	0.00	1.00	0.00
85.82	78.34	2.00	0.00	1.00	0.00	85.89	78.79	2.00	0.00	1.00	0.00
85.96	79.01	2.00	0.00	1.00	0.00	86.03	78.44	2.00	0.00	1.00	0.00
86.11	77.40	2.00	0.00	1.00	0.00	86.16	76.21	2.00	0.00	1.00	0.00
86.25	75.81	2.00	0.00	1.00	0.00	86.36	74.32	2.00	0.00	1.00	0.00
86.50	72.85	2.00	0.00	1.00	0.00	86.51	70.91	2.00	0.00	1.00	0.00
86.52	69.58	2.00	0.00	1.00	0.00	86.57	66.80	2.00	0.00	1.00	0.00
86.65	63.50	2.00	0.00	1.00	0.00	86.71	60.73	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
86.80	59.11	2.00	0.00	1.00	0.00	86.90	57.42	2.00	0.00	1.00	0.00
86.99	55.74	2.00	0.00	1.00	0.00	87.04	54.32	2.00	0.00	1.00	0.00
87.14	53.51	2.00	0.00	1.00	0.00	87.19	53.36	2.00	0.00	1.00	0.00
87.28	54.40	2.00	0.00	1.00	0.00	87.38	55.67	2.00	0.00	1.00	0.00
87.43	56.85	2.00	0.00	1.00	0.00	87.52	57.36	2.00	0.00	1.00	0.00
87.61	57.58	2.00	0.00	1.00	0.00	87.66	57.47	2.00	0.00	1.00	0.00
87.76	57.12	2.00	0.00	1.00	0.00	87.84	56.58	2.00	0.00	1.00	0.00
87.91	56.08	2.00	0.00	1.00	0.00	88.00	55.54	2.00	0.00	1.00	0.00
88.11	55.23	2.00	0.00	1.00	0.00	88.19	55.01	2.00	0.00	1.00	0.00
88.25	54.79	2.00	0.00	1.00	0.00	88.34	54.27	2.00	0.00	1.00	0.00
88.44	53.59	2.00	0.00	1.00	0.00	88.54	52.93	2.00	0.00	1.00	0.00
88.64	52.52	2.00	0.00	1.00	0.00	88.72	52.42	2.00	0.00	1.00	0.00
88.82	52.53	2.00	0.00	1.00	0.00	88.91	52.79	2.00	0.00	1.00	0.00
89.01	53.02	2.00	0.00	1.00	0.00	89.10	53.22	2.00	0.00	1.00	0.00
89.19	52.91	2.00	0.00	1.00	0.00	89.30	50.44	2.00	0.00	1.00	0.00
89.39	48.98	2.00	0.00	1.00	0.00	89.49	49.49	2.00	0.00	1.00	0.00
89.59	52.76	2.00	0.00	1.00	0.00	89.69	54.90	2.00	0.00	1.00	0.00
89.73	55.86	2.00	0.00	1.00	0.00	89.78	56.23	2.00	0.00	1.00	0.00
89.83	56.56	2.00	0.00	1.00	0.00	89.88	57.05	2.00	0.00	1.00	0.00
89.93	57.77	2.00	0.00	1.00	0.00	90.00	58.79	2.00	0.00	1.00	0.00
90.07	59.82	2.00	0.00	1.00	0.00	90.12	61.24	2.00	0.00	1.00	0.00
90.22	62.84	2.00	0.00	1.00	0.00	90.27	65.70	2.00	0.00	1.00	0.00
90.36	68.34	2.00	0.00	1.00	0.00	90.46	70.27	2.00	0.00	1.00	0.00
90.50	71.01	2.00	0.00	1.00	0.00	90.61	71.39	2.00	0.00	1.00	0.00
90.66	71.12	2.00	0.00	1.00	0.00	90.75	69.74	2.00	0.00	1.00	0.00
90.84	67.94	2.00	0.00	1.00	0.00	90.89	66.20	2.00	0.00	1.00	0.00
90.99	65.12	2.00	0.00	1.00	0.00	91.04	64.21	2.00	0.00	1.00	0.00
91.14	63.69	2.00	0.00	1.00	0.00	91.22	63.19	2.00	0.00	1.00	0.00
91.28	62.55	2.00	0.00	1.00	0.00	91.37	61.75	2.00	0.00	1.00	0.00
91.47	60.75	2.00	0.00	1.00	0.00	91.61	60.19	2.00	0.00	1.00	0.00
91.71	59.97	2.00	0.00	1.00	0.00	91.81	60.03	2.00	0.00	1.00	0.00
91.87	59.68	2.00	0.00	1.00	0.00	92.00	57.50	2.00	0.00	1.00	0.00
92.10	55.77	2.00	0.00	1.00	0.00	92.20	54.98	2.00	0.00	1.00	0.00
92.33	56.37	2.00	0.00	1.00	0.00	92.38	57.43	2.00	0.00	1.00	0.00
92.43	57.96	2.00	0.00	1.00	0.00	92.48	58.57	2.00	0.00	1.00	0.00
92.56	59.09	2.00	0.00	1.00	0.00	92.63	59.41	2.00	0.00	1.00	0.00
92.67	59.42	2.00	0.00	1.00	0.00	92.72	59.38	2.00	0.00	1.00	0.00
92.77	59.37	2.00	0.00	1.00	0.00	92.86	59.49	2.00	0.00	1.00	0.00
92.92	59.88	2.00	0.00	1.00	0.00	92.97	61.03	2.00	0.00	1.00	0.00
93.05	62.12	2.00	0.00	1.00	0.00	93.10	63.07	2.00	0.00	1.00	0.00
93.16	63.28	2.00	0.00	1.00	0.00	93.25	63.20	2.00	0.00	1.00	0.00
93.35	62.84	2.00	0.00	1.00	0.00	93.40	62.27	2.00	0.00	1.00	0.00
93.49	61.82	2.00	0.00	1.00	0.00	93.56	61.55	2.00	0.00	1.00	0.00
93.64	61.65	2.00	0.00	1.00	0.00	93.73	62.81	2.00	0.00	1.00	0.00
93.83	64.72	2.00	0.00	1.00	0.00	93.88	67.85	2.00	0.00	1.00	0.00
93.97	70.35	2.00	0.00	1.00	0.00	94.07	72.95	2.00	0.00	1.00	0.00
94.17	75.57	2.00	0.00	1.00	0.00	94.26	76.60	2.00	0.00	1.00	0.00
94.36	81.75	2.00	0.00	1.00	0.00	94.45	87.02	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
94.55	91.74	2.00	0.00	1.00	0.00	94.64	89.52	2.00	0.00	1.00	0.00
94.72	85.22	2.00	0.00	1.00	0.00	94.74	79.85	2.00	0.00	1.00	0.00
94.77	76.98	2.00	0.00	1.00	0.00	94.85	74.39	2.00	0.00	1.00	0.00
94.90	75.17	2.00	0.00	1.00	0.00	94.95	77.89	2.00	0.00	1.00	0.00
95.01	85.22	2.00	0.00	1.00	0.00	95.09	94.37	2.00	0.00	1.00	0.00
95.14	107.02	2.00	0.00	1.00	0.00	95.23	117.34	2.00	0.00	1.00	0.00
95.29	126.89	2.00	0.00	1.00	0.00	95.38	131.69	2.00	0.00	1.00	0.00
95.43	133.43	2.00	0.00	1.00	0.00	95.52	132.50	2.00	0.00	1.00	0.00
95.57	128.95	2.00	0.00	1.00	0.00	95.67	123.49	2.00	0.00	1.00	0.00
95.77	118.72	2.00	0.00	1.00	0.00	95.86	118.80	2.00	0.00	1.00	0.00
95.95	116.56	2.00	0.00	1.00	0.00	96.03	118.40	2.00	0.00	1.00	0.00
96.11	118.64	2.00	0.00	1.00	0.00	96.20	124.65	2.00	0.00	1.00	0.00
96.30	125.73	2.00	0.00	1.00	0.00	96.39	124.50	2.00	0.00	1.00	0.00
96.50	120.31	2.00	0.00	1.00	0.00	96.59	106.72	2.00	0.00	1.00	0.00
96.69	91.36	2.00	0.00	1.00	0.00	96.78	77.51	2.00	0.00	1.00	0.00
96.87	72.98	2.00	0.00	1.00	0.00	96.98	71.40	2.00	0.00	1.00	0.00
97.02	71.90	2.00	0.00	1.00	0.00	97.06	73.47	2.00	0.00	1.00	0.00
97.12	76.16	2.00	0.00	1.00	0.00	97.16	79.48	2.00	0.00	1.00	0.00
97.21	83.99	2.00	0.00	1.00	0.00	97.27	89.17	2.00	0.00	1.00	0.00
97.33	93.67	2.00	0.00	1.00	0.00	97.40	96.33	2.00	0.00	1.00	0.00
97.45	97.51	2.00	0.00	1.00	0.00	97.50	100.38	2.00	0.00	1.00	0.00
97.58	104.78	2.00	0.00	1.00	0.00	97.65	110.26	2.00	0.00	1.00	0.00
97.69	113.95	2.00	0.00	1.00	0.00	97.74	115.68	2.00	0.00	1.00	0.00
97.81	116.42	2.00	0.00	1.00	0.00	97.88	116.63	2.00	0.00	1.00	0.00
97.93	111.98	2.00	0.00	1.00	0.00	98.03	97.35	2.00	0.00	1.00	0.00
98.15	83.50	2.00	0.00	1.00	0.00	98.21	78.05	2.00	0.00	1.00	0.00
98.32	80.19	2.00	0.00	1.00	0.00	98.42	85.96	2.00	0.00	1.00	0.00
98.47	79.73	2.00	0.00	1.00	0.00	98.57	88.75	2.00	0.00	1.00	0.00
98.70	94.00	2.00	0.00	1.00	0.00	98.78	92.13	2.00	0.00	1.00	0.00
98.85	84.79	2.00	0.00	1.00	0.00	98.86	76.77	2.00	0.00	1.00	0.00
98.92	73.26	2.00	0.00	1.00	0.00	98.98	72.24	2.00	0.00	1.00	0.00
99.03	70.12	2.00	0.00	1.00	0.00	99.11	63.67	2.00	0.00	1.00	0.00
99.18	74.69	2.00	0.00	1.00	0.00	99.23	73.25	2.00	0.00	1.00	0.00
99.32	76.01	2.00	0.00	1.00	0.00	99.37	83.05	2.00	0.00	1.00	0.00
99.45	90.04	2.00	0.00	1.00	0.00	99.56	96.01	2.00	0.00	1.00	0.00
99.64	101.90	2.00	0.00	1.00	0.00	99.71	108.77	2.00	0.00	1.00	0.00
99.75	113.72	2.00	0.00	1.00	0.00	99.90	118.27	2.00	0.00	1.00	0.00
99.95	126.55	2.00	0.00	1.00	0.00	100.04	127.45	2.00	0.00	1.00	0.00
100.14	116.89	2.00	0.00	1.00	0.00	100.14	106.43	2.00	0.00	1.00	0.00
100.15	105.52	2.00	0.00	1.00	0.00	100.19	111.71	2.00	0.00	1.00	0.00
100.21	119.29	2.00	0.00	1.00	0.00	100.24	108.37	2.00	0.00	1.00	0.00
100.28	106.62	2.00	0.00	1.00	0.00	100.31	-1.00	2.00	0.00	1.00	0.00
100.33	-1.00	2.00	0.00	1.00	0.00	100.38	-1.00	2.00	0.00	1.00	0.00
100.39	-1.00	2.00	0.00	1.00	0.00	100.43	-1.00	2.00	0.00	1.00	0.00
100.48	-1.00	2.00	0.00	1.00	0.00	100.53	-1.00	2.00	0.00	1.00	0.00
100.57	-1.00	2.00	0.00	1.00	0.00	100.60	-1.00	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)

Total estimated settlement: 1.07

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.04	0.10	0.16	54.25	8.56	4.06	18.21	3.82
0.10	0.13	0.21	54.25	11.25	4.06	10.48	2.18
0.11	0.23	0.37	54.25	19.92	4.06	9.43	3.40
0.16	0.54	0.85	54.25	46.18	4.06	6.91	5.55
0.19	1.28	2.04	26.86	54.86	3.64	5.54	10.68
0.24	2.83	4.54	12.41	56.29	3.19	4.85	19.02
0.31	4.93	7.89	7.08	55.92	2.89	0.08	0.64
0.38	6.68	10.70	5.13	54.91	2.74	0.08	0.64
0.43	7.56	12.11	4.55	55.04	2.68	0.08	0.64
0.49	7.32	11.72	4.88	57.26	2.72	0.09	0.65
0.58	6.81	10.90	5.56	60.65	2.78	0.12	0.66
0.63	6.24	9.98	6.53	65.19	2.85	0.17	0.67
0.67	6.05	9.68	7.19	69.56	2.90	0.25	0.68
0.72	6.02	9.62	7.57	72.80	2.92	0.32	0.69
0.72	6.70	10.70	7.32	78.32	2.91	0.51	0.70
0.84	9.28	14.84	5.43	80.63	2.77	0.62	0.71
0.96	15.82	25.35	2.97	75.23	2.50	0.39	0.70
1.06	22.64	36.29	2.02	73.35	2.32	0.34	0.69
1.24	27.97	44.84	1.65	74.08	2.21	0.36	0.69
1.30	31.48	50.47	1.49	75.12	2.14	0.39	0.70
1.48	37.28	59.78	1.34	80.22	2.04	0.59	0.71
1.59	42.14	67.57	1.29	87.16	1.98	0.72	0.72
1.69	47.40	76.02	1.26	95.52	1.93	0.74	0.74
1.69	49.80	79.87	1.25	99.55	1.91	0.75	0.75
1.74	53.24	85.40	1.22	104.46	1.88	0.76	0.76
1.79	53.78	86.26	1.22	105.40	1.88	0.76	0.76
1.84	52.90	84.84	1.23	104.08	1.89	0.76	0.76
1.88	51.25	82.18	1.23	101.34	1.89	0.75	0.75
1.93	49.46	79.31	1.24	98.11	1.90	0.74	0.74
1.99	48.69	78.06	1.23	96.29	1.90	0.74	0.74
2.03	48.08	77.07	1.23	94.90	1.89	0.74	0.74
2.08	47.67	76.42	1.23	93.98	1.89	0.74	0.74
2.13	46.86	75.11	1.23	92.67	1.90	0.73	0.73
2.22	45.85	73.48	1.24	91.09	1.90	0.73	0.73
2.27	44.97	72.07	1.24	89.70	1.91	0.73	0.73
2.33	44.77	71.74	1.24	89.16	1.91	0.73	0.73
2.42	45.44	72.81	1.24	89.96	1.90	0.73	0.73
2.48	46.73	74.86	1.22	91.66	1.88	0.73	0.73
2.56	48.41	77.57	1.21	94.03	1.86	0.74	0.74
2.65	49.43	79.19	1.21	95.47	1.86	0.74	0.74
2.72	48.72	78.04	1.21	94.74	1.87	0.74	0.74
2.80	46.02	73.70	1.23	90.99	1.90	0.73	0.73
2.89	42.44	67.94	1.26	85.67	1.94	0.72	0.72
2.94	39.03	62.46	1.29	80.64	1.98	0.62	0.71
3.04	35.90	57.42	1.32	76.04	2.02	0.42	0.70
3.14	32.32	51.66	1.37	70.91	2.07	0.27	0.69
3.23	29.01	46.34	1.42	65.97	2.10	0.18	0.67
3.31	25.74	41.07	1.50	61.64	2.15	0.13	0.66

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.37	23.04	36.73	1.59	58.33	2.19	0.10	0.65
3.48	20.38	32.44	1.71	55.35	2.23	0.08	0.64
3.57	18.79	29.89	1.76	52.71	2.25	0.06	0.63
3.65	18.02	28.64	1.78	50.93	2.26	0.06	0.63
3.71	18.02	28.64	1.77	50.70	2.26	0.06	0.63
3.82	18.63	29.60	1.77	52.47	2.26	0.06	0.63
3.91	20.18	32.09	1.71	54.73	2.23	0.07	0.64
4.00	22.81	36.30	1.60	58.22	2.20	0.10	0.65
4.10	26.38	42.04	1.41	59.10	2.09	0.11	0.65
4.19	31.21	49.79	1.00	49.79	1.98	0.05	0.62
4.26	37.92	60.57	1.00	60.57	1.86	0.12	0.66
4.35	45.62	72.92	1.00	72.92	1.79	0.32	0.69
4.44	49.80	79.63	1.00	79.63	1.77	0.57	0.71
4.52	51.39	82.17	1.00	82.17	1.76	0.70	0.71
4.53	52.26	83.58	1.00	83.58	1.76	0.72	0.72
4.58	55.03	88.02	1.00	88.02	1.73	0.72	0.72
4.63	57.76	92.41	1.00	92.41	1.71	0.73	0.73
4.68	58.84	94.14	1.00	94.14	1.70	0.74	0.74
4.72	59.28	94.84	1.00	94.84	1.71	0.74	0.74
4.77	59.08	94.51	1.00	94.51	1.72	0.74	0.74
4.82	58.07	92.88	1.00	92.88	1.73	0.73	0.73
4.88	56.21	89.89	1.00	89.89	1.76	0.73	0.73
4.96	53.61	85.71	1.14	97.96	1.79	0.74	0.74
5.01	50.54	80.78	1.18	95.67	1.83	0.74	0.74
5.08	47.44	75.78	1.22	92.32	1.87	0.73	0.73
5.16	44.81	71.55	1.24	88.93	1.91	0.73	0.73
5.21	43.27	69.07	1.26	86.85	1.93	0.72	0.72
5.30	42.68	68.12	1.26	86.01	1.94	0.72	0.72
5.37	42.65	68.06	1.26	85.96	1.94	0.72	0.72
5.45	42.70	68.13	1.26	86.01	1.94	0.72	0.72
5.52	42.44	67.72	1.26	85.64	1.94	0.72	0.72
5.59	41.70	66.52	1.27	84.54	1.95	0.72	0.72
5.65	40.15	64.02	1.28	82.25	1.97	0.70	0.71
5.74	38.46	61.30	1.30	79.83	1.99	0.58	0.71
5.83	37.08	59.07	1.32	77.99	2.02	0.49	0.70
5.89	36.30	57.82	1.33	77.16	2.03	0.46	0.70
5.97	35.66	56.79	1.35	76.43	2.04	0.43	0.70
6.07	34.52	54.94	1.37	75.11	2.06	0.39	0.70
6.12	32.56	51.79	1.41	73.14	2.10	0.33	0.69
6.22	29.76	47.28	1.51	71.19	2.15	0.28	0.69
6.28	26.56	42.13	1.67	70.33	2.22	0.26	0.68
6.36	23.45	37.14	1.90	70.41	2.29	0.26	0.68
6.46	21.29	33.66	2.09	70.43	2.34	0.26	0.68
6.52	20.72	32.73	2.06	67.56	2.33	0.21	0.68
6.60	22.07	34.89	1.79	62.55	2.26	0.14	0.66
6.70	23.55	37.27	1.57	58.59	2.18	0.10	0.65
6.76	23.01	36.39	1.55	56.58	2.17	0.09	0.65
6.84	19.64	30.96	1.81	55.94	2.27	0.08	0.64

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.94	14.91	23.37	2.60	60.83	2.44	0.12	0.66
7.03	10.86	16.85	4.02	67.75	2.63	0.21	0.68
7.13	8.23	12.62	5.71	72.04	2.79	0.30	0.69
7.19	6.62	10.02	6.93	69.39	2.88	0.24	0.68
7.32	5.77	8.65	6.87	59.40	2.88	0.11	0.65
7.42	5.17	7.67	5.87	44.99	2.80	0.04	0.62
7.49	4.93	7.28	4.02	29.29	2.63	0.02	0.62
7.57	4.73	-1.00	1.00	-1.00	-1.00	0.00	0.00
7.66	4.56	-1.00	1.00	-1.00	-1.00	0.00	0.00
7.76	4.44	6.47	4.48	29.00	2.68	0.02	0.62
7.77	4.39	6.39	4.95	31.63	2.72	0.02	0.62
7.78	4.42	6.44	5.05	32.53	2.73	0.02	0.62
7.82	4.44	6.47	5.36	34.69	2.76	0.02	0.62
7.87	4.45	6.49	5.86	38.07	2.80	0.03	0.62
7.92	4.45	6.49	6.45	41.83	2.85	0.03	0.62
7.97	4.49	6.54	6.96	45.53	2.88	0.04	0.62
8.01	4.59	6.70	7.41	49.66	2.91	0.05	0.62
8.06	4.76	6.97	7.58	52.81	2.92	0.06	0.63
8.11	4.93	7.24	7.65	55.42	2.93	0.08	0.64
8.20	5.06	7.45	7.68	57.24	2.93	0.09	0.65
8.26	5.16	7.60	7.84	59.63	2.94	0.11	0.66
8.35	5.23	7.70	7.98	61.50	2.95	0.13	0.66
8.40	5.30	7.81	8.02	62.65	2.95	0.14	0.66
8.49	5.37	7.91	7.96	62.99	2.95	0.14	0.66
8.54	5.51	8.13	7.81	63.54	2.94	0.15	0.67
8.64	5.71	8.45	7.58	64.06	2.93	0.16	0.67
8.69	5.91	8.77	7.37	64.63	2.91	0.16	0.67
8.79	6.18	9.19	7.46	68.57	2.92	0.23	0.68
8.84	6.48	9.68	7.59	73.49	2.93	0.34	0.69
8.93	6.89	10.32	7.50	77.37	2.92	0.47	0.70
9.03	7.13	10.69	7.46	79.83	2.92	0.58	0.71
9.08	7.21	10.83	7.52	81.47	2.92	0.66	0.71
9.11	7.16	10.75	7.78	83.66	2.94	0.72	0.72
9.12	7.13	10.69	7.89	84.32	2.95	0.72	0.72
9.17	7.07	10.60	8.03	85.13	2.95	0.72	0.72
9.22	7.12	10.67	8.09	86.32	2.96	0.72	0.72
9.31	6.92	10.34	8.56	88.56	2.99	0.73	0.73
9.36	7.16	10.72	8.37	89.76	2.98	0.73	0.73
9.40	7.46	11.20	8.04	90.10	2.95	0.73	0.73
9.46	8.14	12.28	7.25	89.07	2.90	0.73	0.73
9.51	8.47	12.82	6.92	88.75	2.88	0.73	0.73
9.55	8.78	13.30	6.70	89.10	2.86	0.73	0.73
9.61	8.98	13.63	6.65	90.65	2.86	0.73	0.73
9.69	9.12	13.84	6.73	93.09	2.87	0.73	0.73
9.74	9.18	13.94	6.87	95.71	2.88	0.74	0.74
9.81	9.39	14.26	6.85	97.70	2.88	0.74	0.74
9.89	9.76	14.85	6.62	98.33	2.86	0.74	0.74
9.94	10.06	15.33	6.42	98.43	2.84	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.03	10.23	15.59	6.28	97.94	2.83	0.74	0.74
10.08	10.23	15.59	5.91	92.18	2.80	0.73	0.73
10.18	10.23	15.58	5.40	84.12	2.76	0.72	0.72
10.23	10.23	15.58	5.05	78.62	2.73	0.52	0.70
10.33	10.23	15.57	5.17	80.55	2.74	0.61	0.71
10.40	10.23	15.56	5.54	86.20	2.77	0.72	0.72
10.47	10.08	15.32	5.91	90.44	2.80	0.73	0.73
10.51	10.06	15.28	6.18	94.42	2.83	0.74	0.74
10.56	10.03	15.23	6.41	97.63	2.84	0.74	0.74
10.61	10.21	15.52	6.51	100.97	2.85	0.75	0.75
10.67	10.16	15.43	6.88	106.14	2.88	0.76	0.76
10.75	10.13	15.37	7.21	110.80	2.90	0.77	0.77
10.80	9.99	15.15	7.50	113.70	2.92	0.77	0.77
10.85	9.89	14.99	7.63	114.35	2.93	0.77	0.77
10.90	9.72	14.71	7.82	115.05	2.94	0.77	0.77
11.00	9.45	14.27	8.13	116.05	2.96	0.78	0.78
11.05	9.05	13.61	8.55	116.32	2.99	0.78	0.78
11.14	8.61	12.90	9.04	116.64	3.01	0.62	0.99
11.21	8.27	12.36	9.53	117.80	3.04	0.62	0.94
11.29	8.24	12.30	9.66	118.79	3.05	0.65	0.93
11.38	8.41	12.56	9.53	119.67	3.04	0.63	0.94
11.46	8.68	12.98	9.18	119.19	3.02	0.64	0.97
11.52	8.88	13.30	8.96	119.26	3.01	0.64	0.98
11.60	8.98	13.46	8.85	119.12	3.00	0.64	0.99
11.67	9.05	13.56	8.79	119.24	3.00	0.64	0.99
11.72	9.12	13.67	8.75	119.52	3.00	0.78	0.78
11.81	9.32	13.98	8.54	119.37	2.99	0.78	0.78
11.86	9.35	14.03	8.52	119.54	2.98	0.78	0.78
11.96	9.42	14.07	8.48	119.37	2.98	0.78	0.78
12.01	9.45	14.06	8.50	119.58	2.98	0.78	0.78
12.10	9.69	13.55	8.25	111.75	2.97	0.77	0.77
12.16	10.07	13.97	7.41	103.51	2.91	0.75	0.75
12.24	10.47	14.38	6.85	98.49	2.88	0.75	0.75
12.32	10.87	14.89	6.86	102.09	2.88	0.75	0.75
12.39	11.18	15.29	7.16	109.53	2.90	0.77	0.77
12.48	10.64	14.47	7.97	115.36	2.95	0.78	0.78
12.50	10.23	14.64	8.30	121.50	2.97	0.79	0.79
12.54	10.74	14.58	8.20	119.55	2.96	0.78	0.78
12.64	12.36	16.65	7.01	116.68	2.89	0.78	0.78
12.68	14.04	18.79	6.01	113.05	2.81	0.77	0.77
12.77	14.72	19.54	5.64	110.30	2.78	0.77	0.77
12.82	14.75	19.48	5.55	108.15	2.78	0.76	0.76
12.89	14.21	18.67	5.71	106.60	2.79	0.76	0.76
12.97	13.37	17.49	6.13	107.25	2.82	0.76	0.76
13.03	12.49	16.30	6.66	108.51	2.86	0.76	0.76
13.12	11.72	15.20	7.22	109.85	2.90	0.77	0.77
13.16	11.21	14.50	7.58	109.96	2.93	0.77	0.77
13.26	10.91	13.99	7.68	107.43	2.93	0.76	0.76

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.34	10.84	13.79	7.45	102.72	2.92	0.75	0.75
13.41	10.74	13.56	7.18	97.27	2.90	0.74	0.74
13.50	10.60	13.27	7.10	94.19	2.89	0.74	0.74
13.60	10.33	12.84	7.26	93.25	2.90	0.74	0.74
13.65	10.13	12.55	7.49	94.05	2.92	0.74	0.74
13.75	10.03	12.35	7.71	95.17	2.93	0.74	0.74
13.80	10.10	12.37	7.57	93.67	2.92	0.74	0.74
13.89	10.23	12.47	7.55	94.18	2.92	0.74	0.74
13.94	10.63	12.95	7.46	96.59	2.92	0.74	0.74
14.03	10.80	13.13	7.91	103.87	2.95	0.76	0.76
14.11	11.23	13.59	7.98	108.45	2.95	0.76	0.76
14.13	11.53	13.97	7.99	111.61	2.95	0.77	0.77
14.18	12.27	14.85	7.55	112.19	2.92	0.77	0.77
14.22	12.83	15.50	7.35	113.98	2.91	0.77	0.77
14.28	13.44	16.19	7.18	116.20	2.90	0.78	0.78
14.37	14.01	16.81	7.06	118.62	2.89	0.78	0.78
14.44	14.79	17.68	6.80	120.24	2.87	0.78	0.78
14.51	15.63	18.60	6.50	120.95	2.85	0.78	0.78
14.60	16.31	19.30	6.30	121.55	2.83	0.79	0.79
14.65	16.58	19.57	6.28	122.89	2.83	0.79	0.79
14.75	16.56	19.44	6.39	124.23	2.84	0.79	0.79
14.85	16.48	19.22	6.50	124.95	2.85	0.79	0.79
14.91	16.44	19.11	6.54	124.89	2.85	0.79	0.79
14.99	17.00	19.64	6.25	122.73	2.83	0.79	0.79
15.09	18.30	21.01	5.69	119.59	2.79	0.78	0.78
15.18	20.29	23.13	4.94	114.33	2.72	0.77	0.77
15.25	22.28	25.25	4.26	107.53	2.66	0.76	0.76
15.33	24.50	27.58	3.60	99.22	2.58	0.75	0.75
15.43	27.51	30.70	2.96	90.92	2.50	0.73	0.73
15.51	31.32	34.70	2.45	84.95	2.41	0.72	0.72
15.59	34.63	38.13	2.14	81.77	2.35	0.68	0.71
15.67	36.18	39.65	2.03	80.65	2.33	0.62	0.71
15.76	35.13	38.36	2.14	81.98	2.35	0.69	0.71
15.86	32.03	34.86	2.45	85.36	2.41	0.72	0.72
15.95	27.64	30.01	3.03	90.95	2.51	0.73	0.73
16.05	23.08	24.94	3.85	95.91	2.61	0.74	0.74
16.14	19.31	20.73	4.79	99.32	2.71	0.75	0.75
16.20	16.85	17.98	5.55	99.84	2.78	0.75	0.75
16.28	15.33	16.24	6.13	99.52	2.82	0.75	0.75
16.34	14.21	14.97	6.52	97.62	2.85	0.74	0.74
16.44	12.93	13.48	7.12	95.96	2.89	0.74	0.74
16.50	11.61	12.00	7.73	92.73	2.93	0.73	0.73
16.58	10.17	10.54	8.19	86.31	2.96	0.72	0.72
16.73	8.75	8.85	8.43	74.57	2.98	0.37	0.69
16.82	7.60	7.51	8.14	61.14	2.96	0.12	0.66
16.92	7.06	6.86	8.35	57.29	2.97	0.09	0.65
17.01	6.56	6.26	10.33	64.67	3.09	0.13	0.45
17.11	6.20	5.84	12.54	73.17	3.19	0.19	0.42

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
17.12	5.73	5.31	14.74	78.30	3.28	0.20	0.38
17.14	6.34	5.97	13.44	80.31	3.23	0.21	0.43
17.19	7.13	6.82	12.15	82.92	3.17	0.24	0.49
17.28	7.94	7.67	11.16	85.58	3.13	0.27	0.55
17.33	8.01	7.71	11.48	88.52	3.14	0.29	0.55
17.43	7.87	7.52	11.93	89.67	3.16	0.30	0.54
17.47	7.74	7.35	12.03	88.37	3.17	0.29	0.52
17.57	7.57	7.12	11.95	85.14	3.16	0.25	0.51
17.65	7.47	6.98	11.70	81.63	3.15	0.23	0.50
17.72	7.40	6.88	11.84	81.46	3.16	0.22	0.49
17.81	7.57	7.02	11.86	83.22	3.16	0.25	0.50
17.86	7.87	7.32	11.98	87.65	3.17	0.27	0.52
17.95	8.31	7.73	11.95	92.32	3.16	0.32	0.55
18.05	8.78	8.18	11.81	96.52	3.16	0.36	0.58
18.10	9.22	8.61	11.67	100.43	3.15	0.38	0.61
18.20	9.66	9.01	11.52	103.80	3.14	0.42	0.64
18.30	9.90	9.20	11.60	106.76	3.15	0.46	0.66
18.39	10.13	9.38	11.50	107.91	3.14	0.46	0.67
18.48	10.27	9.47	11.38	107.71	3.14	0.46	0.68
18.58	10.30	9.44	11.38	107.46	3.14	0.46	0.67
18.66	10.20	9.30	11.49	106.87	3.14	0.45	0.66
18.74	10.07	9.12	11.49	104.74	3.14	0.44	0.65
18.87	9.90	8.88	10.73	95.26	3.11	0.39	0.63
18.97	9.66	8.59	10.09	86.69	3.07	0.22	0.61
19.06	9.56	8.45	9.58	80.90	3.05	0.24	0.60
19.16	9.83	8.66	9.84	85.25	3.06	0.27	0.62
19.25	10.13	8.91	9.93	88.50	3.06	0.31	0.64
19.27	10.23	9.00	10.18	91.69	3.08	0.31	0.64
19.30	10.37	9.12	10.39	94.70	3.09	0.34	0.65
19.34	10.57	9.29	10.57	98.19	3.10	0.38	0.66
19.39	10.84	9.53	10.50	100.00	3.09	0.40	0.68
19.49	10.78	9.41	10.57	99.51	3.10	0.39	0.67
19.55	10.51	9.12	10.70	97.54	3.10	0.37	0.65
19.63	10.17	8.75	10.86	95.04	3.11	0.34	0.63
19.68	9.87	8.43	10.91	92.04	3.11	0.32	0.60
19.74	9.77	8.31	10.69	88.83	3.10	0.29	0.59
19.83	9.73	8.24	10.61	87.40	3.10	0.27	0.59
19.87	9.73	8.22	10.55	86.67	3.10	0.29	0.59
19.94	9.73	8.19	10.80	88.39	3.11	0.27	0.58
20.02	9.80	8.21	11.04	90.64	3.12	0.31	0.59
20.07	10.17	8.54	11.28	96.33	3.13	0.34	0.61
20.17	11.42	9.65	10.38	100.21	3.09	0.41	0.69
20.21	14.18	12.20	8.30	101.25	2.97	0.75	0.75
20.28	18.74	16.43	5.92	97.16	2.80	0.74	0.74
20.36	24.88	22.08	4.11	90.84	2.64	0.73	0.73
20.41	31.73	28.40	3.02	85.89	2.51	0.72	0.72
20.48	38.64	34.74	2.39	83.15	2.40	0.71	0.71
20.55	44.99	40.52	2.02	82.00	2.33	0.69	0.71

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
20.60	49.88	44.99	1.82	81.90	2.27	0.68	0.71
20.70	52.55	47.28	1.74	82.23	2.25	0.70	0.71
20.74	52.68	47.32	1.75	82.97	2.25	0.71	0.71
20.79	51.17	45.83	1.84	84.31	2.28	0.72	0.72
20.89	48.70	43.39	2.03	87.95	2.33	0.72	0.72
20.96	46.86	41.58	2.06	85.66	2.33	0.72	0.72
21.04	45.83	40.52	2.09	84.84	2.34	0.72	0.72
21.13	45.80	40.36	2.05	82.71	2.33	0.71	0.71
21.22	49.22	43.31	1.97	85.52	2.31	0.72	0.72
21.29	52.71	46.38	1.86	86.23	2.28	0.72	0.72
21.35	62.13	54.84	1.58	86.56	2.19	0.72	0.72
21.37	71.37	63.21	1.42	89.97	2.10	0.73	0.73
21.42	83.72	74.37	1.31	97.64	2.01	0.74	0.74
21.47	92.73	82.47	1.27	104.48	1.95	0.76	0.76
21.48	100.66	89.69	1.23	110.65	1.90	0.77	0.77
21.52	107.37	95.73	1.20	115.32	1.85	0.78	0.78
21.57	113.24	100.98	1.17	118.63	1.82	0.78	0.78
21.62	118.81	105.91	1.14	120.85	1.79	0.78	0.78
21.66	124.00	110.52	1.10	122.11	1.76	0.79	0.79
21.71	128.79	114.75	1.07	122.79	1.74	0.79	0.79
21.76	132.64	118.10	1.04	123.42	1.73	0.79	0.79
21.81	135.34	120.38	1.03	124.51	1.72	0.79	0.79
21.85	136.99	121.70	1.04	126.15	1.72	0.79	0.79
21.91	137.80	122.24	1.05	127.87	1.73	0.80	0.80
21.95	138.11	122.32	1.06	129.40	1.73	0.80	0.80
22.00	138.24	122.26	1.07	130.49	1.74	0.80	0.80
22.05	138.18	122.02	1.08	131.33	1.75	0.80	0.80
22.10	138.24	121.90	1.08	132.00	1.75	0.80	0.80
22.15	138.31	121.77	1.09	132.56	1.75	0.80	0.80
22.19	138.68	121.94	1.09	133.12	1.75	0.80	0.80
22.24	139.25	122.24	1.11	135.35	1.76	0.81	0.81
22.29	139.86	122.58	1.11	136.60	1.77	0.81	0.81
22.34	140.20	122.70	1.12	137.16	1.77	0.81	0.81
22.39	140.06	122.45	1.11	135.89	1.77	0.81	0.81
22.43	139.42	121.72	1.11	135.26	1.77	0.81	0.81
22.48	138.34	120.56	1.12	135.08	1.77	0.81	0.81
22.55	136.79	118.95	1.13	134.76	1.78	0.81	0.81
22.62	130.08	112.68	1.17	131.90	1.82	0.80	0.80
22.63	127.95	110.75	1.18	130.57	1.83	0.80	0.80
22.72	125.56	108.31	1.19	128.61	1.83	0.80	0.80
22.77	128.09	110.46	1.17	129.57	1.82	0.80	0.80
22.83	126.13	108.51	1.19	128.59	1.83	0.80	0.80
22.91	124.21	106.52	1.20	127.55	1.85	0.79	0.79
22.96	121.74	104.15	1.21	126.09	1.86	0.79	0.79
23.02	118.20	100.84	1.22	123.45	1.88	0.79	0.79
23.10	113.85	96.74	1.24	119.96	1.90	0.78	0.78
23.16	108.42	91.79	1.26	115.60	1.93	0.78	0.78
23.20	102.21	86.20	1.28	110.62	1.97	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
23.26	95.46	80.15	1.31	105.23	2.01	0.76	0.76
23.35	88.68	74.00	1.36	100.36	2.05	0.75	0.75
23.39	81.66	67.80	1.42	95.97	2.10	0.74	0.74
23.48	74.68	61.55	1.51	93.11	2.15	0.73	0.73
23.54	68.33	55.99	1.61	90.41	2.20	0.73	0.73
23.63	63.44	51.67	1.69	87.24	2.23	0.72	0.72
23.69	60.07	48.84	1.63	79.68	2.21	0.57	0.71
23.78	58.37	47.34	1.59	75.09	2.19	0.39	0.70
23.87	57.71	46.70	1.56	72.76	2.18	0.32	0.69
23.88	57.81	46.69	1.62	75.51	2.20	0.40	0.70
23.93	57.42	46.23	1.69	78.05	2.23	0.50	0.70
24.02	57.22	45.85	1.76	80.73	2.25	0.62	0.71
24.04	56.97	45.57	1.82	82.98	2.27	0.71	0.71
24.05	57.34	45.82	1.85	84.83	2.28	0.72	0.72
24.15	58.27	46.42	1.87	86.71	2.28	0.72	0.72
24.20	60.11	47.86	1.85	88.32	2.28	0.73	0.73
24.30	62.64	49.86	1.75	87.06	2.25	0.72	0.72
24.40	65.07	51.83	1.63	84.41	2.21	0.72	0.72
24.46	66.59	53.10	1.53	81.44	2.16	0.66	0.71
24.54	66.42	52.90	1.50	79.49	2.15	0.56	0.71
24.64	64.09	50.78	1.55	78.59	2.17	0.52	0.70
24.73	59.94	47.12	1.68	79.13	2.22	0.54	0.71
24.78	54.64	42.55	1.92	81.62	2.30	0.67	0.71
24.88	48.57	37.36	2.28	85.25	2.38	0.72	0.72
24.94	41.92	31.81	2.80	89.16	2.47	0.73	0.73
25.02	35.00	26.12	3.52	92.04	2.57	0.73	0.73
25.12	28.43	20.76	4.59	95.35	2.69	0.74	0.74
25.17	22.86	16.30	6.02	98.17	2.81	0.74	0.74
25.27	18.41	12.75	7.69	98.13	2.93	0.74	0.74
25.36	15.13	9.96	9.50	94.69	3.04	0.34	0.71
25.43	12.60	8.11	11.16	90.44	3.13	0.30	0.58
25.50	10.88	6.84	12.76	87.31	3.20	0.27	0.49
25.60	9.77	6.01	14.03	84.31	3.25	0.24	0.43
25.64	9.26	5.64	14.52	81.86	3.27	0.23	0.40
25.67	9.06	5.48	14.58	79.98	3.28	0.22	0.39
25.71	8.86	5.33	14.38	76.65	3.27	0.20	0.38
25.79	8.52	5.07	14.25	72.22	3.26	0.16	0.36
25.93	8.18	4.80	14.17	68.01	3.26	0.14	0.34
26.03	8.02	4.66	13.97	65.11	3.25	0.13	0.33
26.13	8.02	4.64	13.74	63.74	3.24	0.11	0.33
26.24	8.08	4.67	13.54	63.18	3.23	0.12	0.33
26.37	8.18	4.71	13.48	63.49	3.23	0.12	0.34
26.47	8.25	4.73	13.53	64.09	3.23	0.12	0.34
26.60	8.25	4.71	13.24	62.33	3.22	0.12	0.34
26.71	8.38	4.78	12.59	60.15	3.19	0.09	0.34
26.85	8.75	5.00	11.78	58.94	3.16	0.09	0.36
26.95	8.96	5.12	12.24	62.69	3.18	0.11	0.37
27.04	9.60	5.54	12.21	67.66	3.18	0.15	0.40

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
27.09	10.14	5.90	12.33	72.68	3.18	0.17	0.42
27.19	10.95	6.42	11.76	75.49	3.16	0.20	0.46
27.23	11.18	6.56	11.88	78.01	3.16	0.21	0.47
27.33	11.42	6.70	11.98	80.22	3.17	0.22	0.48
27.40	11.76	6.91	11.94	82.48	3.16	0.24	0.49
27.47	12.30	7.25	11.72	84.94	3.15	0.25	0.52
27.57	12.97	7.66	11.34	86.93	3.14	0.28	0.55
27.66	13.85	8.22	10.99	90.36	3.12	0.30	0.59
27.77	14.96	8.93	10.64	94.93	3.10	0.34	0.64
27.86	16.28	9.76	10.29	100.42	3.08	0.40	0.70
27.96	17.39	10.45	10.06	105.14	3.07	0.45	0.75
28.06	17.73	10.63	10.22	108.70	3.08	0.49	0.76
28.15	17.29	10.31	10.64	109.63	3.10	0.50	0.74
28.25	17.04	10.10	10.32	104.18	3.08	0.47	0.72
28.34	16.50	9.71	10.12	98.29	3.07	0.34	0.69
28.44	16.94	9.96	9.46	94.21	3.04	0.34	0.71
28.54	16.11	9.38	10.45	98.03	3.09	0.38	0.67
28.62	17.46	10.22	9.90	101.19	3.06	0.41	0.73
28.71	18.34	10.74	9.72	104.45	3.05	0.45	0.77
28.77	20.26	11.95	8.92	106.63	3.01	0.48	0.85
28.86	20.73	12.21	8.93	109.00	3.01	0.51	0.87
28.91	21.34	12.56	8.78	110.37	3.00	0.52	0.90
28.97	22.04	12.99	8.63	112.06	2.99	0.77	0.77
29.04	22.92	13.50	8.45	114.13	2.98	0.77	0.77
29.10	23.97	14.13	8.26	116.69	2.97	0.78	0.78
29.15	25.15	14.85	8.08	120.01	2.96	0.78	0.78
29.25	26.40	16.30	7.69	125.36	2.93	0.79	0.79
29.34	27.38	16.91	7.60	128.48	2.93	0.80	0.80
29.38	27.75	17.12	7.63	130.55	2.93	0.80	0.80
29.48	27.72	16.25	7.97	129.55	2.95	0.80	0.80
29.55	27.48	16.06	8.07	129.61	2.96	0.80	0.80
29.63	27.41	16.75	7.61	127.50	2.93	0.79	0.79
29.72	28.43	17.61	6.01	105.80	2.81	0.76	0.76
29.82	31.56	20.09	3.98	79.94	2.63	0.58	0.71
29.88	36.83	24.31	2.33	56.65	2.39	0.09	0.65
29.96	45.23	30.47	1.87	56.98	2.29	0.09	0.65
30.06	49.92	33.83	1.75	59.16	2.25	0.11	0.65
30.13	54.67	37.29	1.64	60.99	2.21	0.12	0.66
30.18	56.02	38.21	1.63	62.30	2.21	0.14	0.66
30.28	58.72	40.06	1.61	64.44	2.20	0.16	0.67
30.37	59.53	40.40	1.67	67.53	2.22	0.21	0.68
30.47	60.51	40.85	1.74	71.05	2.25	0.28	0.69
30.57	63.28	42.69	1.73	73.87	2.24	0.35	0.69
30.66	67.26	45.46	1.67	76.12	2.22	0.42	0.70
30.74	71.34	48.33	1.62	78.31	2.20	0.51	0.70
30.82	74.51	50.51	1.59	80.52	2.19	0.61	0.71
30.90	76.30	51.60	1.61	82.93	2.20	0.71	0.71
31.01	76.90	51.74	1.66	85.67	2.22	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
31.10	77.02	51.51	1.74	89.47	2.24	0.73	0.73
31.19	77.06	51.19	1.84	93.96	2.28	0.74	0.74
31.28	77.57	51.24	1.92	98.21	2.30	0.74	0.74
31.35	78.53	51.70	1.97	101.82	2.31	0.75	0.75
31.43	80.52	52.90	1.98	104.59	2.31	0.76	0.76
31.53	83.11	54.53	1.97	107.28	2.31	0.76	0.76
31.60	85.91	56.74	1.78	101.10	2.26	0.75	0.75
31.67	88.07	58.52	1.64	95.74	2.21	0.74	0.74
31.77	89.46	59.74	1.53	91.18	2.16	0.73	0.73
31.84	89.86	59.77	1.56	93.40	2.18	0.74	0.74
31.91	86.18	56.78	1.68	95.19	2.22	0.74	0.74
31.98	79.10	51.41	1.89	97.23	2.29	0.74	0.74
31.98	77.21	49.95	1.99	99.23	2.32	0.75	0.75
32.04	78.73	50.91	1.98	100.65	2.31	0.75	0.75
32.12	82.68	53.56	1.91	102.19	2.30	0.75	0.75
32.16	80.04	51.46	2.05	105.63	2.33	0.76	0.76
32.27	75.66	48.11	2.26	108.77	2.38	0.76	0.76
32.33	70.76	44.53	2.50	111.51	2.42	0.77	0.77
32.41	66.31	41.33	2.72	112.40	2.46	0.77	0.77
32.50	61.79	38.14	2.93	111.66	2.49	0.77	0.77
32.58	56.66	34.61	3.18	110.12	2.53	0.77	0.77
32.66	50.22	30.23	3.59	108.68	2.58	0.76	0.76
32.74	43.30	25.56	4.22	107.79	2.65	0.76	0.76
32.84	36.12	20.76	5.20	107.96	2.75	0.76	0.76
32.90	29.88	16.68	6.45	107.62	2.85	0.76	0.76
32.98	24.92	12.71	8.19	104.08	2.96	0.76	0.76
33.08	20.77	10.40	9.80	101.84	3.06	0.43	0.74
33.14	17.05	8.34	11.93	99.50	3.16	0.40	0.60
33.22	14.12	6.71	14.31	96.06	3.27	0.36	0.48
33.32	12.19	5.64	16.21	91.43	3.34	0.30	0.40
33.37	11.28	5.14	16.60	85.28	3.35	0.27	0.37
33.47	11.05	4.99	16.37	81.70	3.34	0.22	0.36
33.56	11.66	5.30	15.06	79.85	3.30	0.23	0.38
33.63	12.43	5.71	14.04	80.15	3.26	0.23	0.41
33.71	12.67	5.82	13.47	78.37	3.23	0.23	0.42
33.81	11.99	5.44	13.27	72.19	3.22	0.19	0.39
33.90	11.05	4.92	13.35	65.65	3.23	0.11	0.35
33.95	10.31	4.51	13.36	60.28	3.23	0.11	0.32
34.04	10.07	4.37	13.69	59.84	3.24	0.11	0.31
34.14	9.87	4.25	14.01	59.54	3.25	0.10	0.30
34.17	9.81	4.21	14.16	59.63	3.26	0.11	0.30
34.20	10.07	4.35	13.78	59.92	3.24	0.11	0.31
34.26	10.38	4.50	13.36	60.14	3.23	0.11	0.32
34.35	10.61	4.61	12.99	59.91	3.21	0.11	0.33
34.43	10.41	4.49	13.24	59.45	3.22	0.11	0.32
34.49	10.27	4.41	13.28	58.59	3.22	0.10	0.32
34.59	10.17	4.34	13.18	57.25	3.22	0.10	0.31
34.69	10.07	4.28	13.07	55.91	3.21	0.09	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
34.73	9.90	4.18	13.12	54.88	3.22	0.08	0.30
34.83	9.80	4.12	13.19	54.34	3.22	0.08	0.29
34.90	9.74	4.07	13.37	54.48	3.23	0.08	0.29
34.98	9.84	4.12	13.48	55.47	3.23	0.09	0.29
35.07	10.14	4.26	13.68	58.28	3.24	0.10	0.30
35.16	10.58	4.47	14.49	64.79	3.27	0.12	0.32
35.26	11.29	4.82	15.85	76.48	3.32	0.19	0.34
35.33	13.25	5.82	15.42	89.71	3.31	0.31	0.42
35.40	16.76	7.61	13.28	101.03	3.22	0.42	0.54
35.50	20.84	9.67	11.03	106.70	3.12	0.52	0.69
35.57	23.37	10.95	10.02	109.72	3.07	0.54	0.78
35.65	23.77	11.12	10.10	112.36	3.07	0.57	0.79
35.71	22.86	10.64	10.83	115.22	3.11	0.61	0.76
35.79	21.65	9.99	11.64	116.27	3.15	0.61	0.71
35.85	20.37	9.32	12.22	113.90	3.18	0.57	0.67
35.94	19.29	8.75	12.53	109.71	3.19	0.51	0.63
35.99	18.31	8.24	12.58	103.66	3.19	0.46	0.59
36.08	17.16	7.64	12.55	95.94	3.19	0.38	0.55
36.17	15.54	6.80	12.98	88.35	3.21	0.28	0.49
36.24	14.22	6.13	13.50	82.76	3.23	0.26	0.44
36.33	13.58	5.79	14.00	81.11	3.25	0.24	0.41
36.42	13.58	5.77	14.22	82.08	3.26	0.24	0.41
36.52	14.05	5.99	12.88	77.16	3.21	0.28	0.43
36.61	15.40	6.64	11.27	74.88	3.13	0.14	0.47
36.70	17.73	7.78	9.87	76.79	3.06	0.21	0.56
36.78	20.23	8.99	9.83	88.43	3.06	0.34	0.64
36.85	18.24	7.99	12.41	99.18	3.19	0.44	0.57
36.87	20.20	8.95	11.61	103.88	3.15	0.46	0.64
36.91	23.23	10.43	10.08	105.17	3.07	0.51	0.75
36.97	31.40	15.73	6.66	104.77	2.86	0.76	0.76
37.06	35.24	17.97	5.86	105.20	2.80	0.76	0.76
37.12	38.62	19.91	5.42	107.91	2.76	0.76	0.76
37.20	42.40	22.04	5.10	112.33	2.74	0.77	0.77
37.27	47.56	25.06	4.56	114.30	2.69	0.77	0.77
37.35	52.21	27.88	4.03	112.42	2.63	0.77	0.77
37.44	55.22	29.75	3.64	108.21	2.59	0.76	0.76
37.49	58.42	31.83	3.23	102.76	2.53	0.75	0.75
37.59	67.19	37.46	2.56	95.81	2.43	0.74	0.74
37.64	85.65	49.64	1.82	90.11	2.27	0.73	0.73
37.70	111.29	67.10	1.41	94.79	2.10	0.74	0.74
37.78	136.59	84.81	1.28	108.37	1.96	0.76	0.76
37.83	155.69	98.45	1.22	120.19	1.88	0.78	0.78
37.92	167.53	106.83	1.19	126.68	1.83	0.79	0.79
37.97	174.58	111.69	1.17	130.53	1.81	0.80	0.80
38.07	178.80	114.34	1.16	133.13	1.81	0.80	0.80
38.14	181.84	116.07	1.17	135.64	1.81	0.81	0.81
38.22	185.72	118.33	1.17	138.68	1.82	0.81	0.81
38.31	191.72	121.94	1.17	143.23	1.82	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
38.41	201.37	128.37	1.16	148.66	1.80	0.83	0.83
38.52	212.64	135.94	1.14	154.32	1.79	0.83	0.83
38.64	221.04	141.59	1.11	157.41	1.77	0.84	0.84
38.74	217.87	138.67	1.14	158.10	1.79	0.84	0.84
38.80	214.19	135.62	1.16	157.57	1.81	0.84	0.84
38.89	210.42	132.43	1.18	156.57	1.83	0.84	0.84
38.94	213.65	134.37	1.18	158.84	1.83	0.84	0.84
39.03	213.59	133.74	1.19	159.69	1.84	0.84	0.84
39.13	213.25	132.81	1.21	160.46	1.86	0.84	0.84
39.23	211.36	130.76	1.22	160.12	1.88	0.84	0.84
39.35	207.85	127.69	1.24	158.27	1.90	0.84	0.84
39.42	201.04	122.59	1.26	154.08	1.93	0.83	0.83
39.51	192.09	116.15	1.28	148.22	1.96	0.82	0.82
39.60	181.50	108.71	1.30	141.37	1.99	0.82	0.82
39.70	172.83	102.65	1.32	135.85	2.02	0.81	0.81
39.78	164.63	97.07	1.35	130.75	2.04	0.80	0.80
39.90	157.35	92.05	1.37	126.28	2.06	0.79	0.79
39.99	149.05	86.44	1.41	121.65	2.09	0.79	0.79
40.09	141.42	81.31	1.45	117.75	2.12	0.78	0.78
40.18	133.79	76.23	1.50	114.33	2.15	0.77	0.77
40.23	126.04	71.16	1.56	111.30	2.18	0.77	0.77
40.33	118.01	65.88	1.65	108.90	2.22	0.76	0.76
40.43	110.12	60.74	1.76	107.17	2.25	0.76	0.76
40.52	101.85	55.31	1.95	107.68	2.31	0.76	0.76
40.61	92.44	49.44	2.15	106.53	2.36	0.76	0.76
40.69	80.59	42.14	2.54	106.96	2.43	0.76	0.76
40.80	68.65	35.01	3.03	106.21	2.51	0.76	0.76
40.87	59.91	29.84	3.59	107.20	2.58	0.76	0.76
40.95	53.47	26.09	4.12	107.50	2.64	0.76	0.76
40.97	51.37	24.94	4.24	105.79	2.65	0.76	0.76
41.01	54.31	26.70	3.81	101.77	2.61	0.75	0.75
41.07	61.80	31.20	3.04	94.92	2.51	0.74	0.74
41.15	67.40	34.61	2.61	90.47	2.44	0.73	0.73
41.26	67.13	34.39	2.61	89.74	2.44	0.73	0.73
41.35	63.05	31.86	2.87	91.40	2.48	0.73	0.73
41.47	60.28	30.09	3.10	93.27	2.52	0.74	0.74
41.59	59.67	29.62	3.18	94.19	2.53	0.74	0.74
41.69	60.42	29.94	3.18	95.29	2.53	0.74	0.74
41.78	59.17	29.08	3.36	97.63	2.55	0.74	0.74
41.88	54.75	26.41	3.82	100.94	2.61	0.75	0.75
41.98	49.45	23.32	4.43	103.21	2.67	0.75	0.75
42.08	45.13	20.88	4.96	103.54	2.72	0.75	0.75
42.16	44.32	20.43	4.99	102.01	2.73	0.75	0.75
42.24	47.12	21.98	4.53	99.69	2.68	0.75	0.75
42.31	52.25	24.86	3.91	97.23	2.62	0.74	0.74
42.45	56.94	27.44	3.48	95.61	2.57	0.74	0.74
42.55	59.37	28.78	3.30	94.91	2.54	0.74	0.74
42.60	59.78	28.96	3.29	95.14	2.54	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.70	59.34	28.59	3.38	96.60	2.55	0.74	0.74
42.81	57.38	27.33	3.64	99.43	2.59	0.75	0.75
42.89	53.57	25.06	4.12	103.15	2.64	0.75	0.75
42.98	48.27	22.02	4.84	106.61	2.71	0.76	0.76
43.08	43.14	19.16	5.69	108.99	2.79	0.76	0.76
43.17	40.44	17.68	6.18	109.35	2.83	0.76	0.76
43.27	41.05	18.01	5.94	107.03	2.81	0.76	0.76
43.37	43.81	19.71	4.84	95.48	2.71	0.74	0.74
43.50	46.82	21.62	3.86	83.44	2.61	0.71	0.71
43.61	48.54	22.85	3.24	73.95	2.54	0.35	0.69
43.74	49.31	23.16	3.25	75.29	2.54	0.39	0.70
43.79	49.31	22.99	3.44	79.06	2.56	0.54	0.71
43.86	48.47	22.31	3.79	84.59	2.60	0.72	0.72
43.94	47.05	21.30	4.28	91.16	2.66	0.73	0.73
44.00	44.89	19.92	4.92	98.08	2.72	0.74	0.74
44.08	42.33	18.39	5.62	103.37	2.78	0.75	0.75
44.17	38.85	16.48	6.45	106.26	2.85	0.76	0.76
44.27	35.44	14.71	7.14	105.00	2.90	0.76	0.76
44.42	34.16	14.09	7.15	100.72	2.90	0.75	0.75
44.52	37.10	15.69	6.06	95.03	2.82	0.74	0.74
44.61	44.15	19.52	4.49	87.72	2.68	0.72	0.72
44.71	51.91	23.77	3.51	83.46	2.57	0.71	0.71
44.85	56.66	26.27	3.19	83.87	2.53	0.72	0.72
44.95	57.30	26.40	3.34	88.11	2.55	0.72	0.72
45.09	54.98	24.92	3.69	92.06	2.59	0.73	0.73
45.19	50.09	22.17	4.29	95.00	2.66	0.74	0.74
45.33	43.44	18.53	5.31	98.48	2.76	0.75	0.75
45.42	37.17	15.25	6.56	100.02	2.85	0.75	0.75
45.57	34.20	13.74	7.18	98.64	2.90	0.75	0.75
45.68	32.58	12.98	7.29	94.66	2.91	0.74	0.74
45.81	30.45	12.02	7.30	87.72	2.91	0.72	0.72
45.92	26.54	9.26	8.96	82.93	3.01	0.26	0.66
46.05	22.29	7.59	10.87	82.51	3.11	0.33	0.54
46.16	19.32	6.43	13.40	86.12	3.23	0.32	0.46
46.17	17.73	5.82	14.71	85.57	3.28	0.32	0.42
46.23	17.46	5.70	14.75	84.09	3.28	0.30	0.41
46.29	16.85	5.46	15.02	82.02	3.29	0.28	0.39
46.34	16.04	5.15	15.32	78.81	3.31	0.26	0.37
46.42	15.30	4.85	15.44	74.90	3.31	0.22	0.35
46.48	14.90	4.69	15.10	70.80	3.30	0.19	0.34
46.52	14.69	4.61	14.73	67.86	3.28	0.17	0.33
46.60	14.56	4.55	14.47	65.79	3.27	0.16	0.32
46.67	14.49	4.51	14.23	64.21	3.26	0.15	0.32
46.74	14.45	4.49	14.03	63.02	3.25	0.14	0.32
46.82	14.42	4.47	13.84	61.88	3.25	0.14	0.32
46.88	14.19	4.37	13.96	61.07	3.25	0.13	0.31
46.96	14.10	4.33	13.99	60.61	3.25	0.13	0.31
47.06	13.97	4.27	14.16	60.52	3.26	0.13	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
47.15	14.11	4.31	14.15	61.03	3.26	0.13	0.31
47.24	14.43	4.42	14.72	65.10	3.28	0.14	0.32
47.35	16.18	5.07	14.87	75.39	3.29	0.20	0.36
47.49	19.69	6.36	12.67	80.67	3.20	0.35	0.45
47.58	24.11	8.00	10.33	82.65	3.09	0.29	0.57
47.73	26.03	8.69	9.32	80.95	3.03	0.30	0.62
47.83	27.06	9.05	9.05	81.84	3.02	0.33	0.65
47.87	26.18	8.71	9.55	83.19	3.04	0.32	0.62
47.89	26.93	8.98	9.14	82.12	3.02	0.32	0.64
47.94	26.64	8.87	9.20	81.59	3.02	0.31	0.63
48.02	26.81	8.91	9.08	80.90	3.02	0.31	0.64
48.07	26.40	8.75	9.26	81.07	3.03	0.31	0.63
48.12	25.97	8.58	9.61	82.45	3.05	0.31	0.61
48.18	25.43	8.37	10.05	84.09	3.07	0.34	0.60
48.26	25.01	8.20	10.42	85.42	3.09	0.34	0.59
48.31	24.60	8.04	10.54	84.77	3.10	0.34	0.57
48.38	24.56	8.01	10.30	82.58	3.08	0.31	0.57
48.46	24.71	8.05	9.85	79.31	3.06	0.29	0.58
48.52	24.41	7.93	9.58	75.99	3.05	0.26	0.57
48.60	23.16	7.46	9.70	72.40	3.05	0.23	0.53
48.68	20.77	6.57	10.59	69.64	3.10	0.19	0.47
48.74	18.20	5.63	12.04	67.76	3.17	0.18	0.40
48.82	15.94	4.80	14.01	67.24	3.25	0.17	0.34
48.89	14.56	4.29	15.49	66.41	3.31	0.17	0.31
48.99	13.82	4.01	16.21	64.98	3.34	0.16	0.29
49.05	13.65	3.94	15.85	62.48	3.32	0.14	0.28
49.12	13.51	3.89	15.38	59.74	3.31	0.12	0.28
49.18	13.55	3.89	14.70	57.20	3.28	0.11	0.28
49.27	13.75	3.96	14.08	55.71	3.26	0.10	0.28
49.32	13.92	4.01	13.56	54.42	3.24	0.10	0.29
49.42	13.55	3.87	13.92	53.88	3.25	0.09	0.28
49.48	13.11	3.71	14.46	53.63	3.27	0.09	0.26
49.56	13.01	3.66	14.76	54.09	3.28	0.09	0.26
49.66	13.28	3.75	14.73	55.25	3.28	0.10	0.27
49.76	13.68	3.89	14.49	56.33	3.27	0.11	0.28
49.85	14.06	4.01	13.46	54.00	3.23	0.11	0.29
49.99	14.87	4.29	11.96	51.28	3.17	0.06	0.31
50.09	14.43	4.12	11.90	49.07	3.16	0.08	0.29
50.21	13.82	3.89	12.94	50.39	3.21	0.08	0.28
50.24	13.21	3.68	13.72	50.47	3.24	0.08	0.26
50.29	13.59	3.81	13.05	49.66	3.21	0.08	0.27
50.38	13.69	3.83	12.73	48.82	3.20	0.07	0.27
50.47	13.39	3.72	13.00	48.36	3.21	0.07	0.27
50.52	12.98	3.57	13.61	48.61	3.24	0.07	0.26
50.62	13.01	3.58	13.73	49.09	3.24	0.07	0.26
50.66	13.15	3.62	13.70	49.58	3.24	0.08	0.26
50.76	13.28	3.66	13.70	50.11	3.24	0.08	0.26
50.83	14.13	3.95	12.99	51.29	3.21	0.08	0.28

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
50.91	14.30	4.00	13.34	53.36	3.23	0.09	0.29
51.00	15.61	4.45	12.42	55.29	3.19	0.11	0.32
51.06	17.36	5.06	11.27	56.99	3.13	0.11	0.36
51.15	17.67	5.15	11.86	61.08	3.16	0.13	0.37
51.24	16.35	4.68	14.43	67.57	3.27	0.18	0.33
51.31	12.88	3.47	21.69	75.27	3.51	0.23	0.25
51.39	18.55	5.43	14.77	80.15	3.28	0.29	0.39
51.48	32.14	11.43	7.23	82.64	2.90	0.71	0.71
51.58	35.38	12.78	6.83	87.30	2.87	0.72	0.72
51.68	27.82	8.59	10.70	91.85	3.10	0.45	0.61
51.77	17.84	5.13	19.49	100.06	3.45	0.43	0.37
51.90	36.80	11.62	9.16	106.47	3.02	0.53	0.83
52.01	74.42	30.49	3.61	110.20	2.58	0.77	0.77
52.11	128.50	57.50	2.11	121.05	2.34	0.78	0.78
52.26	161.87	74.64	1.77	131.90	2.25	0.80	0.80
52.30	209.17	100.78	1.45	146.55	2.12	0.82	0.82
52.33	248.44	124.60	1.31	162.63	2.00	0.84	0.84
52.35	302.93	158.50	1.21	192.22	1.87	0.88	0.88
52.40	347.53	187.07	1.12	209.95	1.78	0.90	0.90
52.45	381.51	208.63	1.04	216.58	1.72	0.90	0.90
52.50	415.58	229.89	1.00	229.89	1.69	0.92	0.92
52.55	447.33	248.98	1.00	248.98	1.67	0.93	0.93
52.60	486.53	273.15	1.00	273.15	1.63	0.96	0.96
52.65	516.02	289.64	1.00	289.64	1.60	0.97	0.97
52.71	531.14	297.95	1.00	297.95	1.57	0.98	0.98
52.77	541.83	303.79	1.00	303.79	1.53	0.98	0.98
52.82	558.50	312.99	1.00	312.99	1.51	0.99	0.99
52.88	578.13	323.84	1.00	323.84	1.48	1.00	1.00
52.93	592.07	331.46	1.00	331.46	1.46	1.00	1.00
52.98	605.70	338.95	1.00	338.95	1.46	1.01	1.01
53.03	608.64	340.39	1.00	340.39	1.46	1.01	1.01
53.08	608.27	340.01	1.00	340.01	1.46	1.01	1.01
53.12	601.01	335.78	1.00	335.78	1.47	1.00	1.00
53.17	598.22	333.99	1.00	333.99	1.46	1.00	1.00
53.23	600.71	335.19	1.00	335.19	1.45	1.00	1.00
53.28	596.23	332.45	1.00	332.45	1.47	1.00	1.00
53.37	588.50	327.80	1.00	327.80	1.48	1.00	1.00
53.42	584.11	325.17	1.00	325.17	1.50	1.00	1.00
53.46	586.81	326.50	1.00	326.50	1.52	1.00	1.00
53.53	599.03	333.09	1.00	333.09	1.53	1.00	1.00
53.61	597.34	331.84	1.00	331.84	1.56	1.00	1.00
53.62	582.26	323.39	1.00	323.39	1.60	1.00	1.00
53.65	574.05	318.67	1.00	318.67	1.60	0.99	0.99
53.67	571.35	317.12	1.00	317.12	1.61	0.99	0.99
53.70	583.83	323.95	1.00	323.95	1.59	1.00	1.00
53.74	582.83	323.26	1.00	323.26	1.60	1.00	1.00
53.76	583.81	323.74	1.00	323.74	1.60	1.00	1.00
53.80	581.08	322.06	1.00	322.06	1.59	0.99	0.99

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.84	577.81	320.07	1.00	320.07	1.59	0.99	0.99
53.90	578.23	320.12	1.00	320.12	1.58	0.99	0.99
53.91	570.20	315.61	1.00	315.61	1.59	0.99	0.99
53.95	573.64	317.38	1.00	317.38	1.58	0.99	0.99
53.96	579.94	320.83	1.00	320.83	1.58	0.99	0.99
53.98	601.06	332.48	1.00	332.48	1.56	1.00	1.00
53.99	602.95	333.50	1.00	333.50	1.56	1.00	1.00
54.01	592.15	327.46	1.00	327.46	1.57	1.00	1.00
54.02	579.33	320.31	1.00	320.31	1.58	0.99	0.99
54.03	553.15	305.74	1.00	305.74	1.61	0.98	0.98
54.04	504.84	276.21	1.00	276.21	1.67	0.96	0.96
54.05	452.17	241.19	1.08	260.14	1.75	0.94	0.94
54.09	422.63	221.81	1.15	254.46	1.79	0.94	0.94
54.10	421.59	220.94	1.15	254.57	1.80	0.94	0.94
54.13	421.89	221.06	1.15	254.64	1.80	0.94	0.94
54.14	420.96	220.34	1.16	254.59	1.80	0.94	0.94
54.19	422.82	221.19	1.16	255.77	1.80	0.94	0.94
54.19	428.79	224.52	1.15	258.95	1.80	0.94	0.94
54.24	439.22	231.86	1.12	259.93	1.77	0.94	0.94
54.29	456.97	245.94	1.02	249.88	1.71	0.94	0.94
54.33	474.10	261.31	1.00	261.31	1.64	0.95	0.95
54.38	494.95	272.80	1.00	272.80	1.57	0.96	0.96
54.39	512.70	282.62	1.00	282.62	1.53	0.96	0.96
54.43	529.13	291.66	1.00	291.66	1.52	0.97	0.97
54.48	543.10	299.32	1.00	299.32	1.44	0.98	0.98
54.52	556.66	306.76	1.00	306.76	1.36	0.98	0.98
54.58	573.87	316.20	1.00	316.20	1.26	0.99	0.99
54.62	587.13	323.46	1.00	323.46	1.28	1.00	1.00
54.65	604.44	333.00	1.00	333.00	1.29	1.00	1.00
54.67	623.33	343.41	1.00	343.41	1.30	1.01	1.01
54.71	658.15	362.60	1.00	362.60	1.28	1.02	1.02
54.77	679.34	374.21	1.00	374.21	1.20	1.03	1.03
54.81	702.99	387.19	1.00	387.19	1.11	1.04	1.04
54.85	704.07	387.70	1.00	387.70	1.04	1.04	1.04
54.86	709.13	390.48	1.00	390.48	1.06	1.04	1.04
54.87	703.33	387.26	1.00	387.26	1.09	1.04	1.04
54.91	703.66	387.35	1.00	387.35	1.13	1.04	1.04
54.96	707.14	389.17	1.00	389.17	1.16	1.04	1.04
55.00	703.19	386.89	1.00	386.89	1.18	1.04	1.04
55.01	695.84	382.82	1.00	382.82	1.19	1.04	1.04
55.05	679.11	373.47	1.00	373.47	1.21	1.03	1.03
55.10	651.07	357.87	1.00	357.87	1.24	1.02	1.02
55.12	603.77	331.72	1.00	331.72	1.29	1.00	1.00
55.13	570.97	313.58	1.00	313.58	1.33	0.99	0.99
55.14	563.11	309.22	1.00	309.22	1.33	0.98	0.98
55.19	576.91	316.75	1.00	316.75	1.31	0.99	0.99
55.20	576.27	316.38	1.00	316.38	1.31	0.99	0.99
55.25	562.13	308.48	1.00	308.48	1.33	0.98	0.98

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.29	546.07	299.55	1.00	299.55	1.37	0.98	0.98
55.33	519.69	284.92	1.00	284.92	1.42	0.97	0.97
55.38	481.16	263.59	1.00	263.59	1.52	0.95	0.95
55.48	439.32	240.38	1.00	240.38	1.63	0.93	0.93
55.57	411.39	218.55	1.04	227.87	1.73	0.92	0.92
55.63	398.09	206.42	1.15	237.94	1.80	0.92	0.92
55.72	402.04	206.08	1.19	244.53	1.83	0.93	0.93
55.80	431.09	221.88	1.17	260.68	1.82	0.95	0.95
55.86	480.55	259.76	1.00	259.76	1.67	0.94	0.94
55.97	527.85	288.32	1.00	288.32	1.51	0.97	0.97
56.01	560.55	306.20	1.00	306.20	1.34	0.98	0.98
56.06	587.84	186.61	1.00	186.61	1.50	0.87	0.87
56.11	613.11	194.57	1.00	194.57	1.50	0.88	0.88
56.15	640.71	203.27	1.00	203.27	1.51	0.89	0.89
56.20	660.92	209.60	1.00	209.60	1.52	0.90	0.90
56.27	663.16	210.15	1.00	210.15	1.53	0.90	0.90
56.27	664.17	210.45	1.00	210.45	1.56	0.90	0.90
56.30	642.20	203.39	1.00	203.39	1.61	0.89	0.89
56.33	649.54	205.64	1.00	205.64	1.64	0.89	0.89
56.35	647.65	205.00	1.00	205.00	1.66	0.89	0.89
56.40	667.86	211.31	1.00	211.31	1.64	0.90	0.90
56.41	669.34	211.76	1.00	211.76	1.64	0.90	0.90
56.44	681.53	215.53	1.00	215.53	1.63	0.90	0.90
56.49	695.19	219.75	1.00	219.75	1.62	0.91	0.91
56.54	717.49	226.71	1.00	226.71	1.61	0.91	0.91
56.58	737.23	232.85	1.00	232.85	1.61	0.92	0.92
56.59	750.18	236.93	1.00	236.93	1.61	0.92	0.92
56.64	757.34	239.07	1.00	239.07	1.60	0.93	0.93
56.69	764.80	241.29	1.00	241.29	1.60	0.93	0.93
56.73	778.16	245.40	1.00	245.40	1.59	0.93	0.93
56.78	778.56	245.38	1.00	245.38	1.58	0.93	0.93
56.83	759.53	239.22	1.00	239.22	1.58	0.93	0.93
56.88	731.80	230.32	1.00	230.32	1.58	0.92	0.92
56.89	708.89	223.03	1.00	223.03	1.60	0.91	0.91
56.95	692.53	217.71	1.00	217.71	1.59	0.91	0.91
57.01	668.00	209.81	1.00	209.81	1.59	0.90	0.90
57.07	645.94	202.70	1.00	202.70	1.58	0.89	0.89
57.11	619.45	194.25	1.00	194.25	1.52	0.88	0.88
57.17	598.63	187.56	1.00	187.56	1.46	0.87	0.87
57.26	574.07	179.66	1.00	179.66	1.37	0.86	0.86
57.31	547.05	171.06	1.00	171.06	1.43	0.85	0.85
57.37	520.16	162.50	1.00	162.50	1.45	0.84	0.84
57.45	490.27	152.96	1.00	152.96	1.51	0.83	0.83
57.51	451.30	140.63	1.00	140.63	1.55	0.81	0.81
57.53	421.54	131.27	1.00	131.27	1.59	0.80	0.80
57.59	401.40	124.87	1.00	124.87	1.62	0.79	0.79
57.63	398.96	124.05	1.00	124.05	1.62	0.79	0.79
57.68	391.51	121.66	1.00	121.66	1.63	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
57.73	386.48	120.01	1.00	120.01	1.64	0.78	0.78
57.78	379.02	117.62	1.00	117.62	1.65	0.78	0.78
57.86	359.96	111.55	1.00	111.55	1.66	0.77	0.77
57.92	326.32	100.97	1.00	100.97	1.71	0.75	0.75
57.98	290.83	89.82	1.00	89.82	1.76	0.73	0.73
58.06	263.33	81.16	1.18	95.51	1.82	0.74	0.74
58.12	242.92	74.75	1.24	92.39	1.90	0.73	0.73
58.21	222.41	68.28	1.30	88.73	1.99	0.73	0.73
58.26	204.43	62.64	1.37	85.71	2.06	0.72	0.72
58.35	180.37	55.10	1.48	81.38	2.14	0.65	0.71
58.41	154.93	47.15	1.59	74.91	2.19	0.38	0.70
58.50	122.84	37.13	1.90	70.73	2.29	0.27	0.69
58.56	98.18	29.45	2.28	67.27	2.38	0.20	0.68
58.64	77.90	23.14	3.23	74.61	2.53	0.37	0.69
58.73	63.67	18.70	4.34	81.15	2.66	0.64	0.71
58.80	51.12	14.80	5.89	87.16	2.80	0.72	0.72
58.84	42.24	12.04	7.59	91.44	2.93	0.73	0.73
58.85	43.79	12.52	7.27	91.06	2.90	0.73	0.73
58.93	50.50	14.59	6.00	87.49	2.81	0.72	0.72
58.98	58.12	16.94	4.87	82.49	2.72	0.71	0.71
59.02	61.77	18.06	4.38	79.02	2.67	0.54	0.70
59.12	63.39	18.54	4.19	77.74	2.65	0.48	0.70
59.17	65.41	19.15	4.09	78.34	2.64	0.51	0.70
59.27	67.33	19.73	4.06	80.06	2.63	0.59	0.71
59.31	67.64	19.81	4.15	82.31	2.64	0.71	0.71
59.41	64.84	18.93	4.46	84.40	2.68	0.72	0.72
59.46	57.99	16.81	5.11	85.91	2.74	0.72	0.72
59.55	48.77	13.96	6.20	86.53	2.83	0.72	0.72
59.65	39.66	11.14	7.37	82.12	2.91	0.70	0.71
59.70	34.25	9.47	8.28	78.48	2.97	0.51	0.70
59.80	32.07	8.80	8.61	75.77	2.99	0.41	0.70
59.89	32.04	8.78	9.03	79.29	3.01	0.30	0.63
59.94	31.04	8.47	9.76	82.68	3.06	0.33	0.60
60.01	30.35	8.25	10.33	85.21	3.09	0.36	0.59
60.02	32.64	8.95	9.57	85.70	3.04	0.36	0.64
60.08	35.54	9.83	8.61	84.70	2.99	0.72	0.72
60.12	36.56	10.14	8.23	83.40	2.97	0.71	0.71
60.17	32.87	9.01	9.03	81.32	3.01	0.34	0.64
60.27	28.56	7.68	10.03	76.99	3.07	0.27	0.55
60.31	24.81	6.53	11.00	71.83	3.12	0.21	0.47
60.37	22.21	5.73	11.72	67.16	3.15	0.19	0.41
60.46	20.93	5.33	12.03	64.16	3.17	0.15	0.38
60.51	20.76	5.28	11.57	61.05	3.15	0.14	0.38
60.61	21.43	5.48	10.86	59.48	3.11	0.13	0.39
60.65	21.84	5.60	10.44	58.49	3.09	0.13	0.40
60.75	22.18	5.70	10.27	58.52	3.08	0.13	0.41
60.81	22.25	5.72	10.24	58.52	3.08	0.13	0.41
60.89	22.21	5.70	10.20	58.14	3.08	0.13	0.41

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
60.94	22.45	5.77	10.12	58.37	3.07	0.12	0.41
61.03	22.62	5.81	10.19	59.27	3.08	0.13	0.42
61.09	22.65	5.82	10.23	59.56	3.08	0.14	0.42
61.19	22.38	5.74	10.30	59.09	3.08	0.13	0.41
61.24	22.96	5.91	9.90	58.48	3.06	0.12	0.42
61.33	24.51	6.37	9.35	59.55	3.03	0.14	0.46
61.38	24.20	6.28	10.50	65.92	3.09	0.15	0.45
61.47	23.16	5.95	12.35	73.50	3.18	0.24	0.43
61.53	21.88	5.56	14.59	81.14	3.28	0.29	0.40
61.62	27.61	7.29	11.24	81.97	3.13	0.33	0.52
61.70	44.48	12.39	6.68	82.73	2.86	0.71	0.71
61.77	66.81	19.14	4.44	84.93	2.67	0.72	0.72
61.86	81.96	23.70	3.78	89.66	2.60	0.73	0.73
61.95	81.02	23.39	4.06	94.89	2.63	0.74	0.74
61.97	72.62	20.85	4.65	96.91	2.69	0.74	0.74
62.01	62.36	17.75	5.62	99.66	2.78	0.75	0.75
62.10	52.17	14.66	6.77	99.23	2.87	0.75	0.75
62.24	55.41	15.61	5.76	89.92	2.79	0.73	0.73
62.34	87.70	25.31	2.83	71.54	2.48	0.29	0.69
62.49	127.58	37.26	1.74	64.77	2.25	0.17	0.67
62.54	164.52	48.34	1.44	69.68	2.11	0.25	0.68
62.66	181.39	53.35	1.37	73.33	2.07	0.34	0.69
62.74	199.68	58.78	1.33	77.94	2.02	0.49	0.70
62.87	211.65	62.29	1.30	80.99	1.99	0.63	0.71
62.92	217.18	63.92	1.29	82.65	1.98	0.71	0.71
63.03	219.18	64.44	1.29	83.41	1.98	0.71	0.71
63.15	218.06	64.03	1.30	83.38	1.99	0.71	0.71
63.26	213.11	62.49	1.32	82.35	2.01	0.71	0.71
63.37	206.70	60.51	1.34	80.92	2.03	0.63	0.71
63.45	200.15	58.51	1.34	78.49	2.04	0.51	0.70
63.54	197.59	57.70	1.32	76.31	2.02	0.43	0.70
63.61	190.30	55.49	1.33	73.61	2.02	0.34	0.69
63.69	172.04	50.02	1.39	69.47	2.08	0.24	0.68
63.79	141.71	40.98	1.65	67.77	2.22	0.21	0.68
63.89	106.15	30.39	2.20	66.74	2.36	0.19	0.67
63.98	75.22	21.20	3.37	71.48	2.55	0.29	0.69
64.07	53.15	14.65	4.91	71.91	2.72	0.30	0.69
64.15	39.12	10.48	7.30	76.48	2.91	0.44	0.70
64.23	29.98	7.77	10.00	77.68	3.07	0.27	0.56
64.26	25.15	6.34	12.34	78.26	3.18	0.27	0.45
64.29	23.57	5.87	13.31	78.14	3.22	0.26	0.42
64.33	23.37	5.81	12.89	74.86	3.21	0.26	0.41
64.43	22.99	5.69	12.43	70.78	3.19	0.19	0.41
64.47	22.29	5.48	12.05	66.07	3.17	0.17	0.39
64.53	21.82	5.34	12.01	64.15	3.17	0.16	0.38
64.62	20.60	4.98	12.74	63.40	3.20	0.15	0.36
64.72	19.12	4.53	13.95	63.23	3.25	0.15	0.32
64.78	18.00	4.20	15.17	63.74	3.30	0.15	0.30

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
64.86	18.21	4.26	15.26	65.01	3.30	0.16	0.30
64.96	18.78	4.42	15.44	68.31	3.31	0.18	0.32
65.06	19.22	4.55	15.74	71.61	3.32	0.21	0.32
65.11	19.22	4.55	16.41	74.58	3.34	0.23	0.32
65.21	18.85	4.43	17.13	75.90	3.37	0.24	0.32
65.31	18.45	4.31	17.70	76.26	3.39	0.24	0.31
65.40	18.28	4.25	17.10	72.77	3.37	0.23	0.30
65.50	18.58	4.34	15.67	67.97	3.32	0.16	0.31
65.58	19.02	4.46	14.15	63.13	3.26	0.14	0.32
65.68	19.05	4.47	13.69	61.17	3.24	0.14	0.32
65.78	17.67	4.06	14.89	60.45	3.29	0.13	0.29
65.84	16.40	3.69	16.19	59.69	3.34	0.13	0.26
65.86	15.56	3.44	17.33	59.62	3.38	0.12	0.25
65.87	16.51	3.72	15.97	59.36	3.33	0.12	0.27
65.98	17.26	3.93	15.03	59.09	3.29	0.12	0.28
66.10	17.84	4.09	14.69	60.13	3.28	0.12	0.29
66.21	18.21	4.20	14.85	62.32	3.29	0.14	0.30
66.34	18.48	4.27	14.76	63.01	3.28	0.16	0.31
66.48	19.00	4.42	14.39	63.55	3.27	0.13	0.32
66.62	18.46	4.25	14.69	62.45	3.28	0.15	0.30
66.68	18.67	4.31	14.87	64.07	3.29	0.14	0.31
66.87	18.92	4.37	15.53	67.94	3.31	0.16	0.31
66.96	19.16	4.44	16.65	73.89	3.35	0.23	0.32
67.11	18.25	4.17	18.76	78.15	3.42	0.27	0.30
67.21	16.83	3.75	20.42	76.60	3.47	0.26	0.27
67.35	16.22	3.57	20.50	73.18	3.48	0.19	0.26
67.45	16.16	3.55	21.95	77.86	3.52	0.19	0.25
67.59	27.42	6.79	13.06	88.71	3.21	0.37	0.49
67.68	77.39	21.19	3.95	83.67	2.62	0.72	0.72
67.83	159.77	44.89	1.66	74.68	2.22	0.38	0.69
67.92	241.25	68.29	1.30	88.64	1.99	0.73	0.73
68.02	283.19	80.28	1.24	99.35	1.90	0.75	0.75
68.07	299.01	84.78	1.22	103.71	1.88	0.75	0.75
68.16	305.70	86.62	1.22	105.26	1.87	0.76	0.76
68.26	310.93	88.04	1.21	106.54	1.86	0.76	0.76
68.35	307.75	87.05	1.22	106.44	1.88	0.76	0.76
68.45	299.96	84.74	1.24	105.37	1.91	0.76	0.76
68.55	291.49	82.23	1.26	103.72	1.94	0.75	0.75
68.65	271.72	76.50	1.29	98.57	1.98	0.75	0.75
68.78	253.59	71.23	1.32	94.35	2.02	0.74	0.74
68.78	238.18	66.83	1.36	90.91	2.05	0.73	0.73
68.79	234.24	65.70	1.37	89.70	2.06	0.73	0.73
68.83	237.70	66.66	1.34	89.08	2.03	0.73	0.73
68.93	243.69	68.30	1.30	88.59	1.99	0.73	0.73
68.98	253.54	71.08	1.25	89.18	1.93	0.73	0.73
69.04	257.79	72.25	1.23	89.05	1.89	0.73	0.73
69.12	259.28	72.61	1.23	89.10	1.89	0.73	0.73
69.22	255.36	71.43	1.24	88.23	1.90	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
69.28	247.73	69.22	1.25	86.25	1.91	0.72	0.72
69.36	237.41	66.24	1.26	83.22	1.93	0.71	0.71
69.45	223.58	62.26	1.27	79.21	1.95	0.55	0.71
69.60	210.12	58.37	1.29	75.34	1.98	0.40	0.70
69.70	198.18	54.94	1.31	72.05	2.01	0.30	0.69
69.80	193.42	53.54	1.32	70.68	2.01	0.27	0.69
69.89	192.07	53.12	1.32	70.30	2.02	0.26	0.68
69.98	190.15	52.53	1.33	69.82	2.02	0.25	0.68
70.08	181.88	50.15	1.35	67.53	2.04	0.21	0.68
70.18	159.82	43.89	1.45	63.51	2.12	0.15	0.67
70.32	124.32	33.85	1.81	61.16	2.27	0.12	0.66
70.42	84.31	22.56	2.96	66.77	2.50	0.20	0.68
70.54	51.82	13.41	5.53	74.19	2.77	0.36	0.69
70.66	31.85	7.79	9.69	75.54	3.05	0.25	0.56
70.75	23.52	5.45	13.34	72.70	3.23	0.21	0.39
70.80	21.80	4.97	13.43	66.71	3.23	0.18	0.35
70.89	22.64	5.20	11.52	59.87	3.14	0.12	0.37
70.99	22.34	5.11	10.38	53.00	3.09	0.09	0.36
71.08	21.63	4.90	10.09	49.46	3.07	0.07	0.35
71.17	21.43	4.84	9.87	47.79	3.06	0.07	0.35
71.23	20.92	4.70	10.01	47.05	3.07	0.07	0.34
71.33	21.09	4.74	9.74	46.20	3.05	0.06	0.34
71.42	21.73	4.92	9.08	44.64	3.02	0.06	0.35
71.52	22.81	5.22	8.26	43.06	2.97	0.03	0.62
71.58	23.21	5.33	8.27	44.01	2.97	0.04	0.62
71.67	22.88	5.23	9.07	47.43	3.02	0.07	0.37
71.81	22.47	5.11	9.94	50.76	3.06	0.09	0.36
71.82	22.24	5.04	10.42	52.55	3.09	0.09	0.36
71.86	21.97	4.96	10.64	52.82	3.10	0.09	0.35
71.91	21.83	4.92	10.75	52.95	3.11	0.09	0.35
71.97	21.60	4.86	10.97	53.27	3.12	0.09	0.35
72.05	21.36	4.79	11.22	53.72	3.13	0.10	0.34
72.10	21.13	4.72	11.52	54.35	3.14	0.10	0.34
72.20	20.99	4.68	11.71	54.79	3.15	0.10	0.33
72.25	20.99	4.67	11.87	55.49	3.16	0.10	0.33
72.34	21.09	4.70	12.12	56.94	3.17	0.11	0.34
72.44	21.09	4.69	12.53	58.80	3.19	0.12	0.34
72.53	20.89	4.63	13.04	60.40	3.21	0.13	0.33
72.63	20.79	4.60	13.29	61.13	3.22	0.14	0.33
72.69	20.48	4.51	13.55	61.14	3.23	0.14	0.32
72.82	20.69	4.56	13.34	60.87	3.23	0.13	0.33
72.92	21.13	4.68	12.83	60.05	3.20	0.13	0.33
73.06	22.11	4.95	11.98	59.27	3.17	0.12	0.35
73.16	22.34	5.01	11.90	59.57	3.16	0.12	0.36
73.30	20.86	4.59	13.21	60.65	3.22	0.14	0.33
73.35	19.88	4.32	14.25	61.53	3.26	0.14	0.31
73.38	19.20	4.13	14.83	61.23	3.29	0.13	0.30
73.47	20.02	4.35	13.95	60.67	3.25	0.13	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
73.53	20.08	4.37	13.79	60.20	3.24	0.13	0.31
73.62	20.18	4.39	13.66	59.95	3.24	0.13	0.31
73.71	19.95	4.32	13.95	60.28	3.25	0.13	0.31
73.77	19.61	4.23	14.55	61.46	3.28	0.13	0.30
73.86	19.34	4.15	15.21	63.08	3.30	0.15	0.30
73.96	19.38	4.15	15.56	64.61	3.31	0.15	0.30
74.06	19.58	4.20	15.60	65.59	3.32	0.16	0.30
74.13	20.02	4.32	15.32	66.22	3.31	0.16	0.31
74.24	20.36	4.41	15.12	66.66	3.30	0.17	0.31
74.34	20.56	4.46	15.08	67.26	3.30	0.17	0.32
74.44	20.42	4.42	15.35	67.81	3.31	0.18	0.32
74.58	20.37	4.40	15.30	67.28	3.30	0.18	0.31
74.68	20.30	4.38	14.35	62.80	3.27	0.16	0.31
74.80	20.47	4.42	13.30	58.74	3.22	0.09	0.32
74.92	20.26	4.35	12.97	56.43	3.21	0.11	0.31
75.07	20.06	4.29	13.60	58.35	3.24	0.12	0.31
75.08	19.75	4.21	14.10	59.34	3.26	0.12	0.30
75.11	19.62	4.17	14.28	59.53	3.26	0.12	0.30
75.16	19.55	4.15	14.53	60.28	3.27	0.13	0.30
75.25	19.31	4.08	15.14	61.74	3.30	0.13	0.29
75.32	19.14	4.03	15.69	63.23	3.32	0.15	0.29
75.40	18.98	3.98	16.00	63.73	3.33	0.15	0.28
75.50	18.81	3.93	15.96	62.77	3.33	0.14	0.28
75.59	18.30	3.79	16.02	60.75	3.33	0.13	0.27
75.69	17.56	3.59	16.34	58.60	3.34	0.11	0.26
75.78	16.85	3.39	16.66	56.46	3.35	0.11	0.24
75.88	16.41	3.27	16.73	54.66	3.36	0.10	0.23
75.96	16.11	3.18	16.62	52.90	3.35	0.09	0.23
76.05	16.04	3.16	16.34	51.65	3.34	0.08	0.23
76.14	15.97	3.14	16.25	51.00	3.34	0.08	0.22
76.26	16.07	3.16	16.16	51.09	3.34	0.08	0.23
76.36	16.07	3.16	16.26	51.38	3.34	0.08	0.23
76.41	16.07	3.16	16.31	51.50	3.34	0.08	0.23
76.51	15.84	3.09	16.56	51.17	3.35	0.08	0.22
76.65	15.50	2.99	17.04	51.04	3.37	0.08	0.21
76.72	15.26	2.93	17.45	51.12	3.38	0.08	0.21
76.79	15.16	2.90	17.72	51.39	3.39	0.08	0.21
76.89	15.23	2.91	18.36	53.53	3.41	0.08	0.21
76.98	15.47	2.98	20.80	61.89	3.48	0.11	0.21
77.08	18.00	3.65	19.05	69.60	3.43	0.21	0.26
77.18	22.18	4.77	16.19	77.29	3.34	0.23	0.34
77.28	26.73	5.99	14.06	84.26	3.26	0.29	0.43
77.37	27.88	6.30	14.87	93.62	3.29	0.40	0.45
77.42	28.76	6.53	15.41	100.64	3.31	0.49	0.47
77.42	30.22	6.92	15.09	104.44	3.30	0.50	0.49
77.44	34.00	7.94	13.49	107.05	3.23	0.53	0.57
77.48	37.40	8.85	12.47	110.31	3.19	0.60	0.63
77.52	40.61	9.70	11.65	113.00	3.15	0.64	0.69

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
77.54	42.94	10.33	11.08	114.44	3.12	0.66	0.74
77.57	43.37	10.44	11.07	115.54	3.12	0.68	0.75
77.62	42.26	10.14	11.44	115.93	3.14	0.69	0.72
77.65	40.10	9.55	12.10	115.64	3.17	0.66	0.68
77.67	38.72	9.18	12.34	113.32	3.18	0.65	0.66
77.71	37.91	8.96	12.41	111.24	3.19	0.59	0.64
77.71	37.03	8.73	12.35	107.78	3.18	0.58	0.62
77.76	34.77	8.12	12.85	104.25	3.20	0.52	0.58
77.81	31.76	7.31	13.53	98.88	3.23	0.45	0.52
77.90	29.03	6.57	14.40	94.60	3.27	0.39	0.47
77.95	27.32	6.11	15.14	92.44	3.30	0.37	0.44
78.01	26.34	5.84	15.63	91.29	3.32	0.38	0.42
78.10	27.59	6.17	14.49	89.37	3.27	0.35	0.44
78.16	36.29	8.49	9.98	84.71	3.07	0.33	0.61
78.24	48.94	11.86	6.66	79.05	2.86	0.54	0.70
78.29	64.83	16.10	4.54	73.14	2.68	0.33	0.69
78.39	77.42	19.44	3.56	69.27	2.58	0.24	0.68
78.47	87.30	22.06	3.11	68.51	2.52	0.23	0.68
78.53	92.74	23.49	3.05	71.72	2.51	0.29	0.69
78.62	94.25	23.88	3.25	77.71	2.54	0.48	0.70
78.68	91.22	23.06	3.64	84.02	2.59	0.72	0.72
78.69	92.97	23.52	3.81	89.57	2.61	0.73	0.73
78.78	93.95	23.76	4.00	95.10	2.63	0.74	0.74
78.81	94.86	24.00	4.25	102.04	2.65	0.75	0.75
78.92	85.28	21.43	5.01	107.35	2.73	0.76	0.76
79.03	72.83	18.11	5.93	107.43	2.81	0.76	0.76
79.16	68.41	16.91	5.87	99.26	2.80	0.75	0.75
79.26	78.39	19.54	4.53	88.45	2.68	0.73	0.73
79.35	97.35	24.54	3.42	83.92	2.56	0.72	0.72
79.45	114.43	29.03	2.95	85.78	2.50	0.72	0.72
79.54	124.25	31.60	2.84	89.58	2.48	0.73	0.73
79.64	131.23	33.41	2.75	91.91	2.47	0.73	0.73
79.74	153.43	39.23	2.39	93.85	2.40	0.74	0.74
79.88	186.93	48.00	1.98	94.86	2.31	0.74	0.74
79.98	228.94	59.00	1.62	95.73	2.20	0.74	0.74
80.12	248.77	64.13	1.48	95.14	2.14	0.74	0.74
80.22	253.19	65.23	1.40	91.22	2.09	0.73	0.73
80.36	244.79	62.94	1.37	86.07	2.06	0.72	0.72
80.46	238.82	61.33	1.32	81.11	2.02	0.64	0.71
80.60	231.84	59.42	1.30	77.21	1.99	0.46	0.70
80.70	223.91	57.30	1.30	74.37	1.99	0.37	0.69
80.83	213.12	54.42	1.32	72.04	2.02	0.30	0.69
80.94	194.49	49.51	1.41	69.62	2.09	0.25	0.68
81.01	177.96	45.17	1.50	67.91	2.15	0.21	0.68
81.04	164.23	41.58	1.60	66.50	2.19	0.19	0.67
81.09	158.43	40.05	1.65	65.97	2.21	0.18	0.67
81.13	149.59	37.74	1.75	66.04	2.25	0.18	0.67
81.18	136.87	34.41	1.98	67.98	2.31	0.22	0.68

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
81.23	123.31	30.87	2.34	72.13	2.39	0.30	0.69
81.28	109.41	27.24	2.85	77.64	2.48	0.48	0.70
81.33	98.17	24.30	3.46	84.19	2.57	0.72	0.72
81.37	88.49	21.78	4.25	92.48	2.65	0.73	0.73
81.42	81.24	19.88	5.05	100.46	2.73	0.75	0.75
81.47	75.77	18.46	5.75	106.15	2.79	0.76	0.76
81.52	71.99	17.47	6.25	109.13	2.83	0.76	0.76
81.56	70.98	17.20	6.46	111.09	2.85	0.77	0.77
81.61	70.58	17.08	6.60	112.75	2.86	0.77	0.77
81.64	68.79	16.62	6.89	114.41	2.88	0.77	0.77
81.70	62.18	14.89	7.85	116.91	2.94	0.78	0.78
81.75	54.38	12.87	9.25	118.94	3.03	0.76	0.92
81.79	46.89	10.92	10.91	119.14	3.11	0.73	0.78
81.82	41.90	9.62	12.12	116.62	3.17	0.68	0.69
81.86	37.62	8.51	13.21	112.49	3.22	0.61	0.61
81.91	34.01	7.57	14.21	107.66	3.26	0.54	0.54
81.95	30.63	6.70	15.27	102.27	3.30	0.48	0.48
82.00	27.33	5.84	16.41	95.81	3.34	0.41	0.42
82.09	24.26	5.04	17.74	89.46	3.39	0.33	0.36
82.15	21.66	4.37	19.38	84.64	3.44	0.29	0.31
82.19	19.83	3.89	20.80	81.03	3.48	0.27	0.28
82.26	18.38	3.52	22.06	77.56	3.52	0.23	0.25
82.34	17.00	3.16	23.49	74.17	3.56	0.21	0.23
82.39	15.65	2.81	25.58	71.81	3.61	0.20	0.20
82.48	14.77	2.58	27.14	69.97	3.64	0.18	0.18
82.58	14.64	2.54	26.84	68.21	3.64	0.17	0.18
82.62	14.74	2.57	25.95	66.60	3.62	0.16	0.18
82.70	14.88	2.60	25.23	65.56	3.60	0.15	0.19
82.77	14.81	2.58	24.98	64.46	3.59	0.15	0.18
82.87	15.08	2.65	24.19	64.01	3.57	0.14	0.19
82.96	16.23	2.94	21.57	63.38	3.51	0.14	0.21
83.06	18.22	3.45	18.38	63.34	3.41	0.14	0.25
83.16	21.39	4.26	14.82	63.10	3.29	0.14	0.30
83.25	24.46	5.04	12.49	62.94	3.19	0.15	0.36
83.34	27.20	5.74	10.91	62.57	3.11	0.15	0.41
83.44	28.34	6.03	10.55	63.55	3.10	0.15	0.43
83.54	28.75	6.12	10.60	64.89	3.10	0.17	0.44
83.64	28.61	6.08	10.93	66.49	3.12	0.17	0.43
83.73	27.70	5.84	11.68	68.29	3.15	0.18	0.42
83.83	27.26	5.73	12.30	70.46	3.18	0.20	0.41
83.85	26.83	5.62	13.07	73.38	3.21	0.21	0.40
83.89	27.47	5.78	13.14	75.93	3.22	0.24	0.41
83.94	28.11	5.94	13.69	81.26	3.24	0.26	0.42
84.04	29.26	6.23	13.80	85.92	3.25	0.34	0.44
84.09	30.40	6.51	13.83	90.10	3.25	0.36	0.47
84.13	31.28	6.74	13.65	91.94	3.24	0.37	0.48
84.18	31.68	6.83	13.70	93.61	3.24	0.40	0.49
84.25	31.52	6.79	13.97	94.85	3.25	0.41	0.48

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
84.33	30.64	6.56	14.57	95.60	3.28	0.41	0.47
84.37	29.46	6.26	15.33	95.90	3.31	0.41	0.45
84.46	28.35	5.97	15.91	94.98	3.33	0.41	0.43
84.52	27.50	5.75	16.25	93.43	3.34	0.38	0.41
84.57	26.90	5.59	16.32	91.27	3.34	0.36	0.40
84.67	26.52	5.49	16.38	90.00	3.34	0.34	0.39
84.71	26.15	5.40	16.62	89.72	3.35	0.34	0.39
84.81	25.58	5.25	17.32	90.86	3.38	0.35	0.37
84.86	24.84	5.06	18.32	92.62	3.41	0.37	0.36
84.91	24.06	4.86	19.36	94.03	3.44	0.38	0.35
85.00	23.42	4.69	20.18	94.63	3.47	0.39	0.33
85.05	22.81	4.53	20.72	93.94	3.48	0.39	0.32
85.15	22.34	4.41	20.94	92.30	3.49	0.36	0.31
85.19	21.80	4.27	20.88	89.13	3.49	0.34	0.30
85.29	21.33	4.15	20.74	85.98	3.48	0.30	0.30
85.35	20.72	3.99	20.84	83.14	3.49	0.28	0.28
85.42	20.08	3.82	21.32	81.54	3.50	0.27	0.27
85.48	19.40	3.65	22.03	80.45	3.52	0.26	0.26
85.55	18.77	3.49	22.80	79.50	3.54	0.25	0.25
85.63	18.19	3.34	23.58	78.76	3.56	0.25	0.24
85.68	17.62	3.19	24.50	78.25	3.58	0.24	0.23
85.77	17.18	3.08	25.34	78.03	3.60	0.24	0.22
85.82	17.04	3.04	25.74	78.34	3.61	0.24	0.22
85.89	17.42	3.13	25.13	78.79	3.60	0.25	0.22
85.96	18.33	3.36	23.51	79.01	3.56	0.25	0.24
86.03	19.71	3.71	21.16	78.44	3.49	0.25	0.26
86.11	21.06	4.04	19.14	77.40	3.44	0.24	0.29
86.16	22.11	4.30	17.71	76.21	3.39	0.23	0.31
86.25	21.67	4.19	18.09	75.81	3.40	0.22	0.30
86.36	19.98	3.76	19.76	74.32	3.45	0.23	0.27
86.50	18.16	3.30	22.08	72.85	3.52	0.19	0.24
86.51	17.25	3.07	23.09	70.91	3.55	0.19	0.22
86.52	17.32	3.09	22.53	69.58	3.53	0.19	0.22
86.57	17.35	3.10	21.58	66.80	3.51	0.17	0.22
86.65	17.39	3.10	20.48	63.50	3.48	0.13	0.22
86.71	17.35	3.09	19.65	60.73	3.45	0.13	0.22
86.80	17.08	3.02	19.57	59.11	3.45	0.12	0.22
86.90	16.48	2.87	20.04	57.42	3.46	0.11	0.20
86.99	15.77	2.69	20.75	55.74	3.48	0.10	0.19
87.04	15.26	2.56	21.24	54.32	3.50	0.09	0.18
87.14	15.16	2.53	21.16	53.51	3.49	0.09	0.18
87.19	15.36	2.58	20.70	53.36	3.48	0.09	0.18
87.28	15.87	2.70	20.13	54.40	3.46	0.09	0.19
87.38	16.51	2.86	19.47	55.67	3.45	0.10	0.20
87.43	17.18	3.03	18.79	56.85	3.42	0.11	0.22
87.52	17.76	3.17	18.12	57.36	3.40	0.11	0.23
87.61	18.23	3.28	17.55	57.58	3.38	0.11	0.23
87.66	18.53	3.35	17.13	57.47	3.37	0.11	0.24

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
87.76	18.57	3.36	17.00	57.12	3.37	0.11	0.24
87.84	18.43	3.32	17.02	56.58	3.37	0.10	0.24
87.91	18.13	3.25	17.27	56.08	3.37	0.10	0.23
88.00	17.79	3.16	17.58	55.54	3.39	0.10	0.23
88.11	17.46	3.07	17.98	55.23	3.40	0.10	0.22
88.19	17.22	3.01	18.27	55.01	3.41	0.10	0.22
88.25	17.08	2.98	18.42	54.79	3.41	0.10	0.21
88.34	17.02	2.96	18.36	54.27	3.41	0.09	0.21
88.44	16.98	2.94	18.20	53.59	3.41	0.09	0.21
88.54	16.98	2.94	17.99	52.93	3.40	0.09	0.21
88.64	16.95	2.93	17.92	52.52	3.40	0.08	0.21
88.72	16.88	2.91	18.00	52.42	3.40	0.08	0.21
88.82	16.82	2.89	18.16	52.53	3.40	0.08	0.21
88.91	16.72	2.87	18.42	52.79	3.41	0.08	0.20
89.01	16.62	2.84	18.68	53.02	3.42	0.09	0.20
89.10	16.49	2.80	18.99	53.22	3.43	0.09	0.20
89.19	16.32	2.76	19.19	52.91	3.44	0.09	0.20
89.30	16.21	2.73	18.48	50.44	3.41	0.08	0.19
89.39	16.31	2.75	17.80	48.98	3.39	0.05	0.20
89.49	16.62	2.82	17.53	49.49	3.38	0.07	0.20
89.59	16.90	2.89	18.25	52.76	3.41	0.09	0.21
89.69	17.04	2.92	18.79	54.90	3.42	0.10	0.21
89.73	17.68	3.08	18.14	55.86	3.40	0.10	0.22
89.78	18.48	3.27	17.18	56.23	3.37	0.10	0.23
89.83	19.36	3.49	16.22	56.56	3.34	0.10	0.25
89.88	19.63	3.55	16.06	57.05	3.33	0.11	0.25
89.93	19.86	3.61	16.01	57.77	3.33	0.11	0.26
90.00	20.24	3.70	15.90	58.79	3.33	0.11	0.26
90.07	20.88	3.85	15.53	59.82	3.31	0.12	0.28
90.12	21.62	4.03	15.19	61.24	3.30	0.13	0.29
90.22	22.26	4.19	15.01	62.84	3.29	0.14	0.30
90.27	23.04	4.37	15.02	65.70	3.29	0.15	0.31
90.36	24.99	4.85	14.09	68.34	3.26	0.18	0.35
90.46	27.46	5.45	12.89	70.27	3.21	0.20	0.39
90.50	29.28	5.89	12.05	71.01	3.17	0.20	0.42
90.61	29.48	5.94	12.02	71.39	3.17	0.20	0.42
90.66	28.70	5.75	12.38	71.12	3.18	0.20	0.41
90.75	27.62	5.48	12.73	69.74	3.20	0.19	0.39
90.84	26.17	5.12	13.28	67.94	3.22	0.17	0.37
90.89	24.72	4.76	13.90	66.20	3.25	0.16	0.34
90.99	23.48	4.45	14.63	65.12	3.28	0.15	0.32
91.04	22.50	4.21	15.24	64.21	3.30	0.15	0.30
91.14	21.59	3.99	15.98	63.69	3.33	0.14	0.28
91.22	20.75	3.78	16.73	63.19	3.36	0.14	0.27
91.28	19.83	3.55	17.61	62.55	3.39	0.14	0.25
91.37	19.26	3.41	18.11	61.75	3.40	0.13	0.24
91.47	18.99	3.34	18.18	60.75	3.40	0.13	0.24
91.61	19.26	3.40	17.69	60.19	3.39	0.12	0.24

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
91.71	19.40	3.43	17.48	59.97	3.38	0.12	0.25
91.81	19.50	3.45	17.39	60.03	3.38	0.12	0.25
91.87	19.36	3.42	17.46	59.68	3.38	0.12	0.24
92.00	19.38	3.42	16.82	57.50	3.36	0.12	0.24
92.10	19.41	3.42	16.30	55.77	3.34	0.09	0.24
92.20	19.62	3.47	15.85	54.98	3.32	0.09	0.25
92.33	19.76	3.50	16.12	56.37	3.33	0.10	0.25
92.38	19.89	3.53	16.27	57.43	3.34	0.11	0.25
92.43	20.03	3.56	16.28	57.96	3.34	0.11	0.25
92.48	19.98	3.55	16.52	58.57	3.35	0.11	0.25
92.56	19.88	3.52	16.79	59.09	3.36	0.12	0.25
92.63	19.64	3.46	17.17	59.41	3.37	0.12	0.25
92.67	19.57	3.44	17.27	59.42	3.37	0.12	0.25
92.72	19.54	3.43	17.30	59.38	3.38	0.12	0.25
92.77	19.64	3.46	17.18	59.37	3.37	0.12	0.25
92.86	19.84	3.50	16.99	59.49	3.37	0.12	0.25
92.92	20.08	3.56	16.84	59.88	3.36	0.12	0.25
92.97	20.21	3.59	17.01	61.03	3.37	0.12	0.26
93.05	20.35	3.62	17.17	62.12	3.37	0.14	0.26
93.10	20.62	3.68	17.13	63.07	3.37	0.14	0.26
93.16	21.10	3.79	16.68	63.28	3.35	0.14	0.27
93.25	21.70	3.94	16.06	63.20	3.33	0.14	0.28
93.35	22.78	4.19	14.99	62.84	3.29	0.14	0.30
93.40	23.19	4.29	14.52	62.27	3.27	0.14	0.31
93.49	23.25	4.30	14.38	61.82	3.27	0.13	0.31
93.56	22.71	4.17	14.77	61.55	3.28	0.13	0.30
93.64	22.88	4.21	14.66	61.65	3.28	0.13	0.30
93.73	23.63	4.38	14.34	62.81	3.27	0.13	0.31
93.83	24.91	4.69	13.81	64.72	3.25	0.15	0.33
93.88	26.43	5.05	13.44	67.85	3.23	0.17	0.36
93.97	27.01	5.18	13.58	70.35	3.24	0.20	0.37
94.07	26.43	5.04	14.48	72.95	3.27	0.20	0.36
94.17	25.76	4.87	15.51	75.57	3.31	0.22	0.35
94.26	26.70	5.09	15.04	76.60	3.29	0.25	0.36
94.36	27.88	5.37	15.22	81.75	3.30	0.23	0.38
94.45	29.47	5.75	15.14	87.02	3.30	0.34	0.41
94.55	35.88	7.27	12.61	91.74	3.19	0.39	0.52
94.64	48.46	10.27	8.71	89.52	3.00	0.73	0.73
94.72	59.93	13.01	6.55	85.22	2.85	0.72	0.72
94.74	73.87	16.33	4.89	79.85	2.72	0.58	0.71
94.77	84.50	18.86	4.08	76.98	2.64	0.45	0.70
94.85	97.35	21.92	3.39	74.39	2.56	0.37	0.69
94.90	102.75	23.20	3.24	75.17	2.54	0.39	0.70
94.95	105.32	23.80	3.27	77.89	2.54	0.49	0.70
95.01	104.68	23.63	3.61	85.22	2.58	0.72	0.72
95.09	100.83	22.70	4.16	94.37	2.64	0.74	0.74
95.14	94.49	21.18	5.05	107.02	2.73	0.76	0.76
95.23	86.42	19.25	6.10	117.34	2.82	0.78	0.78

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
95.29	78.06	17.25	7.36	126.89	2.91	0.79	0.79
95.38	71.11	15.59	8.45	131.69	2.98	0.80	0.80
95.43	67.53	14.73	9.06	133.43	3.02	0.97	1.05
95.52	67.83	14.79	8.96	132.50	3.01	0.95	1.06
95.57	70.23	15.35	8.40	128.95	2.98	0.80	0.80
95.67	71.24	15.58	7.93	123.49	2.95	0.79	0.79
95.77	66.52	14.45	8.22	118.72	2.97	0.78	0.78
95.86	56.97	12.17	9.76	118.80	3.06	0.69	0.87
95.95	52.94	11.21	10.40	116.56	3.09	0.74	0.80
96.03	46.73	9.74	12.16	118.40	3.17	0.62	0.70
96.11	51.55	10.87	10.92	118.64	3.12	0.68	0.78
96.20	59.20	12.66	9.84	124.65	3.06	0.80	0.90
96.30	80.15	17.59	7.15	125.73	2.90	0.79	0.79
96.39	101.37	22.58	5.51	124.50	2.77	0.79	0.79
96.50	122.96	27.64	4.35	120.31	2.67	0.78	0.78
96.59	144.96	32.80	3.25	106.72	2.54	0.76	0.76
96.69	164.86	37.45	2.44	91.36	2.41	0.73	0.73
96.78	180.18	41.02	1.89	77.51	2.29	0.47	0.70
96.87	185.95	42.35	1.72	72.98	2.24	0.33	0.69
96.98	185.28	42.15	1.69	71.40	2.23	0.29	0.69
97.02	177.79	40.38	1.78	71.90	2.26	0.30	0.69
97.06	176.40	40.04	1.83	73.47	2.27	0.34	0.69
97.12	175.60	39.84	1.91	76.16	2.30	0.42	0.70
97.16	176.98	40.15	1.98	79.48	2.31	0.56	0.71
97.21	173.67	39.35	2.13	83.99	2.35	0.72	0.72
97.27	170.50	38.59	2.31	89.17	2.39	0.73	0.73
97.33	168.21	38.04	2.46	93.67	2.42	0.74	0.74
97.40	165.98	37.49	2.57	96.33	2.44	0.74	0.74
97.45	163.92	37.00	2.64	97.51	2.45	0.74	0.74
97.50	161.39	36.39	2.76	100.38	2.47	0.75	0.75
97.58	155.82	35.06	2.99	104.78	2.50	0.76	0.76
97.65	146.95	32.97	3.34	110.26	2.55	0.77	0.77
97.69	134.43	30.04	3.79	113.95	2.60	0.77	0.77
97.74	121.75	27.07	4.27	115.68	2.66	0.78	0.78
97.81	110.51	24.44	4.76	116.42	2.71	0.78	0.78
97.88	103.09	22.69	5.14	116.63	2.74	0.78	0.78
97.93	108.66	23.98	4.67	111.98	2.70	0.77	0.77
98.03	138.72	30.95	3.15	97.35	2.52	0.74	0.74
98.15	182.62	41.12	2.03	83.50	2.33	0.71	0.71
98.21	228.43	51.75	1.51	78.05	2.15	0.50	0.70
98.32	264.20	60.00	1.34	80.19	2.03	0.59	0.71
98.42	301.85	68.69	1.25	85.96	1.92	0.72	0.72
98.47	349.59	79.73	1.00	79.73	1.79	0.57	0.71
98.57	388.76	88.75	1.00	88.75	1.69	0.73	0.73
98.70	411.84	94.00	1.00	94.00	1.61	0.74	0.74
98.78	404.01	92.13	1.00	92.13	1.62	0.73	0.73
98.85	372.43	84.79	1.00	84.79	1.67	0.72	0.72
98.86	337.78	76.77	1.00	76.77	1.74	0.45	0.70

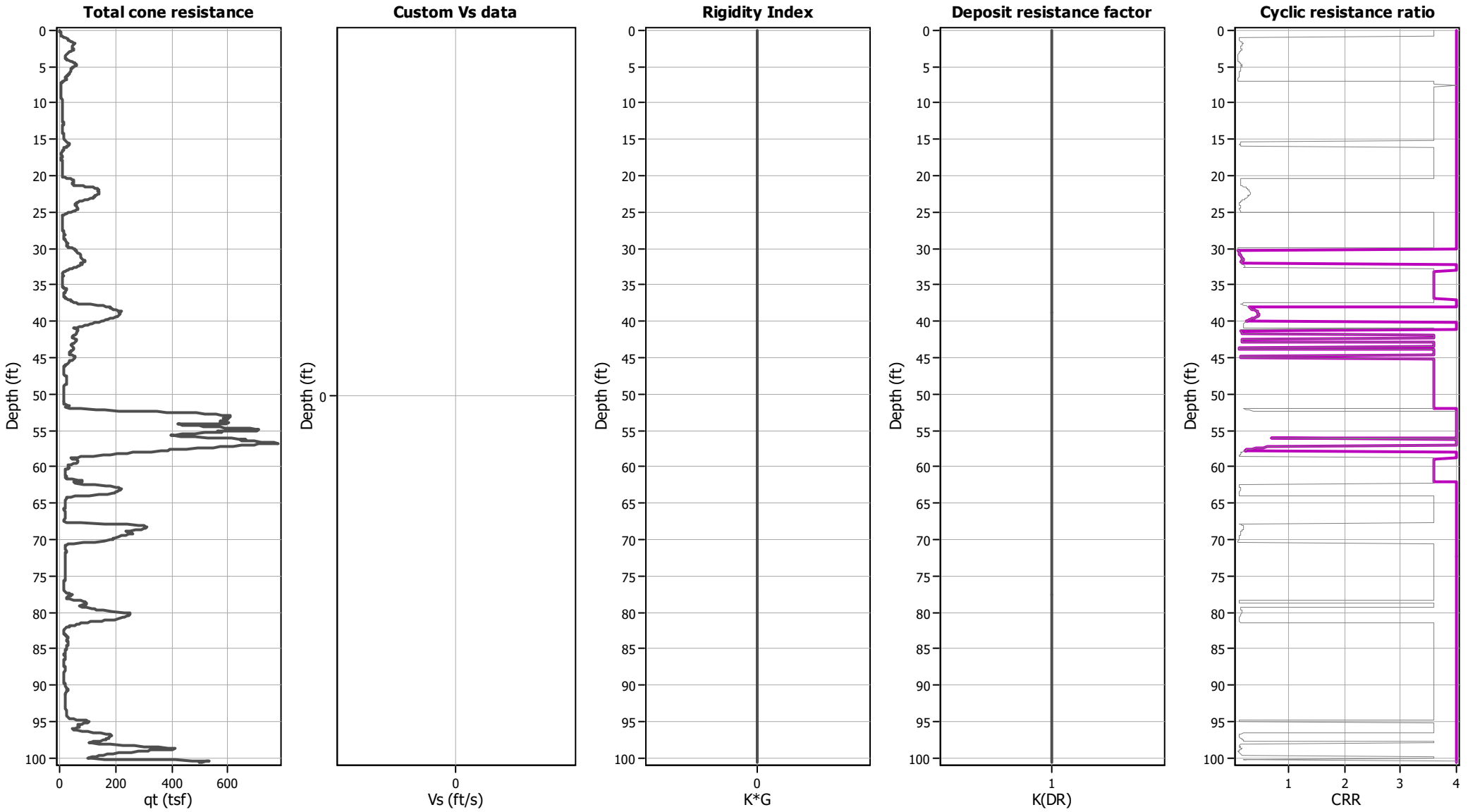
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
98.92	322.73	73.26	1.00	73.26	1.77	0.33	0.69
98.98	318.48	72.24	1.00	72.24	1.78	0.31	0.69
99.03	309.41	70.12	1.00	70.12	1.81	0.26	0.68
99.11	281.64	63.67	1.00	63.67	1.90	0.15	0.67
99.18	255.32	57.57	1.30	74.69	1.99	0.38	0.69
99.23	231.33	52.01	1.41	73.25	2.09	0.33	0.69
99.32	209.84	47.02	1.62	76.01	2.20	0.42	0.70
99.37	189.39	42.29	1.96	83.05	2.31	0.71	0.71
99.45	170.57	37.93	2.37	90.04	2.40	0.73	0.73
99.56	157.24	34.83	2.76	96.01	2.47	0.74	0.74
99.64	147.39	32.55	3.13	101.90	2.52	0.75	0.75
99.71	140.04	30.84	3.53	108.77	2.57	0.76	0.76
99.75	128.26	28.12	4.04	113.72	2.63	0.77	0.77
99.90	116.32	25.35	4.67	118.27	2.70	0.78	0.78
99.95	101.78	22.01	5.75	126.55	2.79	0.79	0.79
100.04	116.32	25.32	5.03	127.45	2.73	0.79	0.79
100.14	159.30	35.14	3.33	116.89	2.55	0.78	0.78
100.14	204.99	45.59	2.33	106.43	2.39	0.76	0.76
100.15	235.79	52.64	2.00	105.52	2.32	0.76	0.76
100.19	258.80	57.89	1.93	111.71	2.30	0.77	0.77
100.21	298.07	66.86	1.78	119.29	2.26	0.78	0.78
100.24	351.88	79.16	1.37	108.37	2.06	0.76	0.76
100.28	410.56	92.54	1.15	106.62	1.80	0.76	0.76
100.31	470.98	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.33	508.57	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.38	524.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.39	526.55	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.43	531.78	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.48	522.24	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.53	509.38	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.57	496.12	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.60	497.27	-1.00	1.00	-1.00	-1.00	0.00	0.00

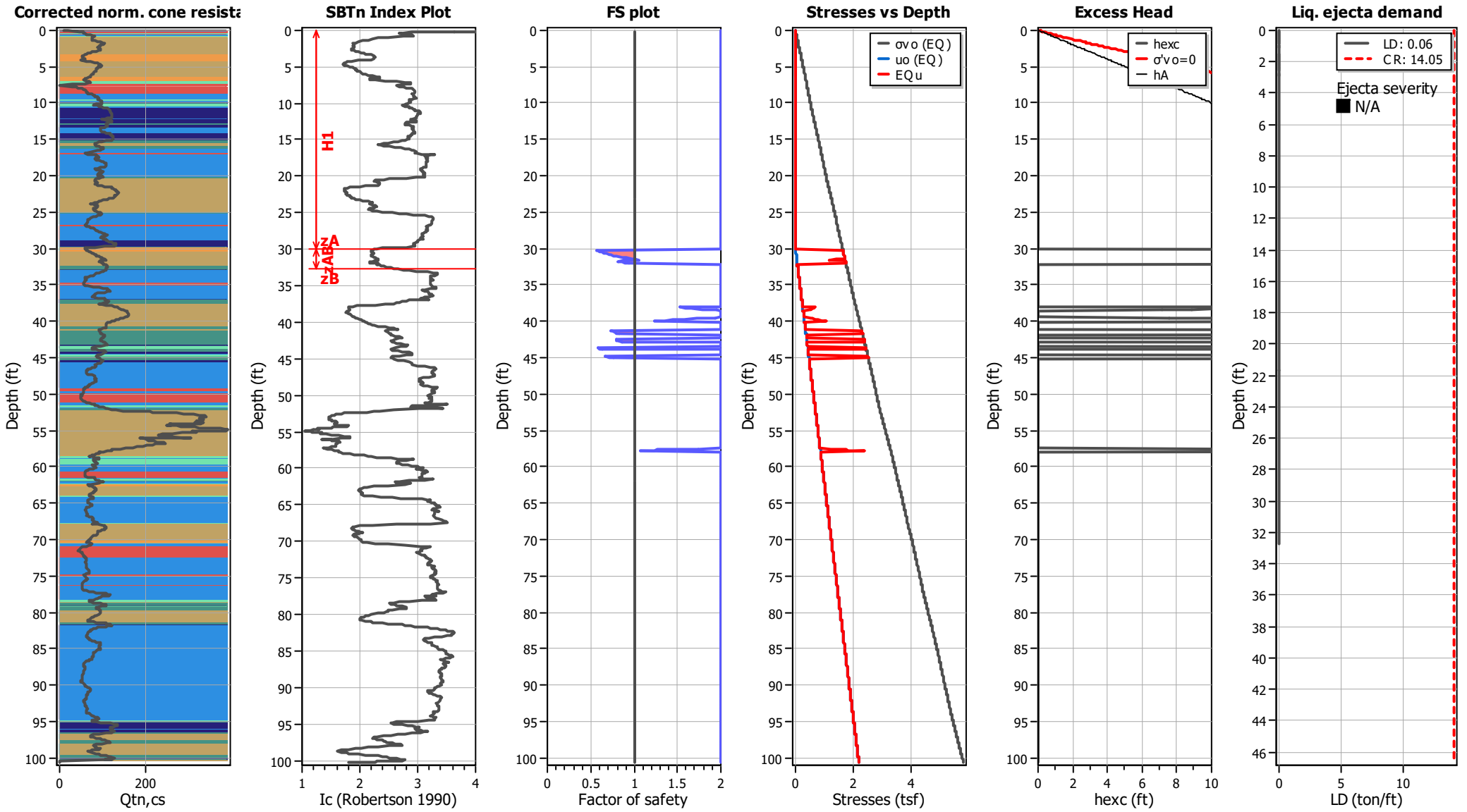
Abbreviations

q_t:	Total cone resistance
K_c:	Cone resistance correction factor due to fines
$Q_{tn,cs}$:	Adjusted and corrected cone resistance due to fines
I_c:	Soil behavior type index
$S_{u(liq)}/\sigma'_v$:	Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$:	Calculated peak undrained strength ratio

Aging Calculation Estimation

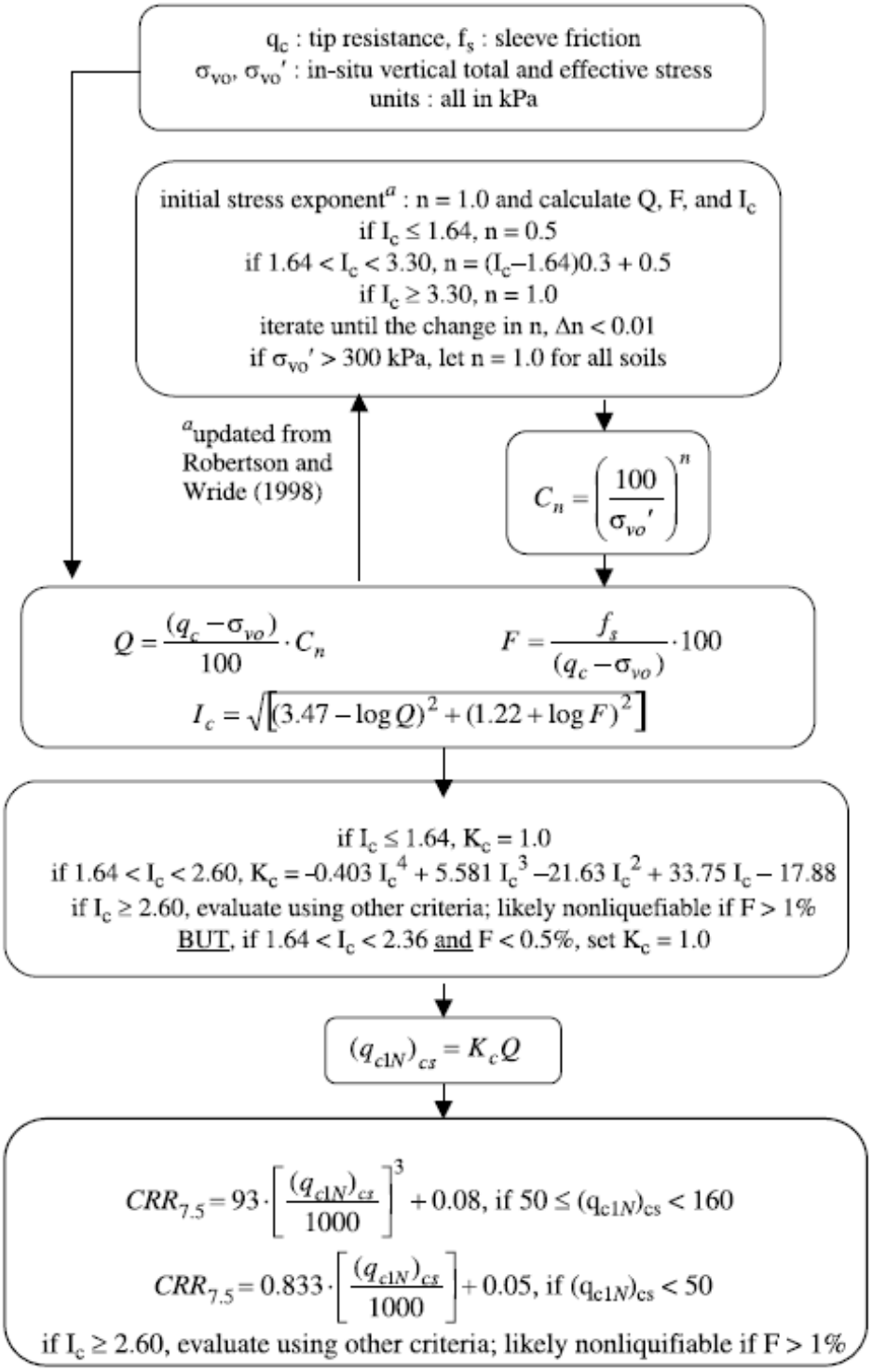


Ejecta Severity Estimation



Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

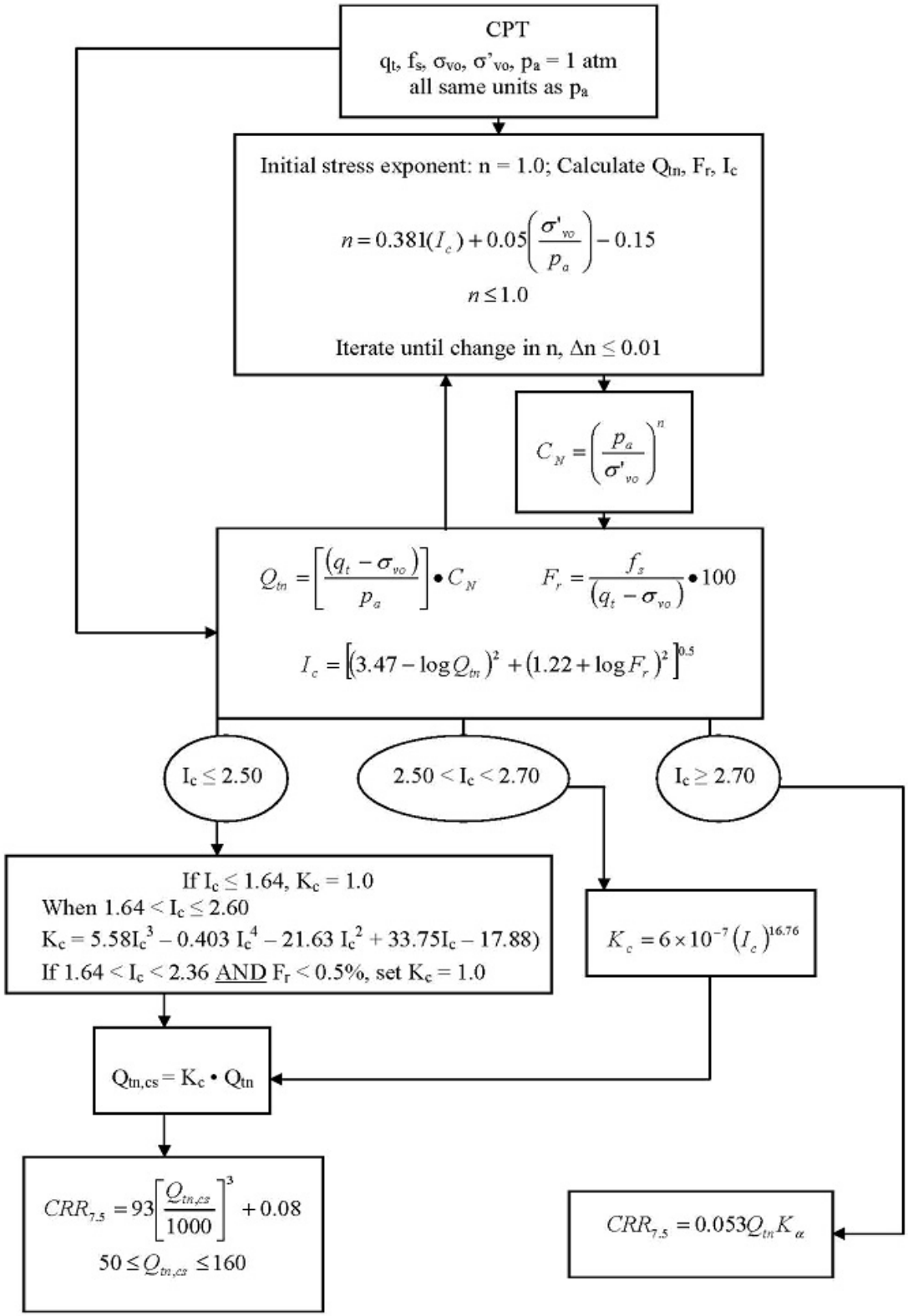
Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

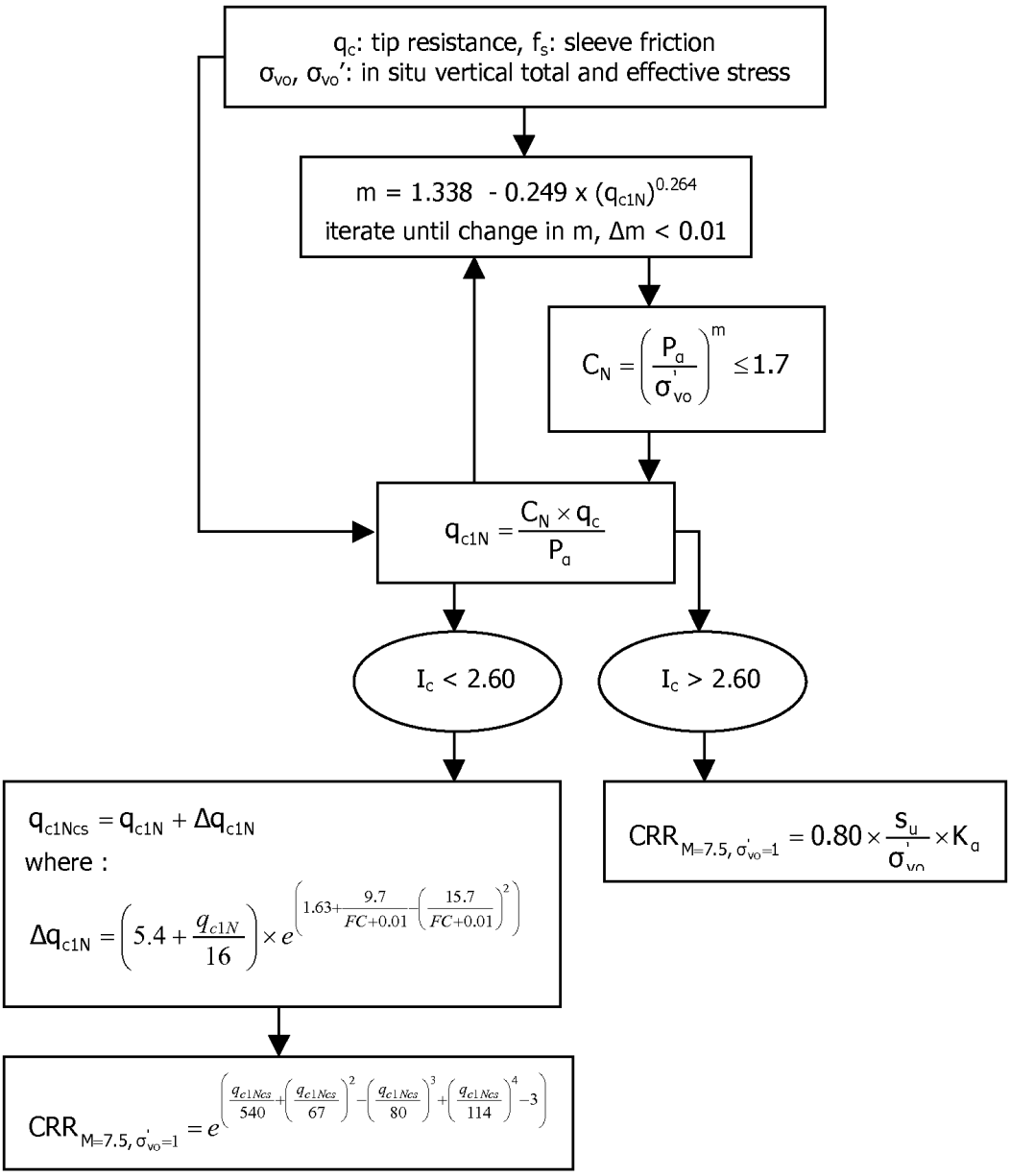
Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:

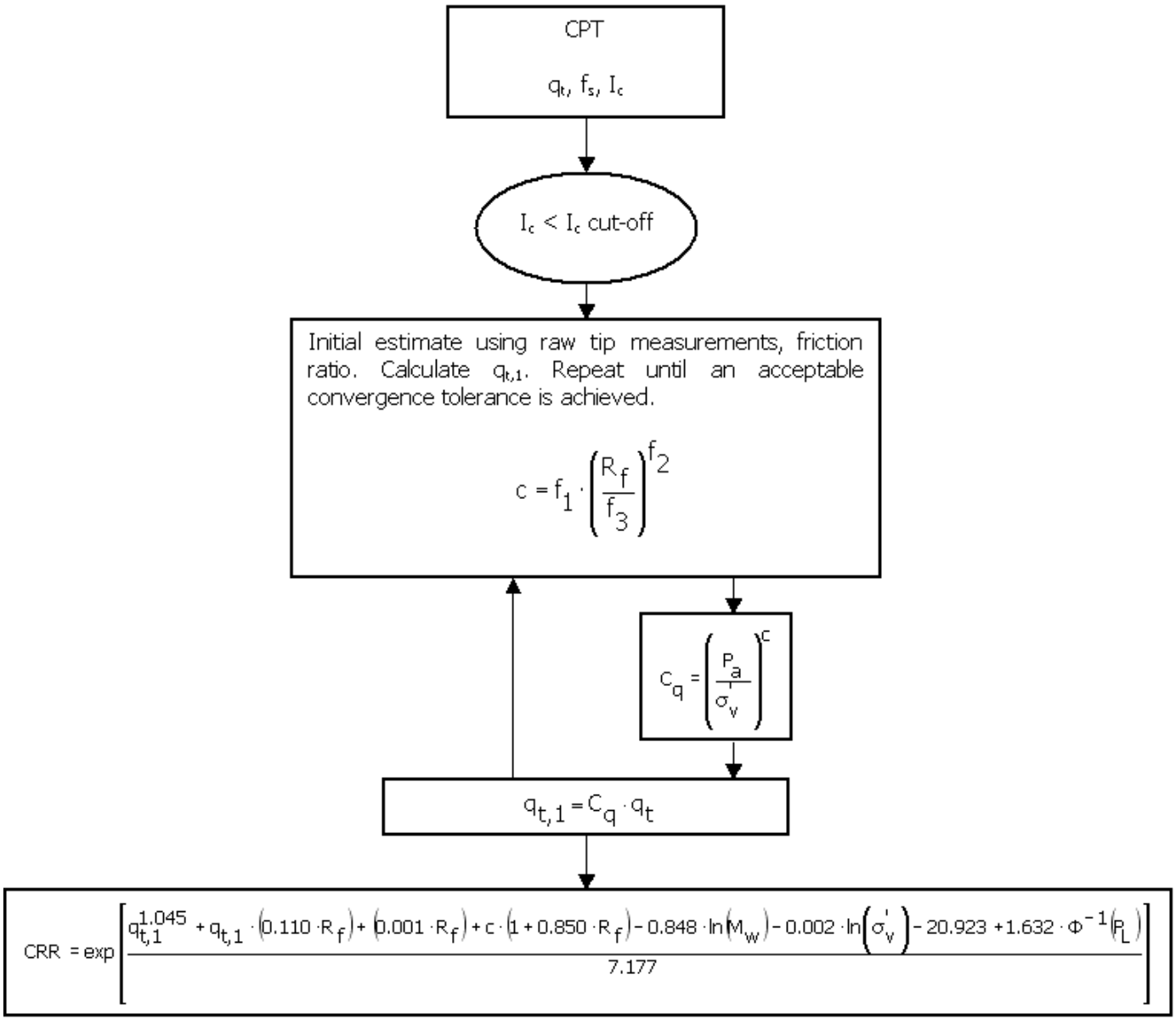


[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)

$$FS_{liq} = \frac{CRR_{M=7.5,\sigma'_v=1atm}}{CSR_{M=7.5,\sigma'_v=1atm}}$$

$$CSR_{M=7.5,\sigma'_v=1atm} = 0.65 \frac{\sigma_v}{\sigma'_v} \frac{a_{max}}{g} r_d \frac{1}{MSF} \frac{1}{K_\sigma}$$

$$r_d = \exp\left[\alpha(z) + \beta(z) \cdot M\right]$$

$$\alpha(z) = -1.012 - 1.126 \sin\left(\frac{z}{11.73} + 5.133\right)$$

$$\beta(z) = 0.106 + 0.118 \sin\left(\frac{z}{11.28} + 5.142\right)$$

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_v}{P_a}\right) \le 1.1$$

$$C_\sigma = \frac{1}{37.3 - 8.27\left(q_{c1Ncs}\right)^{0.264}} \le 0.3$$

$$MSF = 1 + \left(MSF_{max} - 1\right)\left(8.64 \exp\left(\frac{-M}{4}\right) - 1.325\right)$$

$$MSF_{max} = 1.09 + \left(\frac{q_{C1Ncs}}{180}\right)^3 \le 2.2$$

σ'_v *and* σ_v *at start of earthquake shaking*

$$CRR_{M=7.5,\sigma'_v=1atm} = \exp\left(\frac{q_{c1Ncs}}{113} + \left(\frac{q_{c1Ncs}}{1000}\right)^2 - \left(\frac{q_{c1Ncs}}{140}\right)^3 + \left(\frac{q_{c1Ncs}}{137}\right)^4 - 2.80\right)$$

$$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$$

$$\Delta q_{c1N} = \left(11.9 + \frac{q_{c1N}}{14.6}\right) \exp\left(1.63 - \frac{9.7}{FC+2} - \left(\frac{15.7}{FC+2}\right)^2\right)$$

$$q_{c1N} = C_{Ne} \frac{q_c}{P_a}$$

$$C_{Ne} = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 1.338 - 0.249\left(q_{c1Ncs}\right)^{0.264} \quad with \quad 0.264 \le m \le 0.782$$

$$FC = 80\left(I_C + C_{FC}\right) - 137 \quad with \quad 0\% \le FC \le 100\%$$

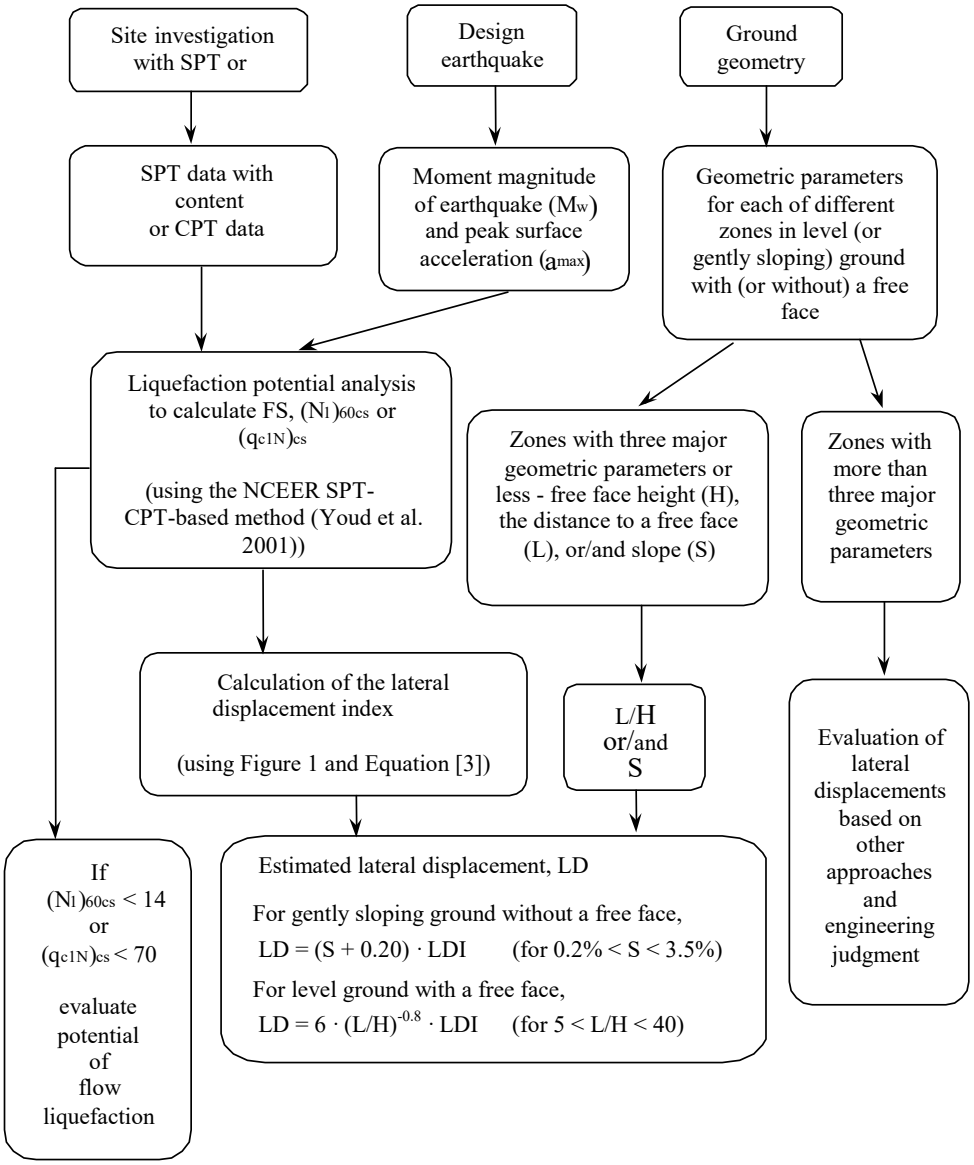
$$I_c = \left[\left(3.47 - \log\left(Q\right)\right)^2 + \left(1.22 + \log\left(F\right)\right)^2\right]^{0.5}$$

$$Q = \left(\frac{q_c - \sigma_{vc}}{P_a}\right)\left(\frac{P_a}{\sigma'_{vc}}\right)^n \; with \; 0.5 \le n \le 1.0 \; per \; Robertson \; \& \; Wride \; (1998)$$

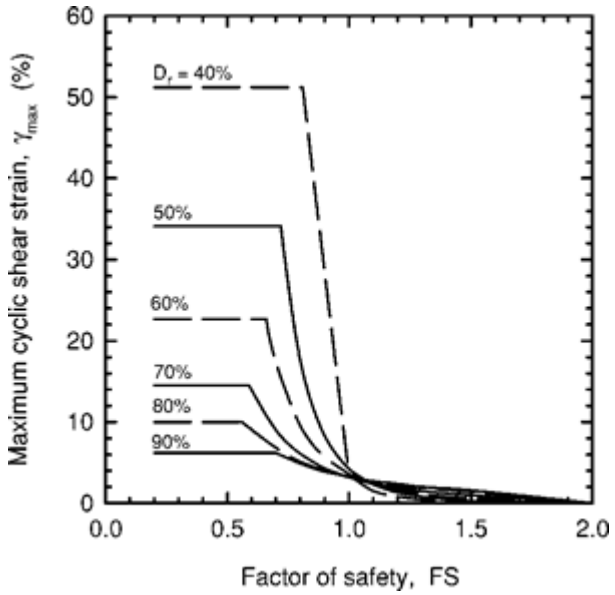
$$F = \left(\frac{f_s}{q_c - \sigma_{vc}}\right) \cdot 100\%$$

σ'_v *at time of CPT sounding*

Procedure for the evaluation of liquefaction-induced lateral spreading displacements



[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



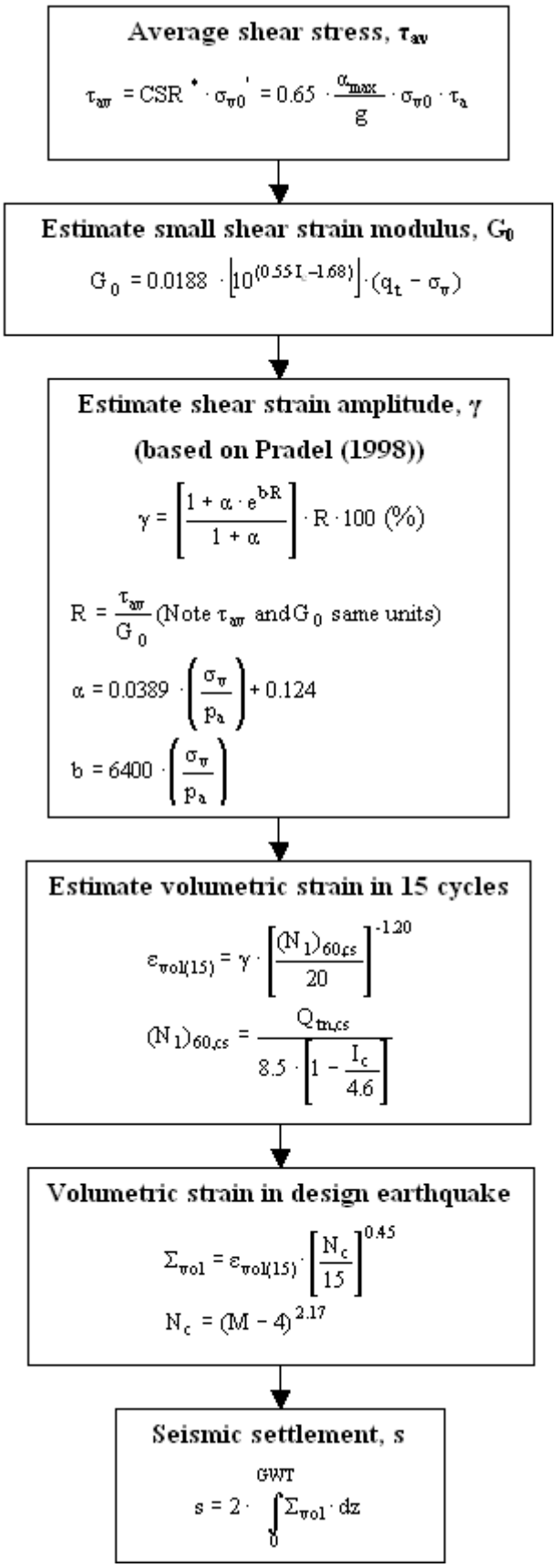
[1] Figure 1

$$LDI = \int_0^{z_{max}} \gamma_{max} dz$$

[1] Equation [3]

[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

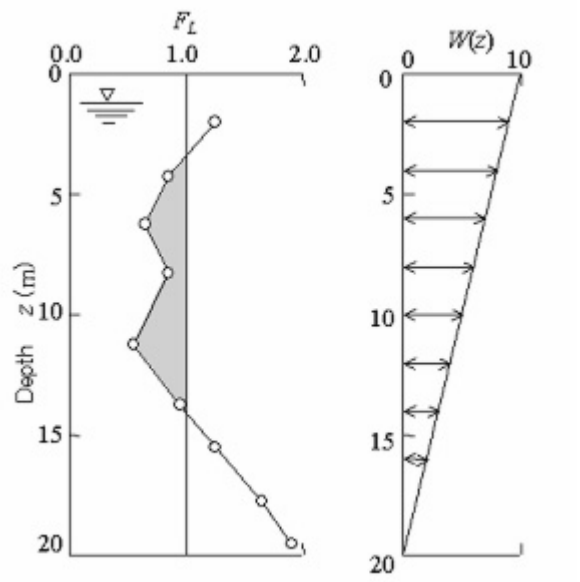
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\mathbf{LPI} = \int_0^{20} (10 - 0{,}5z) \times F_L \times dz$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) + 4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B + 0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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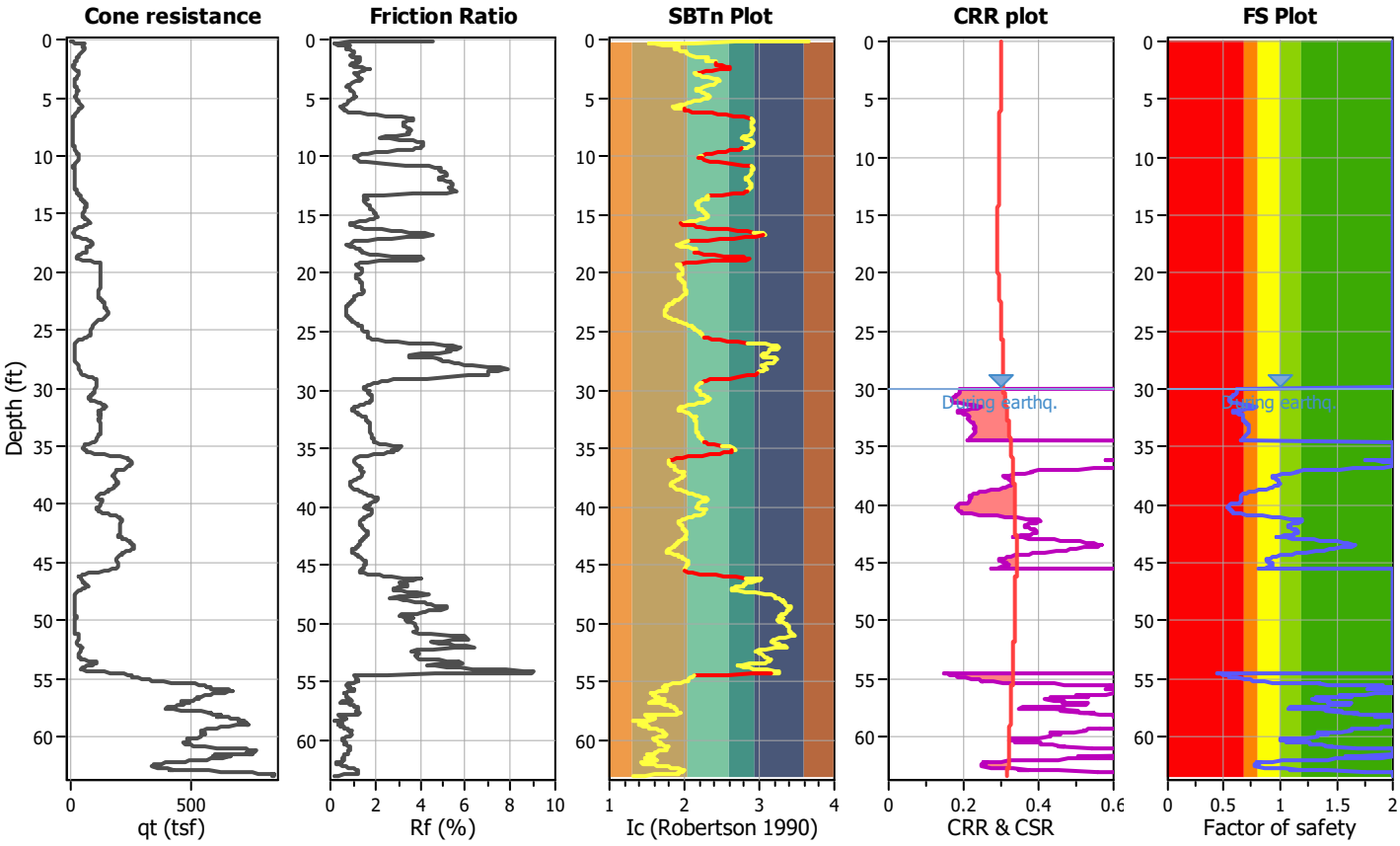
LIQUEFACTION ANALYSIS REPORT

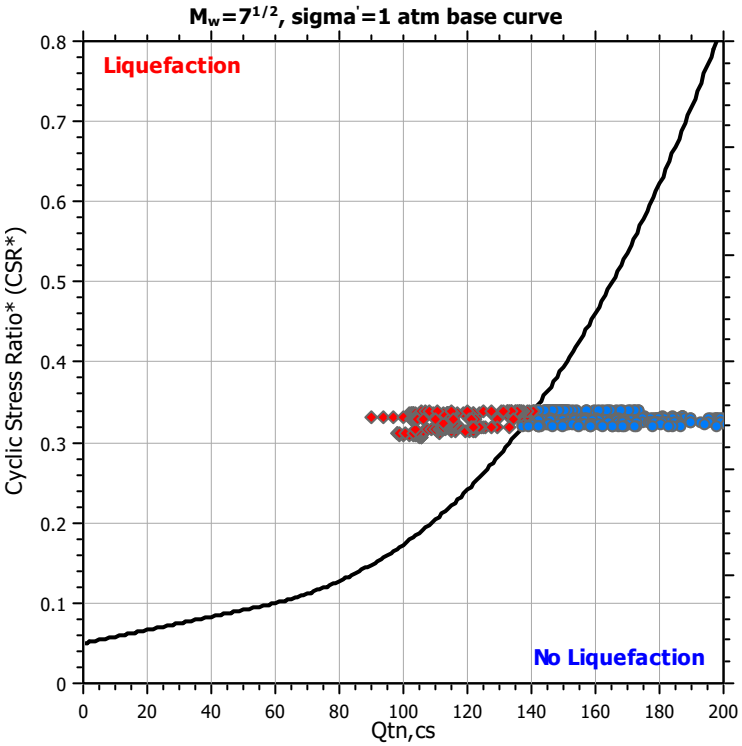
Project title : W1857-88-01 **Location : 331 The City Drive S**

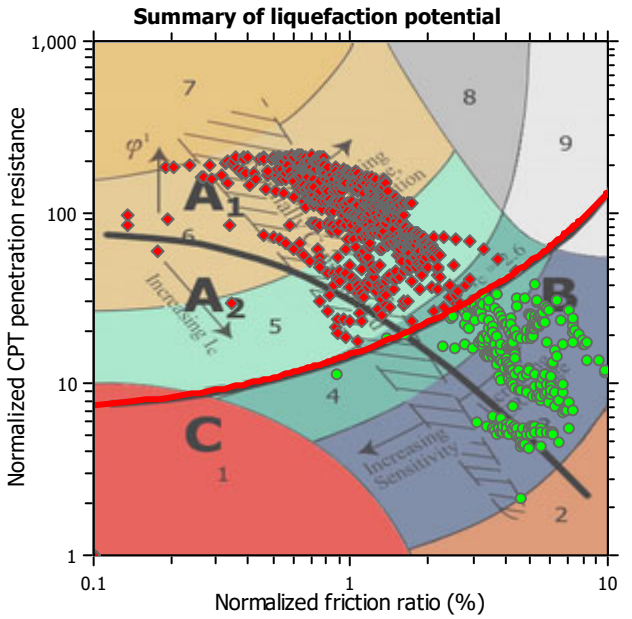
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.65	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

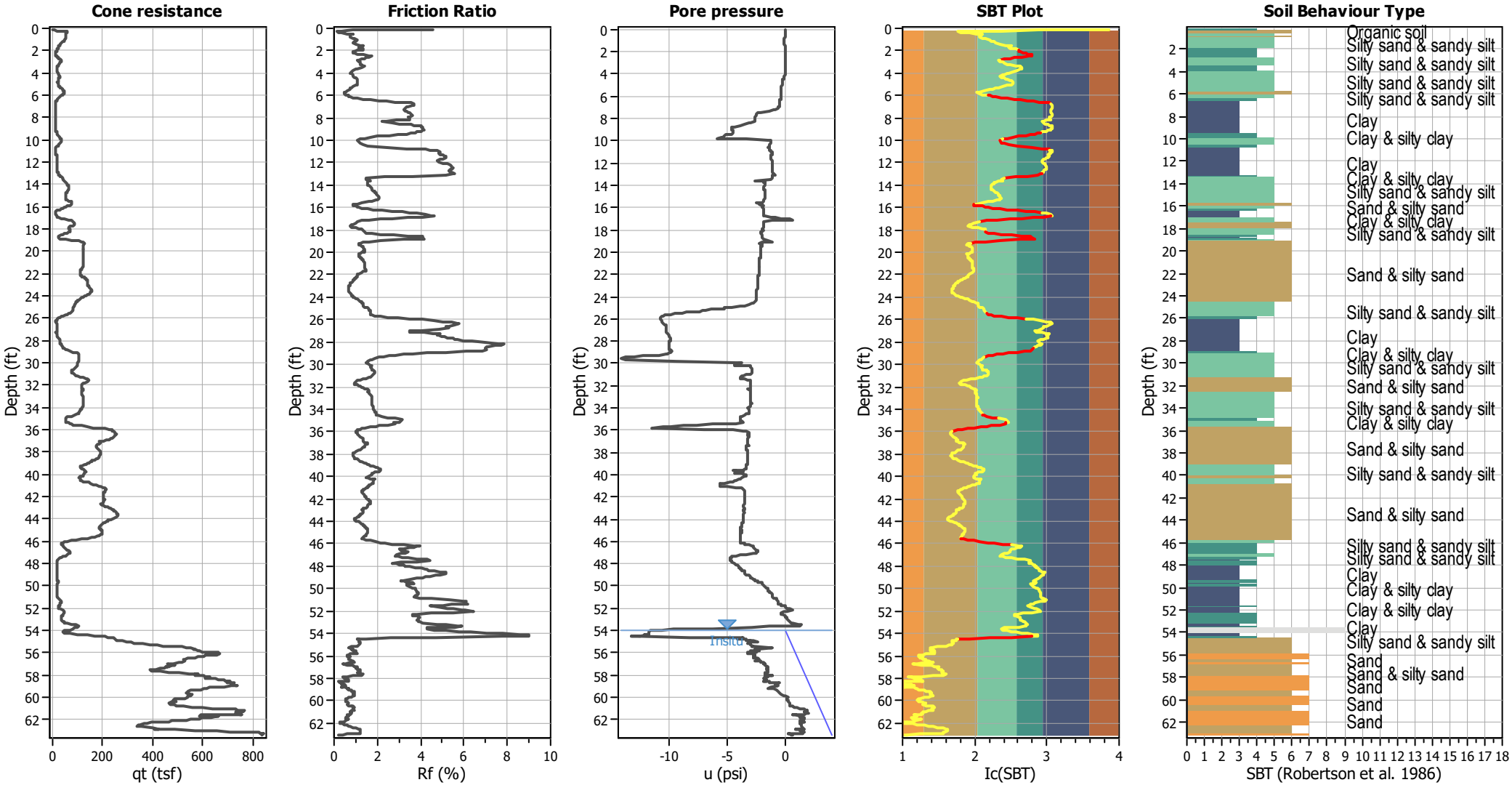






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



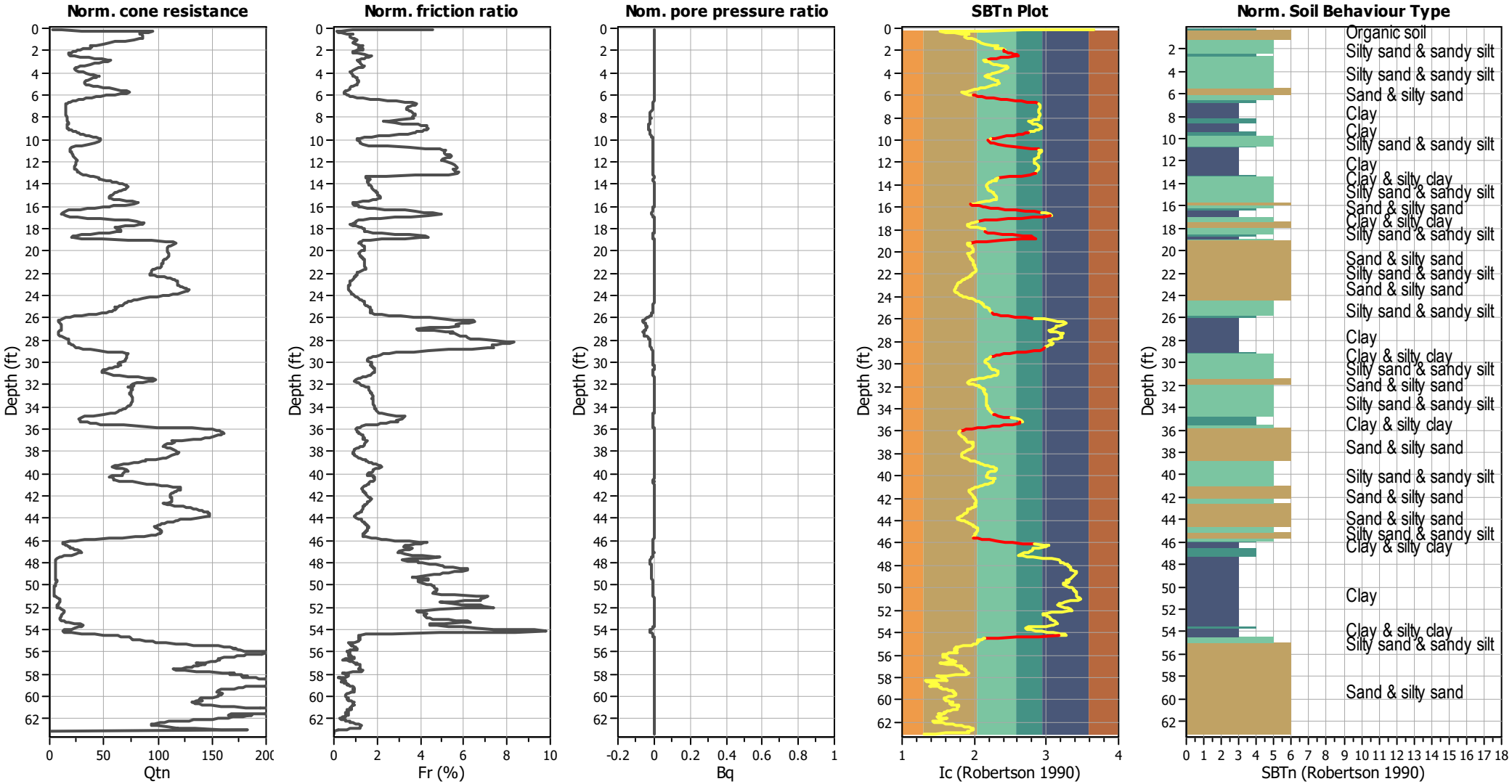
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



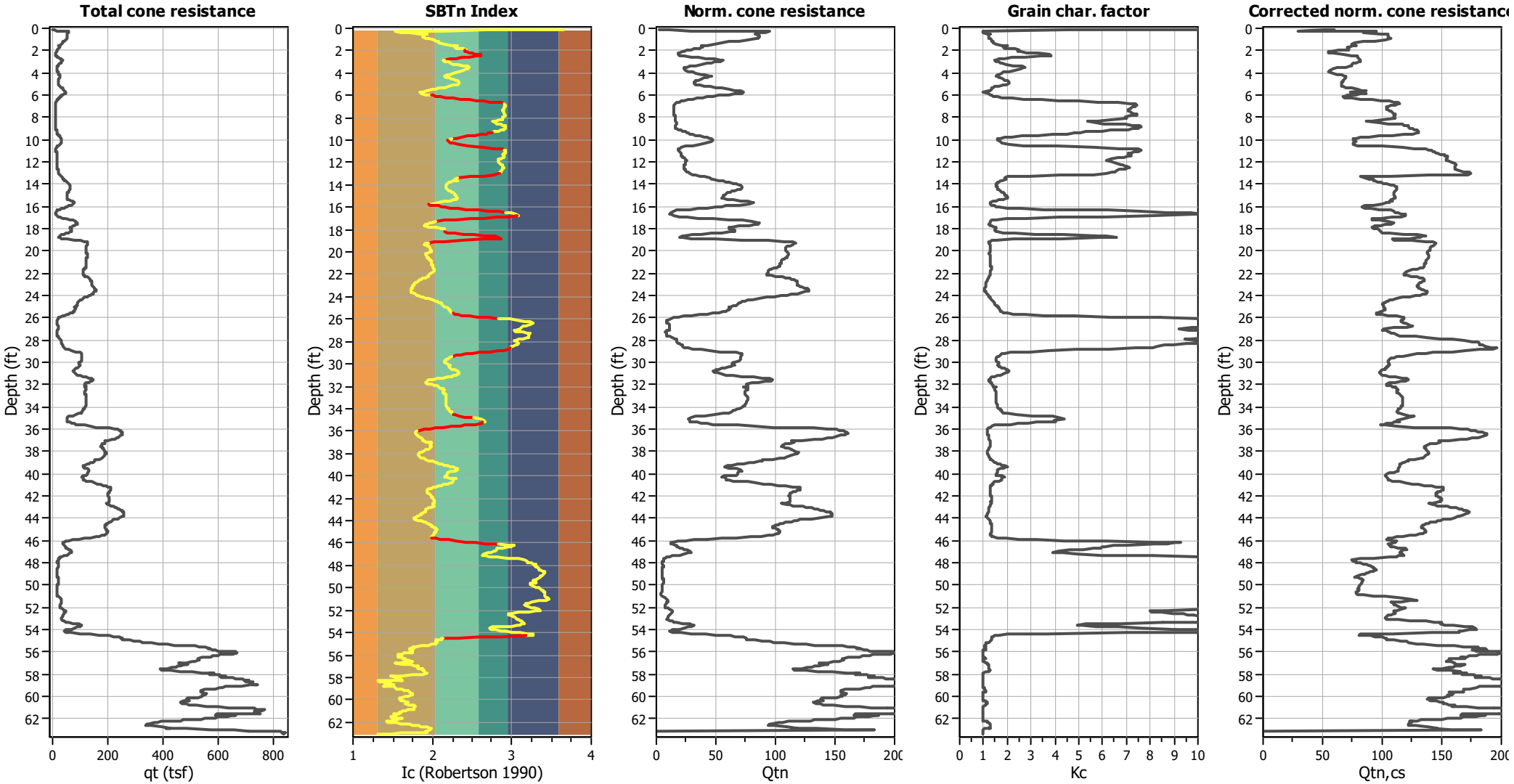
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

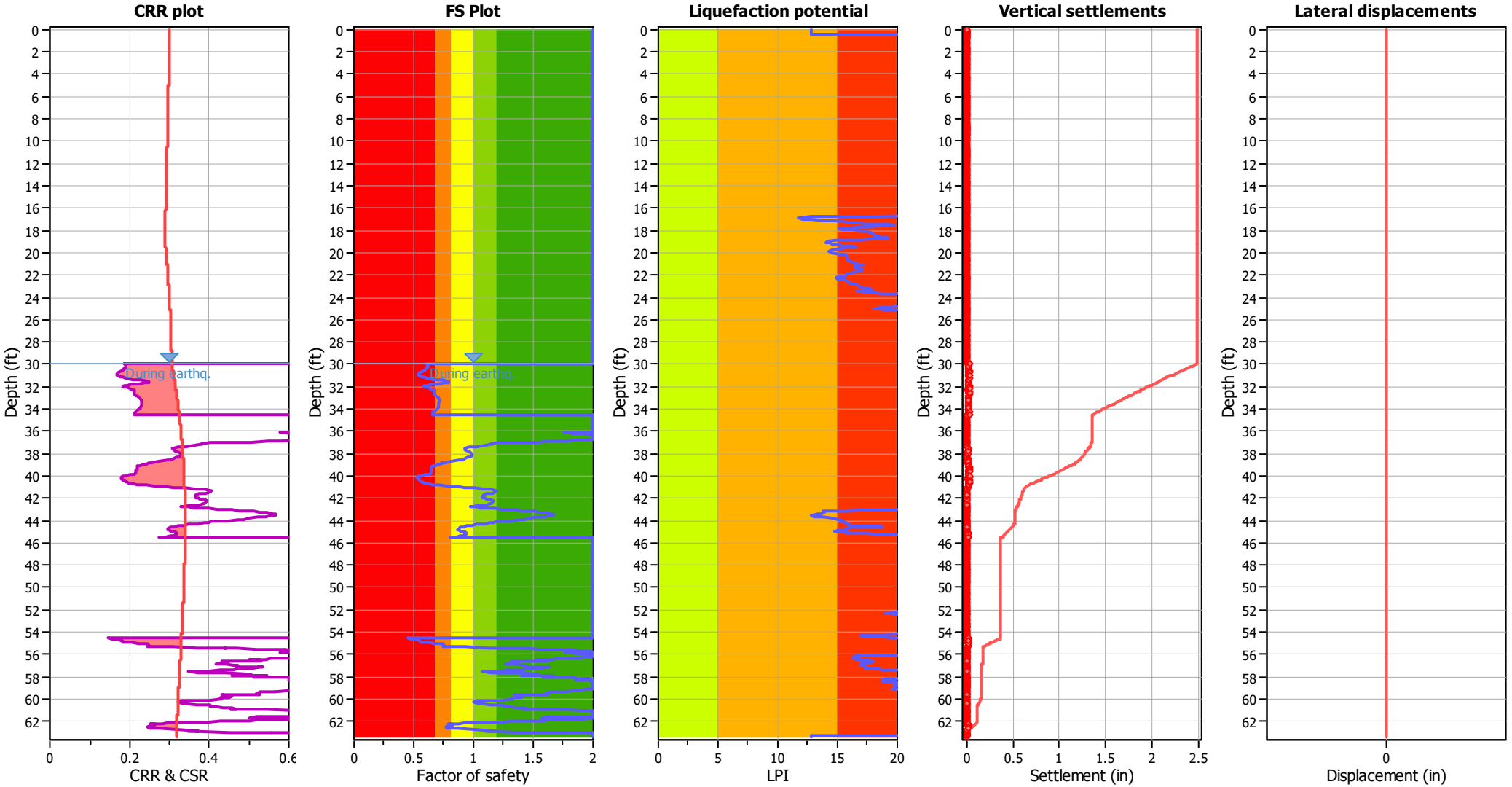
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

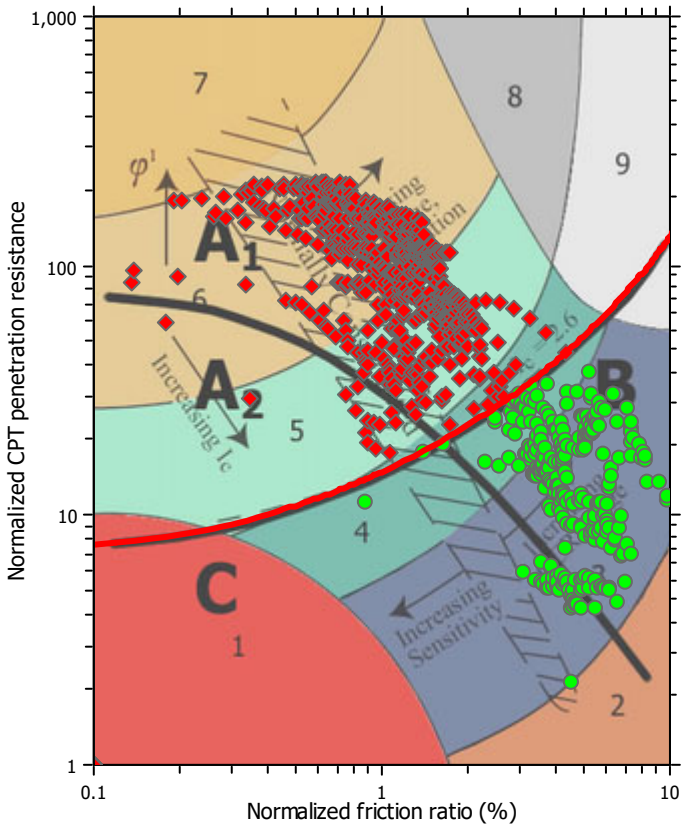
F.S. color scheme

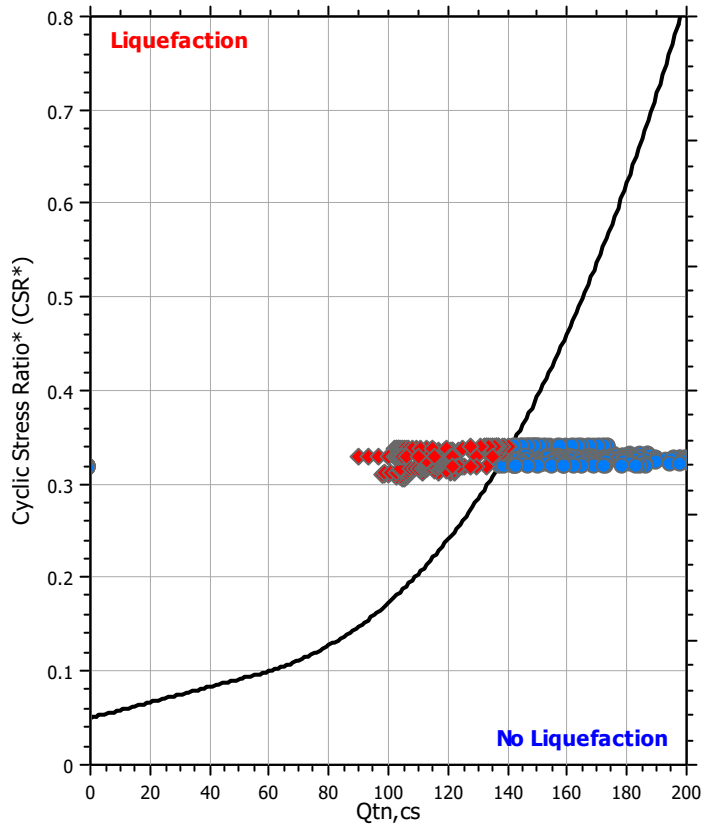
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

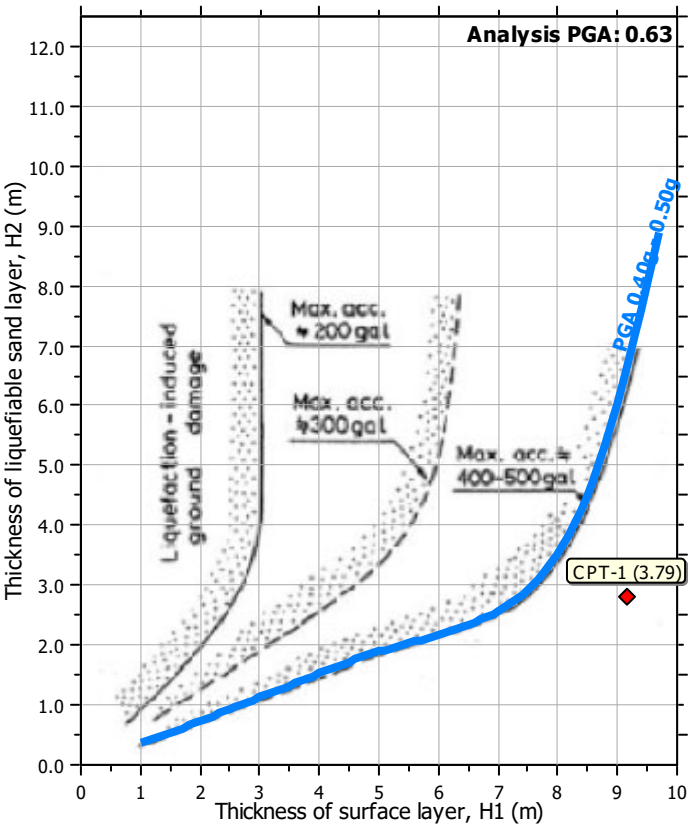
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



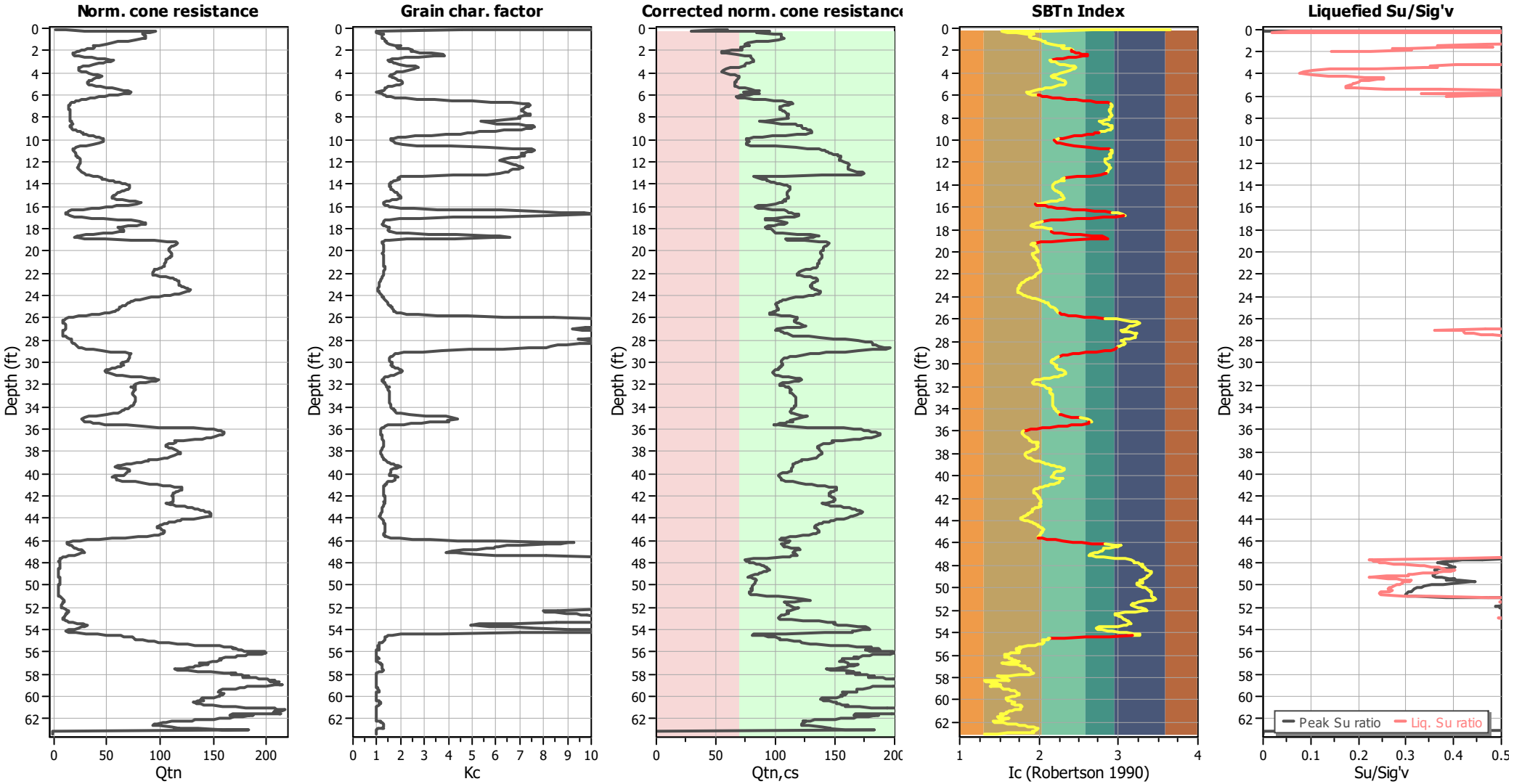




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

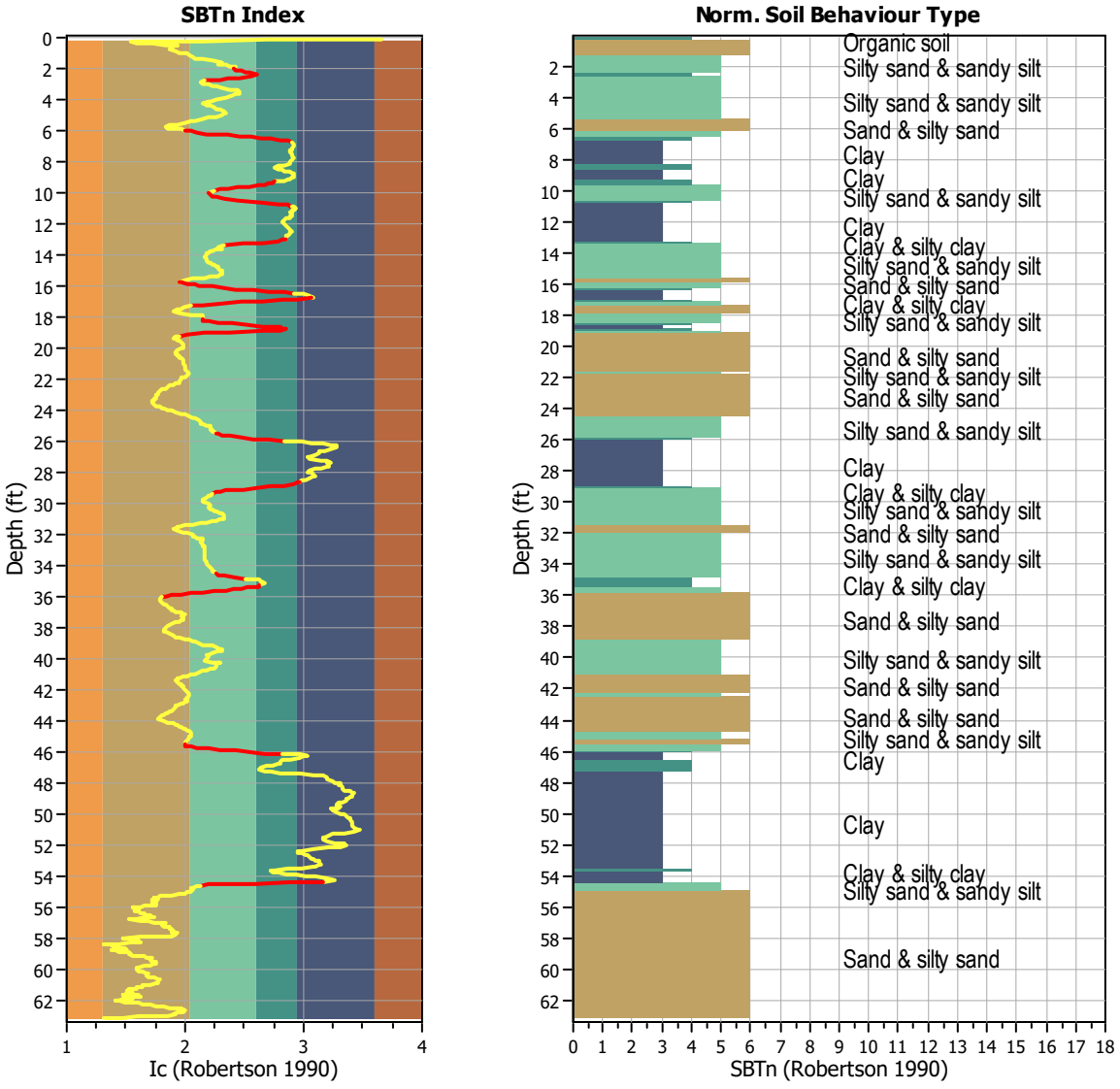
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between 1.80 < I_c < 3.0) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1063
I_c maximum check value:	3.00	Total points excluded:	146
I_c change ratio value:	0.0250	Exclusion percentage:	13.73%
Minimum number of points in layer:	4	Number of layers detected:	16

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	6	Start depth: 2.05 (ft)	5	Silty sand & sandy silt
		End depth: 2.34 (ft)	4	Clay & silty clay
Transition layer 2	8	Start depth: 2.44 (ft)	4	Clay & silty clay
		End depth: 2.89 (ft)	5	Silty sand & sandy silt
Transition layer 3	14	Start depth: 6.02 (ft)	6	Sand & silty sand
		End depth: 6.83 (ft)	3	Clay
Transition layer 4	10	Start depth: 9.38 (ft)	4	Clay & silty clay
		End depth: 9.97 (ft)	5	Silty sand & sandy silt
Transition layer 5	10	Start depth: 10.20 (ft)	5	Silty sand & sandy silt
		End depth: 10.89 (ft)	3	Clay
Transition layer 6	6	Start depth: 13.04 (ft)	3	Clay
		End depth: 13.47 (ft)	5	Silty sand & sandy silt
Transition layer 7	13	Start depth: 15.79 (ft)	6	Sand & silty sand
		End depth: 16.54 (ft)	3	Clay
Transition layer 8	8	Start depth: 16.86 (ft)	3	Clay
		End depth: 17.34 (ft)	6	Sand & silty sand
Transition layer 9	9	Start depth: 18.22 (ft)	5	Silty sand & sandy silt
		End depth: 18.76 (ft)	3	Clay
Transition layer 10	8	Start depth: 18.76 (ft)	3	Clay
		End depth: 19.24 (ft)	6	Sand & silty sand
Transition layer 11	8	Start depth: 25.52 (ft)	5	Silty sand & sandy silt
		End depth: 26.02 (ft)	3	Clay
Transition layer 12	12	Start depth: 28.67 (ft)	3	Clay
		End depth: 29.43 (ft)	5	Silty sand & sandy silt
Transition layer 13	5	Start depth: 34.55 (ft)	5	Silty sand & sandy silt
		End depth: 34.90 (ft)	4	Clay & silty clay
Transition layer 14	13	Start depth: 35.33 (ft)	4	Clay & silty clay
		End depth: 36.06 (ft)	6	Sand & silty sand
Transition layer 15	10	Start depth: 45.56 (ft)	6	Sand & silty sand
		End depth: 46.15 (ft)	3	Clay
Transition layer 16	6	Start depth: 54.34 (ft)	3	Clay
		End depth: 54.53 (ft)	5	Silty sand & sandy silt

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.01	0.00	0.01	0.00	N/A	120.90
2	0.04	0.00	0.03	0.00	N/A	120.90
3	0.09	0.00	0.06	0.00	N/A	120.90
4	0.11	0.00	0.06	0.00	N/A	120.90
5	0.14	0.00	0.06	0.00	N/A	120.90
6	0.14	0.00	0.06	0.00	100.00	90.58
7	0.18	4.04	0.06	0.00	39.81	94.62
8	0.23	16.88	0.06	0.00	5.00	97.10
9	0.24	33.66	0.06	0.00	5.00	99.09
10	0.28	59.84	0.07	0.00	4.02	100.70
11	0.33	65.70	0.08	0.00	3.32	101.83
12	0.38	52.26	0.09	0.00	4.29	104.01
13	0.42	51.86	0.16	0.00	5.00	107.23
14	0.47	52.21	0.28	0.00	8.85	111.04
15	0.51	51.45	0.45	0.00	10.39	113.09
16	0.52	52.16	0.45	0.00	11.07	113.95
17	0.57	52.66	0.42	0.00	10.65	113.68
18	0.61	53.17	0.40	0.00	10.18	113.34
19	0.67	53.88	0.39	0.00	9.91	113.08
20	0.73	53.37	0.38	0.00	9.72	112.99
21	0.81	54.28	0.39	-0.10	9.70	112.87
22	0.86	53.22	0.37	-0.10	10.78	114.14
23	0.98	53.07	0.60	-0.10	11.85	114.82
24	1.05	50.14	0.53	-0.10	13.47	114.97
25	1.15	41.44	0.44	-0.10	14.02	113.60
26	1.24	39.42	0.37	-0.10	14.97	111.74
27	1.34	32.75	0.28	-0.10	15.41	110.26
28	1.43	31.24	0.27	0.00	17.53	109.89
29	1.53	27.90	0.36	0.00	20.70	109.99
30	1.58	21.43	0.33	0.00	23.01	110.04
31	1.62	24.36	0.30	0.00	23.24	109.31
32	1.67	24.66	0.28	0.00	21.78	108.90
33	1.75	24.06	0.27	0.00	21.84	108.54
34	1.77	22.95	0.27	0.00	22.45	108.33
35	1.81	22.24	0.27	0.00	23.98	108.08
36	1.86	19.31	0.26	0.00	25.81	107.68
37	1.91	17.59	0.25	0.00	27.51	107.00
38	1.95	16.98	0.22	0.00	27.58	105.88
39	2.00	16.38	0.17	0.00	26.85	104.31
40	2.05	15.26	0.13	0.00	26.79	102.37
41	2.11	13.04	0.11	0.00	27.77	100.94
42	2.20	12.23	0.11	0.00	29.43	100.17
43	2.24	11.73	0.11	0.00	30.90	100.15
44	2.29	11.22	0.11	0.00	32.65	100.53
45	2.34	10.82	0.13	0.00	35.39	102.57
46	2.44	11.93	0.22	0.00	35.96	104.47
47	2.48	13.75	0.24	0.00	33.48	106.65
48	2.58	17.99	0.29	0.00	29.16	108.19

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	2.63	22.34	0.33	0.00	25.09	109.71
50	2.71	26.89	0.36	0.00	22.48	110.79
51	2.78	29.01	0.39	0.00	19.70	111.55
52	2.82	35.08	0.39	0.00	17.69	111.93
53	2.89	37.10	0.38	0.00	16.81	111.84
54	2.96	32.65	0.36	0.00	17.52	111.71
55	3.03	31.13	0.39	0.00	19.08	111.39
56	3.11	28.91	0.36	0.00	20.03	110.91
57	3.19	26.89	0.31	0.00	21.15	109.99
58	3.25	23.55	0.29	0.00	22.96	109.06
59	3.35	20.12	0.28	0.00	25.68	108.30
60	3.41	17.79	0.26	0.00	28.08	107.14
61	3.50	15.47	0.20	0.00	29.06	105.47
62	3.59	14.46	0.15	0.00	28.55	103.57
63	3.69	14.56	0.13	0.00	27.72	102.55
64	3.79	14.76	0.14	0.00	26.19	102.21
65	3.88	16.27	0.13	0.00	24.04	102.29
66	3.97	18.60	0.13	0.00	21.42	103.22
67	4.07	22.54	0.17	0.00	20.94	104.68
68	4.14	21.33	0.21	-0.08	19.71	106.20
69	4.17	26.59	0.22	-0.08	18.89	107.22
70	4.26	28.61	0.25	-0.08	17.51	107.99
71	4.32	29.21	0.26	-0.09	17.59	108.49
72	4.37	28.30	0.27	-0.09	18.27	108.68
73	4.42	26.79	0.27	-0.10	19.47	108.64
74	4.51	24.77	0.27	-0.19	20.53	108.32
75	4.61	23.65	0.25	-0.19	21.42	107.89
76	4.65	22.64	0.24	-0.19	22.24	107.37
77	4.74	20.82	0.23	-0.19	23.28	106.98
78	4.80	19.81	0.22	-0.19	23.69	106.69
79	4.89	20.82	0.22	-0.19	24.07	106.54
80	4.95	19.51	0.22	-0.19	23.69	106.58
81	5.04	20.82	0.22	-0.19	23.00	106.70
82	5.13	22.84	0.22	-0.29	21.27	106.93
83	5.18	24.77	0.22	-0.29	19.16	107.22
84	5.28	28.20	0.23	-0.29	17.18	107.58
85	5.32	31.24	0.23	-0.29	15.37	108.17
86	5.42	34.97	0.25	-0.29	14.24	109.03
87	5.51	37.81	0.29	-0.29	13.16	109.85
88	5.60	41.65	0.30	-0.29	11.39	109.42
89	5.66	44.38	0.19	-0.29	9.82	108.84
90	5.76	46.70	0.21	-0.29	5.00	108.20
91	5.85	46.50	0.23	-0.29	9.42	108.60
92	5.92	41.55	0.23	-0.29	10.81	108.56
93	5.95	35.28	0.23	-0.33	11.91	108.38
94	5.97	37.81	0.23	-0.33	12.79	108.24
95	6.02	35.38	0.23	-0.33	13.11	108.15
96	6.06	32.95	0.23	-0.38	14.35	107.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	6.16	29.92	0.22	-0.38	15.93	107.69
98	6.21	27.09	0.23	-0.38	18.25	107.74
99	6.26	23.96	0.26	-0.38	21.09	108.07
100	6.31	21.83	0.28	-0.48	24.86	108.67
101	6.40	19.10	0.33	-0.48	28.84	109.09
102	6.44	16.78	0.34	-0.48	33.47	109.42
103	6.52	14.86	0.37	-0.48	37.59	109.55
104	6.57	13.75	0.38	-0.48	41.98	109.58
105	6.64	11.83	0.39	-0.48	45.80	109.43
106	6.69	10.92	0.39	-0.48	49.59	109.18
107	6.78	10.21	0.38	-0.48	51.74	108.94
108	6.83	9.91	0.38	-0.48	52.73	108.51
109	6.92	9.60	0.34	-0.48	53.03	108.02
110	6.97	9.30	0.32	-0.57	52.79	107.48
111	7.03	9.30	0.31	-0.57	52.62	107.19
112	7.12	9.30	0.30	-0.57	52.17	107.05
113	7.22	9.40	0.30	-0.86	51.84	107.03
114	7.27	9.50	0.31	-0.95	51.49	107.14
115	7.36	9.70	0.31	-1.34	51.37	107.36
116	7.43	9.81	0.33	-2.10	51.48	107.59
117	7.50	9.81	0.33	-2.39	51.81	107.80
118	7.59	9.81	0.34	-2.48	52.08	107.91
119	7.64	9.81	0.34	-2.48	52.59	107.98
120	7.75	9.60	0.35	-2.48	53.06	108.03
121	7.79	9.60	0.35	-2.48	52.94	108.11
122	7.89	10.01	0.35	-2.58	51.93	108.20
123	7.99	10.41	0.35	-2.58	51.00	108.32
124	8.04	10.41	0.36	-2.58	50.93	108.47
125	8.13	10.31	0.37	-2.58	51.23	108.53
126	8.23	10.31	0.36	-2.67	48.25	107.10
127	8.32	10.31	0.16	-2.96	45.66	105.82
128	8.37	10.31	0.23	-3.15	43.57	105.27
129	8.46	11.12	0.30	-3.44	45.48	107.20
130	8.56	11.83	0.36	-3.53	46.89	108.35
131	8.59	11.12	0.37	-3.93	48.24	108.98
132	8.61	11.12	0.39	-3.93	49.87	109.23
133	8.67	11.02	0.41	-3.93	51.01	109.48
134	8.71	10.71	0.41	-4.39	52.13	109.59
135	8.72	10.51	0.42	-4.49	53.07	109.66
136	8.78	10.51	0.43	-4.58	53.51	109.72
137	8.80	10.51	0.43	-4.58	53.62	109.76
138	8.86	10.51	0.43	-4.58	53.65	109.77
139	8.90	10.51	0.43	-4.58	53.45	109.87
140	8.95	10.82	0.44	-4.58	53.21	110.02
141	8.96	10.92	0.45	-4.58	52.79	110.21
142	9.00	11.12	0.45	-4.58	52.52	110.39
143	9.05	11.32	0.47	-4.49	52.13	110.62
144	9.09	11.62	0.48	-4.49	51.55	110.83

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	9.10	11.93	0.48	-4.49	50.65	111.10
146	9.14	12.53	0.51	-4.49	49.64	111.46
147	9.20	13.14	0.53	-4.49	48.16	111.91
148	9.24	14.15	0.55	-4.49	46.46	112.37
149	9.29	15.16	0.57	-4.49	44.67	112.78
150	9.31	15.97	0.59	-4.49	43.27	113.20
151	9.38	16.78	0.62	-4.58	42.21	113.51
152	9.41	17.29	0.63	-4.77	40.91	113.67
153	9.47	18.09	0.60	-5.15	39.32	113.64
154	9.53	18.90	0.58	-5.25	36.22	113.38
155	9.62	21.23	0.52	-5.34	32.67	113.07
156	9.67	23.35	0.49	-5.54	28.33	112.63
157	9.77	26.79	0.43	-5.92	25.15	112.27
158	9.81	28.81	0.41	-3.34	22.18	111.77
159	9.90	31.03	0.36	-1.43	20.30	111.35
160	9.97	32.25	0.34	-1.24	18.94	111.09
161	10.06	33.56	0.35	-1.24	18.88	111.19
162	10.20	32.14	0.37	-1.24	19.84	111.65
163	10.30	30.73	0.42	-1.34	21.09	110.81
164	10.44	25.07	0.26	-1.34	23.79	110.16
165	10.54	20.82	0.33	-1.43	28.52	109.42
166	10.63	16.27	0.39	-1.40	37.17	110.42
167	10.74	12.64	0.49	-1.40	45.02	111.01
168	10.78	12.64	0.51	-1.37	49.84	111.50
169	10.83	12.64	0.53	-1.37	50.94	111.75
170	10.88	12.23	0.55	-1.34	52.01	111.93
171	10.89	12.13	0.55	-1.24	53.26	112.19
172	10.97	12.13	0.60	-1.24	53.74	112.49
173	11.02	12.53	0.61	-1.15	53.76	112.83
174	11.07	12.84	0.63	-1.15	53.28	113.04
175	11.11	13.04	0.63	-1.15	52.89	113.23
176	11.16	13.34	0.65	-1.05	52.38	113.46
177	11.21	13.85	0.67	-1.15	51.91	113.73
178	11.26	14.15	0.69	-1.15	51.53	114.03
179	11.30	14.46	0.72	-1.24	51.55	114.31
180	11.36	14.56	0.74	-1.24	51.71	114.56
181	11.40	14.66	0.76	-1.24	51.84	114.75
182	11.45	14.86	0.77	-1.24	51.87	114.90
183	11.50	14.96	0.78	-1.24	51.65	115.06
184	11.55	15.36	0.79	-1.24	51.39	115.24
185	11.60	15.67	0.81	-1.24	50.61	115.51
186	11.66	16.58	0.84	-1.24	49.52	115.80
187	11.74	17.49	0.86	-1.15	48.09	116.04
188	11.84	18.19	0.85	-1.15	47.34	116.23
189	11.93	18.30	0.88	-1.15	47.43	116.42
190	12.04	18.09	0.91	-1.15	48.38	116.63
191	12.13	17.79	0.93	-1.15	49.30	116.79
192	12.22	17.79	0.95	-1.15	50.08	116.85

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	12.27	17.49	0.95	-1.15	50.46	116.81
194	12.37	17.29	0.93	-1.15	51.02	116.74
195	12.41	17.08	0.93	-1.15	51.24	116.69
196	12.51	17.18	0.94	-1.15	51.67	116.70
197	12.56	16.98	0.94	-1.15	51.47	116.76
198	12.65	17.59	0.95	-1.05	50.92	116.90
199	12.71	18.40	0.97	-1.05	49.81	117.22
200	12.79	19.41	1.02	-1.05	49.34	117.71
201	12.89	19.91	1.11	-0.95	48.93	118.28
202	12.96	21.03	1.17	-0.95	48.62	118.87
203	13.04	22.04	1.25	-0.86	47.37	119.33
204	13.13	23.65	1.26	-1.05	44.91	119.65
205	13.23	26.69	1.23	-1.05	37.79	118.14
206	13.30	30.12	0.44	-1.05	30.22	116.19
207	13.37	34.27	0.48	-1.15	23.39	113.77
208	13.47	38.11	0.56	-1.24	22.02	114.92
209	13.57	42.66	0.63	-2.58	22.72	115.65
210	13.61	35.68	0.65	-1.72	23.01	116.05
211	13.62	39.32	0.66	-1.72	22.69	116.34
212	13.68	45.99	0.69	-1.72	21.00	116.83
213	13.73	47.71	0.72	-1.91	19.82	117.32
214	13.77	49.83	0.75	-1.72	19.40	117.84
215	13.87	52.77	0.82	-1.72	18.89	118.41
216	13.93	56.20	0.87	-1.72	18.50	119.05
217	14.00	58.43	0.92	-1.72	18.11	119.60
218	14.06	61.05	0.98	-1.72	17.96	120.09
219	14.12	62.47	1.02	-1.81	17.96	120.53
220	14.21	63.18	1.08	-1.81	18.11	120.86
221	14.25	63.58	1.10	-1.81	18.27	121.08
222	14.35	63.68	1.12	-1.81	18.46	121.16
223	14.45	62.87	1.11	-1.72	18.76	121.14
224	14.50	61.36	1.11	-1.72	19.22	121.02
225	14.59	59.03	1.09	-1.72	19.83	120.88
226	14.64	57.21	1.08	-1.72	20.46	120.71
227	14.74	55.39	1.07	-1.72	21.03	120.57
228	14.80	54.28	1.06	-1.72	21.53	120.45
229	14.88	53.07	1.06	-1.72	21.95	120.36
230	14.97	52.26	1.05	-1.72	22.36	120.29
231	15.05	51.45	1.05	-1.72	22.79	120.27
232	15.13	50.64	1.07	-1.72	23.16	120.29
233	15.21	50.54	1.07	-1.72	23.18	120.30
234	15.28	51.76	1.05	-1.81	22.62	120.34
235	15.36	54.48	1.06	-1.91	21.45	120.45
236	15.41	59.13	1.06	-1.91	19.60	120.68
237	15.50	67.12	1.06	-2.00	17.73	120.96
238	15.55	72.98	1.07	-2.48	14.99	120.29
239	15.65	78.34	0.69	-2.00	12.97	119.36
240	15.71	79.55	0.68	-2.29	11.49	118.07

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	15.79	76.72	0.66	-2.00	11.94	117.74
242	15.89	69.04	0.63	-1.81	13.58	117.28
243	15.90	56.20	0.63	-1.93	15.06	116.86
244	15.94	58.12	0.62	-1.93	16.49	116.54
245	16.00	54.38	0.60	-1.93	17.46	116.33
246	16.06	47.31	0.61	-1.81	19.74	116.08
247	16.14	41.44	0.62	-1.81	23.40	115.82
248	16.19	33.56	0.63	-1.81	27.82	115.40
249	16.26	27.39	0.61	-1.81	33.97	114.66
250	16.33	20.42	0.58	-1.81	40.60	113.74
251	16.38	16.88	0.54	-1.81	47.75	112.60
252	16.47	13.95	0.48	-1.81	53.58	111.81
253	16.54	12.53	0.50	-1.81	58.20	111.16
254	16.62	11.52	0.48	-1.81	61.95	111.19
255	16.70	11.42	0.52	-1.81	63.86	111.41
256	16.76	11.73	0.55	-1.72	62.72	112.21
257	16.86	13.75	0.62	-1.24	55.66	113.21
258	16.90	19.21	0.65	-0.86	46.99	114.45
259	16.98	25.07	0.71	-0.29	37.95	115.60
260	17.05	33.26	0.75	0.38	29.58	116.88
261	17.14	47.91	0.80	0.67	22.70	117.88
262	17.20	61.46	0.80	-1.15	17.44	118.65
263	17.29	75.11	0.79	-1.91	14.33	119.10
264	17.34	82.59	0.81	-1.91	12.57	119.56
265	17.44	88.35	0.86	-1.91	12.10	120.15
266	17.50	89.76	0.95	-1.91	11.17	119.56
267	17.58	88.65	0.59	-1.91	10.61	118.74
268	17.64	86.12	0.61	-1.91	10.36	117.68
269	17.75	80.36	0.68	-1.91	11.68	118.09
270	17.82	75.11	0.73	-1.91	14.12	118.45
271	17.89	60.85	0.79	-1.94	16.11	118.58
272	17.89	62.17	0.79	-1.94	17.43	118.74
273	17.96	65.10	0.82	-1.94	17.29	119.02
274	18.02	65.00	0.86	-1.91	17.38	119.46
275	18.07	66.01	0.93	-2.00	17.40	119.89
276	18.17	69.65	0.96	-2.00	17.19	120.21
277	18.22	70.76	0.96	-2.10	17.38	120.34
278	18.30	65.91	0.98	-2.10	18.63	120.33
279	18.36	59.03	1.01	-2.10	21.57	120.25
280	18.42	48.22	1.05	-2.00	25.82	120.15
281	18.50	40.43	1.10	-2.00	31.86	119.89
282	18.56	31.34	1.11	-2.00	38.47	119.44
283	18.62	25.47	1.08	-2.00	45.73	118.51
284	18.69	20.42	0.95	-2.00	47.28	117.84
285	18.76	26.08	0.90	-2.00	49.35	117.26
286	18.84	20.22	0.92	-1.91	46.20	117.56
287	18.89	26.69	0.98	-1.81	38.13	118.84
288	18.98	48.82	1.15	-1.53	25.23	120.89

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	19.05	83.09	1.28	-1.15	17.63	122.71
290	19.12	103.41	1.40	-2.00	13.45	123.88
291	19.18	118.98	1.44	-2.19	11.63	124.47
292	19.24	125.34	1.44	-2.00	10.70	124.75
293	19.32	127.97	1.47	-2.10	10.50	124.90
294	19.38	127.06	1.50	-2.00	10.78	125.14
295	19.46	124.64	1.59	-2.00	11.28	125.37
296	19.54	122.82	1.64	-2.10	11.83	125.56
297	19.62	120.49	1.66	-2.10	12.18	125.64
298	19.70	119.78	1.66	-2.10	12.37	125.65
299	19.80	119.78	1.65	-2.10	12.42	125.63
300	19.85	119.78	1.65	-2.10	12.39	125.59
301	19.94	119.78	1.64	-2.10	12.46	125.66
302	20.03	120.39	1.70	-2.10	11.91	125.24
303	20.13	122.11	1.36	-2.10	11.37	124.85
304	20.19	123.12	1.38	-2.10	10.74	124.42
305	20.29	124.84	1.43	-2.10	10.87	124.64
306	20.39	124.28	1.47	-2.15	11.01	124.81
307	20.43	124.49	1.48	-2.15	11.19	124.93
308	20.47	123.73	1.51	-2.15	11.32	125.04
309	20.52	124.13	1.54	-2.19	11.55	125.23
310	20.61	124.13	1.61	-2.19	11.79	125.44
311	20.66	123.73	1.64	-2.19	12.08	125.60
312	20.71	122.01	1.65	-2.19	12.32	125.65
313	20.77	121.00	1.66	-2.19	12.55	125.68
314	20.85	120.09	1.67	-2.19	12.67	125.69
315	20.91	120.59	1.67	-2.19	12.69	125.72
316	21.00	121.30	1.67	-2.19	12.68	125.74
317	21.05	121.20	1.68	-2.19	12.72	125.75
318	21.11	120.39	1.68	-2.19	12.82	125.76
319	21.19	119.99	1.69	-2.19	12.93	125.79
320	21.24	120.19	1.70	-2.19	12.99	125.84
321	21.34	120.59	1.71	-2.19	13.03	125.87
322	21.39	120.49	1.71	-2.19	13.11	125.88
323	21.48	118.98	1.71	-2.19	13.31	125.83
324	21.53	116.65	1.70	-2.19	13.57	125.71
325	21.64	113.62	1.66	-2.19	13.84	125.53
326	21.72	111.39	1.62	-2.19	13.51	124.89
327	21.81	110.48	1.31	-2.19	12.90	124.15
328	21.89	110.59	1.24	-2.29	12.18	123.40
329	21.97	110.59	1.21	-2.29	11.93	123.16
330	22.05	110.99	1.19	-2.29	11.80	123.03
331	22.12	110.94	1.17	-2.34	11.72	122.95
332	22.13	110.94	1.17	-2.34	11.70	122.93
333	22.18	110.89	1.18	-2.34	11.57	122.96
334	22.22	114.22	1.18	-2.39	11.23	123.02
335	22.28	118.47	1.17	-2.39	10.74	123.13
336	22.33	122.82	1.19	-2.39	10.28	123.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	22.38	126.46	1.20	-2.39	9.90	123.41
338	22.41	129.89	1.21	-2.39	9.50	123.49
339	22.51	133.73	1.20	-2.39	9.14	123.51
340	22.56	135.96	1.18	-2.39	8.79	123.46
341	22.61	137.98	1.16	-2.39	8.51	123.37
342	22.65	139.19	1.14	-2.39	8.23	123.24
343	22.71	140.61	1.11	-2.39	8.00	123.09
344	22.76	141.21	1.08	-2.39	7.75	122.87
345	22.85	141.72	1.03	-2.39	7.57	122.67
346	22.89	141.82	1.02	-2.39	7.41	122.48
347	22.99	141.92	1.00	-2.39	7.34	122.38
348	23.04	141.92	0.99	-2.39	7.26	122.31
349	23.12	142.83	0.99	-2.39	7.17	122.30
350	23.18	145.06	0.99	-2.39	7.02	122.35
351	23.24	147.58	1.00	-2.39	6.88	122.47
352	23.33	150.11	1.02	-2.39	6.74	122.61
353	23.38	153.24	1.03	-2.48	6.65	122.79
354	23.47	155.06	1.05	-2.48	6.58	122.94
355	23.52	156.58	1.07	-2.48	6.66	123.16
356	23.61	156.07	1.12	-2.48	6.86	123.36
357	23.68	153.95	1.15	-2.48	7.23	123.57
358	23.76	150.31	1.19	-2.48	7.68	123.69
359	23.83	145.46	1.20	-2.48	8.20	123.74
360	23.90	140.61	1.21	-2.48	8.71	123.73
361	23.97	136.36	1.22	-2.48	9.28	123.71
362	24.05	131.21	1.23	-2.48	9.97	123.67
363	24.10	123.63	1.24	-2.48	10.81	123.59
364	24.19	116.75	1.24	-2.48	11.87	123.44
365	24.27	108.16	1.24	-2.48	12.89	123.28
366	24.34	103.31	1.24	-2.48	13.89	123.13
367	24.43	98.56	1.23	-2.58	14.65	123.04
368	24.48	96.03	1.24	-2.58	15.39	123.04
369	24.57	93.50	1.28	-2.77	16.07	123.15
370	24.62	91.89	1.32	-2.86	16.33	122.96
371	24.72	90.17	1.17	-3.15	16.56	122.82
372	24.81	89.06	1.23	-3.53	16.74	122.68
373	24.86	88.15	1.26	-3.91	17.34	122.92
374	24.95	86.83	1.31	-4.58	18.26	123.01
375	25.01	80.77	1.32	-5.22	19.01	123.05
376	25.02	81.12	1.32	-5.22	19.54	123.03
377	25.05	81.47	1.33	-5.22	19.39	123.10
378	25.11	83.09	1.34	-6.01	19.35	123.16
379	25.15	82.69	1.35	-6.39	19.38	123.22
380	25.21	82.08	1.36	-6.87	19.61	123.23
381	25.25	81.27	1.36	-7.16	19.86	123.21
382	25.30	80.16	1.35	-7.45	20.12	123.10
383	25.40	78.24	1.31	-8.49	20.43	122.88
384	25.45	76.01	1.27	-8.88	20.89	122.49

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	25.52	71.57	1.20	-9.54	21.58	121.99
386	25.60	66.92	1.12	-9.93	23.10	121.43
387	25.66	58.73	1.10	-10.40	25.37	120.85
388	25.74	51.45	1.05	-10.50	29.28	120.35
389	25.80	42.15	1.06	-10.69	34.11	119.74
390	25.88	34.67	1.01	-10.79	40.89	119.02
391	25.94	26.89	0.97	-10.79	48.17	118.23
392	26.02	22.64	0.95	-10.79	56.96	117.39
393	26.09	19.00	0.88	-10.79	63.54	116.56
394	26.17	16.38	0.82	-10.69	70.12	115.68
395	26.23	14.15	0.78	-10.69	75.56	115.05
396	26.29	13.44	0.77	-10.69	79.02	114.78
397	26.37	13.55	0.78	-10.50	78.84	114.95
398	26.46	14.66	0.82	-10.50	75.43	115.54
399	26.55	17.08	0.90	-10.40	71.32	116.21
400	26.60	18.40	0.93	-10.31	68.23	116.84
401	26.70	19.10	0.98	-10.31	67.29	117.29
402	26.78	19.31	1.04	-10.31	67.28	117.57
403	26.87	19.31	1.03	-10.31	65.46	116.94
404	26.94	19.31	0.72	-10.31	62.21	115.56
405	27.03	19.00	0.56	-10.31	60.24	114.24
406	27.13	17.99	0.66	-10.31	61.72	113.90
407	27.18	16.98	0.66	-10.31	68.38	114.01
408	27.27	13.14	0.67	-10.20	73.05	113.89
409	27.32	14.15	0.68	-10.20	75.75	113.91
410	27.37	15.16	0.70	-10.20	73.86	114.24
411	27.41	15.16	0.73	-10.12	73.36	114.52
412	27.46	15.16	0.75	-10.12	74.03	114.74
413	27.51	15.16	0.76	-10.02	74.31	115.06
414	27.61	15.67	0.82	-10.02	73.92	115.57
415	27.66	16.68	0.89	-9.93	72.75	116.57
416	27.73	18.50	1.06	-9.93	69.00	118.04
417	27.80	23.15	1.28	-9.93	64.92	119.84
418	27.88	27.09	1.57	-9.93	61.75	121.59
419	27.96	29.72	1.88	-9.93	61.15	122.86
420	28.04	29.82	2.03	-10.02	62.65	123.82
421	28.12	29.21	2.29	-10.02	64.46	124.33
422	28.18	29.31	2.33	-10.02	64.94	124.77
423	28.27	31.24	2.40	-10.02	63.60	125.01
424	28.32	32.85	2.43	-10.02	61.44	125.31
425	28.42	34.87	2.48	-10.02	59.28	125.61
426	28.47	37.40	2.56	-10.02	57.63	126.07
427	28.61	39.22	2.75	-10.02	56.63	126.53
428	28.67	40.43	2.86	-10.02	55.75	127.05
429	28.75	43.16	3.02	-10.02	52.70	127.47
430	28.81	47.71	3.06	-9.93	47.96	127.92
431	28.90	58.12	3.04	-9.83	41.37	128.35
432	29.00	72.07	3.02	-9.93	35.34	128.76

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	29.05	82.28	3.02	-10.02	30.50	129.11
434	29.10	94.11	3.00	-10.21	27.19	129.31
435	29.15	101.79	2.92	-10.31	24.40	129.24
436	29.24	107.76	2.68	-10.98	22.48	128.87
437	29.29	108.56	2.46	-12.31	21.04	128.21
438	29.37	106.54	2.19	-13.08	20.19	127.50
439	29.43	105.43	2.02	-13.84	19.39	126.74
440	29.53	104.93	1.82	-14.22	18.65	126.11
441	29.62	104.93	1.70	-13.79	18.12	125.67
442	29.68	104.93	1.71	-13.74	17.48	125.18
443	29.80	104.93	1.48	-9.45	17.32	124.98
444	29.91	103.81	1.57	-4.29	17.30	124.83
445	30.00	102.90	1.62	-3.72	18.66	124.98
446	30.07	90.77	1.65	-4.39	19.24	125.07
447	30.15	98.76	1.66	-4.39	19.60	125.10
448	30.21	99.47	1.66	-4.39	19.01	125.18
449	30.26	99.06	1.66	-2.96	19.09	125.17
450	30.31	97.75	1.66	-2.96	19.36	125.12
451	30.38	95.83	1.65	-2.96	19.77	125.02
452	30.45	93.10	1.62	-2.86	20.38	124.87
453	30.50	89.06	1.61	-2.86	21.16	124.68
454	30.55	85.31	1.58	-2.86	22.05	124.38
455	30.64	80.56	1.51	-2.86	22.84	124.05
456	30.70	77.83	1.46	-2.86	23.38	123.62
457	30.79	75.51	1.39	-2.86	23.69	123.34
458	30.84	74.90	1.38	-2.86	23.72	123.20
459	30.93	76.12	1.39	-2.96	23.33	123.30
460	30.98	79.96	1.42	-3.05	22.53	123.52
461	31.05	84.51	1.45	-3.34	21.39	123.92
462	31.13	91.68	1.54	-3.63	20.20	124.38
463	31.17	98.66	1.60	-3.72	18.55	124.91
464	31.27	111.19	1.64	-3.91	16.70	125.32
465	31.32	123.12	1.65	-3.82	14.63	125.57
466	31.41	135.55	1.59	-3.44	13.02	125.62
467	31.46	141.82	1.54	-3.25	11.83	125.51
468	31.52	145.46	1.49	-3.05	11.07	125.22
469	31.61	145.97	1.37	-3.05	10.64	124.85
470	31.66	143.74	1.32	-3.05	10.61	124.43
471	31.75	136.87	1.28	-3.05	11.17	124.24
472	31.80	129.59	1.32	-3.05	12.39	124.35
473	31.90	121.10	1.46	-2.96	13.62	124.39
474	31.94	115.44	1.39	-2.96	14.62	124.45
475	32.04	114.12	1.42	-2.96	14.97	124.60
476	32.09	118.67	1.55	-2.96	15.15	125.24
477	32.20	124.84	1.74	-3.02	15.99	125.83
478	32.24	112.71	1.82	-3.02	16.70	126.23
479	32.28	115.74	1.85	-3.07	17.46	126.32
480	32.29	115.74	1.86	-3.07	17.17	126.42

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	32.30	118.77	1.87	-3.25	16.87	126.53
482	32.40	122.41	1.90	-3.05	16.70	126.62
483	32.45	120.49	1.91	-3.05	16.81	126.69
484	32.55	118.67	1.92	-3.05	17.10	126.69
485	32.59	118.37	1.92	-3.05	17.33	126.73
486	32.69	118.07	1.95	-3.05	17.51	126.82
487	32.76	118.07	1.99	-2.96	17.74	126.96
488	32.84	118.27	2.04	-2.96	17.92	127.13
489	32.90	118.98	2.08	-2.96	18.01	127.28
490	32.98	119.89	2.11	-2.96	17.99	127.39
491	33.06	121.10	2.12	-3.05	17.91	127.48
492	33.12	122.21	2.13	-3.05	17.81	127.55
493	33.22	123.12	2.15	-3.05	17.76	127.60
494	33.31	123.32	2.16	-3.05	17.76	127.64
495	33.37	123.32	2.16	-2.96	17.77	127.65
496	33.46	123.32	2.16	-2.96	17.80	127.65
497	33.55	123.32	2.17	-2.86	17.87	127.68
498	33.65	123.02	2.18	-2.96	17.99	127.72
499	33.70	122.72	2.20	-2.96	18.14	127.75
500	33.79	122.11	2.21	-2.96	18.29	127.77
501	33.89	121.40	2.21	-3.05	18.48	127.74
502	33.99	119.89	2.19	-3.25	18.70	127.68
503	34.04	118.17	2.18	-3.25	18.98	127.58
504	34.13	115.44	2.15	-3.15	19.34	127.46
505	34.23	113.01	2.13	-3.15	19.82	127.32
506	34.32	109.78	2.11	-3.15	20.27	127.22
507	34.37	108.16	2.10	-3.15	20.65	127.13
508	34.47	106.85	2.09	-3.15	21.01	127.08
509	34.55	104.93	2.10	-3.34	21.77	127.01
510	34.63	98.76	2.11	-3.53	23.58	126.91
511	34.73	86.43	2.14	-3.72	26.59	126.63
512	34.80	74.09	2.10	-3.91	31.19	126.00
513	34.90	57.92	1.93	-3.91	36.19	125.07
514	35.00	49.53	1.74	-3.91	37.59	123.92
515	35.12	57.47	1.42	-3.91	38.98	122.90
516	35.20	44.27	1.40	-3.72	36.68	122.71
517	35.33	57.01	1.55	-3.63	36.87	123.05
518	35.41	59.84	1.61	-4.20	32.11	123.80
519	35.44	73.57	1.62	-6.27	29.94	124.11
520	35.48	72.58	1.63	-6.27	26.74	124.41
521	35.57	84.61	1.62	-7.64	24.34	124.63
522	35.62	95.42	1.62	-8.78	20.42	125.05
523	35.67	116.45	1.64	-9.93	17.13	125.56
524	35.71	134.74	1.71	-10.60	14.14	126.40
525	35.82	161.84	1.91	-11.55	12.01	127.28
526	35.86	183.57	2.03	-11.17	10.22	128.24
527	35.93	210.36	2.20	-6.97	8.94	129.00
528	36.01	229.56	2.33	-4.49	8.16	129.62

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	36.06	236.44	2.41	-3.63	7.85	130.06
530	36.12	240.88	2.52	-3.34	7.80	130.37
531	36.18	244.83	2.59	-3.15	7.84	130.72
532	36.25	249.58	2.73	-3.15	7.88	131.01
533	36.30	251.80	2.80	-3.15	8.05	131.37
534	36.39	253.32	2.97	-3.25	8.23	131.64
535	36.44	253.52	3.03	-3.15	8.49	131.92
536	36.53	252.51	3.13	-3.25	8.77	132.08
537	36.59	248.57	3.20	-3.15	9.37	132.44
538	36.68	244.22	3.54	-3.25	9.70	132.41
539	36.75	237.75	3.16	-3.25	9.93	132.25
540	36.83	233.20	3.05	-3.25	9.92	131.78
541	36.90	225.32	3.02	-3.25	10.25	131.57
542	36.97	217.43	2.99	-3.25	10.78	131.42
543	37.02	208.94	2.97	-3.25	11.95	131.17
544	37.04	178.92	2.94	-3.25	12.56	130.99
545	37.08	193.37	2.89	-3.25	12.85	130.76
546	37.17	193.68	2.77	-3.25	12.27	130.55
547	37.27	188.42	2.66	-3.25	12.36	130.20
548	37.37	179.93	2.56	-3.15	12.63	129.85
549	37.42	175.89	2.48	-3.34	12.60	129.41
550	37.51	175.94	2.26	-3.34	12.21	128.93
551	37.58	175.99	2.11	-3.34	11.53	128.42
552	37.66	179.12	2.01	-3.34	10.87	128.00
553	37.76	182.05	1.88	-3.34	10.12	127.61
554	37.85	186.70	1.77	-3.25	9.43	127.24
555	37.93	189.63	1.70	-3.25	8.90	127.02
556	38.04	192.67	1.69	-3.25	8.61	126.94
557	38.13	194.59	1.69	-3.25	8.49	126.94
558	38.18	194.49	1.69	-3.25	8.53	126.96
559	38.28	191.76	1.70	-3.25	8.89	127.11
560	38.37	187.61	1.81	-3.25	9.47	127.34
561	38.47	182.96	1.89	-3.25	10.26	127.74
562	38.57	180.23	2.05	-3.25	10.93	128.06
563	38.62	178.11	2.10	-3.25	11.67	128.38
564	38.72	172.15	2.20	-3.25	12.92	128.49
565	38.78	152.33	2.27	-3.26	13.99	128.58
566	38.81	156.28	2.28	-3.25	14.73	128.61
567	38.86	157.49	2.30	-3.25	14.82	128.67
568	38.91	151.93	2.32	-3.25	15.34	128.70
569	38.95	146.77	2.36	-3.25	16.32	128.70
570	39.05	139.19	2.39	-3.25	17.39	128.67
571	39.09	132.82	2.40	-3.34	18.62	128.58
572	39.14	125.24	2.40	-3.34	19.92	128.44
573	39.24	117.26	2.39	-3.34	21.20	128.25
574	39.29	112.20	2.35	-3.34	22.35	128.02
575	39.39	107.15	2.30	-3.34	23.14	127.89
576	39.43	106.24	2.34	-3.34	23.05	127.94

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	39.53	114.22	2.38	-3.53	21.86	128.13
578	39.57	124.74	2.36	-3.63	20.02	128.31
579	39.68	133.73	2.34	-4.49	18.81	128.39
580	39.73	133.63	2.33	-3.67	18.53	128.37
581	39.81	128.68	2.32	-4.39	18.86	128.23
582	39.89	125.85	2.25	-3.72	18.82	127.76
583	39.96	124.74	1.96	-3.44	18.19	127.14
584	40.06	125.34	1.81	-3.34	17.66	126.63
585	40.15	123.63	1.86	-3.34	17.93	126.54
586	40.20	119.28	1.91	-3.44	19.75	126.53
587	40.24	100.48	1.93	-3.71	21.16	126.50
588	40.26	106.09	1.93	-3.71	22.23	126.44
589	40.27	106.09	1.94	-3.71	21.47	126.59
590	40.37	111.70	1.99	-3.91	21.22	126.73
591	40.42	111.70	2.01	-4.01	21.04	126.91
592	40.52	111.70	2.06	-4.20	21.09	127.05
593	40.56	113.92	2.09	-4.39	20.77	127.30
594	40.66	120.39	2.17	-4.49	19.70	127.64
595	40.70	132.62	2.24	-4.77	18.40	128.08
596	40.75	141.82	2.32	-5.25	17.09	128.59
597	40.85	153.55	2.47	-5.63	16.06	129.13
598	40.91	165.07	2.59	-5.63	15.13	129.61
599	40.96	173.76	2.65	-5.63	14.17	129.97
600	41.04	185.49	2.68	-5.63	13.29	130.19
601	41.09	193.78	2.70	-4.96	12.46	130.39
602	41.18	202.77	2.73	-4.20	11.82	130.54
603	41.23	209.35	2.74	-3.72	11.36	130.66
604	41.29	211.97	2.74	-3.63	11.10	130.71
605	41.38	213.59	2.74	-3.63	11.02	130.73
606	41.42	212.88	2.74	-3.53	11.10	130.74
607	41.52	209.95	2.77	-3.53	11.32	130.76
608	41.57	207.42	2.79	-3.53	11.64	130.80
609	41.62	204.59	2.83	-3.44	11.95	130.86
610	41.71	202.88	2.87	-3.44	12.22	130.92
611	41.76	202.07	2.89	-3.44	12.42	131.01
612	41.84	201.66	2.94	-3.44	12.59	131.09
613	41.91	201.36	2.97	-3.44	12.74	131.20
614	41.95	201.76	3.03	-3.53	12.88	131.32
615	42.01	202.27	3.09	-3.53	13.08	131.54
616	42.10	203.68	3.24	-3.53	13.30	131.80
617	42.15	204.90	3.34	-3.53	13.56	132.12
618	42.24	206.51	3.49	-3.53	13.76	132.35
619	42.28	206.82	3.55	-3.53	13.82	132.43
620	42.39	206.21	3.45	-3.53	13.78	132.37
621	42.43	205.91	3.41	-3.53	13.60	132.21
622	42.50	206.26	3.33	-3.53	13.33	131.99
623	42.58	206.31	3.14	-3.53	12.97	131.71
624	42.65	206.41	3.03	-3.53	13.30	131.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	42.70	184.28	2.97	-3.61	13.40	131.14
626	42.73	197.11	2.95	-3.61	13.48	131.01
627	42.77	199.94	2.91	-3.61	12.77	131.00
628	42.82	203.68	2.86	-3.62	12.36	130.97
629	42.87	208.03	2.85	-3.62	11.87	131.00
630	42.91	215.81	2.87	-3.63	11.40	131.10
631	42.97	222.69	2.90	-3.53	11.00	131.25
632	43.02	226.93	2.94	-3.44	10.78	131.43
633	43.06	230.98	3.03	-3.53	10.72	131.66
634	43.11	233.71	3.13	-3.53	10.67	131.89
635	43.17	238.46	3.19	-3.63	10.57	132.05
636	43.21	241.79	3.19	-3.63	10.32	132.13
637	43.29	246.54	3.17	-3.63	10.05	132.16
638	43.34	250.39	3.16	-3.63	9.74	132.17
639	43.39	254.83	3.15	-3.53	9.49	132.17
640	43.45	257.26	3.12	-3.53	9.24	132.11
641	43.51	258.67	3.05	-3.63	8.93	131.89
642	43.59	258.98	2.87	-3.63	8.66	131.64
643	43.64	258.27	2.81	-3.63	8.23	131.24
644	43.70	260.49	2.58	-3.63	7.80	130.79
645	43.78	259.28	2.37	-3.63	7.50	130.39
646	43.88	255.44	2.40	-3.63	7.60	130.26
647	43.94	250.99	2.49	-3.63	8.46	130.43
648	44.04	228.05	2.65	-3.66	9.36	130.60
649	44.07	225.92	2.69	-3.63	10.23	130.73
650	44.12	223.80	2.73	-3.66	10.49	130.79
651	44.16	221.17	2.75	-3.63	10.73	130.81
652	44.21	218.64	2.74	-3.63	11.01	130.81
653	44.26	214.50	2.77	-3.63	11.32	130.81
654	44.31	210.96	2.79	-3.63	11.70	130.81
655	44.35	207.12	2.80	-3.72	12.07	130.81
656	44.40	202.98	2.81	-3.72	12.44	130.79
657	44.45	199.84	2.82	-3.72	12.75	130.78
658	44.50	197.82	2.82	-3.72	12.98	130.76
659	44.54	196.00	2.82	-3.72	13.20	130.75
660	44.60	193.78	2.85	-3.72	13.50	130.78
661	44.64	190.75	2.88	-3.72	13.86	130.82
662	44.69	188.52	2.92	-3.72	14.21	130.87
663	44.74	186.60	2.94	-3.82	14.38	130.92
664	44.79	188.37	2.96	-3.82	14.49	130.94
665	44.83	186.70	2.95	-3.82	14.44	130.96
666	44.88	188.22	2.95	-3.82	14.34	130.97
667	44.93	191.76	2.96	-3.82	14.12	131.02
668	44.98	193.78	2.97	-3.72	13.90	131.07
669	45.03	195.70	2.97	-3.82	13.77	131.11
670	45.08	196.61	2.98	-3.72	13.68	131.13
671	45.16	197.32	2.98	-3.82	13.57	131.13
672	45.19	198.83	2.96	-3.72	13.41	131.06

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	45.27	198.73	2.88	-3.82	13.22	130.92
674	45.32	197.92	2.81	-3.82	13.07	130.71
675	45.37	196.20	2.73	-3.82	12.89	130.37
676	45.45	192.77	2.52	-3.82	12.75	129.96
677	45.51	188.52	2.41	-3.82	12.79	129.49
678	45.56	180.54	2.32	-3.82	13.16	129.13
679	45.61	172.65	2.26	-3.82	14.11	128.81
680	45.69	156.48	2.24	-3.82	15.78	128.59
681	45.75	140.00	2.30	-3.82	18.95	128.52
682	45.81	115.94	2.49	-3.91	22.57	127.65
683	45.89	90.17	1.83	-3.91	27.28	126.48
684	45.94	73.89	1.73	-3.91	32.45	124.69
685	46.04	56.20	1.58	-3.91	38.98	123.71
686	46.08	47.71	1.52	-3.91	47.47	122.68
687	46.15	36.09	1.45	-3.82	56.21	122.08
688	46.17	36.19	1.44	-3.53	60.34	121.69
689	46.18	36.19	1.43	-3.53	60.04	121.61
690	46.23	36.29	1.40	-3.53	59.44	121.53
691	46.27	37.10	1.38	-3.44	58.23	121.42
692	46.32	38.31	1.34	-3.15	56.14	121.33
693	46.41	40.64	1.30	-2.86	51.16	121.34
694	46.47	43.06	1.32	-2.77	48.66	121.54
695	46.52	45.89	1.37	-2.77	47.10	121.93
696	46.56	47.51	1.45	-2.77	46.43	122.56
697	46.65	49.43	1.62	-2.67	46.28	123.25
698	46.71	51.45	1.75	-2.58	46.04	123.95
699	46.76	53.78	1.86	-2.48	44.89	124.54
700	46.85	58.12	1.95	-2.39	42.94	124.99
701	46.90	62.77	1.97	-2.39	40.08	125.34
702	46.99	69.04	1.98	-2.48	37.61	125.55
703	47.04	71.97	1.98	-2.48	36.35	125.63
704	47.10	70.15	1.97	-2.77	36.71	125.56
705	47.16	66.51	1.95	-3.34	38.66	125.31
706	47.23	59.84	1.90	-3.82	41.64	124.83
707	47.30	52.66	1.77	-4.20	46.53	124.02
708	47.38	42.05	1.62	-4.58	55.83	123.02
709	47.43	33.76	1.52	-4.58	63.91	121.70
710	47.52	27.09	1.27	-4.77	70.43	120.03
711	47.59	23.86	0.95	-4.77	72.90	117.35
712	47.66	21.03	0.52	-4.77	72.89	114.76
713	47.77	19.51	0.53	-4.68	73.13	112.86
714	47.82	18.80	0.54	-4.58	76.41	112.94
715	47.91	18.19	0.56	-4.58	78.15	113.07
716	47.93	18.35	0.57	-4.36	81.01	113.17
717	47.97	16.68	0.58	-4.36	81.15	113.36
718	48.02	18.50	0.60	-4.36	81.66	113.65
719	48.07	18.60	0.64	-4.23	80.69	114.13
720	48.12	18.60	0.68	-4.10	82.08	114.75

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	48.19	18.80	0.77	-4.01	83.29	115.28
722	48.23	18.90	0.79	-4.01	83.94	115.75
723	48.31	19.21	0.82	-4.01	83.94	116.02
724	48.35	19.51	0.84	-3.91	83.94	116.26
725	48.40	19.51	0.86	-3.91	84.74	116.39
726	48.45	18.90	0.88	-3.91	86.54	116.45
727	48.50	18.19	0.88	-3.82	89.36	116.43
728	48.55	17.29	0.89	-3.72	90.62	116.47
729	48.59	18.09	0.90	-3.72	91.76	116.60
730	48.67	17.69	0.94	-3.53	91.23	116.72
731	48.73	17.99	0.92	-3.53	91.27	116.67
732	48.78	17.99	0.89	-3.53	89.99	116.42
733	48.83	18.09	0.84	-3.53	88.84	116.04
734	48.91	17.99	0.79	-3.44	87.70	115.60
735	48.98	17.89	0.74	-3.34	86.94	115.19
736	49.03	17.79	0.72	-3.15	86.65	114.95
737	49.12	17.69	0.72	-3.05	85.60	114.48
738	49.17	17.69	0.61	-2.96	83.33	113.76
739	49.27	17.99	0.53	-2.96	80.70	113.14
740	49.31	18.50	0.56	-2.86	79.11	113.26
741	49.38	19.31	0.62	-2.77	78.69	113.92
742	49.45	19.91	0.66	-2.67	78.67	114.51
743	49.51	20.01	0.70	-2.67	81.86	114.78
744	49.54	17.18	0.72	-2.34	81.23	115.10
745	49.59	21.23	0.74	-2.34	79.36	115.30
746	49.64	22.24	0.73	-2.34	75.47	115.37
747	49.73	21.23	0.70	-2.00	76.06	115.20
748	49.83	20.22	0.70	-2.00	78.94	114.89
749	49.92	18.70	0.68	-1.91	82.21	114.64
750	49.98	17.79	0.67	-1.81	85.18	114.35
751	50.07	17.18	0.66	-1.72	86.78	114.13
752	50.16	17.08	0.64	-1.62	87.78	113.97
753	50.24	16.78	0.64	-1.53	88.72	113.83
754	50.32	16.27	0.63	-1.43	89.58	113.75
755	50.41	16.38	0.63	-1.43	90.32	113.77
756	50.50	16.38	0.65	-1.34	90.32	113.80
757	50.56	16.38	0.64	-1.34	90.32	113.63
758	50.66	16.07	0.59	-1.24	90.38	113.36
759	50.74	15.87	0.59	-1.15	90.68	113.17
760	50.84	15.87	0.60	-1.15	92.49	113.65
761	50.93	15.87	0.71	-1.05	95.02	114.60
762	50.98	16.17	0.85	-1.05	96.87	116.37
763	51.08	18.30	1.14	-0.95	92.70	118.68
764	51.17	24.36	1.53	-0.76	84.52	120.98
765	51.24	30.73	1.80	-0.76	77.19	122.97
766	51.34	35.28	2.14	-0.57	74.02	124.16
767	51.41	34.97	2.26	-0.57	71.12	123.46
768	51.51	32.25	1.21	-0.57	70.63	122.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	51.58	31.24	1.48	-0.57	69.74	121.04
770	51.68	30.12	1.47	-0.38	72.97	121.32
771	51.79	28.51	1.42	-0.38	77.64	121.01
772	51.82	23.55	1.42	0.00	80.70	120.81
773	51.85	25.57	1.43	0.00	84.43	120.74
774	51.91	24.06	1.47	0.10	84.06	121.14
775	52.00	25.37	1.63	0.19	85.77	121.55
776	52.05	25.17	1.70	0.48	82.19	122.20
777	52.10	30.63	1.77	0.67	73.91	122.79
778	52.19	39.52	1.77	0.67	64.23	123.22
779	52.28	45.29	1.67	0.19	57.68	123.38
780	52.34	47.31	1.65	-0.10	55.15	123.36
781	52.42	46.50	1.68	-0.38	55.52	123.38
782	52.48	44.48	1.70	-0.29	57.37	123.35
783	52.57	42.05	1.69	-0.29	59.26	123.14
784	52.62	40.43	1.61	-0.19	60.78	122.72
785	52.69	38.31	1.49	0.00	61.59	122.10
786	52.77	36.79	1.37	0.10	62.55	121.57
787	52.87	35.58	1.36	0.19	63.92	121.31
788	52.91	34.27	1.39	0.19	65.28	120.93
789	53.01	32.35	1.22	0.19	67.19	120.67
790	53.10	31.03	1.28	0.29	68.16	120.77
791	53.16	33.16	1.47	0.38	69.53	122.45
792	53.25	37.91	2.14	0.48	67.34	124.27
793	53.29	44.98	2.40	0.57	65.53	126.29
794	53.38	49.94	3.03	0.67	63.67	127.54
795	53.42	51.76	3.26	1.15	57.59	128.96
796	53.47	76.22	3.60	1.34	50.04	130.26
797	53.52	95.93	4.09	1.43	43.49	131.46
798	53.58	106.44	4.29	1.24	41.58	132.45
799	53.66	106.44	4.88	-1.34	42.62	133.05
800	53.75	98.56	5.19	-2.86	45.49	133.37
801	53.81	91.08	5.18	-6.30	49.54	133.18
802	53.87	77.43	5.01	-9.74	53.77	132.67
803	53.95	68.54	4.74	-10.69	59.61	131.92
804	54.01	56.20	4.47	-11.74	65.69	131.12
805	54.06	47.81	4.22	-11.84	72.92	129.99
806	54.15	39.02	3.56	-11.84	77.78	129.07
807	54.20	39.02	3.50	-11.84	78.61	128.77
808	54.29	44.27	3.87	-11.84	70.76	129.29
809	54.34	59.94	3.77	-11.84	51.11	129.21
810	54.43	104.52	2.08	-12.22	34.79	128.49
811	54.45	137.17	1.94	-11.93	23.26	127.27
812	54.48	170.33	1.92	-12.60	19.04	127.74
813	54.52	191.25	2.08	-13.36	17.01	128.18
814	54.53	195.50	2.08	-13.08	16.36	128.98
815	54.58	210.36	2.46	-12.79	16.17	129.67
816	54.62	218.44	2.63	-8.30	15.74	130.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	54.65	230.47	2.63	-4.01	14.88	130.73
818	54.70	251.70	2.72	-3.63	14.37	131.15
819	54.76	252.00	2.98	-4.09	14.25	131.53
820	54.77	249.83	2.99	-3.42	14.61	131.77
821	54.82	247.96	3.02	-3.42	14.54	131.82
822	54.87	256.85	3.02	-3.42	14.47	131.87
823	54.88	254.53	3.03	-2.96	14.29	131.89
824	54.91	255.64	3.02	-3.09	14.24	131.96
825	54.96	261.81	3.08	-2.96	13.92	132.10
826	54.97	272.93	3.13	-2.77	13.35	132.49
827	55.03	295.47	3.37	-2.39	12.75	133.09
828	55.09	316.39	3.69	-2.96	11.80	133.38
829	55.15	333.88	3.31	-3.25	10.23	132.43
830	55.20	333.38	2.00	-3.05	9.28	131.93
831	55.25	347.93	3.01	-3.05	7.69	130.99
832	55.30	393.32	2.16	-3.05	7.43	132.16
833	55.34	419.40	3.03	-2.96	6.93	132.95
834	55.39	439.92	3.71	-2.77	7.32	134.46
835	55.40	460.94	4.01	-2.86	7.35	135.39
836	55.44	486.11	4.30	-2.67	7.07	135.83
837	55.44	501.48	4.26	-2.67	6.42	136.02
838	55.49	546.16	4.10	-2.64	6.52	136.38
839	55.54	505.72	4.89	-1.24	6.65	137.08
840	55.59	548.48	5.43	-1.05	7.22	137.28
841	55.63	550.81	5.64	-2.46	7.14	137.28
842	55.64	554.04	5.65	-2.46	7.12	137.28
843	55.68	555.66	5.52	-2.67	6.77	137.28
844	55.69	591.24	5.48	-2.60	6.62	137.28
845	55.69	564.35	5.44	-2.60	6.75	137.28
846	55.71	543.02	5.64	-2.53	7.10	137.28
847	55.76	577.59	6.17	-2.53	7.22	137.28
848	55.78	581.33	6.12	-2.39	7.02	137.28
849	55.81	581.74	5.86	-2.19	6.58	137.28
850	55.85	580.73	4.95	-2.67	5.96	137.28
851	55.86	590.13	4.53	-2.96	5.19	136.82
852	55.91	594.27	4.00	-2.96	4.62	136.29
853	55.92	611.66	3.93	-2.58	4.30	135.90
854	55.96	600.94	3.86	-2.48	3.98	135.87
855	55.97	644.61	3.85	-2.96	3.85	136.11
856	56.00	656.84	4.22	-3.15	3.75	136.51
857	56.01	661.80	4.40	-3.25	4.03	137.12
858	56.03	661.85	4.90	-3.25	4.27	137.28
859	56.05	661.85	5.01	-3.05	4.38	137.28
860	56.10	661.90	4.73	-2.86	4.31	137.28
861	56.12	671.50	4.82	-2.77	4.05	137.28
862	56.16	670.79	4.37	-2.67	3.91	137.12
863	56.17	660.89	4.28	-2.77	3.94	136.81
864	56.20	632.79	4.35	-2.77	4.25	136.76

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	56.22	611.76	4.41	-2.77	4.54	136.69
866	56.24	608.02	4.27	-2.67	4.60	136.52
867	56.30	605.70	4.12	-2.77	4.63	136.39
868	56.31	594.48	4.22	-2.67	4.86	136.51
869	56.34	587.00	4.54	-2.67	5.22	136.76
870	56.39	577.29	4.62	-2.67	5.42	136.81
871	56.45	572.94	4.38	-2.77	5.52	136.73
872	56.48	566.78	4.44	-2.58	5.63	136.67
873	56.49	556.57	4.57	-2.48	6.11	137.00
874	56.53	543.12	5.08	-2.39	6.65	137.27
875	56.58	526.85	5.09	-2.29	7.00	137.27
876	56.63	517.25	4.68	-2.39	5.57	135.21
877	56.68	530.19	1.47	-2.67	4.07	132.85
878	56.73	530.69	1.99	-2.19	3.28	131.52
879	56.78	533.22	3.31	-2.10	4.70	133.92
880	56.83	515.12	4.11	-2.10	5.98	135.53
881	56.89	505.72	4.38	-1.81	6.76	136.05
882	56.95	489.35	4.29	-1.72	7.57	136.39
883	56.99	460.13	4.89	-1.77	8.27	136.67
884	57.01	461.35	5.04	-1.81	8.73	136.83
885	57.04	461.35	4.71	-1.77	8.64	136.75
886	57.09	462.56	4.73	-1.77	8.37	136.69
887	57.11	480.76	4.85	-1.72	8.26	136.91
888	57.13	489.04	5.06	-1.72	8.28	137.28
889	57.18	496.12	5.48	-1.72	8.57	137.28
890	57.19	481.26	5.56	-1.72	9.17	137.28
891	57.21	456.09	5.75	-1.53	9.62	137.28
892	57.24	456.14	5.61	-1.53	9.80	137.28
893	57.28	456.19	5.36	-1.53	9.62	137.28
894	57.32	457.91	5.35	-1.53	9.68	137.28
895	57.35	438.71	5.32	-1.62	9.84	137.28
896	57.38	439.61	5.31	-1.43	10.12	137.28
897	57.43	428.50	5.24	-1.43	10.11	137.06
898	57.48	423.44	4.91	-1.62	10.27	136.57
899	57.52	392.11	4.48	-1.53	10.16	135.74
900	57.57	380.28	3.84	-1.53	10.70	135.89
901	57.62	396.35	5.29	-1.53	11.26	136.75
902	57.68	413.43	6.11	-1.53	10.99	137.28
903	57.76	472.77	5.74	-1.43	9.99	137.28
904	57.81	500.57	5.68	-1.72	7.13	136.51
905	57.86	543.23	2.17	-1.72	4.79	134.57
906	57.89	587.00	2.33	-1.72	2.67	131.65
907	57.91	587.40	2.22	-1.72	2.56	131.81
908	57.92	576.28	2.27	-1.72	2.86	132.23
909	57.95	567.79	2.76	-1.72	3.35	132.94
910	57.99	563.14	3.00	-1.72	3.71	133.65
911	58.01	581.13	3.08	-1.72	3.92	134.30
912	58.05	591.95	3.53	-1.72	3.96	134.78

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	58.05	600.54	3.58	-1.05	4.23	135.48
914	58.10	604.18	4.04	-1.43	4.36	135.85
915	58.13	609.64	4.08	-1.53	4.44	136.17
916	58.15	619.75	4.05	-1.53	4.30	136.16
917	58.17	626.22	3.98	-1.53	4.19	136.18
918	58.20	629.45	4.07	-1.53	4.24	136.22
919	58.21	614.69	4.13	-1.72	4.37	136.30
920	58.21	614.14	4.14	-1.72	4.48	136.33
921	58.23	614.14	4.16	-1.72	4.50	136.34
922	58.24	613.58	4.15	-1.81	4.62	136.36
923	58.25	596.70	4.21	-1.81	3.41	134.35
924	58.29	617.42	1.15	-1.72	2.07	131.70
925	58.31	627.93	1.23	-1.72	0.59	127.71
926	58.33	636.43	1.41	-1.72	0.81	129.01
927	58.38	652.70	1.86	-1.62	1.14	130.50
928	58.39	665.03	2.22	-1.70	1.43	131.67
929	58.43	667.96	2.33	-1.62	1.54	132.23
930	58.43	678.68	2.34	-1.70	1.38	132.20
931	58.48	701.62	2.15	-1.62	1.49	132.66
932	58.53	683.83	2.76	-1.62	1.70	133.35
933	58.56	697.78	3.03	-1.81	2.25	134.65
934	58.58	707.59	3.68	-1.91	2.48	135.33
935	58.59	707.99	3.65	-1.73	2.66	135.86
936	58.63	717.19	3.78	-1.54	2.76	135.95
937	58.63	696.42	3.83	-1.37	2.82	136.12
938	58.63	714.06	3.90	-1.37	2.92	135.93
939	58.68	675.65	3.56	-1.03	2.66	135.58
940	58.69	710.92	3.27	-1.03	2.12	134.51
941	58.72	719.11	2.44	-1.03	1.55	133.64
942	58.73	723.56	2.46	-0.91	1.34	133.28
943	58.74	726.19	2.85	-0.48	1.62	134.13
944	58.77	736.20	3.38	-0.85	2.06	135.06
945	58.81	718.51	3.65	-0.85	2.44	135.72
946	58.82	713.35	3.81	-0.85	2.73	136.05
947	58.83	710.01	3.91	-0.86	2.96	136.52
948	58.87	724.07	4.41	-0.86	3.17	137.07
949	58.91	732.96	4.71	-0.86	3.32	137.28
950	58.92	738.02	4.73	-0.76	3.35	137.28
951	58.93	742.66	4.76	-0.67	3.28	137.28
952	58.96	740.95	4.59	-0.57	3.26	137.28
953	59.01	733.57	4.60	-0.57	3.68	137.28
954	59.06	674.43	5.18	-1.24	4.25	137.28
955	59.08	653.91	5.10	-1.24	4.86	137.28
956	59.11	637.54	4.96	-1.24	5.19	137.28
957	59.15	625.41	5.36	-1.24	5.74	137.28
958	59.21	618.74	6.10	-1.43	6.20	137.28
959	59.26	610.75	5.85	-0.95	6.43	137.28
960	59.30	588.81	5.33	-0.67	6.35	137.28

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	59.35	577.39	5.07	-0.67	6.33	137.28
962	59.40	573.45	5.09	-0.67	6.60	137.28
963	59.42	537.46	5.10	-0.62	6.81	137.28
964	59.47	542.01	4.94	-0.62	7.03	137.28
965	59.51	538.58	4.99	-0.62	7.10	137.28
966	59.56	537.67	5.28	-0.48	7.14	137.28
967	59.61	537.67	4.95	-0.48	6.86	137.10
968	59.67	536.76	4.21	-0.48	6.15	136.33
969	59.71	551.52	3.80	-0.29	5.22	135.39
970	59.80	572.94	3.30	-0.29	4.51	134.34
971	59.85	543.02	2.68	-0.10	4.17	133.65
972	59.90	541.41	2.94	0.00	4.17	133.27
973	60.00	542.21	2.91	0.29	4.27	133.47
974	60.04	545.35	2.91	0.19	4.40	133.64
975	60.10	537.57	3.16	0.19	4.95	133.98
976	60.15	496.63	3.43	0.19	5.55	134.23
977	60.19	490.76	3.36	0.19	6.05	134.17
978	60.23	474.79	3.20	0.19	5.92	133.82
979	60.28	484.90	2.99	0.29	5.71	133.46
980	60.33	488.14	2.90	0.29	5.51	133.41
981	60.38	493.90	3.10	0.29	5.65	133.73
982	60.42	493.85	3.38	0.29	5.89	134.17
983	60.44	493.80	3.46	0.29	6.33	134.53
984	60.47	473.88	3.65	0.38	6.98	134.97
985	60.52	460.13	4.12	0.48	7.63	135.40
986	60.56	462.56	4.23	0.38	8.01	135.74
987	60.57	465.39	4.25	0.38	7.98	135.80
988	60.61	467.11	4.21	0.38	7.76	135.74
989	60.66	479.34	4.08	0.38	7.57	135.77
990	60.71	485.41	4.24	0.38	7.40	135.90
991	60.76	495.21	4.35	0.48	7.47	136.31
992	60.81	505.12	4.72	0.67	7.48	136.65
993	60.86	513.91	4.79	0.76	7.09	136.81
994	60.91	550.10	4.48	0.95	6.19	136.86
995	60.95	615.30	4.50	1.05	5.45	137.13
996	61.00	639.05	4.99	1.24	5.05	137.28
997	61.02	658.56	5.11	1.72	5.00	137.28
998	61.05	675.54	5.33	1.72	4.74	137.28
999	61.08	721.13	5.51	1.62	4.50	137.28
1000	61.09	733.97	5.54	1.62	4.27	137.28
1001	61.13	740.34	5.59	1.81	4.24	137.28
1002	61.14	739.43	5.66	1.91	4.28	137.28
1003	61.16	738.52	5.76	1.91	4.32	137.28
1004	61.20	746.30	5.81	1.91	4.05	137.28
1005	61.23	767.73	5.15	1.91	3.75	137.28
1006	61.24	772.28	5.21	1.81	3.14	137.28
1007	61.29	760.66	3.90	1.81	2.97	137.28
1008	61.30	743.57	4.26	1.72	3.09	137.25

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	61.33	728.41	5.05	1.81	3.50	137.28
1010	61.38	731.65	4.85	2.00	3.57	137.28
1011	61.43	732.56	4.32	1.81	3.24	137.17
1012	61.48	728.92	3.98	1.81	2.87	136.68
1013	61.53	753.18	3.97	1.62	2.61	136.51
1014	61.56	770.56	3.96	1.72	2.53	136.46
1015	61.58	740.54	3.88	1.72	2.82	136.29
1016	61.59	669.61	3.85	1.46	3.07	136.12
1017	61.62	696.97	3.82	0.67	4.53	135.66
1018	61.63	435.47	3.76	0.86	4.59	135.59
1019	61.67	653.41	3.77	1.34	4.68	135.51
1020	61.71	676.15	3.74	1.43	3.52	135.82
1021	61.76	658.36	3.79	1.34	3.57	135.69
1022	61.81	631.98	3.61	1.34	3.48	134.89
1023	61.86	611.66	2.70	1.53	3.19	133.76
1024	61.87	601.35	2.42	1.62	2.51	131.84
1025	61.91	589.42	1.65	1.72	2.08	130.34
1026	61.95	575.78	1.49	1.72	1.72	128.91
1027	61.96	568.80	1.46	1.62	1.77	128.59
1028	62.00	555.56	1.48	1.53	2.11	128.99
1029	62.04	536.66	1.77	1.43	2.73	129.80
1030	62.06	513.20	2.07	1.34	3.63	130.78
1031	62.10	482.98	2.34	1.34	4.36	131.39
1032	62.14	478.73	2.39	1.34	4.98	131.79
1033	62.20	464.78	2.54	1.34	5.42	131.98
1034	62.22	445.68	2.60	1.62	6.21	132.17
1035	62.27	407.07	2.72	1.43	7.02	132.25
1036	62.29	393.62	2.77	1.34	7.80	132.39
1037	62.34	388.36	2.89	1.43	8.52	132.51
1038	62.39	358.75	2.98	1.24	9.48	132.97
1039	62.43	352.68	3.46	1.43	11.11	133.79
1040	62.49	331.86	4.17	1.43	12.15	134.44
1041	62.57	335.80	4.05	1.43	12.81	134.86
1042	62.68	341.56	4.21	1.43	12.34	135.49
1043	62.75	394.13	5.02	1.53	11.19	136.33
1044	62.87	459.02	5.12	1.62	10.57	136.91
1045	62.88	425.46	5.04	1.53	11.01	136.62
1046	62.89	343.08	4.64	0.86	9.46	135.64
1047	62.93	504.41	3.12	1.53	6.80	134.88
1048	62.98	608.73	3.27	1.24	4.56	134.66
1049	63.02	602.56	3.75	1.53	2.42	132.17
1050	63.07	649.36	0.00	1.53	0.48	127.73
1051	63.12	723.66	0.00	1.62	N/A	87.36
1052	63.14	759.24	0.00	1.62	N/A	87.36
1053	63.17	774.10	0.00	1.72	N/A	87.36
1054	63.17	810.49	0.00	1.53	N/A	87.36
1055	63.20	813.42	0.00	1.53	N/A	87.36
1056	63.21	853.96	0.00	1.53	N/A	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1057	63.23	825.05	0.00	1.43	N/A	87.36
1058	63.26	849.66	0.00	0.99	N/A	87.36
1059	63.28	829.50	0.00	0.99	N/A	87.36
1060	63.31	845.37	0.00	0.29	N/A	87.36
1061	63.32	839.40	0.00	0.48	N/A	87.36
1062	63.36	833.34	0.00	0.57	N/A	87.36
1063	63.40	838.59	0.00	0.67	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.01	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
2	0.04	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
3	0.09	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
4	0.11	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
5	0.14	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
6	0.14	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
7	0.18	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
8	0.23	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
9	0.24	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
10	0.28	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
11	0.33	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
12	0.38	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
13	0.42	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
14	0.47	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
15	0.51	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
16	0.52	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
17	0.57	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
18	0.61	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
19	0.67	0.04	0.00	0.04	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
20	0.73	0.04	0.00	0.04	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
21	0.81	0.04	0.00	0.04	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
22	0.86	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
23	0.98	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
24	1.05	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
25	1.15	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
26	1.24	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
27	1.34	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
28	1.43	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
29	1.53	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
30	1.58	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
31	1.62	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
32	1.67	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
33	1.75	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
34	1.77	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
35	1.81	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
36	1.86	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
37	1.91	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
38	1.95	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
39	2.00	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
40	2.05	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
41	2.11	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
42	2.20	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
43	2.24	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
44	2.29	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
45	2.34	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
46	2.44	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
47	2.48	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
48	2.58	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	2.63	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
50	2.71	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
51	2.78	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
52	2.82	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
53	2.89	0.16	0.00	0.16	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
54	2.96	0.16	0.00	0.16	1.00	0.407	1.36	0.300	1.00	1.00	2.000	No
55	3.03	0.17	0.00	0.17	0.99	0.407	1.36	0.300	1.00	1.00	2.000	No
56	3.11	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
57	3.19	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
58	3.25	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
59	3.35	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
60	3.41	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
61	3.50	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
62	3.59	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
63	3.69	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
64	3.79	0.21	0.00	0.21	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
65	3.88	0.21	0.00	0.21	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
66	3.97	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
67	4.07	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
68	4.14	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
69	4.17	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
70	4.26	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
71	4.32	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
72	4.37	0.24	0.00	0.24	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
73	4.42	0.24	0.00	0.24	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
74	4.51	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
75	4.61	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
76	4.65	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
77	4.74	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
78	4.80	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
79	4.89	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
80	4.95	0.27	0.00	0.27	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
81	5.04	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
82	5.13	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
83	5.18	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
84	5.28	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
85	5.32	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
86	5.42	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
87	5.51	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
88	5.60	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
89	5.66	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
90	5.76	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
91	5.85	0.32	0.00	0.32	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
92	5.92	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
93	5.95	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
94	5.97	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
95	6.02	0.33	0.00	0.33	0.99	0.405	1.36	0.297	1.00	1.00	2.000	Yes
96	6.06	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	6.16	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
98	6.21	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
99	6.26	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
100	6.31	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
101	6.40	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
102	6.44	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
103	6.52	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
104	6.57	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
105	6.64	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
106	6.69	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
107	6.78	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
108	6.83	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
109	6.92	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
110	6.97	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
111	7.03	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
112	7.12	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
113	7.22	0.39	0.00	0.39	0.99	0.403	1.36	0.297	1.00	1.00	2.000	No
114	7.27	0.39	0.00	0.39	0.99	0.403	1.36	0.297	1.00	1.00	2.000	No
115	7.36	0.40	0.00	0.40	0.98	0.403	1.36	0.297	1.00	1.00	2.000	No
116	7.43	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
117	7.50	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
118	7.59	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
119	7.64	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
120	7.75	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
121	7.79	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
122	7.89	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
123	7.99	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
124	8.04	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
125	8.13	0.44	0.00	0.44	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
126	8.23	0.44	0.00	0.44	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
127	8.32	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
128	8.37	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
129	8.46	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
130	8.56	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
131	8.59	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
132	8.61	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
133	8.67	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
134	8.71	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
135	8.72	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
136	8.78	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
137	8.80	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
138	8.86	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
139	8.90	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
140	8.95	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
141	8.96	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
142	9.00	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
143	9.05	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
144	9.09	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	9.10	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
146	9.14	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
147	9.20	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
148	9.24	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
149	9.29	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
150	9.31	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
151	9.38	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
152	9.41	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
153	9.47	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
154	9.53	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
155	9.62	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
156	9.67	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
157	9.77	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
158	9.81	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
159	9.90	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
160	9.97	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
161	10.06	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
162	10.20	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
163	10.30	0.56	0.00	0.56	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
164	10.44	0.57	0.00	0.57	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
165	10.54	0.57	0.00	0.57	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
166	10.63	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
167	10.74	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
168	10.78	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
169	10.83	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
170	10.88	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
171	10.89	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
172	10.97	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
173	11.02	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
174	11.07	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
175	11.11	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
176	11.16	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
177	11.21	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
178	11.26	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
179	11.30	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
180	11.36	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
181	11.40	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
182	11.45	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
183	11.50	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
184	11.55	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
185	11.60	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
186	11.66	0.64	0.00	0.64	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
187	11.74	0.64	0.00	0.64	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
188	11.84	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
189	11.93	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
190	12.04	0.66	0.00	0.66	0.97	0.399	1.36	0.294	1.00	1.00	2.000	No
191	12.13	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
192	12.22	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	12.27	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
194	12.37	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
195	12.41	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
196	12.51	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
197	12.56	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
198	12.65	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
199	12.71	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
200	12.79	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
201	12.89	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
202	12.96	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
203	13.04	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
204	13.13	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
205	13.23	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
206	13.30	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
207	13.37	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
208	13.47	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
209	13.57	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
210	13.61	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
211	13.62	0.75	0.00	0.75	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
212	13.68	0.75	0.00	0.75	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
213	13.73	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
214	13.77	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
215	13.87	0.77	0.00	0.77	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
216	13.93	0.77	0.00	0.77	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
217	14.00	0.77	0.00	0.77	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
218	14.06	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
219	14.12	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
220	14.21	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
221	14.25	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
222	14.35	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
223	14.45	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
224	14.50	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
225	14.59	0.81	0.00	0.81	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
226	14.64	0.81	0.00	0.81	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
227	14.74	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
228	14.80	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
229	14.88	0.83	0.00	0.83	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
230	14.97	0.83	0.00	0.83	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
231	15.05	0.84	0.00	0.84	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
232	15.13	0.84	0.00	0.84	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
233	15.21	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
234	15.28	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
235	15.36	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
236	15.41	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
237	15.50	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
238	15.55	0.87	0.00	0.87	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
239	15.65	0.87	0.00	0.87	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
240	15.71	0.88	0.00	0.88	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	15.79	0.88	0.00	0.88	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
242	15.89	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
243	15.90	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
244	15.94	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
245	16.00	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
246	16.06	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
247	16.14	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
248	16.19	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
249	16.26	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
250	16.33	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
251	16.38	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
252	16.47	0.92	0.00	0.92	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
253	16.54	0.92	0.00	0.92	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
254	16.62	0.93	0.00	0.93	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
255	16.70	0.93	0.00	0.93	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
256	16.76	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
257	16.86	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
258	16.90	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
259	16.98	0.95	0.00	0.95	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
260	17.05	0.95	0.00	0.95	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
261	17.14	0.96	0.00	0.96	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
262	17.20	0.96	0.00	0.96	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
263	17.29	0.97	0.00	0.97	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
264	17.34	0.97	0.00	0.97	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
265	17.44	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
266	17.50	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
267	17.58	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
268	17.64	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
269	17.75	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
270	17.82	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
271	17.89	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
272	17.89	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
273	17.96	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
274	18.02	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
275	18.07	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
276	18.17	1.02	0.00	1.02	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
277	18.22	1.02	0.00	1.02	0.96	0.394	1.36	0.289	1.00	1.00	2.000	Yes
278	18.30	1.03	0.00	1.03	0.96	0.394	1.36	0.289	1.00	1.00	2.000	Yes
279	18.36	1.03	0.00	1.03	0.96	0.394	1.36	0.289	1.00	1.00	2.000	Yes
280	18.42	1.03	0.00	1.03	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
281	18.50	1.04	0.00	1.04	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
282	18.56	1.04	0.00	1.04	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
283	18.62	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
284	18.69	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
285	18.76	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
286	18.84	1.06	0.00	1.06	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
287	18.89	1.06	0.00	1.06	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
288	18.98	1.07	0.00	1.07	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	19.05	1.07	0.00	1.07	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
290	19.12	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
291	19.18	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
292	19.24	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
293	19.32	1.09	0.00	1.09	0.96	0.393	1.36	0.289	0.99	1.00	2.000	No
294	19.38	1.09	0.00	1.09	0.96	0.392	1.36	0.289	0.99	1.00	2.000	No
295	19.46	1.10	0.00	1.10	0.96	0.392	1.36	0.289	0.99	1.00	2.000	No
296	19.54	1.10	0.00	1.10	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
297	19.62	1.11	0.00	1.11	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
298	19.70	1.11	0.00	1.11	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
299	19.80	1.12	0.00	1.12	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
300	19.85	1.12	0.00	1.12	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
301	19.94	1.13	0.00	1.13	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
302	20.03	1.13	0.00	1.13	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
303	20.13	1.14	0.00	1.14	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
304	20.19	1.14	0.00	1.14	0.96	0.392	1.36	0.288	0.98	1.00	2.000	No
305	20.29	1.15	0.00	1.15	0.96	0.392	1.36	0.288	0.98	1.00	2.000	No
306	20.39	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
307	20.43	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
308	20.47	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
309	20.52	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
310	20.61	1.17	0.00	1.17	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
311	20.66	1.17	0.00	1.17	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
312	20.71	1.18	0.00	1.18	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
313	20.77	1.18	0.00	1.18	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
314	20.85	1.18	0.00	1.18	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
315	20.91	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
316	21.00	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
317	21.05	1.20	0.00	1.20	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
318	21.11	1.20	0.00	1.20	0.95	0.391	1.36	0.287	0.97	1.00	2.000	No
319	21.19	1.21	0.00	1.21	0.95	0.391	1.36	0.287	0.97	1.00	2.000	No
320	21.24	1.21	0.00	1.21	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
321	21.34	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
322	21.39	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
323	21.48	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
324	21.53	1.23	0.00	1.23	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
325	21.64	1.23	0.00	1.23	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
326	21.72	1.24	0.00	1.24	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
327	21.81	1.24	0.00	1.24	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
328	21.89	1.25	0.00	1.25	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
329	21.97	1.25	0.00	1.25	0.95	0.390	1.36	0.286	0.97	1.00	2.000	No
330	22.05	1.26	0.00	1.26	0.95	0.390	1.36	0.286	0.97	1.00	2.000	No
331	22.12	1.26	0.00	1.26	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
332	22.13	1.26	0.00	1.26	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
333	22.18	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
334	22.22	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
335	22.28	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
336	22.33	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	22.38	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
338	22.41	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
339	22.51	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
340	22.56	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
341	22.61	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
342	22.65	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
343	22.71	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
344	22.76	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
345	22.85	1.31	0.00	1.31	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
346	22.89	1.31	0.00	1.31	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
347	22.99	1.32	0.00	1.32	0.95	0.388	1.36	0.286	0.96	1.00	2.000	No
348	23.04	1.32	0.00	1.32	0.95	0.388	1.36	0.286	0.96	1.00	2.000	No
349	23.12	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
350	23.18	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
351	23.24	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
352	23.33	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
353	23.38	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
354	23.47	1.35	0.00	1.35	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
355	23.52	1.35	0.00	1.35	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
356	23.61	1.36	0.00	1.36	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
357	23.68	1.36	0.00	1.36	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
358	23.76	1.36	0.00	1.36	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
359	23.83	1.37	0.00	1.37	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
360	23.90	1.37	0.00	1.37	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
361	23.97	1.38	0.00	1.38	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
362	24.05	1.38	0.00	1.38	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
363	24.10	1.39	0.00	1.39	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
364	24.19	1.39	0.00	1.39	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
365	24.27	1.40	0.00	1.40	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
366	24.34	1.40	0.00	1.40	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
367	24.43	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
368	24.48	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
369	24.57	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
370	24.62	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
371	24.72	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
372	24.81	1.43	0.00	1.43	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
373	24.86	1.43	0.00	1.43	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
374	24.95	1.44	0.00	1.44	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
375	25.01	1.44	0.00	1.44	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
376	25.02	1.44	0.00	1.44	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
377	25.05	1.44	0.00	1.44	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
378	25.11	1.45	0.00	1.45	0.94	0.386	1.36	0.283	0.94	1.00	2.000	No
379	25.15	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
380	25.21	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
381	25.25	1.46	0.00	1.46	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
382	25.30	1.46	0.00	1.46	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
383	25.40	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
384	25.45	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	25.52	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
386	25.60	1.48	0.00	1.48	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
387	25.66	1.48	0.00	1.48	0.94	0.385	1.36	0.283	0.93	1.00	2.000	Yes
388	25.74	1.49	0.00	1.49	0.94	0.385	1.36	0.283	0.93	1.00	2.000	Yes
389	25.80	1.49	0.00	1.49	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
390	25.88	1.49	0.00	1.49	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
391	25.94	1.50	0.00	1.50	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
392	26.02	1.50	0.00	1.50	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
393	26.09	1.51	0.00	1.51	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
394	26.17	1.51	0.00	1.51	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
395	26.23	1.52	0.00	1.52	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
396	26.29	1.52	0.00	1.52	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
397	26.37	1.52	0.00	1.52	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
398	26.46	1.53	0.00	1.53	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
399	26.55	1.53	0.00	1.53	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
400	26.60	1.54	0.00	1.54	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
401	26.70	1.54	0.00	1.54	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
402	26.78	1.55	0.00	1.55	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
403	26.87	1.55	0.00	1.55	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
404	26.94	1.56	0.00	1.56	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
405	27.03	1.56	0.00	1.56	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
406	27.13	1.57	0.00	1.57	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
407	27.18	1.57	0.00	1.57	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
408	27.27	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
409	27.32	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
410	27.37	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
411	27.41	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
412	27.46	1.59	0.00	1.59	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
413	27.51	1.59	0.00	1.59	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
414	27.61	1.59	0.00	1.59	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
415	27.66	1.60	0.00	1.60	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
416	27.73	1.60	0.00	1.60	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
417	27.80	1.61	0.00	1.61	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
418	27.88	1.61	0.00	1.61	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
419	27.96	1.62	0.00	1.62	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
420	28.04	1.62	0.00	1.62	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
421	28.12	1.63	0.00	1.63	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
422	28.18	1.63	0.00	1.63	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
423	28.27	1.64	0.00	1.64	0.93	0.380	1.36	0.280	0.92	1.00	2.000	No
424	28.32	1.64	0.00	1.64	0.93	0.380	1.36	0.280	0.92	1.00	2.000	No
425	28.42	1.64	0.00	1.64	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
426	28.47	1.65	0.00	1.65	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
427	28.61	1.66	0.00	1.66	0.93	0.380	1.36	0.279	0.91	1.00	2.000	No
428	28.67	1.66	0.00	1.66	0.93	0.380	1.36	0.279	0.91	1.00	2.000	Yes
429	28.75	1.67	0.00	1.67	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes
430	28.81	1.67	0.00	1.67	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes
431	28.90	1.68	0.00	1.68	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes
432	29.00	1.68	0.00	1.68	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	29.05	1.68	0.00	1.68	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes
434	29.10	1.69	0.00	1.69	0.93	0.379	1.36	0.278	0.91	1.00	2.000	Yes
435	29.15	1.69	0.00	1.69	0.92	0.379	1.36	0.278	0.91	1.00	2.000	Yes
436	29.24	1.70	0.00	1.70	0.92	0.379	1.36	0.278	0.91	1.00	2.000	Yes
437	29.29	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
438	29.37	1.71	0.00	1.71	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
439	29.43	1.71	0.00	1.71	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
440	29.53	1.72	0.00	1.72	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
441	29.62	1.72	0.00	1.72	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
442	29.68	1.72	0.00	1.72	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
443	29.80	1.73	0.00	1.73	0.92	0.377	1.36	0.277	0.91	1.00	2.000	No
444	29.91	1.74	0.00	1.74	0.92	0.377	1.36	0.277	0.91	1.00	2.000	No
445	30.00	1.74	0.00	1.74	0.92	0.377	1.36	0.277	0.90	1.00	0.306	No
446	30.07	1.75	0.00	1.75	0.92	0.377	1.36	0.277	0.90	1.00	0.307	No
447	30.15	1.75	0.00	1.75	0.92	0.378	1.36	0.278	0.90	1.00	0.307	No
448	30.21	1.76	0.01	1.75	0.92	0.378	1.36	0.278	0.90	1.00	0.307	No
449	30.26	1.76	0.01	1.75	0.92	0.378	1.36	0.278	0.90	1.00	0.308	No
450	30.31	1.76	0.01	1.75	0.92	0.378	1.36	0.278	0.90	1.00	0.308	No
451	30.38	1.77	0.01	1.76	0.92	0.379	1.36	0.278	0.90	1.00	0.308	No
452	30.45	1.77	0.01	1.76	0.92	0.379	1.36	0.279	0.90	1.00	0.308	No
453	30.50	1.78	0.02	1.76	0.92	0.379	1.36	0.279	0.90	1.00	0.309	No
454	30.55	1.78	0.02	1.76	0.92	0.379	1.36	0.279	0.90	1.00	0.309	No
455	30.64	1.78	0.02	1.76	0.92	0.380	1.36	0.279	0.90	1.00	0.309	No
456	30.70	1.79	0.02	1.77	0.92	0.380	1.36	0.279	0.90	1.00	0.310	No
457	30.79	1.79	0.02	1.77	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
458	30.84	1.80	0.03	1.77	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
459	30.93	1.80	0.03	1.77	0.92	0.381	1.36	0.280	0.90	1.00	0.311	No
460	30.98	1.81	0.03	1.78	0.92	0.381	1.36	0.280	0.90	1.00	0.311	No
461	31.05	1.81	0.03	1.78	0.92	0.382	1.36	0.281	0.90	1.00	0.311	No
462	31.13	1.81	0.04	1.78	0.91	0.382	1.36	0.281	0.90	1.00	0.312	No
463	31.17	1.82	0.04	1.78	0.91	0.382	1.36	0.281	0.90	1.00	0.312	No
464	31.27	1.82	0.04	1.78	0.91	0.383	1.36	0.281	0.90	1.00	0.312	No
465	31.32	1.83	0.04	1.79	0.91	0.383	1.36	0.281	0.90	1.00	0.312	No
466	31.41	1.83	0.04	1.79	0.91	0.383	1.36	0.282	0.90	1.00	0.313	No
467	31.46	1.84	0.05	1.79	0.91	0.383	1.36	0.282	0.90	1.00	0.313	No
468	31.52	1.84	0.05	1.79	0.91	0.384	1.36	0.282	0.90	1.00	0.313	No
469	31.61	1.84	0.05	1.79	0.91	0.384	1.36	0.282	0.90	1.00	0.314	No
470	31.66	1.85	0.05	1.80	0.91	0.384	1.36	0.282	0.90	1.00	0.314	No
471	31.75	1.85	0.05	1.80	0.91	0.384	1.36	0.283	0.90	1.00	0.314	No
472	31.80	1.86	0.06	1.80	0.91	0.385	1.36	0.283	0.90	1.00	0.315	No
473	31.90	1.86	0.06	1.80	0.91	0.385	1.36	0.283	0.90	1.00	0.315	No
474	31.94	1.87	0.06	1.81	0.91	0.385	1.36	0.283	0.90	1.00	0.315	No
475	32.04	1.87	0.06	1.81	0.91	0.386	1.36	0.283	0.90	1.00	0.316	No
476	32.09	1.87	0.07	1.81	0.91	0.386	1.36	0.284	0.90	1.00	0.316	No
477	32.20	1.88	0.07	1.81	0.91	0.386	1.36	0.284	0.90	1.00	0.316	No
478	32.24	1.88	0.07	1.81	0.91	0.386	1.36	0.284	0.90	1.00	0.316	No
479	32.28	1.89	0.07	1.82	0.91	0.386	1.36	0.284	0.90	1.00	0.317	No
480	32.29	1.89	0.07	1.82	0.91	0.386	1.36	0.284	0.90	1.00	0.317	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	32.30	1.89	0.07	1.82	0.91	0.387	1.36	0.284	0.90	1.00	0.317	No
482	32.40	1.89	0.07	1.82	0.91	0.387	1.36	0.284	0.90	1.00	0.317	No
483	32.45	1.90	0.08	1.82	0.91	0.387	1.36	0.285	0.90	1.00	0.317	No
484	32.55	1.90	0.08	1.82	0.91	0.387	1.36	0.285	0.90	1.00	0.318	No
485	32.59	1.91	0.08	1.83	0.91	0.388	1.36	0.285	0.90	1.00	0.318	No
486	32.69	1.91	0.08	1.83	0.91	0.388	1.36	0.285	0.90	1.00	0.318	No
487	32.76	1.92	0.09	1.83	0.91	0.388	1.36	0.285	0.90	1.00	0.318	No
488	32.84	1.92	0.09	1.83	0.90	0.388	1.36	0.286	0.90	1.00	0.319	No
489	32.90	1.93	0.09	1.84	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
490	32.98	1.93	0.09	1.84	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
491	33.06	1.94	0.10	1.84	0.90	0.389	1.36	0.286	0.90	1.00	0.320	No
492	33.12	1.94	0.10	1.84	0.90	0.389	1.36	0.286	0.89	1.00	0.320	No
493	33.22	1.95	0.10	1.85	0.90	0.390	1.36	0.286	0.89	1.00	0.320	No
494	33.31	1.95	0.10	1.85	0.90	0.390	1.36	0.287	0.89	1.00	0.321	No
495	33.37	1.96	0.10	1.85	0.90	0.390	1.36	0.287	0.89	1.00	0.321	No
496	33.46	1.96	0.11	1.85	0.90	0.390	1.36	0.287	0.89	1.00	0.321	No
497	33.55	1.97	0.11	1.86	0.90	0.391	1.36	0.287	0.89	1.00	0.321	No
498	33.65	1.97	0.11	1.86	0.90	0.391	1.36	0.287	0.89	1.00	0.322	No
499	33.70	1.98	0.12	1.86	0.90	0.391	1.36	0.288	0.89	1.00	0.322	No
500	33.79	1.98	0.12	1.86	0.90	0.391	1.36	0.288	0.89	1.00	0.322	No
501	33.89	1.99	0.12	1.87	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
502	33.99	2.00	0.12	1.87	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
503	34.04	2.00	0.13	1.87	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
504	34.13	2.00	0.13	1.88	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
505	34.23	2.01	0.13	1.88	0.90	0.393	1.36	0.289	0.89	1.00	0.324	No
506	34.32	2.02	0.13	1.88	0.90	0.393	1.36	0.289	0.89	1.00	0.324	No
507	34.37	2.02	0.14	1.88	0.89	0.393	1.36	0.289	0.89	1.00	0.324	No
508	34.47	2.03	0.14	1.89	0.89	0.393	1.36	0.289	0.89	1.00	0.325	No
509	34.55	2.03	0.14	1.89	0.89	0.393	1.36	0.289	0.89	1.00	2.000	Yes
510	34.63	2.04	0.14	1.89	0.89	0.394	1.36	0.289	0.89	1.00	2.000	Yes
511	34.73	2.04	0.15	1.90	0.89	0.394	1.36	0.290	0.89	1.00	2.000	Yes
512	34.80	2.05	0.15	1.90	0.89	0.394	1.36	0.290	0.89	1.00	2.000	Yes
513	34.90	2.05	0.15	1.90	0.89	0.394	1.36	0.290	0.89	1.00	2.000	Yes
514	35.00	2.06	0.16	1.90	0.89	0.395	1.36	0.290	0.89	1.00	0.326	No
515	35.12	2.07	0.16	1.91	0.89	0.395	1.36	0.290	0.89	1.00	0.327	No
516	35.20	2.07	0.16	1.91	0.89	0.395	1.36	0.290	0.89	1.00	0.327	No
517	35.33	2.08	0.17	1.91	0.89	0.395	1.36	0.291	0.89	1.00	2.000	Yes
518	35.41	2.08	0.17	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
519	35.44	2.09	0.17	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
520	35.48	2.09	0.17	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
521	35.57	2.10	0.17	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
522	35.62	2.10	0.18	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
523	35.67	2.10	0.18	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
524	35.71	2.10	0.18	1.93	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
525	35.82	2.11	0.18	1.93	0.88	0.396	1.36	0.291	0.89	1.00	2.000	Yes
526	35.86	2.11	0.18	1.93	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
527	35.93	2.12	0.19	1.93	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
528	36.01	2.12	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	36.06	2.13	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
530	36.12	2.13	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	0.329	No
531	36.18	2.13	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	0.330	No
532	36.25	2.14	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	0.330	No
533	36.30	2.14	0.20	1.95	0.88	0.397	1.36	0.292	0.89	1.00	0.330	No
534	36.39	2.15	0.20	1.95	0.88	0.397	1.36	0.292	0.89	1.00	0.330	No
535	36.44	2.15	0.20	1.95	0.88	0.398	1.36	0.292	0.88	1.00	0.330	No
536	36.53	2.16	0.20	1.95	0.88	0.398	1.36	0.292	0.88	1.00	0.331	No
537	36.59	2.16	0.21	1.96	0.88	0.398	1.36	0.292	0.88	1.00	0.331	No
538	36.68	2.17	0.21	1.96	0.88	0.398	1.36	0.293	0.88	1.00	0.331	No
539	36.75	2.17	0.21	1.96	0.88	0.398	1.36	0.293	0.88	1.00	0.331	No
540	36.83	2.18	0.21	1.96	0.88	0.398	1.36	0.293	0.88	1.00	0.331	No
541	36.90	2.18	0.22	1.97	0.88	0.398	1.36	0.293	0.88	1.00	0.331	No
542	36.97	2.19	0.22	1.97	0.88	0.398	1.36	0.293	0.88	1.00	0.332	No
543	37.02	2.19	0.22	1.97	0.88	0.398	1.36	0.293	0.88	1.00	0.332	No
544	37.04	2.19	0.22	1.97	0.88	0.399	1.36	0.293	0.88	1.00	0.332	No
545	37.08	2.19	0.22	1.97	0.88	0.399	1.36	0.293	0.88	1.00	0.332	No
546	37.17	2.20	0.22	1.98	0.87	0.399	1.36	0.293	0.88	1.00	0.332	No
547	37.27	2.21	0.23	1.98	0.87	0.399	1.36	0.293	0.88	1.00	0.332	No
548	37.37	2.21	0.23	1.98	0.87	0.399	1.36	0.293	0.88	1.00	0.333	No
549	37.42	2.22	0.23	1.98	0.87	0.399	1.36	0.293	0.88	1.00	0.333	No
550	37.51	2.22	0.23	1.99	0.87	0.399	1.36	0.293	0.88	1.00	0.333	No
551	37.58	2.23	0.24	1.99	0.87	0.399	1.36	0.294	0.88	1.00	0.333	No
552	37.66	2.23	0.24	1.99	0.87	0.399	1.36	0.294	0.88	1.00	0.333	No
553	37.76	2.24	0.24	1.99	0.87	0.399	1.36	0.294	0.88	1.00	0.333	No
554	37.85	2.24	0.24	2.00	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
555	37.93	2.25	0.25	2.00	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
556	38.04	2.26	0.25	2.00	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
557	38.13	2.26	0.25	2.01	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
558	38.18	2.26	0.26	2.01	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
559	38.28	2.27	0.26	2.01	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
560	38.37	2.28	0.26	2.01	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
561	38.47	2.28	0.26	2.02	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
562	38.57	2.29	0.27	2.02	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
563	38.62	2.29	0.27	2.02	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
564	38.72	2.30	0.27	2.03	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
565	38.78	2.30	0.27	2.03	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
566	38.81	2.30	0.27	2.03	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
567	38.86	2.31	0.28	2.03	0.86	0.401	1.36	0.294	0.88	1.00	0.335	No
568	38.91	2.31	0.28	2.03	0.86	0.401	1.36	0.294	0.88	1.00	0.336	No
569	38.95	2.31	0.28	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
570	39.05	2.32	0.28	2.04	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
571	39.09	2.32	0.28	2.04	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
572	39.14	2.33	0.29	2.04	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
573	39.24	2.33	0.29	2.04	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
574	39.29	2.33	0.29	2.05	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
575	39.39	2.34	0.29	2.05	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
576	39.43	2.34	0.29	2.05	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	39.53	2.35	0.30	2.05	0.86	0.401	1.36	0.295	0.88	1.00	0.337	No
578	39.57	2.35	0.30	2.05	0.85	0.401	1.36	0.295	0.88	1.00	0.337	No
579	39.68	2.36	0.30	2.06	0.85	0.401	1.36	0.295	0.88	1.00	0.337	No
580	39.73	2.36	0.30	2.06	0.85	0.401	1.36	0.295	0.88	1.00	0.337	No
581	39.81	2.37	0.31	2.06	0.85	0.401	1.36	0.295	0.88	1.00	0.337	No
582	39.89	2.37	0.31	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
583	39.96	2.38	0.31	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
584	40.06	2.38	0.31	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
585	40.15	2.39	0.32	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
586	40.20	2.39	0.32	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
587	40.24	2.40	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
588	40.26	2.40	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
589	40.27	2.40	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
590	40.37	2.40	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
591	40.42	2.41	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
592	40.52	2.41	0.33	2.09	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
593	40.56	2.42	0.33	2.09	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
594	40.66	2.42	0.33	2.09	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
595	40.70	2.43	0.33	2.09	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
596	40.75	2.43	0.34	2.09	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
597	40.85	2.43	0.34	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
598	40.91	2.44	0.34	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
599	40.96	2.44	0.34	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
600	41.04	2.45	0.34	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
601	41.09	2.45	0.35	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
602	41.18	2.46	0.35	2.11	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
603	41.23	2.46	0.35	2.11	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
604	41.29	2.46	0.35	2.11	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
605	41.38	2.47	0.36	2.11	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
606	41.42	2.47	0.36	2.12	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
607	41.52	2.48	0.36	2.12	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
608	41.57	2.48	0.36	2.12	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
609	41.62	2.49	0.36	2.12	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
610	41.71	2.49	0.37	2.13	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
611	41.76	2.49	0.37	2.13	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
612	41.84	2.50	0.37	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
613	41.91	2.50	0.37	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
614	41.95	2.51	0.37	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
615	42.01	2.51	0.37	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
616	42.10	2.52	0.38	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
617	42.15	2.52	0.38	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
618	42.24	2.53	0.38	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
619	42.28	2.53	0.38	2.15	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
620	42.39	2.54	0.39	2.15	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
621	42.43	2.54	0.39	2.15	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
622	42.50	2.54	0.39	2.15	0.83	0.401	1.36	0.294	0.87	1.00	0.339	No
623	42.58	2.55	0.39	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.339	No
624	42.65	2.55	0.39	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.340	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	42.70	2.56	0.40	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.340	No
626	42.73	2.56	0.40	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.340	No
627	42.77	2.56	0.40	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.340	No
628	42.82	2.56	0.40	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
629	42.87	2.57	0.40	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
630	42.91	2.57	0.40	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
631	42.97	2.57	0.40	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
632	43.02	2.58	0.41	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
633	43.06	2.58	0.41	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
634	43.11	2.58	0.41	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
635	43.17	2.59	0.41	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
636	43.21	2.59	0.41	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
637	43.29	2.59	0.41	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
638	43.34	2.60	0.42	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
639	43.39	2.60	0.42	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
640	43.45	2.61	0.42	2.19	0.82	0.400	1.36	0.294	0.86	1.00	0.340	No
641	43.51	2.61	0.42	2.19	0.82	0.400	1.36	0.294	0.86	1.00	0.340	No
642	43.59	2.61	0.42	2.19	0.82	0.400	1.36	0.294	0.86	1.00	0.340	No
643	43.64	2.62	0.43	2.19	0.82	0.400	1.36	0.294	0.86	1.00	0.340	No
644	43.70	2.62	0.43	2.19	0.82	0.399	1.36	0.294	0.86	1.00	0.340	No
645	43.78	2.63	0.43	2.20	0.82	0.399	1.36	0.294	0.86	1.00	0.340	No
646	43.88	2.63	0.43	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
647	43.94	2.64	0.43	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
648	44.04	2.64	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
649	44.07	2.65	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
650	44.12	2.65	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
651	44.16	2.65	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
652	44.21	2.65	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
653	44.26	2.66	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
654	44.31	2.66	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
655	44.35	2.66	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
656	44.40	2.67	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
657	44.45	2.67	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
658	44.50	2.67	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
659	44.54	2.68	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
660	44.60	2.68	0.46	2.22	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
661	44.64	2.68	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
662	44.69	2.69	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
663	44.74	2.69	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
664	44.79	2.69	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
665	44.83	2.70	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
666	44.88	2.70	0.46	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
667	44.93	2.70	0.47	2.24	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
668	44.98	2.71	0.47	2.24	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
669	45.03	2.71	0.47	2.24	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
670	45.08	2.71	0.47	2.24	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No
671	45.16	2.72	0.47	2.24	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No
672	45.19	2.72	0.47	2.25	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	45.27	2.72	0.48	2.25	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
674	45.32	2.73	0.48	2.25	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
675	45.37	2.73	0.48	2.25	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
676	45.45	2.74	0.48	2.25	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
677	45.51	2.74	0.48	2.26	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
678	45.56	2.74	0.49	2.26	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
679	45.61	2.75	0.49	2.26	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
680	45.69	2.75	0.49	2.26	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
681	45.75	2.76	0.49	2.26	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
682	45.81	2.76	0.49	2.27	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
683	45.89	2.76	0.50	2.27	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
684	45.94	2.77	0.50	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
685	46.04	2.77	0.50	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
686	46.08	2.78	0.50	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
687	46.15	2.78	0.50	2.28	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
688	46.17	2.78	0.50	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
689	46.18	2.78	0.50	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
690	46.23	2.79	0.51	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
691	46.27	2.79	0.51	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
692	46.32	2.79	0.51	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
693	46.41	2.80	0.51	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
694	46.47	2.80	0.51	2.29	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
695	46.52	2.80	0.52	2.29	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
696	46.56	2.81	0.52	2.29	0.79	0.395	1.36	0.291	0.86	1.00	0.339	No
697	46.65	2.81	0.52	2.29	0.79	0.395	1.36	0.291	0.86	1.00	0.339	No
698	46.71	2.81	0.52	2.29	0.79	0.395	1.36	0.291	0.86	1.00	0.339	No
699	46.76	2.82	0.52	2.29	0.79	0.395	1.36	0.291	0.86	1.00	0.339	No
700	46.85	2.82	0.53	2.30	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
701	46.90	2.83	0.53	2.30	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
702	46.99	2.83	0.53	2.30	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
703	47.04	2.84	0.53	2.30	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
704	47.10	2.84	0.53	2.31	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
705	47.16	2.84	0.54	2.31	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
706	47.23	2.85	0.54	2.31	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
707	47.30	2.85	0.54	2.31	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
708	47.38	2.86	0.54	2.31	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
709	47.43	2.86	0.54	2.32	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
710	47.52	2.86	0.55	2.32	0.78	0.394	1.36	0.289	0.85	1.00	0.339	No
711	47.59	2.87	0.55	2.32	0.78	0.394	1.36	0.289	0.85	1.00	0.339	No
712	47.66	2.87	0.55	2.32	0.78	0.394	1.36	0.289	0.85	1.00	0.339	No
713	47.77	2.88	0.55	2.32	0.78	0.393	1.36	0.289	0.85	1.00	0.338	No
714	47.82	2.88	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
715	47.91	2.89	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
716	47.93	2.89	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
717	47.97	2.89	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
718	48.02	2.89	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
719	48.07	2.90	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
720	48.12	2.90	0.57	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	48.19	2.90	0.57	2.34	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
722	48.23	2.91	0.57	2.34	0.77	0.392	1.36	0.289	0.85	1.00	0.338	No
723	48.31	2.91	0.57	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
724	48.35	2.91	0.57	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
725	48.40	2.92	0.57	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
726	48.45	2.92	0.58	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
727	48.50	2.92	0.58	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
728	48.55	2.92	0.58	2.35	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
729	48.59	2.93	0.58	2.35	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
730	48.67	2.93	0.58	2.35	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
731	48.73	2.93	0.58	2.35	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
732	48.78	2.94	0.59	2.35	0.77	0.391	1.36	0.288	0.85	1.00	0.338	No
733	48.83	2.94	0.59	2.35	0.76	0.391	1.36	0.288	0.85	1.00	0.338	No
734	48.91	2.94	0.59	2.35	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No
735	48.98	2.95	0.59	2.36	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
736	49.03	2.95	0.59	2.36	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
737	49.12	2.96	0.60	2.36	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
738	49.17	2.96	0.60	2.36	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
739	49.27	2.97	0.60	2.36	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
740	49.31	2.97	0.60	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
741	49.38	2.97	0.60	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
742	49.45	2.98	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
743	49.51	2.98	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
744	49.54	2.98	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
745	49.59	2.98	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
746	49.64	2.99	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
747	49.73	2.99	0.62	2.38	0.76	0.389	1.36	0.286	0.85	1.00	0.337	No
748	49.83	3.00	0.62	2.38	0.75	0.389	1.36	0.286	0.85	1.00	0.337	No
749	49.92	3.00	0.62	2.38	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
750	49.98	3.01	0.62	2.38	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
751	50.07	3.01	0.63	2.39	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
752	50.16	3.02	0.63	2.39	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
753	50.24	3.02	0.63	2.39	0.75	0.388	1.36	0.286	0.85	1.00	0.336	No
754	50.32	3.03	0.63	2.39	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
755	50.41	3.03	0.64	2.39	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
756	50.50	3.04	0.64	2.40	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
757	50.56	3.04	0.64	2.40	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
758	50.66	3.04	0.64	2.40	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
759	50.74	3.05	0.65	2.40	0.75	0.387	1.36	0.285	0.85	1.00	0.336	No
760	50.84	3.05	0.65	2.40	0.74	0.387	1.36	0.285	0.85	1.00	0.335	No
761	50.93	3.06	0.65	2.41	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
762	50.98	3.06	0.65	2.41	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
763	51.08	3.07	0.66	2.41	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
764	51.17	3.07	0.66	2.41	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
765	51.24	3.08	0.66	2.42	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
766	51.34	3.09	0.67	2.42	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
767	51.41	3.09	0.67	2.42	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
768	51.51	3.10	0.67	2.42	0.74	0.386	1.36	0.283	0.85	1.00	0.335	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	51.58	3.10	0.67	2.43	0.74	0.385	1.36	0.283	0.85	1.00	0.335	No
770	51.68	3.11	0.68	2.43	0.74	0.385	1.36	0.283	0.85	1.00	0.334	No
771	51.79	3.11	0.68	2.43	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
772	51.82	3.11	0.68	2.43	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
773	51.85	3.12	0.68	2.43	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
774	51.91	3.12	0.68	2.44	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
775	52.00	3.13	0.69	2.44	0.73	0.384	1.36	0.283	0.85	1.00	0.334	No
776	52.05	3.13	0.69	2.44	0.73	0.384	1.36	0.283	0.85	1.00	0.334	No
777	52.10	3.13	0.69	2.44	0.73	0.384	1.36	0.282	0.85	1.00	0.334	No
778	52.19	3.14	0.69	2.44	0.73	0.384	1.36	0.282	0.85	1.00	0.334	No
779	52.28	3.14	0.70	2.45	0.73	0.384	1.36	0.282	0.85	1.00	0.334	No
780	52.34	3.15	0.70	2.45	0.73	0.384	1.36	0.282	0.85	1.00	0.334	No
781	52.42	3.15	0.70	2.45	0.73	0.383	1.36	0.282	0.85	1.00	0.333	No
782	52.48	3.15	0.70	2.45	0.73	0.383	1.36	0.282	0.85	1.00	0.333	No
783	52.57	3.16	0.70	2.46	0.73	0.383	1.36	0.282	0.84	1.00	0.333	No
784	52.62	3.16	0.71	2.46	0.73	0.383	1.36	0.281	0.84	1.00	0.333	No
785	52.69	3.17	0.71	2.46	0.73	0.383	1.36	0.281	0.84	1.00	0.333	No
786	52.77	3.17	0.71	2.46	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
787	52.87	3.18	0.71	2.46	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
788	52.91	3.18	0.71	2.47	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
789	53.01	3.19	0.72	2.47	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
790	53.10	3.19	0.72	2.47	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
791	53.16	3.20	0.72	2.47	0.72	0.382	1.36	0.281	0.84	1.00	0.332	No
792	53.25	3.20	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
793	53.29	3.20	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
794	53.38	3.21	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
795	53.42	3.21	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
796	53.47	3.22	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
797	53.52	3.22	0.73	2.49	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
798	53.58	3.22	0.74	2.49	0.72	0.380	1.36	0.280	0.84	1.00	0.332	No
799	53.66	3.23	0.74	2.49	0.72	0.380	1.36	0.280	0.84	1.00	0.332	No
800	53.75	3.23	0.74	2.49	0.72	0.380	1.36	0.279	0.84	1.00	0.332	No
801	53.81	3.24	0.74	2.50	0.71	0.380	1.36	0.279	0.84	1.00	0.332	No
802	53.87	3.24	0.74	2.50	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
803	53.95	3.25	0.75	2.50	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
804	54.01	3.25	0.75	2.50	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
805	54.06	3.26	0.75	2.50	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
806	54.15	3.26	0.75	2.51	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
807	54.20	3.26	0.76	2.51	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
808	54.29	3.27	0.76	2.51	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
809	54.34	3.27	0.76	2.51	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
810	54.43	3.28	0.76	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
811	54.45	3.28	0.76	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
812	54.48	3.28	0.76	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
813	54.52	3.28	0.76	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
814	54.53	3.29	0.77	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
815	54.58	3.29	0.77	2.52	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
816	54.62	3.29	0.77	2.52	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	54.65	3.29	0.77	2.52	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
818	54.70	3.30	0.77	2.53	0.71	0.377	1.36	0.277	0.84	1.00	0.330	No
819	54.76	3.30	0.77	2.53	0.71	0.377	1.36	0.277	0.84	1.00	0.330	No
820	54.77	3.30	0.77	2.53	0.71	0.377	1.36	0.277	0.84	1.00	0.330	No
821	54.82	3.30	0.77	2.53	0.71	0.377	1.36	0.277	0.84	1.00	0.330	No
822	54.87	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
823	54.88	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
824	54.91	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
825	54.96	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
826	54.97	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
827	55.03	3.32	0.78	2.54	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
828	55.09	3.32	0.78	2.54	0.70	0.376	1.36	0.277	0.84	1.00	0.330	No
829	55.15	3.33	0.78	2.54	0.70	0.376	1.36	0.277	0.84	1.00	0.330	No
830	55.20	3.33	0.79	2.54	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
831	55.25	3.33	0.79	2.54	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
832	55.30	3.34	0.79	2.55	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
833	55.34	3.34	0.79	2.55	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
834	55.39	3.34	0.79	2.55	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
835	55.40	3.34	0.79	2.55	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
836	55.44	3.34	0.79	2.55	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
837	55.44	3.35	0.79	2.55	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
838	55.49	3.35	0.80	2.55	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
839	55.54	3.35	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
840	55.59	3.36	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
841	55.63	3.36	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
842	55.64	3.36	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
843	55.68	3.36	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
844	55.69	3.36	0.80	2.56	0.70	0.375	1.36	0.275	0.84	1.00	0.329	No
845	55.69	3.36	0.80	2.56	0.70	0.375	1.36	0.275	0.84	1.00	0.329	No
846	55.71	3.36	0.80	2.56	0.70	0.375	1.36	0.275	0.84	1.00	0.329	No
847	55.76	3.37	0.80	2.56	0.70	0.374	1.36	0.275	0.84	1.00	0.329	No
848	55.78	3.37	0.80	2.56	0.70	0.374	1.36	0.275	0.84	1.00	0.329	No
849	55.81	3.37	0.81	2.57	0.70	0.374	1.36	0.275	0.84	1.00	0.329	No
850	55.85	3.37	0.81	2.57	0.70	0.374	1.36	0.275	0.84	1.00	0.328	No
851	55.86	3.37	0.81	2.57	0.70	0.374	1.36	0.275	0.84	1.00	0.328	No
852	55.91	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
853	55.92	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
854	55.96	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
855	55.97	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
856	56.00	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
857	56.01	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
858	56.03	3.39	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
859	56.05	3.39	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
860	56.10	3.39	0.81	2.58	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
861	56.12	3.39	0.81	2.58	0.69	0.373	1.36	0.275	0.84	1.00	0.328	No
862	56.16	3.39	0.82	2.58	0.69	0.373	1.36	0.275	0.84	1.00	0.328	No
863	56.17	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
864	56.20	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	56.22	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
866	56.24	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
867	56.30	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
868	56.31	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
869	56.34	3.41	0.82	2.59	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
870	56.39	3.41	0.82	2.59	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
871	56.45	3.41	0.83	2.59	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
872	56.48	3.42	0.83	2.59	0.69	0.372	1.36	0.274	0.84	1.00	0.328	No
873	56.49	3.42	0.83	2.59	0.69	0.372	1.36	0.274	0.84	1.00	0.328	No
874	56.53	3.42	0.83	2.59	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
875	56.58	3.42	0.83	2.59	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
876	56.63	3.43	0.83	2.60	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
877	56.68	3.43	0.83	2.60	0.69	0.372	1.36	0.273	0.84	1.00	0.327	No
878	56.73	3.43	0.83	2.60	0.69	0.372	1.36	0.273	0.84	1.00	0.327	No
879	56.78	3.44	0.84	2.60	0.69	0.372	1.36	0.273	0.84	1.00	0.327	No
880	56.83	3.44	0.84	2.60	0.69	0.372	1.36	0.273	0.84	1.00	0.327	No
881	56.89	3.44	0.84	2.61	0.69	0.371	1.36	0.273	0.84	1.00	0.327	No
882	56.95	3.45	0.84	2.61	0.69	0.371	1.36	0.273	0.83	1.00	0.327	No
883	56.99	3.45	0.84	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
884	57.01	3.45	0.84	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
885	57.04	3.45	0.84	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
886	57.09	3.46	0.85	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
887	57.11	3.46	0.85	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
888	57.13	3.46	0.85	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
889	57.18	3.46	0.85	2.62	0.68	0.371	1.36	0.272	0.83	1.00	0.326	No
890	57.19	3.46	0.85	2.62	0.68	0.371	1.36	0.272	0.83	1.00	0.326	No
891	57.21	3.47	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
892	57.24	3.47	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
893	57.28	3.47	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
894	57.32	3.47	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
895	57.35	3.48	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
896	57.38	3.48	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
897	57.43	3.48	0.86	2.63	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
898	57.48	3.48	0.86	2.63	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
899	57.52	3.49	0.86	2.63	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
900	57.57	3.49	0.86	2.63	0.68	0.369	1.36	0.272	0.83	1.00	0.326	No
901	57.62	3.49	0.86	2.63	0.68	0.369	1.36	0.272	0.83	1.00	0.326	No
902	57.68	3.50	0.86	2.63	0.68	0.369	1.36	0.271	0.83	1.00	0.326	No
903	57.76	3.50	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.326	No
904	57.81	3.51	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.326	No
905	57.86	3.51	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
906	57.89	3.51	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
907	57.91	3.51	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
908	57.92	3.51	0.87	2.64	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
909	57.95	3.52	0.87	2.64	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
910	57.99	3.52	0.87	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
911	58.01	3.52	0.87	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
912	58.05	3.52	0.88	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	58.05	3.52	0.88	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
914	58.10	3.53	0.88	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
915	58.13	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
916	58.15	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
917	58.17	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
918	58.20	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
919	58.21	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
920	58.21	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
921	58.23	3.54	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
922	58.24	3.54	0.88	2.66	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
923	58.25	3.54	0.88	2.66	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
924	58.29	3.54	0.88	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
925	58.31	3.54	0.88	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
926	58.33	3.54	0.88	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
927	58.38	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
928	58.39	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
929	58.43	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
930	58.43	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
931	58.48	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
932	58.53	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
933	58.56	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
934	58.58	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
935	58.59	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
936	58.63	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
937	58.63	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
938	58.63	3.56	0.89	2.67	0.67	0.367	1.36	0.269	0.83	1.00	0.324	No
939	58.68	3.57	0.89	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
940	58.69	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
941	58.72	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
942	58.73	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
943	58.74	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
944	58.77	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
945	58.81	3.57	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
946	58.82	3.57	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
947	58.83	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
948	58.87	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
949	58.91	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
950	58.92	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
951	58.93	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
952	58.96	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
953	59.01	3.59	0.91	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
954	59.06	3.59	0.91	2.68	0.67	0.365	1.36	0.269	0.83	1.00	0.324	No
955	59.08	3.59	0.91	2.69	0.67	0.365	1.36	0.269	0.83	1.00	0.324	No
956	59.11	3.59	0.91	2.69	0.67	0.365	1.36	0.269	0.83	1.00	0.324	No
957	59.15	3.60	0.91	2.69	0.67	0.365	1.36	0.268	0.83	1.00	0.323	No
958	59.21	3.60	0.91	2.69	0.67	0.365	1.36	0.268	0.83	1.00	0.323	No
959	59.26	3.60	0.91	2.69	0.67	0.365	1.36	0.268	0.83	1.00	0.323	No
960	59.30	3.61	0.91	2.69	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	59.35	3.61	0.92	2.70	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
962	59.40	3.61	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
963	59.42	3.62	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
964	59.47	3.62	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
965	59.51	3.62	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
966	59.56	3.63	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
967	59.61	3.63	0.92	2.71	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
968	59.67	3.63	0.93	2.71	0.66	0.364	1.36	0.267	0.83	1.00	0.323	No
969	59.71	3.64	0.93	2.71	0.66	0.364	1.36	0.267	0.83	1.00	0.323	No
970	59.80	3.64	0.93	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.323	No
971	59.85	3.65	0.93	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
972	59.90	3.65	0.93	2.72	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
973	60.00	3.65	0.94	2.72	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
974	60.04	3.66	0.94	2.72	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
975	60.10	3.66	0.94	2.72	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
976	60.15	3.67	0.94	2.72	0.66	0.362	1.36	0.267	0.83	1.00	0.322	No
977	60.19	3.67	0.94	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
978	60.23	3.67	0.94	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
979	60.28	3.67	0.94	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
980	60.33	3.68	0.95	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
981	60.38	3.68	0.95	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
982	60.42	3.68	0.95	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
983	60.44	3.68	0.95	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
984	60.47	3.69	0.95	2.74	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
985	60.52	3.69	0.95	2.74	0.66	0.362	1.36	0.266	0.83	1.00	0.321	No
986	60.56	3.69	0.95	2.74	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
987	60.57	3.69	0.95	2.74	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
988	60.61	3.70	0.96	2.74	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
989	60.66	3.70	0.96	2.74	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
990	60.71	3.70	0.96	2.74	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
991	60.76	3.71	0.96	2.75	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
992	60.81	3.71	0.96	2.75	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
993	60.86	3.71	0.96	2.75	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
994	60.91	3.72	0.96	2.75	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
995	60.95	3.72	0.97	2.75	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
996	61.00	3.72	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
997	61.02	3.72	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
998	61.05	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
999	61.08	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1000	61.09	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1001	61.13	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1002	61.14	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1003	61.16	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1004	61.20	3.74	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
1005	61.23	3.74	0.97	2.76	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
1006	61.24	3.74	0.97	2.76	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
1007	61.29	3.74	0.98	2.77	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
1008	61.30	3.74	0.98	2.77	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	61.33	3.75	0.98	2.77	0.65	0.359	1.36	0.264	0.83	1.00	0.320	No
1010	61.38	3.75	0.98	2.77	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1011	61.43	3.75	0.98	2.77	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1012	61.48	3.76	0.98	2.77	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1013	61.53	3.76	0.98	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1014	61.56	3.76	0.98	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1015	61.58	3.76	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1016	61.59	3.76	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1017	61.62	3.76	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1018	61.63	3.77	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1019	61.67	3.77	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1020	61.71	3.77	0.99	2.78	0.65	0.358	1.36	0.264	0.82	1.00	0.320	No
1021	61.76	3.77	0.99	2.78	0.65	0.358	1.36	0.263	0.82	1.00	0.320	No
1022	61.81	3.78	0.99	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.320	No
1023	61.86	3.78	0.99	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.320	No
1024	61.87	3.78	0.99	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.320	No
1025	61.91	3.78	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1026	61.95	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1027	61.96	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1028	62.00	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1029	62.04	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1030	62.06	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1031	62.10	3.80	1.00	2.80	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1032	62.14	3.80	1.00	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1033	62.20	3.80	1.00	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1034	62.22	3.80	1.01	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1035	62.27	3.81	1.01	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1036	62.29	3.81	1.01	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1037	62.34	3.81	1.01	2.80	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
1038	62.39	3.82	1.01	2.81	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
1039	62.43	3.82	1.01	2.81	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
1040	62.49	3.82	1.01	2.81	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
1041	62.57	3.83	1.02	2.81	0.64	0.356	1.36	0.262	0.82	1.00	0.319	No
1042	62.68	3.84	1.02	2.82	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
1043	62.75	3.84	1.02	2.82	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
1044	62.87	3.85	1.03	2.82	0.64	0.356	1.36	0.261	0.82	1.00	0.318	No
1045	62.88	3.85	1.03	2.82	0.64	0.356	1.36	0.261	0.82	1.00	0.318	No
1046	62.89	3.85	1.03	2.82	0.64	0.356	1.36	0.261	0.82	1.00	0.318	No
1047	62.93	3.85	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1048	62.98	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1049	63.02	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1050	63.07	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1051	63.12	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1052	63.14	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1053	63.17	3.87	1.03	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1054	63.17	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1055	63.20	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1056	63.21	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1057	63.23	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1058	63.26	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1059	63.28	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1060	63.31	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1061	63.32	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1062	63.36	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1063	63.40	3.88	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.01	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
2	0.04	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
3	0.09	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
4	0.11	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
5	0.14	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
6	0.14	1.35	3.66	4.59	1.00	2.15	27.82	59.81	4.000	No	Yes	2.00
7	0.18	6.97	2.69	0.89	0.81	11.19	4.58	51.24	4.000	No	Yes	2.00
8	0.23	18.19	2.14	0.35	0.65	29.21	1.00	29.21	4.000	No	No	2.00
9	0.24	36.79	1.76	0.18	0.54	59.09	1.00	59.09	4.000	No	No	2.00
10	0.28	53.07	1.58	0.14	0.50	85.23	1.00	85.23	4.000	No	No	2.00
11	0.33	59.27	1.53	0.14	0.50	95.19	1.00	95.19	4.000	No	No	2.00
12	0.38	56.61	1.60	0.20	0.50	90.91	1.00	90.91	4.000	No	No	2.00
13	0.42	52.11	1.72	0.34	0.52	83.69	1.00	83.69	4.000	No	No	2.00
14	0.47	51.84	1.83	0.58	0.56	83.25	1.19	98.77	4.000	No	No	2.00
15	0.51	51.94	1.90	0.76	0.58	83.40	1.24	103.16	4.000	No	No	2.00
16	0.52	52.09	1.93	0.85	0.59	83.64	1.26	104.99	4.000	No	No	2.00
17	0.57	52.66	1.91	0.81	0.58	84.56	1.24	105.20	4.000	No	No	2.00
18	0.61	53.24	1.89	0.76	0.58	85.48	1.23	105.23	4.000	No	No	2.00
19	0.67	53.47	1.88	0.73	0.57	85.85	1.22	105.00	4.000	No	No	2.00
20	0.73	53.84	1.87	0.71	0.57	86.44	1.22	105.23	4.000	No	No	2.00
21	0.81	53.62	1.87	0.71	0.57	86.08	1.22	104.72	4.000	No	No	2.00
22	0.86	53.52	1.92	0.84	0.58	85.91	1.25	107.16	4.000	No	No	2.00
23	0.98	52.14	1.96	0.96	0.60	83.69	1.28	106.78	4.000	No	No	2.00
24	1.05	48.22	2.02	1.08	0.61	77.37	1.32	102.42	4.000	No	No	2.00
25	1.15	43.67	2.04	1.03	0.62	70.05	1.34	94.07	4.000	No	No	2.00
26	1.24	37.87	2.07	0.96	0.63	60.73	1.38	83.84	4.000	No	No	2.00
27	1.34	34.47	2.09	0.89	0.63	55.26	1.40	77.37	4.000	No	No	2.00
28	1.43	30.63	2.16	0.99	0.65	49.08	1.51	74.33	4.000	No	No	2.00
29	1.53	26.86	2.25	1.20	0.68	43.01	1.75	75.37	4.000	No	No	2.00
30	1.58	24.56	2.31	1.36	0.70	39.32	1.98	77.68	4.000	No	No	2.00
31	1.62	23.48	2.32	1.31	0.70	37.59	2.00	75.15	4.000	No	No	2.00
32	1.67	24.36	2.28	1.18	0.69	38.99	1.85	72.19	4.000	No	No	2.00
33	1.75	23.89	2.28	1.15	0.69	38.23	1.86	70.99	4.000	No	No	2.00
34	1.77	23.08	2.30	1.17	0.70	36.93	1.92	70.79	4.000	No	No	2.00
35	1.81	21.50	2.34	1.25	0.71	34.38	2.08	71.55	4.000	No	No	2.00
36	1.86	19.71	2.39	1.32	0.72	31.51	2.30	72.37	4.000	No	No	2.00
37	1.91	17.96	2.43	1.37	0.74	28.69	2.52	72.24	4.000	No	No	2.00
38	1.95	16.98	2.43	1.26	0.74	27.11	2.53	68.54	4.000	No	No	2.00
39	2.00	16.21	2.41	1.09	0.73	25.86	2.43	62.85	4.000	No	No	2.00
40	2.05	14.89	2.41	0.93	0.73	23.75	2.42	57.52	4.000	Yes	No	2.00
41	2.11	13.51	2.43	0.88	0.74	21.52	2.55	54.95	4.000	Yes	No	2.00
42	2.20	12.33	2.47	0.89	0.75	19.62	2.79	54.76	4.000	Yes	No	2.00
43	2.24	11.73	2.50	0.95	0.76	18.64	3.01	56.15	4.000	Yes	No	2.00
44	2.29	11.26	2.54	1.06	0.77	17.88	3.29	58.85	4.000	Yes	No	2.00
45	2.34	11.32	2.60	1.39	0.79	17.99	3.76	67.59	4.000	Yes	Yes	2.00
46	2.44	12.17	2.61	1.64	0.79	19.33	3.86	74.63	4.000	Yes	Yes	2.00
47	2.48	14.56	2.56	1.73	0.78	23.17	3.43	79.44	4.000	Yes	No	2.00
48	2.58	18.03	2.47	1.60	0.75	28.74	2.75	79.05	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	2.63	22.41	2.37	1.48	0.72	35.77	2.21	79.01	4.000	Yes	No	2.00
50	2.71	26.08	2.30	1.39	0.70	41.66	1.92	80.03	4.000	Yes	No	2.00
51	2.78	30.33	2.22	1.27	0.67	48.48	1.67	80.89	4.000	Yes	No	2.00
52	2.82	33.73	2.16	1.16	0.66	53.95	1.52	82.21	4.000	Yes	No	2.00
53	2.89	34.94	2.13	1.09	0.65	55.89	1.47	82.24	4.000	Yes	No	2.00
54	2.96	33.63	2.16	1.13	0.65	53.77	1.51	81.39	4.000	No	No	2.00
55	3.03	30.90	2.20	1.21	0.67	49.37	1.62	80.00	4.000	No	No	2.00
56	3.11	28.98	2.23	1.23	0.68	46.28	1.70	78.46	4.000	No	No	2.00
57	3.19	26.45	2.26	1.23	0.69	42.22	1.79	75.65	4.000	No	No	2.00
58	3.25	23.52	2.31	1.27	0.70	37.50	1.97	73.87	4.000	No	No	2.00
59	3.35	20.49	2.38	1.38	0.72	32.62	2.28	74.42	4.000	No	No	2.00
60	3.41	17.79	2.44	1.42	0.74	28.29	2.60	73.49	4.000	No	No	2.00
61	3.50	15.91	2.46	1.31	0.75	25.25	2.74	69.10	4.000	No	No	2.00
62	3.59	14.83	2.45	1.11	0.74	23.51	2.66	62.63	4.000	No	No	2.00
63	3.69	14.59	2.43	0.99	0.74	23.12	2.55	58.90	4.000	No	No	2.00
64	3.79	15.20	2.39	0.89	0.73	24.09	2.35	56.48	4.000	No	No	2.00
65	3.88	16.54	2.34	0.81	0.71	26.24	2.09	54.78	4.000	No	No	2.00
66	3.97	19.14	2.27	0.75	0.69	30.40	1.82	55.25	4.000	No	No	2.00
67	4.07	20.82	2.26	0.82	0.68	33.10	1.77	58.69	4.000	No	No	2.00
68	4.14	23.49	2.22	0.86	0.67	37.37	1.67	62.38	4.000	No	No	2.00
69	4.17	25.51	2.20	0.89	0.67	40.62	1.61	65.25	4.000	No	No	2.00
70	4.26	28.14	2.15	0.86	0.65	44.83	1.51	67.83	4.000	No	No	2.00
71	4.32	28.71	2.16	0.90	0.66	45.74	1.52	69.43	4.000	No	No	2.00
72	4.37	28.10	2.18	0.95	0.66	44.77	1.56	69.94	4.000	No	No	2.00
73	4.42	26.62	2.21	1.02	0.67	42.38	1.65	69.93	4.000	No	No	2.00
74	4.51	25.07	2.24	1.05	0.68	39.88	1.74	69.30	4.000	No	No	2.00
75	4.61	23.68	2.27	1.07	0.69	37.65	1.82	68.42	4.000	No	No	2.00
76	4.65	22.37	2.29	1.08	0.70	35.53	1.90	67.38	4.000	No	No	2.00
77	4.74	21.09	2.32	1.11	0.70	33.47	2.00	67.06	4.000	No	No	2.00
78	4.80	20.48	2.33	1.11	0.71	32.49	2.05	66.55	4.000	No	No	2.00
79	4.89	20.04	2.34	1.12	0.71	31.78	2.09	66.46	4.000	No	No	2.00
80	4.95	20.38	2.33	1.10	0.71	32.32	2.05	66.20	4.000	No	No	2.00
81	5.04	21.05	2.31	1.07	0.70	33.39	1.97	65.92	4.000	No	No	2.00
82	5.13	22.81	2.27	0.99	0.69	36.20	1.80	65.26	4.000	No	No	2.00
83	5.18	25.27	2.20	0.90	0.67	40.14	1.63	65.28	4.000	No	No	2.00
84	5.28	28.07	2.14	0.82	0.65	44.63	1.49	66.64	4.000	No	No	2.00
85	5.32	31.47	2.09	0.76	0.63	50.09	1.40	70.04	4.000	No	No	2.00
86	5.42	34.67	2.05	0.75	0.62	55.23	1.35	74.62	4.000	No	No	2.00
87	5.51	38.14	2.01	0.74	0.61	60.80	1.31	79.86	4.000	No	No	2.00
88	5.60	41.28	1.94	0.63	0.59	65.83	1.26	83.18	4.000	No	No	2.00
89	5.66	44.24	1.88	0.53	0.57	70.58	1.22	86.14	4.000	No	No	2.00
90	5.76	45.86	1.83	0.46	0.56	73.17	1.00	73.17	4.000	No	No	2.00
91	5.85	44.91	1.86	0.50	0.57	71.65	1.21	86.53	4.000	No	No	2.00
92	5.92	41.11	1.92	0.56	0.58	65.53	1.25	81.79	4.000	No	No	2.00
93	5.95	38.21	1.96	0.61	0.60	60.87	1.28	77.76	4.000	No	No	2.00
94	5.97	36.15	1.99	0.64	0.61	57.56	1.30	74.97	4.000	No	No	2.00
95	6.02	35.37	2.01	0.65	0.61	56.31	1.31	73.90	4.000	Yes	No	2.00
96	6.06	32.74	2.05	0.70	0.62	52.08	1.36	70.59	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	6.16	29.98	2.10	0.76	0.64	47.63	1.42	67.87	4.000	Yes	No	2.00
98	6.21	26.98	2.18	0.88	0.66	42.82	1.56	66.83	4.000	Yes	No	2.00
99	6.26	24.29	2.26	1.07	0.69	38.48	1.79	68.74	4.000	Yes	No	2.00
100	6.31	21.62	2.36	1.35	0.72	34.19	2.18	74.63	4.000	Yes	No	2.00
101	6.40	19.23	2.46	1.68	0.75	30.34	2.70	82.06	4.000	Yes	No	2.00
102	6.44	16.91	2.56	2.09	0.78	26.60	3.43	91.18	4.000	Yes	No	2.00
103	6.52	15.12	2.64	2.48	0.80	23.73	4.16	98.65	4.000	Yes	Yes	2.00
104	6.57	13.47	2.73	2.91	0.83	21.08	5.01	105.63	4.000	Yes	Yes	2.00
105	6.64	12.16	2.80	3.29	0.85	18.96	5.81	110.19	4.000	Yes	Yes	2.00
106	6.69	10.98	2.86	3.65	0.87	17.06	6.65	113.46	4.000	Yes	Yes	2.00
107	6.78	10.34	2.90	3.84	0.88	16.02	7.15	114.49	4.000	Yes	Yes	2.00
108	6.83	9.90	2.91	3.84	0.88	15.31	7.38	112.96	4.000	Yes	Yes	2.00
109	6.92	9.60	2.92	3.75	0.88	14.82	7.45	110.37	4.000	No	Yes	2.00
110	6.97	9.39	2.91	3.59	0.88	14.48	7.39	107.07	4.000	No	Yes	2.00
111	7.03	9.29	2.91	3.50	0.88	14.32	7.35	105.27	4.000	No	Yes	2.00
112	7.12	9.32	2.90	3.42	0.88	14.36	7.25	104.07	4.000	No	Yes	2.00
113	7.22	9.39	2.90	3.38	0.88	14.46	7.17	103.64	4.000	No	Yes	2.00
114	7.27	9.52	2.89	3.37	0.88	14.66	7.09	103.89	4.000	No	Yes	2.00
115	7.36	9.65	2.89	3.41	0.87	14.86	7.06	104.93	4.000	No	Yes	2.00
116	7.43	9.75	2.89	3.48	0.88	15.01	7.08	106.34	4.000	No	Yes	2.00
117	7.50	9.78	2.90	3.56	0.88	15.06	7.16	107.82	4.000	No	Yes	2.00
118	7.59	9.77	2.90	3.61	0.88	15.04	7.22	108.69	4.000	No	Yes	2.00
119	7.64	9.70	2.91	3.69	0.88	14.93	7.34	109.64	4.000	No	Yes	2.00
120	7.75	9.63	2.92	3.75	0.88	14.81	7.46	110.40	4.000	No	Yes	2.00
121	7.79	9.70	2.92	3.76	0.88	14.91	7.43	110.74	4.000	No	Yes	2.00
122	7.89	9.97	2.90	3.67	0.88	15.33	7.19	110.22	4.000	No	Yes	2.00
123	7.99	10.24	2.88	3.59	0.87	15.76	6.97	109.89	4.000	No	Yes	2.00
124	8.04	10.34	2.88	3.62	0.87	15.91	6.96	110.71	4.000	No	Yes	2.00
125	8.13	10.31	2.89	3.67	0.87	15.85	7.03	111.39	4.000	No	Yes	2.00
126	8.23	10.27	2.84	3.03	0.86	15.79	6.35	100.23	4.000	No	Yes	2.00
127	8.32	10.27	2.79	2.55	0.85	15.77	5.78	91.18	4.000	No	Yes	2.00
128	8.37	10.53	2.76	2.28	0.84	16.20	5.34	86.47	4.000	No	Yes	2.00
129	8.46	11.04	2.79	2.79	0.85	17.00	5.74	97.61	4.000	No	Yes	2.00
130	8.56	11.30	2.82	3.16	0.85	17.42	6.05	105.35	4.000	No	Yes	2.00
131	8.59	11.30	2.84	3.44	0.86	17.41	6.35	110.51	4.000	No	Yes	2.00
132	8.61	11.03	2.87	3.69	0.87	16.97	6.71	113.97	4.000	No	Yes	2.00
133	8.67	10.89	2.88	3.88	0.87	16.75	6.98	116.82	4.000	No	Yes	2.00
134	8.71	10.69	2.90	4.05	0.88	16.41	7.24	118.78	4.000	No	Yes	2.00
135	8.72	10.51	2.92	4.18	0.88	16.13	7.46	120.30	4.000	No	Yes	2.00
136	8.78	10.44	2.92	4.25	0.89	16.02	7.56	121.13	4.000	No	Yes	2.00
137	8.80	10.44	2.93	4.28	0.89	16.02	7.59	121.54	4.000	No	Yes	2.00
138	8.86	10.44	2.93	4.29	0.89	16.01	7.60	121.62	4.000	No	Yes	2.00
139	8.90	10.55	2.92	4.29	0.88	16.17	7.55	122.08	4.000	No	Yes	2.00
140	8.95	10.68	2.92	4.30	0.88	16.39	7.49	122.77	4.000	No	Yes	2.00
141	8.96	10.89	2.91	4.30	0.88	16.71	7.39	123.54	4.000	No	Yes	2.00
142	9.00	11.05	2.91	4.31	0.88	16.98	7.33	124.43	4.000	No	Yes	2.00
143	9.05	11.29	2.90	4.33	0.88	17.35	7.24	125.55	4.000	No	Yes	2.00
144	9.09	11.56	2.89	4.31	0.88	17.78	7.10	126.26	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	9.10	11.96	2.88	4.27	0.87	18.43	6.89	127.03	4.000	No	Yes	2.00
146	9.14	12.47	2.86	4.24	0.87	19.24	6.66	128.15	4.000	No	Yes	2.00
147	9.20	13.21	2.84	4.16	0.86	20.42	6.33	129.23	4.000	No	Yes	2.00
148	9.24	14.09	2.81	4.06	0.85	21.83	5.95	129.98	4.000	No	Yes	2.00
149	9.29	15.03	2.78	3.93	0.84	23.34	5.57	129.97	4.000	No	Yes	2.00
150	9.31	15.90	2.75	3.85	0.83	24.74	5.28	130.54	4.000	No	Yes	2.00
151	9.38	16.61	2.73	3.79	0.83	25.88	5.06	130.87	4.000	Yes	Yes	2.00
152	9.41	17.32	2.71	3.66	0.82	27.00	4.80	129.53	4.000	Yes	Yes	2.00
153	9.47	18.02	2.68	3.45	0.81	28.13	4.48	126.15	4.000	Yes	Yes	2.00
154	9.53	19.33	2.62	3.03	0.79	30.23	3.91	118.10	4.000	Yes	Yes	2.00
155	9.62	21.08	2.54	2.58	0.77	33.03	3.29	108.83	4.000	Yes	No	2.00
156	9.67	23.71	2.45	2.07	0.74	36.88	2.63	97.08	4.000	Yes	No	2.00
157	9.77	26.25	2.37	1.72	0.72	39.96	2.22	88.55	4.000	Yes	No	2.00
158	9.81	28.83	2.29	1.42	0.70	43.12	1.89	81.52	4.000	Yes	No	2.00
159	9.90	30.67	2.24	1.23	0.68	45.16	1.72	77.57	4.000	Yes	No	2.00
160	9.97	32.26	2.20	1.11	0.67	46.92	1.61	75.55	4.000	Yes	No	2.00
161	10.06	32.63	2.20	1.11	0.67	47.13	1.61	75.67	4.000	No	No	2.00
162	10.20	32.13	2.22	1.20	0.68	46.19	1.68	77.59	4.000	Yes	No	2.00
163	10.30	29.29	2.26	1.22	0.69	42.06	1.79	75.15	4.000	Yes	No	2.00
164	10.44	25.52	2.33	1.34	0.71	36.67	2.06	75.52	4.000	Yes	No	2.00
165	10.54	20.70	2.45	1.61	0.74	30.03	2.66	79.87	4.000	Yes	No	2.00
166	10.63	16.56	2.64	2.51	0.80	24.49	4.08	99.92	4.000	Yes	Yes	2.00
167	10.74	13.83	2.78	3.48	0.84	20.66	5.64	116.62	4.000	Yes	Yes	2.00
168	10.78	12.62	2.86	4.22	0.87	18.99	6.71	127.39	4.000	Yes	Yes	2.00
169	10.83	12.48	2.88	4.44	0.87	18.76	6.96	130.59	4.000	Yes	Yes	2.00
170	10.88	12.31	2.90	4.63	0.88	18.47	7.21	133.16	4.000	Yes	Yes	2.00
171	10.89	12.15	2.92	4.89	0.88	18.24	7.50	136.86	4.000	Yes	Yes	2.00
172	10.97	12.25	2.93	5.04	0.89	18.30	7.62	139.36	4.000	No	Yes	2.00
173	11.02	12.48	2.93	5.14	0.89	18.59	7.62	141.70	4.000	No	Yes	2.00
174	11.07	12.79	2.92	5.12	0.88	18.96	7.51	142.37	4.000	No	Yes	2.00
175	11.11	13.06	2.91	5.11	0.88	19.28	7.42	143.00	4.000	No	Yes	2.00
176	11.16	13.39	2.91	5.09	0.88	19.70	7.30	143.71	4.000	No	Yes	2.00
177	11.21	13.76	2.90	5.09	0.88	20.15	7.19	144.81	4.000	No	Yes	2.00
178	11.26	14.14	2.89	5.11	0.88	20.62	7.10	146.37	4.000	No	Yes	2.00
179	11.30	14.37	2.89	5.20	0.88	20.90	7.10	148.42	4.000	No	Yes	2.00
180	11.36	14.54	2.90	5.29	0.88	21.07	7.14	150.43	4.000	No	Yes	2.00
181	11.40	14.68	2.90	5.36	0.88	21.19	7.17	151.92	4.000	No	Yes	2.00
182	11.45	14.81	2.90	5.40	0.88	21.32	7.18	152.97	4.000	No	Yes	2.00
183	11.50	15.04	2.89	5.41	0.88	21.57	7.12	153.64	4.000	No	Yes	2.00
184	11.55	15.31	2.89	5.41	0.88	21.86	7.06	154.44	4.000	No	Yes	2.00
185	11.60	15.85	2.88	5.35	0.87	22.53	6.88	155.07	4.000	No	Yes	2.00
186	11.66	16.56	2.86	5.25	0.87	23.39	6.63	155.14	4.000	No	Yes	2.00
187	11.74	17.40	2.84	5.06	0.86	24.38	6.31	153.92	4.000	No	Yes	2.00
188	11.84	17.98	2.82	4.98	0.86	24.97	6.15	153.46	4.000	No	Yes	2.00
189	11.93	18.18	2.82	5.03	0.86	25.08	6.17	154.65	4.000	No	Yes	2.00
190	12.04	18.04	2.84	5.23	0.86	24.73	6.38	157.76	4.000	No	Yes	2.00
191	12.13	17.87	2.86	5.42	0.87	24.37	6.58	160.42	4.000	No	Yes	2.00
192	12.22	17.67	2.87	5.55	0.87	23.94	6.76	161.87	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	12.27	17.51	2.88	5.59	0.87	23.64	6.85	161.93	4.000	No	Yes	2.00
194	12.37	17.27	2.88	5.64	0.87	23.16	6.98	161.58	4.000	No	Yes	2.00
195	12.41	17.17	2.89	5.65	0.87	22.94	7.03	161.26	4.000	No	Yes	2.00
196	12.51	17.06	2.89	5.71	0.88	22.65	7.13	161.48	4.000	No	Yes	2.00
197	12.56	17.23	2.89	5.68	0.88	22.78	7.08	161.37	4.000	No	Yes	2.00
198	12.65	17.64	2.88	5.61	0.87	23.15	6.96	161.03	4.000	No	Yes	2.00
199	12.71	18.45	2.86	5.51	0.87	24.09	6.70	161.44	4.000	No	Yes	2.00
200	12.79	19.23	2.86	5.57	0.87	24.96	6.59	164.56	4.000	No	Yes	2.00
201	12.89	20.10	2.85	5.67	0.86	25.92	6.50	168.54	4.000	No	Yes	2.00
202	12.96	20.98	2.84	5.80	0.86	26.96	6.43	173.33	4.000	No	Yes	2.00
203	13.04	22.23	2.82	5.70	0.86	28.37	6.15	174.57	4.000	Yes	Yes	2.00
204	13.13	24.11	2.78	5.33	0.84	30.49	5.62	171.40	4.000	Yes	Yes	2.00
205	13.23	26.80	2.65	3.76	0.80	33.27	4.19	139.58	4.000	Yes	Yes	2.00
206	13.30	30.34	2.49	2.43	0.76	36.95	2.91	107.47	4.000	Yes	No	2.00
207	13.37	34.15	2.32	1.49	0.70	40.77	2.02	82.17	4.000	Yes	No	2.00
208	13.47	38.32	2.29	1.49	0.69	45.44	1.87	85.15	4.000	Yes	No	2.00
209	13.57	38.79	2.31	1.62	0.70	45.84	1.94	89.15	4.000	No	No	2.00
210	13.61	39.19	2.31	1.69	0.70	46.27	1.98	91.39	4.000	No	No	2.00
211	13.62	40.31	2.30	1.69	0.70	47.52	1.94	92.31	4.000	No	No	2.00
212	13.68	44.31	2.26	1.59	0.69	51.92	1.78	92.36	4.000	No	No	2.00
213	13.73	47.82	2.22	1.53	0.68	55.76	1.68	93.57	4.000	No	No	2.00
214	13.77	50.08	2.21	1.55	0.67	58.23	1.65	95.79	4.000	No	No	2.00
215	13.87	52.91	2.20	1.55	0.67	61.16	1.61	98.26	4.000	No	No	2.00
216	13.93	55.78	2.19	1.58	0.66	64.26	1.58	101.41	4.000	No	No	2.00
217	14.00	58.54	2.17	1.60	0.66	67.15	1.55	104.21	4.000	No	No	2.00
218	14.06	60.62	2.17	1.63	0.66	69.33	1.54	106.89	4.000	No	No	2.00
219	14.12	62.21	2.17	1.67	0.66	70.95	1.54	109.37	4.000	No	No	2.00
220	14.21	63.05	2.17	1.71	0.66	71.63	1.55	111.13	4.000	No	No	2.00
221	14.25	63.45	2.18	1.75	0.66	71.96	1.56	112.44	4.000	No	No	2.00
222	14.35	63.35	2.18	1.78	0.66	71.51	1.58	112.67	4.000	No	No	2.00
223	14.45	62.61	2.19	1.80	0.67	70.37	1.60	112.38	4.000	No	No	2.00
224	14.50	61.06	2.21	1.83	0.67	68.50	1.63	111.75	4.000	No	No	2.00
225	14.59	59.18	2.22	1.87	0.68	66.15	1.68	111.04	4.000	No	No	2.00
226	14.64	57.19	2.24	1.92	0.68	63.82	1.73	110.49	4.000	No	No	2.00
227	14.74	55.60	2.26	1.95	0.69	61.79	1.78	110.08	4.000	No	No	2.00
228	14.80	54.22	2.27	1.99	0.69	60.12	1.83	109.86	4.000	No	No	2.00
229	14.88	53.18	2.28	2.02	0.69	58.73	1.87	109.70	4.000	No	No	2.00
230	14.97	52.24	2.30	2.05	0.70	57.45	1.91	109.62	4.000	No	No	2.00
231	15.05	51.43	2.31	2.08	0.70	56.38	1.95	110.04	4.000	No	No	2.00
232	15.13	50.85	2.32	2.12	0.70	55.53	1.99	110.56	4.000	No	No	2.00
233	15.21	50.95	2.32	2.12	0.70	55.42	1.99	110.46	4.000	No	No	2.00
234	15.28	52.23	2.30	2.06	0.70	56.58	1.93	109.48	4.000	No	No	2.00
235	15.36	55.10	2.27	1.95	0.69	59.37	1.82	108.07	4.000	No	No	2.00
236	15.41	60.22	2.22	1.78	0.67	64.61	1.66	107.30	4.000	No	No	2.00
237	15.50	66.38	2.16	1.62	0.66	70.74	1.53	108.00	4.000	No	No	2.00
238	15.55	72.78	2.07	1.31	0.63	77.07	1.38	106.45	4.000	No	No	2.00
239	15.65	76.92	2.00	1.07	0.61	80.83	1.31	105.71	4.000	No	No	2.00
240	15.71	78.17	1.94	0.88	0.59	81.68	1.27	103.43	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	15.79	75.07	1.96	0.89	0.60	78.22	1.28	99.99	4.000	Yes	No	2.00
242	15.89	67.29	2.02	0.97	0.61	69.97	1.33	92.88	4.000	Yes	No	2.00
243	15.90	61.09	2.07	1.04	0.63	63.58	1.38	88.03	4.000	Yes	No	2.00
244	15.94	56.21	2.12	1.11	0.64	58.47	1.45	84.99	4.000	Yes	No	2.00
245	16.00	53.24	2.15	1.16	0.65	55.28	1.51	83.45	4.000	Yes	No	2.00
246	16.06	47.68	2.22	1.30	0.67	49.45	1.67	82.65	4.000	Yes	No	2.00
247	16.14	40.74	2.32	1.56	0.71	42.17	2.02	85.02	4.000	Yes	No	2.00
248	16.19	34.10	2.43	1.87	0.74	35.24	2.56	90.26	4.000	Yes	No	2.00
249	16.26	27.10	2.57	2.32	0.78	27.88	3.51	97.89	4.000	Yes	No	2.00
250	16.33	21.54	2.70	2.80	0.82	22.01	4.74	104.24	4.000	Yes	Yes	2.00
251	16.38	17.06	2.83	3.31	0.86	17.28	6.24	107.80	4.000	Yes	Yes	2.00
252	16.47	14.43	2.93	3.75	0.89	14.45	7.58	109.50	4.000	Yes	Yes	2.00
253	16.54	12.64	3.00	4.14	1.00	12.69	8.71	110.54	4.000	Yes	Yes	2.00
254	16.62	11.80	3.05	4.58	1.00	11.71	9.67	113.31	4.000	No	Yes	2.00
255	16.70	11.53	3.08	4.88	1.00	11.36	10.18	115.66	4.000	No	Yes	2.00
256	16.76	12.28	3.06	4.98	1.00	12.12	9.88	119.66	4.000	No	Yes	2.00
257	16.86	14.88	2.96	4.36	1.00	14.80	8.08	119.59	4.000	Yes	Yes	2.00
258	16.90	19.33	2.82	3.59	0.85	19.15	6.07	116.24	4.000	Yes	Yes	2.00
259	16.98	25.84	2.65	2.82	0.80	25.69	4.22	108.51	4.000	Yes	Yes	2.00
260	17.05	35.42	2.48	2.18	0.75	35.23	2.81	99.11	4.000	Yes	No	2.00
261	17.14	47.54	2.30	1.68	0.70	47.19	1.94	91.71	4.000	Yes	No	2.00
262	17.20	61.48	2.15	1.32	0.65	60.90	1.51	91.88	4.000	Yes	No	2.00
263	17.29	73.03	2.05	1.11	0.62	72.03	1.35	97.56	4.000	Yes	No	2.00
264	17.34	81.99	1.99	1.01	0.60	80.70	1.30	104.58	4.000	Yes	No	2.00
265	17.44	86.87	1.97	1.01	0.60	85.21	1.28	109.31	4.000	No	No	2.00
266	17.50	88.89	1.93	0.91	0.59	86.96	1.26	109.36	4.000	No	No	2.00
267	17.58	88.15	1.91	0.82	0.58	85.91	1.24	106.78	4.000	No	No	2.00
268	17.64	85.02	1.90	0.75	0.58	82.63	1.24	102.13	4.000	No	No	2.00
269	17.75	80.50	1.95	0.85	0.59	77.97	1.27	99.12	4.000	No	No	2.00
270	17.82	72.08	2.04	1.03	0.62	69.66	1.35	93.80	4.000	No	No	2.00
271	17.89	66.02	2.11	1.19	0.64	63.60	1.43	91.18	4.000	No	No	2.00
272	17.89	62.68	2.15	1.30	0.65	60.37	1.51	91.04	4.000	No	No	2.00
273	17.96	64.06	2.15	1.31	0.65	61.55	1.50	92.30	4.000	No	No	2.00
274	18.02	65.34	2.15	1.35	0.65	62.67	1.51	94.33	4.000	No	No	2.00
275	18.07	66.86	2.15	1.39	0.65	64.01	1.51	96.43	4.000	No	No	2.00
276	18.17	68.78	2.14	1.40	0.65	65.62	1.49	98.02	4.000	No	No	2.00
277	18.22	68.74	2.15	1.43	0.65	65.47	1.51	98.54	4.000	Yes	No	2.00
278	18.30	65.20	2.19	1.53	0.66	61.85	1.59	98.20	4.000	Yes	No	2.00
279	18.36	57.69	2.27	1.79	0.69	54.52	1.83	99.83	4.000	Yes	No	2.00
280	18.42	49.20	2.39	2.19	0.72	46.28	2.30	106.36	4.000	Yes	No	2.00
281	18.50	39.97	2.53	2.80	0.77	37.31	3.16	118.00	4.000	Yes	No	2.00
282	18.56	32.38	2.66	3.50	0.81	29.97	4.32	129.55	4.000	Yes	Yes	2.00
283	18.62	25.71	2.80	4.24	0.85	23.53	5.80	136.40	4.000	Yes	Yes	2.00
284	18.69	23.96	2.82	4.26	0.85	21.78	6.13	133.60	4.000	Yes	Yes	2.00
285	18.76	22.21	2.86	4.37	0.87	20.05	6.60	132.24	4.000	Yes	Yes	2.00
286	18.84	24.30	2.80	4.02	0.85	21.95	5.90	129.41	4.000	Yes	Yes	2.00
287	18.89	31.88	2.66	3.30	0.80	29.04	4.26	123.66	4.000	Yes	Yes	2.00
288	18.98	52.85	2.37	2.20	0.72	48.61	2.23	108.20	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	19.05	78.42	2.16	1.65	0.66	72.48	1.52	110.23	4.000	Yes	No	2.00
290	19.12	101.80	2.02	1.36	0.61	94.21	1.32	124.65	4.000	Yes	No	2.00
291	19.18	115.88	1.95	1.24	0.59	107.18	1.27	136.09	4.000	Yes	No	2.00
292	19.24	124.07	1.91	1.18	0.58	114.61	1.25	142.72	4.000	Yes	No	2.00
293	19.32	126.76	1.90	1.17	0.58	116.83	1.24	144.84	4.000	No	No	2.00
294	19.38	126.53	1.92	1.21	0.58	116.38	1.25	145.16	4.000	No	No	2.00
295	19.46	124.81	1.94	1.27	0.59	114.42	1.26	144.25	4.000	No	No	2.00
296	19.54	122.62	1.96	1.34	0.60	112.08	1.28	142.92	4.000	No	No	2.00
297	19.62	121.00	1.97	1.38	0.60	110.26	1.28	141.68	4.000	No	No	2.00
298	19.70	119.99	1.98	1.40	0.60	109.01	1.29	140.65	4.000	No	No	2.00
299	19.80	119.75	1.98	1.39	0.60	108.41	1.29	140.01	4.000	No	No	2.00
300	19.85	119.75	1.98	1.39	0.60	108.23	1.29	139.71	4.000	No	No	2.00
301	19.94	119.95	1.98	1.40	0.60	108.07	1.29	139.71	4.000	No	No	2.00
302	20.03	120.73	1.96	1.31	0.60	108.50	1.28	138.61	4.000	No	No	2.00
303	20.13	121.84	1.94	1.23	0.59	109.19	1.26	137.92	4.000	No	No	2.00
304	20.19	123.33	1.91	1.14	0.58	110.40	1.25	137.60	4.000	No	No	2.00
305	20.29	124.05	1.92	1.16	0.58	110.67	1.25	138.32	4.000	No	No	2.00
306	20.39	124.51	1.93	1.18	0.59	110.70	1.25	138.76	4.000	No	No	2.00
307	20.43	124.14	1.93	1.21	0.59	110.23	1.26	138.70	4.000	No	No	2.00
308	20.47	124.09	1.94	1.23	0.59	109.99	1.26	138.78	4.000	No	No	2.00
309	20.52	123.97	1.95	1.26	0.59	109.69	1.27	139.06	4.000	No	No	2.00
310	20.61	123.97	1.96	1.30	0.59	109.33	1.27	139.29	4.000	No	No	2.00
311	20.66	123.26	1.97	1.34	0.60	108.48	1.28	139.08	4.000	No	No	2.00
312	20.71	122.22	1.98	1.36	0.60	107.35	1.29	138.34	4.000	No	No	2.00
313	20.77	121.00	1.99	1.39	0.60	106.04	1.30	137.35	4.000	No	No	2.00
314	20.85	120.53	1.99	1.40	0.60	105.33	1.30	136.79	4.000	No	No	2.00
315	20.91	120.63	1.99	1.40	0.61	105.23	1.30	136.74	4.000	No	No	2.00
316	21.00	121.00	1.99	1.40	0.61	105.23	1.30	136.71	4.000	No	No	2.00
317	21.05	120.93	1.99	1.40	0.61	105.01	1.30	136.53	4.000	No	No	2.00
318	21.11	120.50	2.00	1.41	0.61	104.40	1.30	136.06	4.000	No	No	2.00
319	21.19	120.16	2.00	1.42	0.61	103.82	1.31	135.66	4.000	No	No	2.00
320	21.24	120.23	2.00	1.43	0.61	103.70	1.31	135.67	4.000	No	No	2.00
321	21.34	120.39	2.00	1.43	0.61	103.52	1.31	135.57	4.000	No	No	2.00
322	21.39	119.99	2.01	1.44	0.61	103.00	1.31	135.16	4.000	No	No	2.00
323	21.48	118.68	2.01	1.45	0.61	101.52	1.32	133.84	4.000	No	No	2.00
324	21.53	116.39	2.02	1.47	0.61	99.34	1.33	131.86	4.000	No	No	2.00
325	21.64	113.86	2.03	1.47	0.62	96.79	1.34	129.36	4.000	No	No	2.00
326	21.72	111.80	2.02	1.38	0.61	94.83	1.33	125.65	4.000	No	No	2.00
327	21.81	110.79	2.00	1.27	0.61	93.80	1.31	122.48	4.000	No	No	2.00
328	21.89	110.52	1.97	1.15	0.60	93.48	1.28	120.09	4.000	No	No	2.00
329	21.97	110.69	1.96	1.11	0.60	93.44	1.28	119.40	4.000	No	No	2.00
330	22.05	110.81	1.96	1.09	0.60	93.32	1.27	118.94	4.000	No	No	2.00
331	22.12	110.92	1.95	1.07	0.59	93.25	1.27	118.64	4.000	No	No	2.00
332	22.13	110.89	1.95	1.07	0.59	93.20	1.27	118.54	4.000	No	No	2.00
333	22.18	111.98	1.95	1.06	0.59	94.01	1.27	119.22	4.000	No	No	2.00
334	22.22	114.49	1.93	1.04	0.59	96.10	1.26	121.02	4.000	No	No	2.00
335	22.28	118.47	1.91	1.01	0.58	99.41	1.25	123.90	4.000	No	No	2.00
336	22.33	122.55	1.90	0.98	0.58	102.85	1.23	126.89	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	22.38	126.36	1.88	0.96	0.57	106.02	1.22	129.64	4.000	No	No	2.00
338	22.41	129.99	1.86	0.93	0.57	109.11	1.21	132.05	4.000	No	No	2.00
339	22.51	133.16	1.85	0.91	0.56	111.59	1.20	133.67	4.000	No	No	2.00
340	22.56	135.86	1.83	0.88	0.56	113.83	1.18	134.77	4.000	No	No	2.00
341	22.61	137.68	1.82	0.85	0.55	115.29	1.17	135.13	4.000	No	No	2.00
342	22.65	139.23	1.81	0.82	0.55	116.56	1.16	135.07	4.000	No	No	2.00
343	22.71	140.30	1.79	0.80	0.55	117.38	1.15	134.57	4.000	No	No	2.00
344	22.76	141.15	1.78	0.77	0.54	118.01	1.13	133.54	4.000	No	No	2.00
345	22.85	141.55	1.77	0.74	0.54	118.16	1.12	132.33	4.000	No	No	2.00
346	22.89	141.79	1.77	0.72	0.54	118.28	1.11	131.19	4.000	No	No	2.00
347	22.99	141.85	1.76	0.71	0.54	118.07	1.10	130.38	4.000	No	No	2.00
348	23.04	142.19	1.76	0.71	0.54	118.24	1.10	129.89	4.000	No	No	2.00
349	23.12	143.24	1.75	0.70	0.53	118.92	1.09	129.72	4.000	No	No	2.00
350	23.18	145.12	1.75	0.69	0.53	120.36	1.08	129.86	4.000	No	No	2.00
351	23.24	147.55	1.74	0.69	0.53	122.28	1.07	130.48	4.000	No	No	2.00
352	23.33	150.28	1.73	0.68	0.53	124.35	1.05	131.06	4.000	No	No	2.00
353	23.38	152.77	1.73	0.68	0.53	126.31	1.04	131.98	4.000	No	No	2.00
354	23.47	154.92	1.72	0.68	0.53	127.86	1.04	132.70	4.000	No	No	2.00
355	23.52	155.87	1.73	0.70	0.53	128.46	1.05	134.34	4.000	No	No	2.00
356	23.61	155.50	1.74	0.72	0.53	127.76	1.06	136.02	4.000	No	No	2.00
357	23.68	153.41	1.76	0.76	0.54	125.65	1.10	137.67	4.000	No	No	2.00
358	23.76	149.87	1.78	0.79	0.54	122.29	1.13	137.84	4.000	No	No	2.00
359	23.83	145.42	1.80	0.83	0.55	118.19	1.16	136.72	4.000	No	No	2.00
360	23.90	140.77	1.83	0.87	0.56	113.95	1.18	134.56	4.000	No	No	2.00
361	23.97	136.02	1.85	0.91	0.56	109.66	1.20	131.87	4.000	No	No	2.00
362	24.05	130.36	1.88	0.95	0.57	104.58	1.22	128.11	4.000	No	No	2.00
363	24.10	123.83	1.92	1.01	0.58	98.86	1.25	123.41	4.000	No	No	2.00
364	24.19	116.14	1.96	1.08	0.60	92.13	1.28	117.58	4.000	No	No	2.00
365	24.27	109.37	2.00	1.15	0.61	86.22	1.31	112.54	4.000	No	No	2.00
366	24.34	103.31	2.03	1.21	0.62	80.98	1.34	108.37	4.000	No	No	2.00
367	24.43	99.26	2.06	1.26	0.63	77.39	1.37	105.81	4.000	No	No	2.00
368	24.48	95.99	2.09	1.32	0.63	74.54	1.40	104.29	4.000	No	No	2.00
369	24.57	93.77	2.11	1.39	0.64	72.46	1.43	103.72	4.000	No	No	2.00
370	24.62	91.81	2.12	1.39	0.64	70.77	1.45	102.28	4.000	No	No	2.00
371	24.72	90.33	2.12	1.39	0.65	69.37	1.46	101.12	4.000	No	No	2.00
372	24.81	89.08	2.13	1.39	0.65	68.17	1.47	100.03	4.000	No	No	2.00
373	24.86	87.96	2.15	1.46	0.65	67.09	1.50	100.81	4.000	No	No	2.00
374	24.95	85.18	2.18	1.55	0.66	64.60	1.56	100.88	4.000	No	No	2.00
375	25.01	82.83	2.20	1.62	0.67	62.55	1.62	101.05	4.000	No	No	2.00
376	25.02	81.04	2.22	1.66	0.67	61.07	1.66	101.09	4.000	No	No	2.00
377	25.05	81.81	2.21	1.65	0.67	61.63	1.64	101.34	4.000	No	No	2.00
378	25.11	82.33	2.21	1.65	0.67	61.92	1.64	101.59	4.000	No	No	2.00
379	25.15	82.53	2.21	1.66	0.67	61.99	1.64	101.87	4.000	No	No	2.00
380	25.21	81.92	2.22	1.68	0.67	61.38	1.66	101.94	4.000	No	No	2.00
381	25.25	81.07	2.23	1.70	0.68	60.61	1.68	101.90	4.000	No	No	2.00
382	25.30	79.78	2.23	1.71	0.68	59.50	1.70	101.32	4.000	No	No	2.00
383	25.40	78.02	2.24	1.71	0.68	57.95	1.73	100.17	4.000	No	No	2.00
384	25.45	75.14	2.25	1.71	0.68	55.63	1.77	98.38	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	25.52	71.36	2.27	1.71	0.69	52.56	1.83	96.28	4.000	Yes	No	2.00
386	25.60	65.60	2.32	1.78	0.70	47.92	1.99	95.12	4.000	Yes	No	2.00
387	25.66	58.89	2.37	1.90	0.72	42.57	2.24	95.48	4.000	Yes	No	2.00
388	25.74	50.63	2.47	2.18	0.75	36.01	2.77	99.69	4.000	Yes	No	2.00
389	25.80	42.60	2.57	2.54	0.78	29.74	3.54	105.15	4.000	Yes	No	2.00
390	25.88	34.42	2.71	3.09	0.82	23.44	4.79	112.31	4.000	Yes	Yes	2.00
391	25.94	27.91	2.84	3.70	0.86	18.51	6.33	117.20	4.000	Yes	Yes	2.00
392	26.02	22.69	2.98	4.41	1.00	14.10	8.40	118.43	4.000	Yes	Yes	2.00
393	26.09	19.19	3.07	4.99	1.00	11.73	10.09	118.41	4.000	No	Yes	2.00
394	26.17	16.36	3.16	5.56	1.00	9.82	11.90	116.89	4.000	No	Yes	2.00
395	26.23	14.50	3.23	6.07	1.00	8.57	13.49	115.61	4.000	No	Yes	2.00
396	26.29	13.56	3.28	6.45	1.00	7.93	14.54	115.33	4.000	No	Yes	2.00
397	26.37	13.73	3.27	6.48	1.00	8.01	14.49	116.10	4.000	No	Yes	2.00
398	26.46	14.95	3.23	6.22	1.00	8.78	13.45	118.10	4.000	No	Yes	2.00
399	26.55	16.56	3.18	5.88	1.00	9.80	12.25	120.00	4.000	No	Yes	2.00
400	26.60	18.04	3.14	5.67	1.00	10.74	11.37	122.14	4.000	No	Yes	2.00
401	26.70	18.79	3.12	5.69	1.00	11.18	11.11	124.24	4.000	No	Yes	2.00
402	26.78	19.09	3.12	5.78	1.00	11.34	11.11	125.96	4.000	No	Yes	2.00
403	26.87	19.16	3.10	5.28	1.00	11.34	10.61	120.33	4.000	No	Yes	2.00
404	26.94	19.06	3.05	4.41	1.00	11.25	9.74	109.55	4.000	No	Yes	2.00
405	27.03	18.62	3.03	3.81	1.00	10.92	9.23	100.80	4.000	No	Yes	2.00
406	27.13	17.84	3.05	3.86	1.00	10.38	9.61	99.83	4.000	No	Yes	2.00
407	27.18	15.89	3.14	4.63	1.00	9.12	11.41	104.10	4.000	No	Yes	2.00
408	27.27	14.61	3.20	5.14	1.00	8.27	12.75	105.48	4.000	No	Yes	2.00
409	27.32	14.00	3.23	5.49	1.00	7.87	13.55	106.67	4.000	No	Yes	2.00
410	27.37	14.68	3.21	5.36	1.00	8.28	12.99	107.59	4.000	No	Yes	2.00
411	27.41	15.01	3.20	5.40	1.00	8.48	12.84	108.89	4.000	No	Yes	2.00
412	27.46	15.01	3.21	5.56	1.00	8.47	13.04	110.36	4.000	No	Yes	2.00
413	27.51	15.19	3.22	5.71	1.00	8.56	13.12	112.25	4.000	No	Yes	2.00
414	27.61	15.69	3.21	5.85	1.00	8.84	13.00	114.96	4.000	No	Yes	2.00
415	27.66	16.81	3.20	6.07	1.00	9.52	12.66	120.53	4.000	No	Yes	2.00
416	27.73	19.30	3.15	6.09	1.00	11.05	11.59	128.02	4.000	No	Yes	2.00
417	27.80	22.77	3.09	6.16	1.00	13.18	10.46	137.91	4.000	No	Yes	2.00
418	27.88	26.51	3.05	6.33	1.00	15.46	9.62	148.75	4.000	No	Yes	2.00
419	27.96	28.73	3.04	6.73	1.00	16.78	9.46	158.82	4.000	No	Yes	2.00
420	28.04	29.44	3.06	7.42	1.00	17.16	9.86	169.19	4.000	No	Yes	2.00
421	28.12	29.30	3.09	8.01	1.00	17.02	10.34	175.99	4.000	No	Yes	2.00
422	28.18	29.78	3.09	8.32	1.00	17.27	10.47	180.83	4.000	No	Yes	2.00
423	28.27	30.99	3.07	8.13	1.00	17.95	10.11	181.45	4.000	No	Yes	2.00
424	28.32	32.84	3.04	7.81	1.00	19.04	9.54	181.70	4.000	No	Yes	2.00
425	28.42	34.90	3.01	7.49	1.00	20.22	8.98	181.66	4.000	No	Yes	2.00
426	28.47	37.02	2.99	7.35	1.00	21.47	8.57	183.98	4.000	No	Yes	2.00
427	28.61	38.87	2.97	7.32	1.00	22.47	8.32	186.93	4.000	No	Yes	2.00
428	28.67	40.79	2.96	7.36	1.00	23.57	8.10	190.99	4.000	Yes	Yes	2.00
429	28.75	43.62	2.91	7.10	0.88	26.58	7.37	195.90	4.000	Yes	Yes	2.00
430	28.81	49.52	2.83	6.35	0.86	30.58	6.28	192.19	4.000	Yes	Yes	2.00
431	28.90	59.16	2.72	5.28	0.82	37.21	4.89	181.92	4.000	Yes	Yes	2.00
432	29.00	70.68	2.60	4.38	0.79	45.27	3.75	169.71	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	29.05	82.68	2.50	3.72	0.76	53.82	2.95	158.84	4.000	Yes	No	2.00
434	29.10	92.58	2.42	3.28	0.73	60.99	2.48	151.03	4.000	Yes	No	2.00
435	29.15	101.07	2.35	2.88	0.71	67.24	2.13	143.11	4.000	Yes	No	2.00
436	29.24	105.88	2.30	2.58	0.70	70.82	1.92	136.02	4.000	Yes	No	2.00
437	29.29	107.45	2.26	2.31	0.69	72.19	1.78	128.66	4.000	Yes	No	2.00
438	29.37	106.66	2.23	2.12	0.68	71.76	1.71	122.57	4.000	Yes	No	2.00
439	29.43	105.44	2.21	1.94	0.67	71.05	1.64	116.77	4.000	Yes	No	2.00
440	29.53	104.90	2.19	1.79	0.66	70.72	1.59	112.38	4.000	No	No	2.00
441	29.62	104.73	2.17	1.69	0.66	70.61	1.55	109.62	4.000	No	No	2.00
442	29.68	104.75	2.15	1.58	0.65	70.73	1.51	106.89	4.000	No	No	2.00
443	29.80	104.42	2.15	1.54	0.65	70.36	1.50	105.63	4.000	No	No	2.00
444	29.91	103.80	2.15	1.52	0.65	69.74	1.50	104.61	4.000	No	No	2.00
445	30.00	99.10	2.19	1.66	0.66	65.97	1.59	104.86	0.187	No	No	0.61
446	30.07	97.42	2.21	1.72	0.67	64.55	1.63	105.36	0.189	No	No	0.62
447	30.15	96.27	2.22	1.75	0.67	63.56	1.66	105.54	0.189	No	No	0.62
448	30.21	99.04	2.20	1.70	0.67	65.49	1.62	105.77	0.190	No	No	0.62
449	30.26	98.71	2.20	1.71	0.67	65.16	1.62	105.66	0.190	No	No	0.62
450	30.31	97.50	2.21	1.73	0.67	64.21	1.64	105.39	0.189	No	No	0.61
451	30.38	95.52	2.22	1.75	0.67	62.65	1.67	104.86	0.187	No	No	0.61
452	30.45	92.62	2.24	1.79	0.68	60.44	1.72	104.23	0.185	No	No	0.60
453	30.50	89.12	2.26	1.84	0.69	57.84	1.79	103.72	0.184	No	No	0.60
454	30.55	84.94	2.29	1.88	0.69	54.79	1.88	102.88	0.181	No	No	0.59
455	30.64	81.19	2.31	1.91	0.70	52.03	1.96	101.83	0.178	No	No	0.58
456	30.70	77.93	2.32	1.91	0.70	49.71	2.01	100.16	0.173	No	No	0.56
457	30.79	76.04	2.33	1.90	0.71	48.30	2.05	98.96	0.170	No	No	0.55
458	30.84	75.47	2.33	1.88	0.71	47.86	2.05	98.19	0.168	No	No	0.54
459	30.93	76.95	2.32	1.86	0.70	48.79	2.01	98.05	0.168	No	No	0.54
460	30.98	80.15	2.30	1.81	0.70	50.98	1.93	98.14	0.168	No	No	0.54
461	31.05	85.34	2.27	1.76	0.69	54.54	1.81	98.98	0.170	No	No	0.55
462	31.13	91.57	2.24	1.70	0.68	58.82	1.71	100.51	0.174	No	No	0.56
463	31.17	100.46	2.19	1.61	0.66	65.08	1.58	102.97	0.182	No	No	0.58
464	31.27	110.94	2.13	1.49	0.65	72.52	1.47	106.25	0.192	No	No	0.61
465	31.32	123.23	2.06	1.34	0.63	81.52	1.37	111.37	0.208	No	No	0.67
466	31.41	133.45	2.00	1.21	0.61	89.03	1.31	116.56	0.227	No	No	0.73
467	31.46	140.90	1.96	1.11	0.60	94.67	1.28	120.72	0.244	No	No	0.78
468	31.52	144.37	1.93	1.03	0.59	97.40	1.26	122.24	0.250	No	No	0.80
469	31.61	145.01	1.91	0.97	0.58	97.95	1.24	121.83	0.248	No	No	0.79
470	31.66	142.15	1.91	0.95	0.58	95.90	1.24	119.20	0.238	No	No	0.76
471	31.75	136.69	1.93	0.97	0.59	91.66	1.26	115.29	0.223	No	No	0.71
472	31.80	129.14	1.98	1.06	0.60	85.76	1.29	110.68	0.206	No	No	0.66
473	31.90	122.00	2.02	1.16	0.62	80.16	1.33	106.52	0.192	No	No	0.61
474	31.94	116.84	2.06	1.24	0.63	76.18	1.37	104.07	0.185	No	No	0.59
475	32.04	116.03	2.07	1.27	0.63	75.33	1.38	104.00	0.185	No	No	0.59
476	32.09	119.17	2.08	1.34	0.63	77.25	1.39	107.23	0.195	No	No	0.62
477	32.20	118.70	2.11	1.46	0.64	76.38	1.43	109.06	0.201	No	No	0.63
478	32.24	117.72	2.13	1.56	0.65	75.37	1.47	110.44	0.205	No	No	0.65
479	32.28	114.69	2.15	1.64	0.65	73.02	1.51	110.26	0.205	No	No	0.65
480	32.29	116.70	2.14	1.62	0.65	74.43	1.49	111.09	0.207	No	No	0.66

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	32.30	118.93	2.13	1.60	0.65	75.98	1.47	112.06	0.211	No	No	0.67
482	32.40	120.51	2.13	1.59	0.65	76.91	1.47	112.71	0.213	No	No	0.67
483	32.45	120.48	2.13	1.61	0.65	76.77	1.47	112.95	0.214	No	No	0.67
484	32.55	119.13	2.14	1.63	0.65	75.61	1.49	112.51	0.212	No	No	0.67
485	32.59	118.33	2.15	1.66	0.65	74.91	1.50	112.50	0.212	No	No	0.67
486	32.69	118.13	2.15	1.68	0.65	74.54	1.51	112.79	0.213	No	No	0.67
487	32.76	118.09	2.16	1.72	0.66	74.31	1.53	113.51	0.216	No	No	0.68
488	32.84	118.40	2.17	1.75	0.66	74.31	1.54	114.35	0.219	No	No	0.69
489	32.90	119.00	2.17	1.77	0.66	74.55	1.55	115.19	0.222	No	No	0.70
490	32.98	119.95	2.17	1.78	0.66	75.02	1.54	115.83	0.225	No	No	0.70
491	33.06	121.02	2.17	1.78	0.66	75.61	1.54	116.33	0.226	No	No	0.71
492	33.12	122.10	2.16	1.78	0.66	76.23	1.53	116.77	0.228	No	No	0.71
493	33.22	122.84	2.16	1.78	0.66	76.56	1.53	117.03	0.229	No	No	0.72
494	33.31	123.21	2.16	1.78	0.66	76.64	1.53	117.14	0.229	No	No	0.72
495	33.37	123.28	2.16	1.78	0.66	76.59	1.53	117.11	0.229	No	No	0.72
496	33.46	123.28	2.16	1.78	0.66	76.41	1.53	117.00	0.229	No	No	0.71
497	33.55	123.18	2.17	1.79	0.66	76.17	1.54	117.00	0.229	No	No	0.71
498	33.65	122.98	2.17	1.80	0.66	75.83	1.54	117.07	0.229	No	No	0.71
499	33.70	122.57	2.17	1.82	0.66	75.42	1.55	117.18	0.230	No	No	0.71
500	33.79	122.03	2.18	1.84	0.66	74.86	1.56	117.10	0.229	No	No	0.71
501	33.89	121.09	2.18	1.85	0.66	74.04	1.58	116.76	0.228	No	No	0.71
502	33.99	119.77	2.19	1.86	0.67	72.98	1.59	116.20	0.226	No	No	0.70
503	34.04	117.79	2.20	1.88	0.67	71.55	1.61	115.43	0.223	No	No	0.69
504	34.13	115.49	2.21	1.89	0.67	69.85	1.64	114.59	0.220	No	No	0.68
505	34.23	112.70	2.22	1.92	0.68	67.80	1.68	113.76	0.217	No	No	0.67
506	34.32	110.27	2.24	1.95	0.68	66.01	1.71	113.20	0.215	No	No	0.66
507	34.37	108.22	2.25	1.98	0.68	64.55	1.75	112.84	0.214	No	No	0.66
508	34.47	106.60	2.26	2.00	0.69	63.31	1.78	112.69	0.213	No	No	0.66
509	34.55	103.47	2.28	2.07	0.69	61.05	1.85	112.96	4.000	Yes	No	2.00
510	34.63	96.66	2.33	2.24	0.71	56.31	2.04	114.64	4.000	Yes	No	2.00
511	34.73	86.37	2.40	2.51	0.73	49.33	2.40	118.21	4.000	Yes	No	2.00
512	34.80	72.76	2.51	2.91	0.76	40.42	3.06	123.59	4.000	Yes	No	2.00
513	34.90	60.46	2.62	3.30	0.79	32.62	3.90	127.28	4.000	Yes	Yes	2.00
514	35.00	54.92	2.64	3.21	0.80	29.29	4.16	121.79	3.600	No	Yes	2.00
515	35.12	50.37	2.67	3.15	0.81	26.54	4.42	117.31	3.600	No	Yes	2.00
516	35.20	52.86	2.63	2.87	0.80	28.11	3.99	112.19	3.600	No	Yes	2.00
517	35.33	53.65	2.63	2.95	0.80	28.43	4.02	114.42	4.000	Yes	Yes	2.00
518	35.41	63.41	2.53	2.60	0.77	34.44	3.20	110.34	4.000	Yes	No	2.00
519	35.44	68.58	2.48	2.43	0.75	37.68	2.87	108.02	4.000	Yes	No	2.00
520	35.48	76.82	2.41	2.17	0.73	42.96	2.42	103.82	4.000	Yes	No	2.00
521	35.57	84.09	2.35	1.98	0.71	47.63	2.12	101.05	4.000	Yes	No	2.00
522	35.62	98.70	2.24	1.69	0.68	57.30	1.73	98.99	4.000	Yes	No	2.00
523	35.67	115.40	2.14	1.46	0.65	68.51	1.49	102.07	4.000	Yes	No	2.00
524	35.71	137.52	2.04	1.30	0.62	83.52	1.35	112.52	4.000	Yes	No	2.00
525	35.82	159.89	1.96	1.19	0.60	98.71	1.28	126.36	4.000	Yes	No	2.00
526	35.86	185.11	1.89	1.12	0.58	116.11	1.23	143.07	4.000	Yes	No	2.00
527	35.93	207.72	1.84	1.06	0.56	131.80	1.19	156.85	4.000	Yes	No	2.00
528	36.01	225.38	1.80	1.04	0.55	144.00	1.16	166.33	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	36.06	235.57	1.79	1.04	0.54	150.92	1.14	171.69	4.000	Yes	No	2.00
530	36.12	240.67	1.78	1.05	0.54	154.12	1.13	174.89	0.578	No	No	1.75
531	36.18	245.05	1.79	1.08	0.54	156.73	1.14	178.20	0.606	No	No	1.84
532	36.25	248.69	1.79	1.10	0.54	158.84	1.14	180.98	0.631	No	No	1.91
533	36.30	251.52	1.80	1.14	0.55	160.26	1.15	184.12	0.661	No	No	2.00
534	36.39	252.83	1.81	1.17	0.55	160.54	1.16	185.99	0.678	No	No	2.00
535	36.44	253.07	1.82	1.21	0.55	160.15	1.17	187.57	0.694	No	No	2.00
536	36.53	251.49	1.83	1.25	0.56	158.45	1.18	187.51	0.693	No	No	2.00
537	36.59	248.39	1.86	1.34	0.57	155.45	1.21	187.43	0.692	No	No	2.00
538	36.68	243.47	1.87	1.37	0.57	151.62	1.22	184.49	0.664	No	No	2.00
539	36.75	238.34	1.88	1.38	0.57	147.93	1.22	180.99	0.631	No	No	1.91
540	36.83	232.04	1.88	1.34	0.57	143.78	1.22	175.91	0.586	No	No	1.77
541	36.90	225.27	1.89	1.35	0.58	138.95	1.23	171.34	0.548	No	No	1.65
542	36.97	217.18	1.92	1.39	0.58	133.11	1.25	166.05	0.506	No	No	1.53
543	37.02	201.72	1.96	1.49	0.60	122.19	1.28	156.23	0.435	No	No	1.31
544	37.04	193.70	1.99	1.53	0.60	116.64	1.30	151.13	0.401	No	No	1.21
545	37.08	188.61	2.00	1.54	0.61	113.19	1.30	147.61	0.379	No	No	1.14
546	37.17	191.78	1.97	1.46	0.60	115.46	1.29	148.65	0.385	No	No	1.16
547	37.27	187.30	1.98	1.44	0.60	112.45	1.29	145.04	0.364	No	No	1.09
548	37.37	181.37	1.99	1.43	0.60	108.42	1.30	140.68	0.339	No	No	1.02
549	37.42	177.21	1.99	1.39	0.60	105.83	1.30	137.22	0.320	No	No	0.96
550	37.51	175.89	1.97	1.32	0.60	105.19	1.29	135.25	0.310	No	No	0.93
551	37.58	176.97	1.95	1.22	0.59	106.34	1.27	134.76	0.308	No	No	0.92
552	37.66	179.01	1.92	1.13	0.58	108.07	1.25	135.08	0.309	No	No	0.93
553	37.76	182.58	1.89	1.05	0.57	110.83	1.23	136.26	0.315	No	No	0.95
554	37.85	186.08	1.86	0.97	0.57	113.57	1.21	137.18	0.320	No	No	0.96
555	37.93	189.62	1.84	0.92	0.56	116.22	1.19	138.14	0.325	No	No	0.97
556	38.04	192.25	1.82	0.89	0.55	117.99	1.18	138.80	0.329	No	No	0.98
557	38.13	193.87	1.82	0.88	0.55	118.97	1.17	139.30	0.331	No	No	0.99
558	38.18	193.57	1.82	0.88	0.55	118.63	1.17	139.16	0.331	No	No	0.99
559	38.28	191.24	1.84	0.92	0.56	116.58	1.19	138.51	0.327	No	No	0.98
560	38.37	187.40	1.86	0.97	0.57	113.37	1.21	137.08	0.320	No	No	0.95
561	38.47	183.55	1.89	1.06	0.58	109.99	1.23	135.63	0.312	No	No	0.93
562	38.57	180.39	1.92	1.13	0.58	107.19	1.25	134.14	0.304	No	No	0.91
563	38.62	176.78	1.95	1.21	0.59	104.23	1.27	132.48	0.296	No	No	0.88
564	38.72	167.48	2.00	1.33	0.61	97.43	1.31	127.27	0.272	No	No	0.81
565	38.78	160.21	2.04	1.42	0.62	92.19	1.34	123.72	0.256	No	No	0.76
566	38.81	155.32	2.06	1.49	0.63	88.77	1.37	121.63	0.247	No	No	0.74
567	38.86	155.19	2.07	1.50	0.63	88.54	1.37	121.68	0.248	No	No	0.74
568	38.91	152.02	2.08	1.55	0.63	86.27	1.40	120.51	0.243	No	No	0.72
569	38.95	145.92	2.12	1.64	0.64	82.06	1.44	118.55	0.235	No	No	0.70
570	39.05	139.55	2.15	1.74	0.65	77.66	1.51	116.91	0.229	No	No	0.68
571	39.09	132.37	2.19	1.84	0.66	72.88	1.59	115.64	0.224	No	No	0.67
572	39.14	125.06	2.23	1.95	0.68	68.10	1.69	114.83	0.221	No	No	0.66
573	39.24	118.19	2.26	2.05	0.69	63.61	1.80	114.32	0.219	No	No	0.65
574	39.29	112.16	2.30	2.14	0.70	59.80	1.91	114.03	0.218	No	No	0.65
575	39.39	108.48	2.32	2.20	0.70	57.39	1.99	114.16	0.218	No	No	0.65
576	39.43	109.15	2.31	2.19	0.70	57.74	1.98	114.28	0.219	No	No	0.65

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	39.53	115.02	2.28	2.10	0.69	61.25	1.86	113.89	0.217	No	No	0.65
578	39.57	124.17	2.23	1.94	0.68	67.01	1.69	113.55	0.216	No	No	0.64
579	39.68	130.64	2.19	1.83	0.67	71.04	1.60	113.69	0.217	No	No	0.64
580	39.73	131.95	2.19	1.80	0.66	71.83	1.58	113.53	0.216	No	No	0.64
581	39.81	129.33	2.20	1.81	0.67	70.10	1.60	112.48	0.212	No	No	0.63
582	39.89	126.37	2.19	1.75	0.67	68.39	1.60	109.51	0.202	No	No	0.60
583	39.96	125.26	2.18	1.63	0.66	68.01	1.56	105.89	0.190	No	No	0.56
584	40.06	124.52	2.16	1.53	0.66	67.75	1.52	103.14	0.182	No	No	0.54
585	40.15	122.70	2.17	1.55	0.66	66.50	1.54	102.38	0.180	No	No	0.53
586	40.20	114.41	2.22	1.70	0.67	61.03	1.67	102.07	0.179	No	No	0.53
587	40.24	108.56	2.26	1.81	0.69	57.23	1.79	102.62	0.181	No	No	0.53
588	40.26	104.17	2.29	1.90	0.70	54.45	1.90	103.22	0.182	No	No	0.54
589	40.27	107.91	2.27	1.85	0.69	56.72	1.82	103.36	0.183	No	No	0.54
590	40.37	109.77	2.26	1.84	0.69	57.73	1.80	103.81	0.184	No	No	0.55
591	40.42	111.64	2.26	1.85	0.69	58.75	1.78	104.71	0.187	No	No	0.55
592	40.52	112.38	2.26	1.87	0.69	59.02	1.79	105.44	0.189	No	No	0.56
593	40.56	115.27	2.25	1.87	0.68	60.66	1.76	106.63	0.193	No	No	0.57
594	40.66	122.24	2.22	1.81	0.67	64.78	1.67	108.06	0.197	No	No	0.58
595	40.70	131.54	2.18	1.74	0.66	70.42	1.57	110.67	0.206	No	No	0.61
596	40.75	142.59	2.14	1.67	0.65	77.15	1.49	114.79	0.221	No	No	0.65
597	40.85	153.40	2.11	1.63	0.64	83.66	1.43	119.75	0.240	No	No	0.71
598	40.91	164.05	2.08	1.59	0.63	90.16	1.39	125.10	0.262	No	No	0.77
599	40.96	174.69	2.04	1.53	0.62	96.83	1.35	130.56	0.287	No	No	0.85
600	41.04	184.27	2.01	1.47	0.61	102.87	1.32	135.59	0.312	No	No	0.92
601	41.09	193.94	1.98	1.41	0.60	109.10	1.29	141.03	0.341	No	No	1.01
602	41.18	201.90	1.96	1.36	0.60	114.17	1.28	145.57	0.367	No	No	1.08
603	41.23	207.97	1.94	1.33	0.59	118.08	1.26	149.12	0.388	No	No	1.15
604	41.29	211.58	1.93	1.31	0.59	120.37	1.26	151.17	0.401	No	No	1.19
605	41.38	212.76	1.93	1.30	0.59	120.98	1.25	151.67	0.404	No	No	1.19
606	41.42	212.09	1.93	1.31	0.59	120.40	1.26	151.21	0.402	No	No	1.19
607	41.52	210.03	1.94	1.33	0.59	118.76	1.26	149.86	0.393	No	No	1.16
608	41.57	207.27	1.95	1.36	0.59	116.72	1.27	148.26	0.383	No	No	1.13
609	41.62	204.91	1.96	1.40	0.60	114.93	1.28	146.93	0.375	No	No	1.11
610	41.71	203.13	1.97	1.43	0.60	113.45	1.29	145.89	0.369	No	No	1.09
611	41.76	202.15	1.98	1.45	0.60	112.60	1.29	145.43	0.366	No	No	1.08
612	41.84	201.65	1.99	1.47	0.60	111.98	1.30	145.17	0.364	No	No	1.08
613	41.91	201.54	1.99	1.50	0.61	111.64	1.30	145.22	0.365	No	No	1.08
614	41.95	201.75	2.00	1.52	0.61	111.52	1.31	145.53	0.367	No	No	1.08
615	42.01	202.52	2.00	1.56	0.61	111.63	1.31	146.36	0.372	No	No	1.10
616	42.10	203.57	2.01	1.60	0.61	111.82	1.32	147.40	0.378	No	No	1.11
617	42.15	204.98	2.02	1.66	0.61	112.23	1.33	148.90	0.387	No	No	1.14
618	42.24	206.03	2.03	1.70	0.62	112.44	1.33	149.94	0.394	No	No	1.16
619	42.28	206.46	2.03	1.71	0.62	112.53	1.34	150.31	0.396	No	No	1.17
620	42.39	206.26	2.03	1.70	0.62	112.27	1.33	149.81	0.393	No	No	1.16
621	42.43	206.08	2.02	1.67	0.62	112.28	1.33	149.14	0.389	No	No	1.14
622	42.50	206.11	2.01	1.62	0.61	112.45	1.32	148.36	0.384	No	No	1.13
623	42.58	206.28	2.00	1.56	0.61	112.80	1.31	147.54	0.379	No	No	1.12
624	42.65	198.95	2.01	1.55	0.61	108.28	1.32	142.73	0.350	No	No	1.03

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	42.70	195.88	2.02	1.54	0.61	106.39	1.32	140.58	0.338	No	No	1.00
626	42.73	193.72	2.02	1.54	0.61	105.08	1.32	139.14	0.331	No	No	0.97
627	42.77	200.19	1.99	1.47	0.61	109.31	1.30	142.31	0.348	No	No	1.02
628	42.82	203.83	1.98	1.43	0.60	111.68	1.29	144.06	0.358	No	No	1.05
629	42.87	209.12	1.96	1.39	0.60	115.10	1.28	146.92	0.375	No	No	1.10
630	42.91	215.46	1.94	1.35	0.59	119.14	1.26	150.57	0.397	No	No	1.17
631	42.97	221.76	1.92	1.32	0.59	123.09	1.25	154.27	0.421	No	No	1.24
632	43.02	226.82	1.92	1.32	0.58	126.14	1.25	157.35	0.442	No	No	1.30
633	43.06	230.49	1.91	1.33	0.58	128.19	1.25	159.72	0.459	No	No	1.35
634	43.11	234.33	1.91	1.34	0.58	130.34	1.24	162.21	0.477	No	No	1.40
635	43.17	237.93	1.91	1.35	0.58	132.40	1.24	164.40	0.493	No	No	1.45
636	43.21	242.21	1.90	1.33	0.58	135.09	1.23	166.83	0.512	No	No	1.51
637	43.29	246.19	1.89	1.30	0.57	137.59	1.23	168.85	0.528	No	No	1.55
638	43.34	250.53	1.87	1.28	0.57	140.43	1.22	171.05	0.545	No	No	1.61
639	43.39	254.11	1.86	1.25	0.57	142.76	1.21	172.71	0.559	No	No	1.65
640	43.45	256.87	1.85	1.22	0.56	144.64	1.20	173.74	0.568	No	No	1.67
641	43.51	258.25	1.84	1.18	0.56	145.84	1.19	173.50	0.566	No	No	1.66
642	43.59	258.59	1.82	1.14	0.56	146.35	1.18	172.47	0.557	No	No	1.64
643	43.64	259.19	1.80	1.07	0.55	147.38	1.16	170.73	0.543	No	No	1.60
644	43.70	259.29	1.78	1.01	0.54	148.12	1.13	168.10	0.522	No	No	1.54
645	43.78	258.35	1.77	0.96	0.54	147.98	1.12	165.08	0.498	No	No	1.47
646	43.88	255.18	1.77	0.96	0.54	145.77	1.12	163.55	0.487	No	No	1.43
647	43.94	244.77	1.82	1.04	0.55	138.10	1.17	161.52	0.472	No	No	1.39
648	44.04	234.93	1.86	1.12	0.57	130.84	1.21	157.74	0.445	No	No	1.31
649	44.07	225.87	1.89	1.21	0.58	124.41	1.23	153.31	0.415	No	No	1.22
650	44.12	223.58	1.90	1.23	0.58	122.68	1.24	152.08	0.407	No	No	1.20
651	44.16	221.15	1.91	1.25	0.58	120.94	1.25	150.70	0.398	No	No	1.17
652	44.21	218.05	1.93	1.28	0.59	118.76	1.25	148.86	0.387	No	No	1.14
653	44.26	214.65	1.94	1.30	0.59	116.39	1.26	146.86	0.375	No	No	1.10
654	44.31	210.81	1.95	1.34	0.59	113.73	1.27	144.63	0.361	No	No	1.06
655	44.35	206.97	1.97	1.37	0.60	111.11	1.28	142.44	0.349	No	No	1.03
656	44.40	203.26	1.98	1.40	0.60	108.60	1.29	140.32	0.337	No	No	0.99
657	44.45	200.16	1.99	1.43	0.61	106.49	1.30	138.56	0.327	No	No	0.96
658	44.50	197.83	2.00	1.45	0.61	104.91	1.31	137.24	0.320	No	No	0.94
659	44.54	195.81	2.01	1.47	0.61	103.53	1.32	136.15	0.315	No	No	0.93
660	44.60	193.46	2.02	1.49	0.61	101.86	1.32	134.97	0.309	No	No	0.91
661	44.64	190.96	2.03	1.53	0.62	100.11	1.34	133.85	0.303	No	No	0.89
662	44.69	188.57	2.05	1.57	0.62	98.42	1.35	132.85	0.298	No	No	0.88
663	44.74	187.78	2.05	1.59	0.62	97.76	1.36	132.59	0.297	No	No	0.87
664	44.79	187.17	2.06	1.60	0.62	97.27	1.36	132.34	0.296	No	No	0.87
665	44.83	187.71	2.05	1.60	0.62	97.52	1.36	132.53	0.296	No	No	0.87
666	44.88	188.84	2.05	1.59	0.62	98.15	1.35	132.96	0.299	No	No	0.88
667	44.93	191.20	2.04	1.57	0.62	99.52	1.35	134.02	0.304	No	No	0.89
668	44.98	193.69	2.03	1.55	0.62	100.99	1.34	135.20	0.310	No	No	0.91
669	45.03	195.31	2.03	1.54	0.62	101.90	1.33	135.95	0.314	No	No	0.92
670	45.08	196.49	2.03	1.54	0.62	102.54	1.33	136.45	0.316	No	No	0.93
671	45.16	197.53	2.02	1.52	0.62	103.08	1.33	136.81	0.318	No	No	0.94
672	45.19	198.24	2.02	1.50	0.61	103.58	1.32	136.91	0.319	No	No	0.94

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	45.27	198.44	2.01	1.47	0.61	103.76	1.32	136.53	0.317	No	No	0.93
674	45.32	197.56	2.00	1.44	0.61	103.38	1.31	135.53	0.312	No	No	0.92
675	45.37	195.58	2.00	1.39	0.61	102.45	1.31	133.73	0.302	No	No	0.89
676	45.45	192.44	1.99	1.35	0.61	100.80	1.30	131.17	0.290	No	No	0.85
677	45.51	187.22	1.99	1.31	0.61	97.91	1.30	127.52	0.273	No	No	0.80
678	45.56	180.52	2.01	1.31	0.61	93.92	1.31	123.37	4.000	Yes	No	2.00
679	45.61	169.84	2.04	1.36	0.62	87.34	1.35	117.60	4.000	Yes	No	2.00
680	45.69	156.32	2.10	1.48	0.64	78.89	1.42	111.79	4.000	Yes	No	2.00
681	45.75	137.42	2.20	1.74	0.67	67.17	1.61	108.19	4.000	Yes	No	2.00
682	45.81	115.31	2.30	1.96	0.70	54.45	1.93	105.04	4.000	Yes	No	2.00
683	45.89	93.28	2.42	2.23	0.73	42.25	2.49	105.10	4.000	Yes	No	2.00
684	45.94	73.36	2.54	2.43	0.77	31.83	3.26	103.73	4.000	Yes	No	2.00
685	46.04	59.21	2.67	2.85	0.81	24.44	4.42	108.05	4.000	Yes	Yes	2.00
686	46.08	46.61	2.83	3.46	0.86	18.15	6.18	112.07	4.000	Yes	Yes	2.00
687	46.15	39.94	2.97	3.96	1.00	13.37	8.22	109.85	4.000	Yes	Yes	2.00
688	46.17	36.10	3.03	4.33	1.00	11.98	9.26	110.89	3.600	No	Yes	2.00
689	46.18	36.17	3.02	4.27	1.00	12.00	9.18	110.17	3.600	No	Yes	2.00
690	46.23	36.48	3.01	4.17	1.00	12.10	9.03	109.18	3.600	No	Yes	2.00
691	46.27	37.18	3.00	4.00	1.00	12.34	8.72	107.58	3.600	No	Yes	2.00
692	46.32	38.64	2.96	3.74	1.00	12.85	8.20	105.33	3.600	No	Yes	2.00
693	46.41	40.63	2.89	3.49	0.87	15.29	7.01	107.19	3.600	No	Yes	2.00
694	46.47	43.16	2.85	3.30	0.86	16.49	6.44	106.19	3.600	No	Yes	2.00
695	46.52	45.45	2.82	3.23	0.85	17.54	6.09	106.89	3.600	No	Yes	2.00
696	46.56	47.57	2.81	3.31	0.85	18.46	5.95	109.81	3.600	No	Yes	2.00
697	46.65	49.42	2.80	3.44	0.85	19.21	5.91	113.60	3.600	No	Yes	2.00
698	46.71	51.52	2.80	3.58	0.85	20.07	5.86	117.68	3.600	No	Yes	2.00
699	46.76	54.41	2.78	3.59	0.84	21.37	5.62	120.04	3.600	No	Yes	2.00
700	46.85	58.19	2.75	3.48	0.83	23.13	5.21	120.43	3.600	No	Yes	2.00
701	46.90	63.28	2.69	3.26	0.82	25.63	4.63	118.71	3.600	No	Yes	2.00
702	46.99	67.89	2.65	3.04	0.80	27.93	4.16	116.19	3.600	No	Yes	2.00
703	47.04	70.35	2.62	2.93	0.79	29.16	3.93	114.63	3.600	No	Yes	2.00
704	47.10	69.50	2.63	2.95	0.80	28.71	4.00	114.71	3.600	No	Yes	2.00
705	47.16	65.45	2.67	3.09	0.81	26.63	4.36	116.10	3.600	No	Yes	2.00
706	47.23	59.62	2.72	3.30	0.82	23.71	4.94	117.23	3.600	No	Yes	2.00
707	47.30	51.46	2.81	3.62	0.85	19.76	5.97	117.96	3.600	No	Yes	2.00
708	47.38	42.76	2.96	4.09	1.00	13.97	8.12	113.48	3.600	No	Yes	2.00
709	47.43	34.23	3.08	4.68	1.00	10.97	10.19	111.84	3.600	No	Yes	2.00
710	47.52	28.17	3.17	4.93	1.00	8.83	11.99	105.92	3.600	No	Yes	2.00
711	47.59	23.92	3.20	4.34	1.00	7.34	12.70	93.23	3.600	No	Yes	2.00
712	47.66	21.40	3.20	3.59	1.00	6.45	12.70	81.89	3.600	No	Yes	2.00
713	47.77	19.71	3.20	3.13	1.00	5.85	12.77	74.67	3.600	No	Yes	2.00
714	47.82	18.77	3.24	3.41	1.00	5.51	13.75	75.76	3.600	No	Yes	2.00
715	47.91	18.38	3.26	3.59	1.00	5.37	14.28	76.63	3.600	No	Yes	2.00
716	47.93	17.68	3.30	3.86	1.00	5.12	15.17	77.65	3.600	No	Yes	2.00
717	47.97	17.78	3.30	3.92	1.00	5.15	15.21	78.37	3.600	No	Yes	2.00
718	48.02	17.86	3.31	4.05	1.00	5.17	15.38	79.56	3.600	No	Yes	2.00
719	48.07	18.51	3.30	4.11	1.00	5.39	15.07	81.21	3.600	No	Yes	2.00
720	48.12	18.61	3.31	4.43	1.00	5.42	15.51	84.04	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	48.19	18.71	3.33	4.73	1.00	5.44	15.90	86.54	3.600	No	Yes	2.00
722	48.23	18.91	3.33	4.96	1.00	5.51	16.11	88.74	3.600	No	Yes	2.00
723	48.31	19.15	3.33	5.05	1.00	5.58	16.11	89.88	3.600	No	Yes	2.00
724	48.35	19.35	3.33	5.13	1.00	5.64	16.11	90.92	3.600	No	Yes	2.00
725	48.40	19.25	3.34	5.27	1.00	5.60	16.37	91.72	3.600	No	Yes	2.00
726	48.45	18.81	3.36	5.50	1.00	5.45	16.96	92.39	3.600	No	Yes	2.00
727	48.50	18.07	3.40	5.83	1.00	5.19	17.92	92.93	3.600	No	Yes	2.00
728	48.55	17.80	3.41	6.00	1.00	5.09	18.35	93.37	3.600	No	Yes	2.00
729	48.59	17.64	3.42	6.20	1.00	5.03	18.75	94.24	3.600	No	Yes	2.00
730	48.67	17.87	3.42	6.18	1.00	5.10	18.56	94.62	3.600	No	Yes	2.00
731	48.73	17.84	3.42	6.16	1.00	5.08	18.58	94.36	3.600	No	Yes	2.00
732	48.78	17.97	3.40	5.89	1.00	5.12	18.13	92.80	3.600	No	Yes	2.00
733	48.83	17.97	3.39	5.58	1.00	5.11	17.74	90.68	3.600	No	Yes	2.00
734	48.91	17.94	3.38	5.27	1.00	5.09	17.35	88.35	3.600	No	Yes	2.00
735	48.98	17.84	3.37	5.04	1.00	5.05	17.10	86.35	3.600	No	Yes	2.00
736	49.03	17.74	3.37	4.91	1.00	5.01	17.00	85.19	3.600	No	Yes	2.00
737	49.12	17.68	3.35	4.63	1.00	4.98	16.65	82.90	3.600	No	Yes	2.00
738	49.17	17.75	3.33	4.17	1.00	5.00	15.91	79.48	3.600	No	Yes	2.00
739	49.27	18.02	3.30	3.75	1.00	5.08	15.07	76.51	3.600	No	Yes	2.00
740	49.31	18.56	3.28	3.65	1.00	5.25	14.57	76.55	3.600	No	Yes	2.00
741	49.38	19.20	3.27	3.79	1.00	5.46	14.44	78.88	3.600	No	Yes	2.00
742	49.45	19.70	3.27	3.95	1.00	5.62	14.44	81.15	3.600	No	Yes	2.00
743	49.51	19.00	3.31	4.33	1.00	5.38	15.44	83.00	3.600	No	Yes	2.00
744	49.54	19.44	3.30	4.37	1.00	5.52	15.24	84.13	3.600	No	Yes	2.00
745	49.59	20.18	3.28	4.25	1.00	5.76	14.65	84.45	3.600	No	Yes	2.00
746	49.64	21.53	3.23	3.89	1.00	6.21	13.47	83.63	3.600	No	Yes	2.00
747	49.73	21.20	3.24	3.89	1.00	6.09	13.64	83.01	3.600	No	Yes	2.00
748	49.83	20.02	3.27	4.07	1.00	5.68	14.52	82.47	3.600	No	Yes	2.00
749	49.92	18.88	3.31	4.30	1.00	5.29	15.55	82.19	3.600	No	Yes	2.00
750	49.98	17.86	3.35	4.49	1.00	4.94	16.51	81.62	3.600	No	Yes	2.00
751	50.07	17.33	3.37	4.57	1.00	4.75	17.04	81.01	3.600	No	Yes	2.00
752	50.16	16.99	3.38	4.61	1.00	4.63	17.38	80.51	3.600	No	Yes	2.00
753	50.24	16.69	3.39	4.65	1.00	4.52	17.70	80.06	3.600	No	Yes	2.00
754	50.32	16.46	3.40	4.71	1.00	4.44	17.99	79.87	3.600	No	Yes	2.00
755	50.41	16.32	3.41	4.79	1.00	4.39	18.25	80.02	3.600	No	Yes	2.00
756	50.50	16.36	3.41	4.79	1.00	4.39	18.25	80.09	3.600	No	Yes	2.00
757	50.56	16.26	3.41	4.73	1.00	4.35	18.25	79.36	3.600	No	Yes	2.00
758	50.66	16.09	3.41	4.63	1.00	4.28	18.27	78.27	3.600	No	Yes	2.00
759	50.74	15.92	3.41	4.59	1.00	4.22	18.37	77.53	3.600	No	Yes	2.00
760	50.84	15.85	3.43	4.94	1.00	4.19	19.00	79.62	3.600	No	Yes	2.00
761	50.93	15.95	3.46	5.57	1.00	4.21	19.91	83.88	3.600	No	Yes	2.00
762	50.98	16.77	3.48	6.56	1.00	4.47	20.59	92.08	3.600	No	Yes	2.00
763	51.08	19.60	3.43	7.08	1.00	5.39	19.08	102.75	3.600	No	Yes	2.00
764	51.17	24.45	3.34	6.97	1.00	6.95	16.30	113.31	3.600	No	Yes	2.00
765	51.24	30.11	3.25	6.75	1.00	8.78	13.98	122.80	3.600	No	Yes	2.00
766	51.34	33.65	3.21	6.76	1.00	9.91	13.03	129.12	3.600	No	Yes	2.00
767	51.41	34.16	3.18	6.01	1.00	10.06	12.19	122.59	3.600	No	Yes	2.00
768	51.51	32.81	3.17	5.54	1.00	9.60	12.05	115.66	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	51.58	31.20	3.16	4.92	1.00	9.06	11.80	106.93	3.600	No	Yes	2.00
770	51.68	29.95	3.20	5.43	1.00	8.64	12.73	109.98	3.600	No	Yes	2.00
771	51.79	27.39	3.26	5.93	1.00	7.80	14.12	110.16	3.600	No	Yes	2.00
772	51.82	25.87	3.30	6.27	1.00	7.31	15.07	110.15	3.600	No	Yes	2.00
773	51.85	24.39	3.34	6.78	1.00	6.83	16.27	111.07	3.600	No	Yes	2.00
774	51.91	25.00	3.34	6.90	1.00	7.01	16.14	113.23	3.600	No	Yes	2.00
775	52.00	24.87	3.36	7.36	1.00	6.96	16.71	116.25	3.600	No	Yes	2.00
776	52.05	27.06	3.31	7.10	1.00	7.65	15.54	118.92	3.600	No	Yes	2.00
777	52.10	31.78	3.21	6.10	1.00	9.15	13.00	118.95	3.600	No	Yes	2.00
778	52.19	38.49	3.08	4.92	1.00	11.27	10.28	115.81	3.600	No	Yes	2.00
779	52.28	44.04	2.99	4.15	1.00	13.02	8.58	111.69	3.600	No	Yes	2.00
780	52.34	46.37	2.95	3.85	1.00	13.74	7.96	109.32	3.600	No	Yes	2.00
781	52.42	46.09	2.96	3.90	1.00	13.63	8.05	109.66	3.600	No	Yes	2.00
782	52.48	44.34	2.98	4.10	1.00	13.05	8.50	111.03	3.600	No	Yes	2.00
783	52.57	42.32	3.01	4.26	1.00	12.39	8.98	111.27	3.600	No	Yes	2.00
784	52.62	40.26	3.03	4.31	1.00	11.73	9.37	109.88	3.600	No	Yes	2.00
785	52.69	38.51	3.05	4.22	1.00	11.16	9.58	106.89	3.600	No	Yes	2.00
786	52.77	36.89	3.06	4.17	1.00	10.63	9.83	104.50	3.600	No	Yes	2.00
787	52.87	35.55	3.08	4.24	1.00	10.19	10.19	103.83	3.600	No	Yes	2.00
788	52.91	34.07	3.10	4.28	1.00	9.71	10.56	102.56	3.600	No	Yes	2.00
789	53.01	32.55	3.12	4.42	1.00	9.21	11.08	102.13	3.600	No	Yes	2.00
790	53.10	32.18	3.14	4.56	1.00	9.08	11.35	103.11	3.600	No	Yes	2.00
791	53.16	34.04	3.15	5.28	1.00	9.65	11.74	113.26	3.600	No	Yes	2.00
792	53.25	38.69	3.13	5.64	1.00	11.08	11.13	123.32	3.600	No	Yes	2.00
793	53.29	44.28	3.10	6.15	1.00	12.82	10.63	136.25	3.600	No	Yes	2.00
794	53.38	48.90	3.07	6.34	1.00	14.23	10.13	144.18	3.600	No	Yes	2.00
795	53.42	59.32	2.99	5.88	1.00	17.47	8.56	149.47	3.600	No	Yes	2.00
796	53.47	74.66	2.87	5.11	1.00	22.21	6.75	150.02	3.600	No	Yes	2.00
797	53.52	92.88	2.76	4.46	1.00	27.85	5.32	148.22	3.600	No	Yes	2.00
798	53.58	102.94	2.72	4.44	1.00	30.94	4.93	152.55	3.600	No	Yes	2.00
799	53.66	103.80	2.74	4.76	1.00	31.15	5.14	160.18	3.600	No	Yes	2.00
800	53.75	98.64	2.79	5.33	1.00	29.50	5.74	169.41	3.600	No	Yes	2.00
801	53.81	88.93	2.86	5.98	1.00	26.46	6.64	175.67	3.600	No	Yes	2.00
802	53.87	78.89	2.93	6.58	1.00	23.33	7.63	177.89	3.600	No	Yes	2.00
803	53.95	67.24	3.02	7.41	1.00	19.70	9.07	178.71	3.600	No	Yes	2.00
804	54.01	57.35	3.10	8.28	1.00	16.64	10.67	177.57	3.600	No	Yes	2.00
805	54.06	47.51	3.20	9.23	1.00	13.60	12.71	172.90	3.600	No	Yes	2.00
806	54.15	41.78	3.26	9.77	1.00	11.83	14.16	167.57	3.600	No	Yes	2.00
807	54.20	40.60	3.27	9.77	1.00	11.46	14.42	165.24	3.600	No	Yes	2.00
808	54.29	47.57	3.17	8.38	1.00	13.59	12.09	164.23	3.600	No	Yes	2.00
809	54.34	69.40	2.89	4.90	1.00	20.27	7.00	141.87	4.000	Yes	Yes	2.00
810	54.43	100.37	2.59	2.67	1.00	29.73	3.65	108.63	4.000	Yes	No	2.00
811	54.45	137.16	2.32	1.48	1.00	41.00	2.00	82.07	4.000	Yes	No	2.00
812	54.48	166.07	2.20	1.22	1.00	49.83	1.62	80.59	4.000	Yes	No	2.00
813	54.52	185.51	2.14	1.11	1.00	55.76	1.48	82.69	4.000	Yes	No	2.00
814	54.53	198.85	2.12	1.13	1.00	59.83	1.45	86.57	4.000	Yes	No	2.00
815	54.58	207.94	2.11	1.17	1.00	62.58	1.44	89.91	0.148	No	No	0.45
816	54.62	219.64	2.10	1.19	1.00	66.13	1.42	93.59	0.156	No	No	0.47

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	54.65	233.46	2.07	1.16	1.00	70.33	1.38	96.81	0.164	No	No	0.50
818	54.70	244.67	2.05	1.15	1.00	73.72	1.36	99.98	0.173	No	No	0.52
819	54.76	251.12	2.05	1.17	1.00	75.64	1.35	102.23	0.179	No	No	0.54
820	54.77	249.88	2.06	1.22	1.00	75.25	1.37	102.77	0.181	No	No	0.55
821	54.82	251.50	2.06	1.21	1.00	75.71	1.36	103.16	0.182	No	No	0.55
822	54.87	253.07	2.05	1.21	1.00	76.14	1.36	103.55	0.183	No	No	0.56
823	54.88	255.63	2.05	1.20	1.00	76.92	1.35	104.08	0.185	No	No	0.56
824	54.91	257.28	2.05	1.20	1.00	77.39	1.35	104.56	0.186	No	No	0.56
825	54.96	263.42	2.04	1.18	1.00	79.22	1.34	106.09	0.191	No	No	0.58
826	54.97	276.70	2.01	1.17	1.00	83.26	1.32	109.90	0.203	No	No	0.62
827	55.03	294.89	1.99	1.17	1.00	88.74	1.30	115.47	0.223	No	No	0.68
828	55.09	315.21	1.96	1.11	1.00	94.86	1.27	120.89	0.244	No	No	0.74
829	55.15	327.84	1.89	0.92	1.00	98.63	1.23	121.55	0.247	No	No	0.75
830	55.20	338.35	1.85	0.83	1.00	101.77	1.20	122.41	0.251	No	No	0.76
831	55.25	358.17	1.78	0.67	1.00	107.74	1.13	121.49	0.247	No	No	0.75
832	55.30	386.84	1.77	0.71	1.00	116.38	1.11	129.28	0.281	No	No	0.85
833	55.34	417.50	1.74	0.72	1.00	125.63	1.07	134.62	0.307	No	No	0.93
834	55.39	440.05	1.76	0.82	1.00	132.40	1.10	146.03	0.370	No	No	1.12
835	55.40	462.28	1.76	0.87	1.00	139.13	1.10	153.71	0.418	No	No	1.27
836	55.44	482.80	1.75	0.87	1.00	145.29	1.08	157.35	0.442	No	No	1.34
837	55.44	511.21	1.72	0.83	1.00	153.88	1.02	157.04	0.440	No	No	1.34
838	55.49	517.76	1.72	0.86	1.00	155.78	1.03	160.78	0.467	No	No	1.42
839	55.54	533.43	1.73	0.91	1.00	160.44	1.05	167.71	0.519	No	No	1.58
840	55.59	534.98	1.76	1.00	1.00	160.82	1.10	176.17	0.588	No	No	1.79
841	55.63	551.08	1.75	1.02	1.00	165.61	1.09	180.34	0.625	No	No	1.90
842	55.64	553.47	1.75	1.02	1.00	166.31	1.09	180.79	0.630	No	No	1.91
843	55.68	566.94	1.73	0.98	1.00	170.31	1.06	179.92	0.622	No	No	1.89
844	55.69	570.38	1.73	0.97	1.00	171.33	1.04	178.50	0.609	No	No	1.85
845	55.69	566.17	1.73	0.98	1.00	170.04	1.05	179.38	0.617	No	No	1.88
846	55.71	561.62	1.75	1.03	1.00	168.63	1.09	183.08	0.651	No	No	1.98
847	55.76	567.28	1.76	1.06	1.00	170.25	1.10	186.45	0.683	No	No	2.00
848	55.78	580.19	1.75	1.05	1.00	174.11	1.08	187.85	0.696	No	No	2.00
849	55.81	581.23	1.72	0.98	1.00	174.36	1.04	180.96	0.631	No	No	1.92
850	55.85	584.16	1.69	0.88	1.00	175.16	1.00	175.16	0.580	No	No	1.77
851	55.86	588.34	1.65	0.77	1.00	176.41	1.00	176.41	0.591	No	No	1.80
852	55.91	598.65	1.62	0.70	1.00	179.42	1.00	179.42	0.617	No	No	1.88
853	55.92	602.25	1.60	0.66	1.00	180.48	1.00	180.48	0.627	No	No	1.91
854	55.96	619.03	1.58	0.63	1.00	185.46	1.00	185.46	0.673	No	No	2.00
855	55.97	634.09	1.57	0.63	1.00	189.98	1.00	189.98	0.718	No	No	2.00
856	56.00	654.37	1.56	0.64	1.00	196.01	1.00	196.01	0.780	No	No	2.00
857	56.01	660.12	1.58	0.69	1.00	197.72	1.00	197.72	0.799	No	No	2.00
858	56.03	661.79	1.59	0.72	1.00	198.18	1.00	198.18	0.804	No	No	2.00
859	56.05	661.82	1.60	0.74	1.00	198.14	1.00	198.14	0.803	No	No	2.00
860	56.10	665.04	1.60	0.73	1.00	198.99	1.00	198.99	0.813	No	No	2.00
861	56.12	668.02	1.58	0.70	1.00	199.86	1.00	199.86	0.822	No	No	2.00
862	56.16	667.69	1.57	0.68	1.00	199.67	1.00	199.67	0.820	No	No	2.00
863	56.17	654.78	1.57	0.67	1.00	195.76	1.00	195.76	0.778	No	No	2.00
864	56.20	635.11	1.59	0.69	1.00	189.78	1.00	189.78	0.716	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	56.22	617.48	1.61	0.71	1.00	184.46	1.00	184.46	0.664	No	No	2.00
866	56.24	608.45	1.61	0.71	1.00	181.69	1.00	181.69	0.638	No	No	1.95
867	56.30	602.69	1.62	0.70	1.00	179.84	1.00	179.84	0.621	No	No	1.89
868	56.31	595.69	1.63	0.72	1.00	177.72	1.00	177.72	0.602	No	No	1.84
869	56.34	586.22	1.65	0.77	1.00	174.82	1.00	174.82	0.577	No	No	1.76
870	56.39	579.04	1.66	0.78	1.00	172.57	1.00	172.57	0.558	No	No	1.70
871	56.45	572.30	1.67	0.79	1.00	170.44	1.00	170.44	0.540	No	No	1.65
872	56.48	565.39	1.67	0.79	1.00	168.31	1.00	168.31	0.523	No	No	1.60
873	56.49	555.45	1.70	0.85	1.00	165.32	1.00	165.32	0.500	No	No	1.53
874	56.53	542.15	1.73	0.91	1.00	161.25	1.05	168.57	0.525	No	No	1.60
875	56.58	529.04	1.75	0.94	1.00	157.24	1.08	169.38	0.532	No	No	1.62
876	56.63	524.73	1.67	0.72	1.00	155.86	1.00	155.86	0.432	No	No	1.32
877	56.68	526.01	1.58	0.52	1.00	156.17	1.00	156.17	0.434	No	No	1.33
878	56.73	531.33	1.53	0.43	1.00	157.68	1.00	157.68	0.445	No	No	1.36
879	56.78	526.31	1.62	0.60	1.00	156.09	1.00	156.09	0.434	No	No	1.33
880	56.83	517.99	1.69	0.76	1.00	153.53	1.00	153.53	0.417	No	No	1.27
881	56.89	503.37	1.73	0.85	1.00	149.05	1.06	157.35	0.442	No	No	1.35
882	56.95	485.04	1.77	0.94	1.00	143.50	1.12	160.76	0.466	No	No	1.43
883	56.99	470.25	1.81	1.02	1.00	139.02	1.16	161.37	0.471	No	No	1.44
884	57.01	460.92	1.83	1.07	1.00	136.23	1.18	160.98	0.468	No	No	1.43
885	57.04	461.73	1.82	1.05	1.00	136.41	1.18	160.65	0.466	No	No	1.43
886	57.09	468.20	1.81	1.02	1.00	138.26	1.17	161.13	0.469	No	No	1.44
887	57.11	477.43	1.81	1.03	1.00	140.98	1.16	163.57	0.487	No	No	1.49
888	57.13	488.62	1.81	1.06	1.00	144.26	1.16	167.47	0.517	No	No	1.58
889	57.18	488.78	1.82	1.11	1.00	144.24	1.17	169.44	0.532	No	No	1.63
890	57.19	477.80	1.85	1.18	1.00	140.96	1.20	168.95	0.529	No	No	1.62
891	57.21	464.47	1.87	1.22	1.00	136.96	1.21	166.30	0.508	No	No	1.56
892	57.24	456.12	1.88	1.23	1.00	134.45	1.22	164.00	0.490	No	No	1.50
893	57.28	456.72	1.87	1.20	1.00	134.56	1.21	163.35	0.485	No	No	1.49
894	57.32	450.91	1.87	1.19	1.00	132.78	1.22	161.45	0.471	No	No	1.44
895	57.35	445.39	1.88	1.21	1.00	131.08	1.22	160.03	0.461	No	No	1.41
896	57.38	435.59	1.89	1.22	1.00	128.14	1.23	157.50	0.443	No	No	1.36
897	57.43	430.50	1.89	1.21	1.00	126.56	1.23	155.53	0.430	No	No	1.32
898	57.48	414.66	1.90	1.19	1.00	121.80	1.23	150.26	0.396	No	No	1.21
899	57.52	398.59	1.89	1.12	1.00	116.98	1.23	143.92	0.357	No	No	1.10
900	57.57	389.56	1.91	1.18	1.00	114.25	1.25	142.28	0.348	No	No	1.07
901	57.62	396.66	1.94	1.29	1.00	116.29	1.26	146.53	0.373	No	No	1.14
902	57.68	427.50	1.92	1.35	1.00	125.32	1.25	157.03	0.440	No	No	1.35
903	57.76	462.23	1.88	1.27	1.00	135.46	1.23	166.00	0.505	No	No	1.55
904	57.81	505.50	1.75	0.90	1.00	148.16	1.09	161.17	0.469	No	No	1.44
905	57.86	543.58	1.63	0.63	1.00	159.31	1.00	159.31	0.456	No	No	1.40
906	57.89	572.52	1.49	0.39	1.00	167.80	1.00	167.80	0.519	No	No	1.60
907	57.91	583.54	1.48	0.39	1.00	171.02	1.00	171.02	0.545	No	No	1.68
908	57.92	577.13	1.50	0.42	1.00	169.11	1.00	169.11	0.530	No	No	1.63
909	57.95	569.05	1.54	0.47	1.00	166.67	1.00	166.67	0.511	No	No	1.57
910	57.99	570.66	1.56	0.52	1.00	167.08	1.00	167.08	0.514	No	No	1.58
911	58.01	578.72	1.57	0.56	1.00	169.42	1.00	169.42	0.532	No	No	1.64
912	58.05	591.19	1.58	0.58	1.00	173.02	1.00	173.02	0.562	No	No	1.73

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	58.05	598.87	1.59	0.62	1.00	175.27	1.00	175.27	0.581	No	No	1.79
914	58.10	604.77	1.60	0.65	1.00	176.91	1.00	176.91	0.595	No	No	1.83
915	58.13	611.17	1.60	0.67	1.00	178.73	1.00	178.73	0.611	No	No	1.88
916	58.15	618.51	1.60	0.66	1.00	180.87	1.00	180.87	0.630	No	No	1.94
917	58.17	625.12	1.59	0.65	1.00	182.75	1.00	182.75	0.648	No	No	1.99
918	58.20	623.43	1.59	0.66	1.00	182.21	1.00	182.21	0.643	No	No	1.98
919	58.21	619.40	1.60	0.67	1.00	181.00	1.00	181.00	0.632	No	No	1.94
920	58.21	614.30	1.61	0.68	1.00	179.50	1.00	179.50	0.618	No	No	1.90
921	58.23	613.93	1.61	0.68	1.00	179.34	1.00	179.34	0.616	No	No	1.90
922	58.24	608.11	1.62	0.69	1.00	177.62	1.00	177.62	0.601	No	No	1.85
923	58.25	609.21	1.54	0.52	1.00	177.92	1.00	177.92	0.604	No	No	1.86
924	58.29	613.99	1.44	0.36	1.00	179.26	1.00	179.26	0.616	No	No	1.90
925	58.31	627.24	1.32	0.20	1.00	183.11	1.00	183.11	0.651	No	No	2.00
926	58.33	639.00	1.34	0.24	1.00	186.52	1.00	186.52	0.683	No	No	2.00
927	58.38	651.36	1.37	0.28	1.00	190.06	1.00	190.06	0.718	No	No	2.00
928	58.39	661.87	1.39	0.32	1.00	193.13	1.00	193.13	0.750	No	No	2.00
929	58.43	670.53	1.40	0.34	1.00	195.59	1.00	195.59	0.776	No	No	2.00
930	58.43	682.73	1.39	0.33	1.00	199.15	1.00	199.15	0.815	No	No	2.00
931	58.48	688.02	1.40	0.35	1.00	200.60	1.00	200.60	4.000	No	No	2.00
932	58.53	694.39	1.41	0.38	1.00	202.36	1.00	202.36	4.000	No	No	2.00
933	58.56	696.37	1.46	0.46	1.00	202.90	1.00	202.90	4.000	No	No	2.00
934	58.58	704.43	1.47	0.49	1.00	205.20	1.00	205.20	4.000	No	No	2.00
935	58.59	710.90	1.49	0.52	1.00	207.06	1.00	207.06	4.000	No	No	2.00
936	58.63	707.18	1.49	0.53	1.00	205.90	1.00	205.90	4.000	No	No	2.00
937	58.63	709.20	1.50	0.54	1.00	206.49	1.00	206.49	4.000	No	No	2.00
938	58.63	695.36	1.51	0.54	1.00	202.42	1.00	202.42	4.000	No	No	2.00
939	58.68	700.19	1.49	0.51	1.00	203.74	1.00	203.74	4.000	No	No	2.00
940	58.69	701.88	1.45	0.44	1.00	204.22	1.00	204.22	4.000	No	No	2.00
941	58.72	717.85	1.40	0.38	1.00	208.81	1.00	208.81	4.000	No	No	2.00
942	58.73	722.94	1.38	0.36	1.00	210.28	1.00	210.28	4.000	No	No	2.00
943	58.74	728.64	1.41	0.40	1.00	211.92	1.00	211.92	4.000	No	No	2.00
944	58.77	726.96	1.44	0.45	1.00	211.36	1.00	211.36	4.000	No	No	2.00
945	58.81	722.67	1.47	0.50	1.00	210.02	1.00	210.02	4.000	No	No	2.00
946	58.82	713.94	1.49	0.53	1.00	207.44	1.00	207.44	4.000	No	No	2.00
947	58.83	715.80	1.51	0.57	1.00	207.97	1.00	207.97	4.000	No	No	2.00
948	58.87	722.33	1.52	0.60	1.00	209.78	1.00	209.78	4.000	No	No	2.00
949	58.91	731.67	1.53	0.63	1.00	212.41	1.00	212.41	4.000	No	No	2.00
950	58.92	737.87	1.54	0.64	1.00	214.21	1.00	214.21	4.000	No	No	2.00
951	58.93	740.53	1.53	0.64	1.00	214.95	1.00	214.95	4.000	No	No	2.00
952	58.96	739.05	1.53	0.63	1.00	214.44	1.00	214.44	4.000	No	No	2.00
953	59.01	716.31	1.56	0.67	1.00	207.70	1.00	207.70	4.000	No	No	2.00
954	59.06	687.29	1.59	0.73	1.00	199.13	1.00	199.13	0.814	No	No	2.00
955	59.08	655.28	1.63	0.78	1.00	189.77	1.00	189.77	0.716	No	No	2.00
956	59.11	638.94	1.65	0.81	1.00	184.95	1.00	184.95	0.668	No	No	2.00
957	59.15	627.21	1.68	0.88	1.00	181.46	1.00	181.46	0.636	No	No	1.96
958	59.21	618.28	1.70	0.94	1.00	178.75	1.00	178.75	0.611	No	No	1.89
959	59.26	606.09	1.72	0.96	1.00	175.11	1.02	178.89	0.612	No	No	1.89
960	59.30	592.31	1.71	0.92	1.00	171.02	1.01	173.20	0.563	No	No	1.74

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	59.35	579.87	1.71	0.90	1.00	167.32	1.01	169.07	0.529	No	No	1.64
962	59.40	562.76	1.73	0.91	1.00	162.26	1.04	168.73	0.527	No	No	1.63
963	59.42	550.96	1.74	0.92	1.00	158.81	1.06	168.34	0.524	No	No	1.62
964	59.47	539.34	1.75	0.93	1.00	155.35	1.08	167.78	0.519	No	No	1.61
965	59.51	539.41	1.75	0.95	1.00	155.29	1.09	168.63	0.526	No	No	1.63
966	59.56	537.97	1.75	0.95	1.00	154.79	1.09	168.59	0.526	No	No	1.63
967	59.61	537.36	1.74	0.90	1.00	154.53	1.06	164.50	0.494	No	No	1.53
968	59.67	541.98	1.70	0.80	1.00	155.77	1.00	155.77	0.432	No	No	1.34
969	59.71	553.73	1.65	0.69	1.00	159.11	1.00	159.11	0.455	No	No	1.41
970	59.80	555.82	1.61	0.59	1.00	159.56	1.00	159.56	0.458	No	No	1.42
971	59.85	552.45	1.59	0.54	1.00	158.50	1.00	158.50	0.450	No	No	1.40
972	59.90	542.21	1.59	0.53	1.00	155.47	1.00	155.47	0.429	No	No	1.33
973	60.00	542.99	1.59	0.54	1.00	155.53	1.00	155.53	0.430	No	No	1.33
974	60.04	541.71	1.60	0.56	1.00	155.09	1.00	155.09	0.427	No	No	1.33
975	60.10	526.52	1.63	0.60	1.00	150.62	1.00	150.62	0.398	No	No	1.23
976	60.15	508.32	1.67	0.66	1.00	145.30	1.00	145.30	0.365	No	No	1.13
977	60.19	487.40	1.70	0.69	1.00	139.22	1.00	139.22	0.331	No	No	1.03
978	60.23	483.49	1.69	0.66	1.00	138.03	1.00	138.03	0.325	No	No	1.01
979	60.28	482.61	1.68	0.63	1.00	137.71	1.00	137.71	0.323	No	No	1.00
980	60.33	488.98	1.67	0.62	1.00	139.47	1.00	139.47	0.332	No	No	1.03
981	60.38	491.97	1.67	0.64	1.00	140.26	1.00	140.26	0.337	No	No	1.05
982	60.42	493.85	1.69	0.68	1.00	140.74	1.00	140.74	0.339	No	No	1.05
983	60.44	487.18	1.71	0.72	1.00	138.79	1.01	140.24	0.337	No	No	1.05
984	60.47	475.94	1.74	0.79	1.00	135.53	1.08	145.72	0.368	No	No	1.14
985	60.52	465.53	1.78	0.87	1.00	132.47	1.12	148.94	0.387	No	No	1.20
986	60.56	462.70	1.79	0.92	1.00	131.60	1.15	150.90	0.400	No	No	1.24
987	60.57	465.03	1.79	0.92	1.00	132.25	1.15	151.48	0.403	No	No	1.25
988	60.61	470.62	1.78	0.89	1.00	133.80	1.13	151.48	0.403	No	No	1.25
989	60.66	477.29	1.77	0.88	1.00	135.64	1.12	151.98	0.406	No	No	1.27
990	60.71	486.66	1.77	0.87	1.00	138.25	1.11	153.21	0.414	No	No	1.29
991	60.76	495.25	1.77	0.90	1.00	140.63	1.11	156.59	0.437	No	No	1.36
992	60.81	504.76	1.77	0.92	1.00	143.27	1.11	159.58	0.458	No	No	1.43
993	60.86	523.05	1.75	0.90	1.00	148.43	1.08	161.02	0.468	No	No	1.46
994	60.91	559.78	1.70	0.83	1.00	158.84	1.00	158.84	0.453	No	No	1.41
995	60.95	601.50	1.66	0.78	1.00	170.69	1.00	170.69	0.542	No	No	1.69
996	61.00	637.66	1.64	0.77	1.00	180.91	1.00	180.91	0.631	No	No	1.97
997	61.02	657.74	1.64	0.79	1.00	186.60	1.00	186.60	0.684	No	No	2.00
998	61.05	685.10	1.62	0.78	1.00	194.34	1.00	194.34	0.763	No	No	2.00
999	61.08	710.24	1.61	0.77	1.00	201.44	1.00	201.44	4.000	No	No	2.00
1000	61.09	731.84	1.59	0.76	1.00	207.57	1.00	207.57	4.000	No	No	2.00
1001	61.13	737.94	1.59	0.76	1.00	209.24	1.00	209.24	4.000	No	No	2.00
1002	61.14	739.46	1.60	0.77	1.00	209.63	1.00	209.63	4.000	No	No	2.00
1003	61.16	741.44	1.60	0.78	1.00	210.15	1.00	210.15	4.000	No	No	2.00
1004	61.20	750.88	1.58	0.75	1.00	212.77	1.00	212.77	4.000	No	No	2.00
1005	61.23	762.13	1.56	0.71	1.00	215.88	1.00	215.88	4.000	No	No	2.00
1006	61.24	766.92	1.52	0.62	1.00	217.23	1.00	217.23	4.000	No	No	2.00
1007	61.29	758.86	1.51	0.59	1.00	214.83	1.00	214.83	4.000	No	No	2.00
1008	61.30	744.24	1.52	0.59	1.00	210.65	1.00	210.65	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	61.33	734.57	1.55	0.65	1.00	207.82	1.00	207.82	4.000	No	No	2.00
1010	61.38	730.90	1.55	0.65	1.00	206.66	1.00	206.66	4.000	No	No	2.00
1011	61.43	731.07	1.53	0.60	1.00	206.60	1.00	206.60	4.000	No	No	2.00
1012	61.48	738.25	1.50	0.56	1.00	208.54	1.00	208.54	4.000	No	No	2.00
1013	61.53	750.91	1.48	0.53	1.00	212.02	1.00	212.02	4.000	No	No	2.00
1014	61.56	754.78	1.48	0.52	1.00	213.05	1.00	213.05	4.000	No	No	2.00
1015	61.58	726.93	1.50	0.54	1.00	205.10	1.00	205.10	4.000	No	No	2.00
1016	61.59	702.39	1.52	0.55	1.00	198.13	1.00	198.13	0.803	No	No	2.00
1017	61.62	600.70	1.61	0.64	1.00	169.24	1.00	169.24	0.531	No	No	1.66
1018	61.63	595.30	1.61	0.64	1.00	167.67	1.00	167.67	0.518	No	No	1.62
1019	61.67	588.36	1.62	0.64	1.00	165.65	1.00	165.65	0.503	No	No	1.57
1020	61.71	662.66	1.55	0.57	1.00	186.61	1.00	186.61	0.684	No	No	2.00
1021	61.76	655.52	1.55	0.57	1.00	184.50	1.00	184.50	0.664	No	No	2.00
1022	61.81	634.02	1.54	0.53	1.00	178.32	1.00	178.32	0.607	No	No	1.90
1023	61.86	615.02	1.52	0.48	1.00	172.85	1.00	172.85	0.560	No	No	1.75
1024	61.87	600.83	1.48	0.38	1.00	168.83	1.00	168.83	0.528	No	No	1.65
1025	61.91	588.87	1.44	0.32	1.00	165.39	1.00	165.39	0.501	No	No	1.57
1026	61.95	578.02	1.42	0.27	1.00	162.25	1.00	162.25	0.477	No	No	1.49
1027	61.96	566.74	1.42	0.26	1.00	159.04	1.00	159.04	0.454	No	No	1.42
1028	62.00	553.70	1.45	0.29	1.00	155.30	1.00	155.30	0.428	No	No	1.34
1029	62.04	535.16	1.49	0.33	1.00	150.01	1.00	150.01	0.394	No	No	1.23
1030	62.06	510.97	1.55	0.41	1.00	143.15	1.00	143.15	0.353	No	No	1.11
1031	62.10	491.66	1.60	0.47	1.00	137.65	1.00	137.65	0.323	No	No	1.01
1032	62.14	475.52	1.64	0.51	1.00	133.04	1.00	133.04	0.299	No	No	0.94
1033	62.20	463.08	1.66	0.55	1.00	129.46	1.00	129.46	0.282	No	No	0.88
1034	62.22	439.20	1.71	0.60	1.00	122.70	1.00	122.70	0.252	No	No	0.79
1035	62.27	415.48	1.75	0.66	1.00	115.96	1.08	125.13	0.262	No	No	0.82
1036	62.29	396.37	1.78	0.71	1.00	110.55	1.13	125.44	0.264	No	No	0.83
1037	62.34	380.26	1.82	0.77	1.00	105.96	1.17	124.22	0.258	No	No	0.81
1038	62.39	366.62	1.86	0.86	1.00	102.08	1.21	123.46	0.255	No	No	0.80
1039	62.43	347.78	1.93	1.03	1.00	96.73	1.26	121.51	0.247	No	No	0.77
1040	62.49	340.13	1.97	1.16	1.00	94.52	1.28	121.38	0.246	No	No	0.77
1041	62.57	336.43	1.99	1.25	1.00	93.40	1.30	121.70	0.248	No	No	0.78
1042	62.68	357.18	1.98	1.25	1.00	99.12	1.29	127.79	0.274	No	No	0.86
1043	62.75	398.26	1.93	1.21	1.00	110.56	1.26	139.12	0.330	No	No	1.04
1044	62.87	426.23	1.91	1.20	1.00	118.25	1.24	146.86	0.375	No	No	1.18
1045	62.88	409.21	1.93	1.22	1.00	113.48	1.25	142.25	0.348	No	No	1.09
1046	62.89	424.34	1.86	1.01	1.00	117.70	1.21	142.29	0.348	No	No	1.09
1047	62.93	485.42	1.74	0.76	1.00	134.75	1.06	142.80	0.351	No	No	1.10
1048	62.98	571.92	1.61	0.59	1.00	158.87	1.00	158.87	0.453	No	No	1.42
1049	63.02	620.24	1.47	0.38	1.00	172.30	1.00	172.30	0.556	No	No	1.75
1050	63.07	658.55	1.31	0.19	1.00	182.93	1.00	182.93	0.649	No	No	2.00
1051	63.12	710.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1052	63.14	752.36	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1053	63.17	781.30	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1054	63.17	799.36	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1055	63.20	825.98	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1056	63.21	830.83	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	63.23	842.91	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1058	63.26	834.75	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1059	63.28	841.52	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1060	63.31	838.10	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1061	63.32	839.38	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1062	63.36	837.12	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1063	63.40	836.85	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.01	2.00	0.00	0.00	0.02	0.00	0.04	2.00	0.00	0.00	0.02	0.00
0.09	2.00	0.00	0.00	0.05	0.00	0.11	2.00	0.00	0.00	0.02	0.00
0.14	2.00	0.00	0.00	0.03	0.00	0.14	2.00	0.00	0.00	0.01	0.00
0.18	2.00	0.00	0.00	0.04	0.00	0.23	2.00	0.00	0.00	0.05	0.00
0.24	2.00	0.00	0.00	0.01	0.00	0.28	2.00	0.00	0.00	0.04	0.00
0.33	2.00	0.00	0.00	0.05	0.00	0.38	2.00	0.00	0.00	0.05	0.00
0.42	2.00	0.00	0.00	0.05	0.00	0.47	2.00	0.00	0.00	0.05	0.00
0.51	2.00	0.00	0.00	0.04	0.00	0.52	2.00	0.00	0.00	0.01	0.00
0.57	2.00	0.00	0.00	0.05	0.00	0.61	2.00	0.00	0.00	0.04	0.00
0.67	2.00	0.00	0.00	0.05	0.00	0.73	2.00	0.00	0.00	0.06	0.00
0.81	2.00	0.00	0.00	0.08	0.00	0.86	2.00	0.00	0.00	0.05	0.00
0.98	2.00	0.00	0.00	0.12	0.00	1.05	2.00	0.00	0.00	0.07	0.00
1.15	2.00	0.00	0.00	0.10	0.00	1.24	2.00	0.00	0.00	0.09	0.00
1.34	2.00	0.00	0.00	0.10	0.00	1.43	2.00	0.00	0.00	0.09	0.00
1.53	2.00	0.00	0.00	0.10	0.00	1.58	2.00	0.00	0.00	0.05	0.00
1.62	2.00	0.00	0.00	0.04	0.00	1.67	2.00	0.00	0.00	0.05	0.00
1.75	2.00	0.00	0.00	0.07	0.00	1.77	2.00	0.00	0.00	0.03	0.00
1.81	2.00	0.00	0.00	0.04	0.00	1.86	2.00	0.00	0.00	0.04	0.00
1.91	2.00	0.00	0.00	0.05	0.00	1.95	2.00	0.00	0.00	0.04	0.00
2.00	2.00	0.00	0.00	0.05	0.00	2.05	2.00	0.00	0.00	0.05	0.00
2.11	2.00	0.00	0.00	0.06	0.00	2.20	2.00	0.00	0.00	0.09	0.00
2.24	2.00	0.00	0.00	0.05	0.00	2.29	2.00	0.00	0.00	0.05	0.00
2.34	2.00	0.00	0.00	0.05	0.00	2.44	2.00	0.00	0.00	0.10	0.00
2.48	2.00	0.00	0.00	0.05	0.00	2.58	2.00	0.00	0.00	0.10	0.00
2.63	2.00	0.00	0.00	0.05	0.00	2.71	2.00	0.00	0.00	0.08	0.00
2.78	2.00	0.00	0.00	0.07	0.00	2.82	2.00	0.00	0.00	0.04	0.00
2.89	2.00	0.00	0.00	0.07	0.00	2.96	2.00	0.00	0.00	0.08	0.00
3.03	2.00	0.00	0.00	0.07	0.00	3.11	2.00	0.00	0.00	0.08	0.00
3.19	2.00	0.00	0.00	0.09	0.00	3.25	2.00	0.00	0.00	0.06	0.00
3.35	2.00	0.00	0.00	0.10	0.00	3.41	2.00	0.00	0.00	0.05	0.00
3.50	2.00	0.00	0.00	0.09	0.00	3.59	2.00	0.00	0.00	0.09	0.00
3.69	2.00	0.00	0.00	0.10	0.00	3.79	2.00	0.00	0.00	0.09	0.00
3.88	2.00	0.00	0.00	0.09	0.00	3.97	2.00	0.00	0.00	0.10	0.00
4.07	2.00	0.00	0.00	0.09	0.00	4.14	2.00	0.00	0.00	0.07	0.00
4.17	2.00	0.00	0.00	0.04	0.00	4.26	2.00	0.00	0.00	0.09	0.00
4.32	2.00	0.00	0.00	0.05	0.00	4.37	2.00	0.00	0.00	0.05	0.00
4.42	2.00	0.00	0.00	0.06	0.00	4.51	2.00	0.00	0.00	0.08	0.00
4.61	2.00	0.00	0.00	0.10	0.00	4.65	2.00	0.00	0.00	0.05	0.00
4.74	2.00	0.00	0.00	0.09	0.00	4.80	2.00	0.00	0.00	0.06	0.00
4.89	2.00	0.00	0.00	0.09	0.00	4.95	2.00	0.00	0.00	0.05	0.00
5.04	2.00	0.00	0.00	0.09	0.00	5.13	2.00	0.00	0.00	0.09	0.00
5.18	2.00	0.00	0.00	0.05	0.00	5.28	2.00	0.00	0.00	0.10	0.00
5.32	2.00	0.00	0.00	0.04	0.00	5.42	2.00	0.00	0.00	0.10	0.00
5.51	2.00	0.00	0.00	0.09	0.00	5.60	2.00	0.00	0.00	0.09	0.00
5.66	2.00	0.00	0.00	0.06	0.00	5.76	2.00	0.00	0.00	0.09	0.00
5.85	2.00	0.00	0.00	0.09	0.00	5.92	2.00	0.00	0.00	0.07	0.00
5.95	2.00	0.00	0.00	0.03	0.00	5.97	2.00	0.00	0.00	0.02	0.00
6.02	2.00	0.00	0.00	0.06	0.00	6.06	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
6.16	2.00	0.00	0.00	0.10	0.00	6.21	2.00	0.00	0.00	0.04	0.00
6.26	2.00	0.00	0.00	0.06	0.00	6.31	2.00	0.00	0.00	0.04	0.00
6.40	2.00	0.00	0.00	0.09	0.00	6.44	2.00	0.00	0.00	0.04	0.00
6.52	2.00	0.00	0.00	0.08	0.00	6.57	2.00	0.00	0.00	0.05	0.00
6.64	2.00	0.00	0.00	0.07	0.00	6.69	2.00	0.00	0.00	0.05	0.00
6.78	2.00	0.00	0.00	0.09	0.00	6.83	2.00	0.00	0.00	0.05	0.00
6.92	2.00	0.00	0.00	0.09	0.00	6.97	2.00	0.00	0.00	0.05	0.00
7.03	2.00	0.00	0.00	0.05	0.00	7.12	2.00	0.00	0.00	0.09	0.00
7.22	2.00	0.00	0.00	0.10	0.00	7.27	2.00	0.00	0.00	0.05	0.00
7.36	2.00	0.00	0.00	0.09	0.00	7.43	2.00	0.00	0.00	0.08	0.00
7.50	2.00	0.00	0.00	0.07	0.00	7.59	2.00	0.00	0.00	0.09	0.00
7.64	2.00	0.00	0.00	0.05	0.00	7.75	2.00	0.00	0.00	0.10	0.00
7.79	2.00	0.00	0.00	0.04	0.00	7.89	2.00	0.00	0.00	0.10	0.00
7.99	2.00	0.00	0.00	0.10	0.00	8.04	2.00	0.00	0.00	0.05	0.00
8.13	2.00	0.00	0.00	0.09	0.00	8.23	2.00	0.00	0.00	0.10	0.00
8.32	2.00	0.00	0.00	0.09	0.00	8.37	2.00	0.00	0.00	0.05	0.00
8.46	2.00	0.00	0.00	0.09	0.00	8.56	2.00	0.00	0.00	0.10	0.00
8.59	2.00	0.00	0.00	0.02	0.00	8.61	2.00	0.00	0.00	0.03	0.00
8.67	2.00	0.00	0.00	0.05	0.00	8.71	2.00	0.00	0.00	0.04	0.00
8.72	2.00	0.00	0.00	0.01	0.00	8.78	2.00	0.00	0.00	0.06	0.00
8.80	2.00	0.00	0.00	0.02	0.00	8.86	2.00	0.00	0.00	0.05	0.00
8.90	2.00	0.00	0.00	0.04	0.00	8.95	2.00	0.00	0.00	0.05	0.00
8.96	2.00	0.00	0.00	0.01	0.00	9.00	2.00	0.00	0.00	0.04	0.00
9.05	2.00	0.00	0.00	0.05	0.00	9.09	2.00	0.00	0.00	0.04	0.00
9.10	2.00	0.00	0.00	0.01	0.00	9.14	2.00	0.00	0.00	0.05	0.00
9.20	2.00	0.00	0.00	0.05	0.00	9.24	2.00	0.00	0.00	0.04	0.00
9.29	2.00	0.00	0.00	0.05	0.00	9.31	2.00	0.00	0.00	0.02	0.00
9.38	2.00	0.00	0.00	0.07	0.00	9.41	2.00	0.00	0.00	0.03	0.00
9.47	2.00	0.00	0.00	0.06	0.00	9.53	2.00	0.00	0.00	0.05	0.00
9.62	2.00	0.00	0.00	0.09	0.00	9.67	2.00	0.00	0.00	0.05	0.00
9.77	2.00	0.00	0.00	0.10	0.00	9.81	2.00	0.00	0.00	0.05	0.00
9.90	2.00	0.00	0.00	0.08	0.00	9.97	2.00	0.00	0.00	0.08	0.00
10.06	2.00	0.00	0.00	0.09	0.00	10.20	2.00	0.00	0.00	0.14	0.00
10.30	2.00	0.00	0.00	0.09	0.00	10.44	2.00	0.00	0.00	0.14	0.00
10.54	2.00	0.00	0.00	0.10	0.00	10.63	2.00	0.00	0.00	0.09	0.00
10.74	2.00	0.00	0.00	0.11	0.00	10.78	2.00	0.00	0.00	0.04	0.00
10.83	2.00	0.00	0.00	0.05	0.00	10.88	2.00	0.00	0.00	0.05	0.00
10.89	2.00	0.00	0.00	0.02	0.00	10.97	2.00	0.00	0.00	0.08	0.00
11.02	2.00	0.00	0.00	0.05	0.00	11.07	2.00	0.00	0.00	0.05	0.00
11.11	2.00	0.00	0.00	0.05	0.00	11.16	2.00	0.00	0.00	0.05	0.00
11.21	2.00	0.00	0.00	0.05	0.00	11.26	2.00	0.00	0.00	0.04	0.00
11.30	2.00	0.00	0.00	0.05	0.00	11.36	2.00	0.00	0.00	0.05	0.00
11.40	2.00	0.00	0.00	0.05	0.00	11.45	2.00	0.00	0.00	0.04	0.00
11.50	2.00	0.00	0.00	0.05	0.00	11.55	2.00	0.00	0.00	0.05	0.00
11.60	2.00	0.00	0.00	0.05	0.00	11.66	2.00	0.00	0.00	0.07	0.00
11.74	2.00	0.00	0.00	0.08	0.00	11.84	2.00	0.00	0.00	0.10	0.00
11.93	2.00	0.00	0.00	0.09	0.00	12.04	2.00	0.00	0.00	0.11	0.00
12.13	2.00	0.00	0.00	0.09	0.00	12.22	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
12.27	2.00	0.00	0.00	0.04	0.00	12.37	2.00	0.00	0.00	0.10	0.00
12.41	2.00	0.00	0.00	0.05	0.00	12.51	2.00	0.00	0.00	0.09	0.00
12.56	2.00	0.00	0.00	0.05	0.00	12.65	2.00	0.00	0.00	0.09	0.00
12.71	2.00	0.00	0.00	0.06	0.00	12.79	2.00	0.00	0.00	0.08	0.00
12.89	2.00	0.00	0.00	0.10	0.00	12.96	2.00	0.00	0.00	0.06	0.00
13.04	2.00	0.00	0.00	0.08	0.00	13.13	2.00	0.00	0.00	0.09	0.00
13.23	2.00	0.00	0.00	0.10	0.00	13.30	2.00	0.00	0.00	0.07	0.00
13.37	2.00	0.00	0.00	0.07	0.00	13.47	2.00	0.00	0.00	0.10	0.00
13.57	2.00	0.00	0.00	0.10	0.00	13.61	2.00	0.00	0.00	0.04	0.00
13.62	2.00	0.00	0.00	0.02	0.00	13.68	2.00	0.00	0.00	0.06	0.00
13.73	2.00	0.00	0.00	0.05	0.00	13.77	2.00	0.00	0.00	0.04	0.00
13.87	2.00	0.00	0.00	0.10	0.00	13.93	2.00	0.00	0.00	0.06	0.00
14.00	2.00	0.00	0.00	0.07	0.00	14.06	2.00	0.00	0.00	0.06	0.00
14.12	2.00	0.00	0.00	0.06	0.00	14.21	2.00	0.00	0.00	0.09	0.00
14.25	2.00	0.00	0.00	0.05	0.00	14.35	2.00	0.00	0.00	0.10	0.00
14.45	2.00	0.00	0.00	0.09	0.00	14.50	2.00	0.00	0.00	0.05	0.00
14.59	2.00	0.00	0.00	0.09	0.00	14.64	2.00	0.00	0.00	0.05	0.00
14.74	2.00	0.00	0.00	0.10	0.00	14.80	2.00	0.00	0.00	0.06	0.00
14.88	2.00	0.00	0.00	0.09	0.00	14.97	2.00	0.00	0.00	0.09	0.00
15.05	2.00	0.00	0.00	0.08	0.00	15.13	2.00	0.00	0.00	0.09	0.00
15.21	2.00	0.00	0.00	0.08	0.00	15.28	2.00	0.00	0.00	0.07	0.00
15.36	2.00	0.00	0.00	0.08	0.00	15.41	2.00	0.00	0.00	0.04	0.00
15.50	2.00	0.00	0.00	0.10	0.00	15.55	2.00	0.00	0.00	0.05	0.00
15.65	2.00	0.00	0.00	0.10	0.00	15.71	2.00	0.00	0.00	0.06	0.00
15.79	2.00	0.00	0.00	0.08	0.00	15.89	2.00	0.00	0.00	0.10	0.00
15.90	2.00	0.00	0.00	0.01	0.00	15.94	2.00	0.00	0.00	0.04	0.00
16.00	2.00	0.00	0.00	0.06	0.00	16.06	2.00	0.00	0.00	0.06	0.00
16.14	2.00	0.00	0.00	0.08	0.00	16.19	2.00	0.00	0.00	0.05	0.00
16.26	2.00	0.00	0.00	0.07	0.00	16.33	2.00	0.00	0.00	0.07	0.00
16.38	2.00	0.00	0.00	0.05	0.00	16.47	2.00	0.00	0.00	0.09	0.00
16.54	2.00	0.00	0.00	0.06	0.00	16.62	2.00	0.00	0.00	0.08	0.00
16.70	2.00	0.00	0.00	0.09	0.00	16.76	2.00	0.00	0.00	0.06	0.00
16.86	2.00	0.00	0.00	0.10	0.00	16.90	2.00	0.00	0.00	0.04	0.00
16.98	2.00	0.00	0.00	0.08	0.00	17.05	2.00	0.00	0.00	0.07	0.00
17.14	2.00	0.00	0.00	0.09	0.00	17.20	2.00	0.00	0.00	0.05	0.00
17.29	2.00	0.00	0.00	0.10	0.00	17.34	2.00	0.00	0.00	0.05	0.00
17.44	2.00	0.00	0.00	0.10	0.00	17.50	2.00	0.00	0.00	0.06	0.00
17.58	2.00	0.00	0.00	0.09	0.00	17.64	2.00	0.00	0.00	0.06	0.00
17.75	2.00	0.00	0.00	0.11	0.00	17.82	2.00	0.00	0.00	0.06	0.00
17.89	2.00	0.00	0.00	0.07	0.00	17.89	2.00	0.00	0.00	0.00	0.00
17.96	2.00	0.00	0.00	0.07	0.00	18.02	2.00	0.00	0.00	0.05	0.00
18.07	2.00	0.00	0.00	0.05	0.00	18.17	2.00	0.00	0.00	0.10	0.00
18.22	2.00	0.00	0.00	0.05	0.00	18.30	2.00	0.00	0.00	0.09	0.00
18.36	2.00	0.00	0.00	0.06	0.00	18.42	2.00	0.00	0.00	0.06	0.00
18.50	2.00	0.00	0.00	0.08	0.00	18.56	2.00	0.00	0.00	0.06	0.00
18.62	2.00	0.00	0.00	0.06	0.00	18.69	2.00	0.00	0.00	0.07	0.00
18.76	2.00	0.00	0.00	0.07	0.00	18.84	2.00	0.00	0.00	0.08	0.00
18.89	2.00	0.00	0.00	0.05	0.00	18.98	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
19.05	2.00	0.00	0.00	0.06	0.00	19.12	2.00	0.00	0.00	0.07	0.00
19.18	2.00	0.00	0.00	0.06	0.00	19.24	2.00	0.00	0.00	0.06	0.00
19.32	2.00	0.00	0.00	0.07	0.00	19.38	2.00	0.00	0.00	0.06	0.00
19.46	2.00	0.00	0.00	0.09	0.00	19.54	2.00	0.00	0.00	0.07	0.00
19.62	2.00	0.00	0.00	0.08	0.00	19.70	2.00	0.00	0.00	0.08	0.00
19.80	2.00	0.00	0.00	0.10	0.00	19.85	2.00	0.00	0.00	0.05	0.00
19.94	2.00	0.00	0.00	0.09	0.00	20.03	2.00	0.00	0.00	0.09	0.00
20.13	2.00	0.00	0.00	0.10	0.00	20.19	2.00	0.00	0.00	0.06	0.00
20.29	2.00	0.00	0.00	0.10	0.00	20.39	2.00	0.00	0.00	0.10	0.00
20.43	2.00	0.00	0.00	0.03	0.00	20.47	2.00	0.00	0.00	0.05	0.00
20.52	2.00	0.00	0.00	0.05	0.00	20.61	2.00	0.00	0.00	0.09	0.00
20.66	2.00	0.00	0.00	0.05	0.00	20.71	2.00	0.00	0.00	0.05	0.00
20.77	2.00	0.00	0.00	0.06	0.00	20.85	2.00	0.00	0.00	0.08	0.00
20.91	2.00	0.00	0.00	0.05	0.00	21.00	2.00	0.00	0.00	0.09	0.00
21.05	2.00	0.00	0.00	0.05	0.00	21.11	2.00	0.00	0.00	0.06	0.00
21.19	2.00	0.00	0.00	0.08	0.00	21.24	2.00	0.00	0.00	0.05	0.00
21.34	2.00	0.00	0.00	0.09	0.00	21.39	2.00	0.00	0.00	0.05	0.00
21.48	2.00	0.00	0.00	0.10	0.00	21.53	2.00	0.00	0.00	0.05	0.00
21.64	2.00	0.00	0.00	0.11	0.00	21.72	2.00	0.00	0.00	0.08	0.00
21.81	2.00	0.00	0.00	0.09	0.00	21.89	2.00	0.00	0.00	0.08	0.00
21.97	2.00	0.00	0.00	0.08	0.00	22.05	2.00	0.00	0.00	0.09	0.00
22.12	2.00	0.00	0.00	0.07	0.00	22.13	2.00	0.00	0.00	0.01	0.00
22.18	2.00	0.00	0.00	0.05	0.00	22.22	2.00	0.00	0.00	0.04	0.00
22.28	2.00	0.00	0.00	0.06	0.00	22.33	2.00	0.00	0.00	0.05	0.00
22.38	2.00	0.00	0.00	0.05	0.00	22.41	2.00	0.00	0.00	0.03	0.00
22.51	2.00	0.00	0.00	0.10	0.00	22.56	2.00	0.00	0.00	0.05	0.00
22.61	2.00	0.00	0.00	0.05	0.00	22.65	2.00	0.00	0.00	0.04	0.00
22.71	2.00	0.00	0.00	0.05	0.00	22.76	2.00	0.00	0.00	0.06	0.00
22.85	2.00	0.00	0.00	0.08	0.00	22.89	2.00	0.00	0.00	0.05	0.00
22.99	2.00	0.00	0.00	0.10	0.00	23.04	2.00	0.00	0.00	0.05	0.00
23.12	2.00	0.00	0.00	0.08	0.00	23.18	2.00	0.00	0.00	0.07	0.00
23.24	2.00	0.00	0.00	0.06	0.00	23.33	2.00	0.00	0.00	0.09	0.00
23.38	2.00	0.00	0.00	0.05	0.00	23.47	2.00	0.00	0.00	0.09	0.00
23.52	2.00	0.00	0.00	0.05	0.00	23.61	2.00	0.00	0.00	0.09	0.00
23.68	2.00	0.00	0.00	0.07	0.00	23.76	2.00	0.00	0.00	0.08	0.00
23.83	2.00	0.00	0.00	0.07	0.00	23.90	2.00	0.00	0.00	0.08	0.00
23.97	2.00	0.00	0.00	0.07	0.00	24.05	2.00	0.00	0.00	0.08	0.00
24.10	2.00	0.00	0.00	0.05	0.00	24.19	2.00	0.00	0.00	0.09	0.00
24.27	2.00	0.00	0.00	0.08	0.00	24.34	2.00	0.00	0.00	0.07	0.00
24.43	2.00	0.00	0.00	0.09	0.00	24.48	2.00	0.00	0.00	0.05	0.00
24.57	2.00	0.00	0.00	0.09	0.00	24.62	2.00	0.00	0.00	0.05	0.00
24.72	2.00	0.00	0.00	0.09	0.00	24.81	2.00	0.00	0.00	0.10	0.00
24.86	2.00	0.00	0.00	0.05	0.00	24.95	2.00	0.00	0.00	0.09	0.00
25.01	2.00	0.00	0.00	0.06	0.00	25.02	2.00	0.00	0.00	0.01	0.00
25.05	2.00	0.00	0.00	0.03	0.00	25.11	2.00	0.00	0.00	0.06	0.00
25.15	2.00	0.00	0.00	0.04	0.00	25.21	2.00	0.00	0.00	0.06	0.00
25.25	2.00	0.00	0.00	0.04	0.00	25.30	2.00	0.00	0.00	0.05	0.00
25.40	2.00	0.00	0.00	0.10	0.00	25.45	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
25.52	2.00	0.00	0.00	0.07	0.00	25.60	2.00	0.00	0.00	0.07	0.00
25.66	2.00	0.00	0.00	0.06	0.00	25.74	2.00	0.00	0.00	0.08	0.00
25.80	2.00	0.00	0.00	0.06	0.00	25.88	2.00	0.00	0.00	0.07	0.00
25.94	2.00	0.00	0.00	0.07	0.00	26.02	2.00	0.00	0.00	0.08	0.00
26.09	2.00	0.00	0.00	0.07	0.00	26.17	2.00	0.00	0.00	0.08	0.00
26.23	2.00	0.00	0.00	0.06	0.00	26.29	2.00	0.00	0.00	0.06	0.00
26.37	2.00	0.00	0.00	0.08	0.00	26.46	2.00	0.00	0.00	0.08	0.00
26.55	2.00	0.00	0.00	0.09	0.00	26.60	2.00	0.00	0.00	0.05	0.00
26.70	2.00	0.00	0.00	0.10	0.00	26.78	2.00	0.00	0.00	0.08	0.00
26.87	2.00	0.00	0.00	0.09	0.00	26.94	2.00	0.00	0.00	0.06	0.00
27.03	2.00	0.00	0.00	0.10	0.00	27.13	2.00	0.00	0.00	0.10	0.00
27.18	2.00	0.00	0.00	0.05	0.00	27.27	2.00	0.00	0.00	0.09	0.00
27.32	2.00	0.00	0.00	0.05	0.00	27.37	2.00	0.00	0.00	0.05	0.00
27.41	2.00	0.00	0.00	0.05	0.00	27.46	2.00	0.00	0.00	0.05	0.00
27.51	2.00	0.00	0.00	0.05	0.00	27.61	2.00	0.00	0.00	0.09	0.00
27.66	2.00	0.00	0.00	0.05	0.00	27.73	2.00	0.00	0.00	0.07	0.00
27.80	2.00	0.00	0.00	0.07	0.00	27.88	2.00	0.00	0.00	0.08	0.00
27.96	2.00	0.00	0.00	0.09	0.00	28.04	2.00	0.00	0.00	0.08	0.00
28.12	2.00	0.00	0.00	0.08	0.00	28.18	2.00	0.00	0.00	0.06	0.00
28.27	2.00	0.00	0.00	0.09	0.00	28.32	2.00	0.00	0.00	0.05	0.00
28.42	2.00	0.00	0.00	0.10	0.00	28.47	2.00	0.00	0.00	0.05	0.00
28.61	2.00	0.00	0.00	0.14	0.00	28.67	2.00	0.00	0.00	0.06	0.00
28.75	2.00	0.00	0.00	0.09	0.00	28.81	2.00	0.00	0.00	0.05	0.00
28.90	2.00	0.00	0.00	0.10	0.00	29.00	2.00	0.00	0.00	0.09	0.00
29.05	2.00	0.00	0.00	0.05	0.00	29.10	2.00	0.00	0.00	0.05	0.00
29.15	2.00	0.00	0.00	0.05	0.00	29.24	2.00	0.00	0.00	0.09	0.00
29.29	2.00	0.00	0.00	0.05	0.00	29.37	2.00	0.00	0.00	0.07	0.00
29.43	2.00	0.00	0.00	0.06	0.00	29.53	2.00	0.00	0.00	0.10	0.00
29.62	2.00	0.00	0.00	0.09	0.00	29.68	2.00	0.00	0.00	0.06	0.00
29.80	2.00	0.00	0.00	0.12	0.00	29.91	2.00	0.00	0.00	0.12	0.00
30.00	0.61	0.00	0.00	0.09	0.06	30.07	0.62	0.00	0.00	0.07	0.04
30.15	0.62	0.00	0.00	0.08	0.05	30.21	0.62	0.00	0.00	0.07	0.04
30.26	0.62	0.00	0.00	0.05	0.03	30.31	0.61	0.00	0.00	0.05	0.03
30.38	0.61	0.00	0.00	0.07	0.05	30.45	0.60	0.00	0.00	0.07	0.05
30.50	0.60	0.00	0.00	0.05	0.03	30.55	0.59	0.00	0.00	0.05	0.03
30.64	0.58	0.00	0.00	0.09	0.06	30.70	0.56	0.00	0.00	0.05	0.04
30.79	0.55	0.00	0.00	0.09	0.07	30.84	0.54	0.00	0.00	0.05	0.04
30.93	0.54	0.00	0.00	0.09	0.07	30.98	0.54	0.00	0.00	0.05	0.04
31.05	0.55	0.00	0.00	0.06	0.05	31.13	0.56	0.00	0.00	0.08	0.06
31.17	0.58	0.00	0.00	0.05	0.03	31.27	0.61	0.00	0.00	0.10	0.06
31.32	0.67	0.00	0.00	0.05	0.03	31.41	0.73	0.00	0.00	0.10	0.04
31.46	0.78	0.00	0.00	0.05	0.02	31.52	0.80	0.00	0.00	0.06	0.02
31.61	0.79	0.00	0.00	0.08	0.03	31.66	0.76	0.00	0.00	0.06	0.02
31.75	0.71	0.00	0.00	0.09	0.04	31.80	0.66	0.00	0.00	0.05	0.03
31.90	0.61	0.00	0.00	0.10	0.06	31.94	0.59	0.00	0.00	0.05	0.03
32.04	0.59	0.00	0.00	0.10	0.06	32.09	0.62	0.00	0.00	0.04	0.03
32.20	0.63	0.00	0.00	0.11	0.06	32.24	0.65	0.00	0.00	0.04	0.02
32.28	0.65	0.00	0.00	0.04	0.02	32.29	0.66	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
32.30	0.67	0.00	0.00	0.01	0.01	32.40	0.67	0.00	0.00	0.10	0.05
32.45	0.67	0.00	0.00	0.04	0.02	32.55	0.67	0.00	0.00	0.10	0.05
32.59	0.67	0.00	0.00	0.05	0.02	32.69	0.67	0.00	0.00	0.10	0.05
32.76	0.68	0.00	0.00	0.07	0.03	32.84	0.69	0.00	0.00	0.08	0.04
32.90	0.70	0.00	0.00	0.07	0.03	32.98	0.70	0.00	0.00	0.08	0.03
33.06	0.71	0.00	0.00	0.08	0.03	33.12	0.71	0.00	0.00	0.06	0.03
33.22	0.72	0.00	0.00	0.10	0.04	33.31	0.72	0.00	0.00	0.09	0.04
33.37	0.72	0.00	0.00	0.05	0.02	33.46	0.71	0.00	0.00	0.09	0.04
33.55	0.71	0.00	0.00	0.09	0.04	33.65	0.71	0.00	0.00	0.10	0.04
33.70	0.71	0.00	0.00	0.05	0.02	33.79	0.71	0.00	0.00	0.09	0.04
33.89	0.71	0.00	0.00	0.10	0.04	33.99	0.70	0.00	0.00	0.09	0.04
34.04	0.69	0.00	0.00	0.05	0.02	34.13	0.68	0.00	0.00	0.09	0.04
34.23	0.67	0.00	0.00	0.10	0.05	34.32	0.66	0.00	0.00	0.09	0.05
34.37	0.66	0.00	0.00	0.05	0.02	34.47	0.66	0.00	0.00	0.10	0.05
34.55	2.00	0.00	0.00	0.08	0.00	34.63	2.00	0.00	0.00	0.08	0.00
34.73	2.00	0.00	0.00	0.10	0.00	34.80	2.00	0.00	0.00	0.08	0.00
34.90	2.00	0.00	0.00	0.09	0.00	35.00	2.00	0.00	0.00	0.10	0.00
35.12	2.00	0.00	0.00	0.13	0.00	35.20	2.00	0.00	0.00	0.07	0.00
35.33	2.00	0.00	0.00	0.13	0.00	35.41	2.00	0.00	0.00	0.07	0.00
35.44	2.00	0.00	0.00	0.03	0.00	35.48	2.00	0.00	0.00	0.05	0.00
35.57	2.00	0.00	0.00	0.09	0.00	35.62	2.00	0.00	0.00	0.05	0.00
35.67	2.00	0.00	0.00	0.05	0.00	35.71	2.00	0.00	0.00	0.04	0.00
35.82	2.00	0.00	0.00	0.10	0.00	35.86	2.00	0.00	0.00	0.05	0.00
35.93	2.00	0.00	0.00	0.07	0.00	36.01	2.00	0.00	0.00	0.08	0.00
36.06	2.00	0.00	0.00	0.05	0.00	36.12	1.75	0.00	0.00	0.06	0.00
36.18	1.84	0.00	0.00	0.06	0.00	36.25	1.91	0.00	0.00	0.07	0.00
36.30	2.00	0.00	0.00	0.05	0.00	36.39	2.00	0.00	0.00	0.10	0.00
36.44	2.00	0.00	0.00	0.05	0.00	36.53	2.00	0.00	0.00	0.09	0.00
36.59	2.00	0.00	0.00	0.05	0.00	36.68	2.00	0.00	0.00	0.09	0.00
36.75	1.91	0.00	0.00	0.07	0.00	36.83	1.77	0.00	0.00	0.08	0.00
36.90	1.65	0.00	0.00	0.07	0.00	36.97	1.53	0.00	0.00	0.07	0.00
37.02	1.31	0.00	0.00	0.05	0.00	37.04	1.21	0.00	0.00	0.02	0.00
37.08	1.14	0.00	0.00	0.04	0.00	37.17	1.16	0.00	0.00	0.09	0.00
37.27	1.09	0.00	0.00	0.10	0.00	37.37	1.02	0.00	0.00	0.09	0.00
37.42	0.96	0.00	0.00	0.05	0.00	37.51	0.93	0.00	0.00	0.09	0.01
37.58	0.92	0.00	0.00	0.07	0.01	37.66	0.93	0.00	0.00	0.07	0.01
37.76	0.95	0.00	0.00	0.10	0.01	37.85	0.96	0.00	0.00	0.09	0.00
37.93	0.97	0.00	0.00	0.08	0.00	38.04	0.98	0.00	0.00	0.11	0.00
38.13	0.99	0.00	0.00	0.09	0.00	38.18	0.99	0.00	0.00	0.05	0.00
38.28	0.98	0.00	0.00	0.10	0.00	38.37	0.95	0.00	0.00	0.09	0.01
38.47	0.93	0.00	0.00	0.09	0.01	38.57	0.91	0.00	0.00	0.10	0.01
38.62	0.88	0.00	0.00	0.04	0.01	38.72	0.81	0.00	0.00	0.10	0.02
38.78	0.76	0.00	0.00	0.06	0.02	38.81	0.74	0.00	0.00	0.02	0.01
38.86	0.74	0.00	0.00	0.05	0.02	38.91	0.72	0.00	0.00	0.05	0.02
38.95	0.70	0.00	0.00	0.05	0.02	39.05	0.68	0.00	0.00	0.10	0.04
39.09	0.67	0.00	0.00	0.05	0.02	39.14	0.66	0.00	0.00	0.05	0.02
39.24	0.65	0.00	0.00	0.10	0.04	39.29	0.65	0.00	0.00	0.05	0.02
39.39	0.65	0.00	0.00	0.10	0.04	39.43	0.65	0.00	0.00	0.05	0.02

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
39.53	0.65	0.00	0.00	0.10	0.04	39.57	0.64	0.00	0.00	0.04	0.02
39.68	0.64	0.00	0.00	0.10	0.04	39.73	0.64	0.00	0.00	0.05	0.02
39.81	0.63	0.00	0.00	0.08	0.04	39.89	0.60	0.00	0.00	0.08	0.04
39.96	0.56	0.00	0.00	0.07	0.03	40.06	0.54	0.00	0.00	0.10	0.05
40.15	0.53	0.00	0.00	0.09	0.05	40.20	0.53	0.00	0.00	0.06	0.03
40.24	0.53	0.00	0.00	0.04	0.02	40.26	0.54	0.00	0.00	0.01	0.01
40.27	0.54	0.00	0.00	0.02	0.01	40.37	0.55	0.00	0.00	0.09	0.05
40.42	0.55	0.00	0.00	0.05	0.02	40.52	0.56	0.00	0.00	0.10	0.05
40.56	0.57	0.00	0.00	0.04	0.02	40.66	0.58	0.00	0.00	0.10	0.05
40.70	0.61	0.00	0.00	0.05	0.02	40.75	0.65	0.00	0.00	0.05	0.02
40.85	0.71	0.00	0.00	0.10	0.03	40.91	0.77	0.00	0.00	0.06	0.01
40.96	0.85	0.00	0.00	0.05	0.01	41.04	0.92	0.00	0.00	0.08	0.01
41.09	1.01	0.00	0.00	0.05	0.00	41.18	1.08	0.00	0.00	0.09	0.00
41.23	1.15	0.00	0.00	0.05	0.00	41.29	1.19	0.00	0.00	0.06	0.00
41.38	1.19	0.00	0.00	0.09	0.00	41.42	1.19	0.00	0.00	0.05	0.00
41.52	1.16	0.00	0.00	0.10	0.00	41.57	1.13	0.00	0.00	0.05	0.00
41.62	1.11	0.00	0.00	0.05	0.00	41.71	1.09	0.00	0.00	0.09	0.00
41.76	1.08	0.00	0.00	0.04	0.00	41.84	1.08	0.00	0.00	0.09	0.00
41.91	1.08	0.00	0.00	0.07	0.00	41.95	1.08	0.00	0.00	0.05	0.00
42.01	1.10	0.00	0.00	0.06	0.00	42.10	1.11	0.00	0.00	0.08	0.00
42.15	1.14	0.00	0.00	0.05	0.00	42.24	1.16	0.00	0.00	0.09	0.00
42.28	1.17	0.00	0.00	0.04	0.00	42.39	1.16	0.00	0.00	0.10	0.00
42.43	1.14	0.00	0.00	0.04	0.00	42.50	1.13	0.00	0.00	0.07	0.00
42.58	1.12	0.00	0.00	0.08	0.00	42.65	1.03	0.00	0.00	0.07	0.00
42.70	1.00	0.00	0.00	0.06	0.00	42.73	0.97	0.00	0.00	0.02	0.00
42.77	1.02	0.00	0.00	0.04	0.00	42.82	1.05	0.00	0.00	0.05	0.00
42.87	1.10	0.00	0.00	0.05	0.00	42.91	1.17	0.00	0.00	0.04	0.00
42.97	1.24	0.00	0.00	0.05	0.00	43.02	1.30	0.00	0.00	0.05	0.00
43.06	1.35	0.00	0.00	0.05	0.00	43.11	1.40	0.00	0.00	0.04	0.00
43.17	1.45	0.00	0.00	0.06	0.00	43.21	1.51	0.00	0.00	0.04	0.00
43.29	1.55	0.00	0.00	0.08	0.00	43.34	1.61	0.00	0.00	0.05	0.00
43.39	1.65	0.00	0.00	0.06	0.00	43.45	1.67	0.00	0.00	0.05	0.00
43.51	1.66	0.00	0.00	0.06	0.00	43.59	1.64	0.00	0.00	0.08	0.00
43.64	1.60	0.00	0.00	0.05	0.00	43.70	1.54	0.00	0.00	0.06	0.00
43.78	1.47	0.00	0.00	0.09	0.00	43.88	1.43	0.00	0.00	0.10	0.00
43.94	1.39	0.00	0.00	0.06	0.00	44.04	1.31	0.00	0.00	0.10	0.00
44.07	1.22	0.00	0.00	0.03	0.00	44.12	1.20	0.00	0.00	0.05	0.00
44.16	1.17	0.00	0.00	0.04	0.00	44.21	1.14	0.00	0.00	0.05	0.00
44.26	1.10	0.00	0.00	0.05	0.00	44.31	1.06	0.00	0.00	0.05	0.00
44.35	1.03	0.00	0.00	0.04	0.00	44.40	0.99	0.00	0.00	0.05	0.00
44.45	0.96	0.00	0.00	0.05	0.00	44.50	0.94	0.00	0.00	0.05	0.00
44.54	0.93	0.00	0.00	0.04	0.00	44.60	0.91	0.00	0.00	0.06	0.01
44.64	0.89	0.00	0.00	0.05	0.00	44.69	0.88	0.00	0.00	0.05	0.01
44.74	0.87	0.00	0.00	0.05	0.01	44.79	0.87	0.00	0.00	0.04	0.01
44.83	0.87	0.00	0.00	0.05	0.01	44.88	0.88	0.00	0.00	0.05	0.01
44.93	0.89	0.00	0.00	0.05	0.01	44.98	0.91	0.00	0.00	0.05	0.00
45.03	0.92	0.00	0.00	0.05	0.00	45.08	0.93	0.00	0.00	0.06	0.00
45.16	0.94	0.00	0.00	0.08	0.00	45.19	0.94	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
45.27	0.93	0.00	0.00	0.08	0.01	45.32	0.92	0.00	0.00	0.05	0.00
45.37	0.89	0.00	0.00	0.05	0.00	45.45	0.85	0.00	0.00	0.09	0.01
45.51	0.80	0.00	0.00	0.05	0.01	45.56	2.00	0.00	0.00	0.05	0.00
45.61	2.00	0.00	0.00	0.05	0.00	45.69	2.00	0.00	0.00	0.08	0.00
45.75	2.00	0.00	0.00	0.06	0.00	45.81	2.00	0.00	0.00	0.07	0.00
45.89	2.00	0.00	0.00	0.08	0.00	45.94	2.00	0.00	0.00	0.05	0.00
46.04	2.00	0.00	0.00	0.10	0.00	46.08	2.00	0.00	0.00	0.04	0.00
46.15	2.00	0.00	0.00	0.06	0.00	46.17	2.00	0.00	0.00	0.02	0.00
46.18	2.00	0.00	0.00	0.01	0.00	46.23	2.00	0.00	0.00	0.05	0.00
46.27	2.00	0.00	0.00	0.05	0.00	46.32	2.00	0.00	0.00	0.05	0.00
46.41	2.00	0.00	0.00	0.09	0.00	46.47	2.00	0.00	0.00	0.06	0.00
46.52	2.00	0.00	0.00	0.05	0.00	46.56	2.00	0.00	0.00	0.04	0.00
46.65	2.00	0.00	0.00	0.09	0.00	46.71	2.00	0.00	0.00	0.06	0.00
46.76	2.00	0.00	0.00	0.05	0.00	46.85	2.00	0.00	0.00	0.09	0.00
46.90	2.00	0.00	0.00	0.05	0.00	46.99	2.00	0.00	0.00	0.09	0.00
47.04	2.00	0.00	0.00	0.06	0.00	47.10	2.00	0.00	0.00	0.05	0.00
47.16	2.00	0.00	0.00	0.06	0.00	47.23	2.00	0.00	0.00	0.07	0.00
47.30	2.00	0.00	0.00	0.06	0.00	47.38	2.00	0.00	0.00	0.09	0.00
47.43	2.00	0.00	0.00	0.05	0.00	47.52	2.00	0.00	0.00	0.09	0.00
47.59	2.00	0.00	0.00	0.07	0.00	47.66	2.00	0.00	0.00	0.07	0.00
47.77	2.00	0.00	0.00	0.10	0.00	47.82	2.00	0.00	0.00	0.05	0.00
47.91	2.00	0.00	0.00	0.08	0.00	47.93	2.00	0.00	0.00	0.03	0.00
47.97	2.00	0.00	0.00	0.04	0.00	48.02	2.00	0.00	0.00	0.05	0.00
48.07	2.00	0.00	0.00	0.05	0.00	48.12	2.00	0.00	0.00	0.05	0.00
48.19	2.00	0.00	0.00	0.07	0.00	48.23	2.00	0.00	0.00	0.04	0.00
48.31	2.00	0.00	0.00	0.08	0.00	48.35	2.00	0.00	0.00	0.05	0.00
48.40	2.00	0.00	0.00	0.05	0.00	48.45	2.00	0.00	0.00	0.05	0.00
48.50	2.00	0.00	0.00	0.05	0.00	48.55	2.00	0.00	0.00	0.05	0.00
48.59	2.00	0.00	0.00	0.04	0.00	48.67	2.00	0.00	0.00	0.08	0.00
48.73	2.00	0.00	0.00	0.05	0.00	48.78	2.00	0.00	0.00	0.06	0.00
48.83	2.00	0.00	0.00	0.05	0.00	48.91	2.00	0.00	0.00	0.07	0.00
48.98	2.00	0.00	0.00	0.07	0.00	49.03	2.00	0.00	0.00	0.05	0.00
49.12	2.00	0.00	0.00	0.09	0.00	49.17	2.00	0.00	0.00	0.05	0.00
49.27	2.00	0.00	0.00	0.09	0.00	49.31	2.00	0.00	0.00	0.05	0.00
49.38	2.00	0.00	0.00	0.06	0.00	49.45	2.00	0.00	0.00	0.08	0.00
49.51	2.00	0.00	0.00	0.05	0.00	49.54	2.00	0.00	0.00	0.03	0.00
49.59	2.00	0.00	0.00	0.05	0.00	49.64	2.00	0.00	0.00	0.05	0.00
49.73	2.00	0.00	0.00	0.10	0.00	49.83	2.00	0.00	0.00	0.10	0.00
49.92	2.00	0.00	0.00	0.10	0.00	49.98	2.00	0.00	0.00	0.05	0.00
50.07	2.00	0.00	0.00	0.09	0.00	50.16	2.00	0.00	0.00	0.09	0.00
50.24	2.00	0.00	0.00	0.09	0.00	50.32	2.00	0.00	0.00	0.08	0.00
50.41	2.00	0.00	0.00	0.09	0.00	50.50	2.00	0.00	0.00	0.09	0.00
50.56	2.00	0.00	0.00	0.06	0.00	50.66	2.00	0.00	0.00	0.10	0.00
50.74	2.00	0.00	0.00	0.09	0.00	50.84	2.00	0.00	0.00	0.10	0.00
50.93	2.00	0.00	0.00	0.09	0.00	50.98	2.00	0.00	0.00	0.05	0.00
51.08	2.00	0.00	0.00	0.09	0.00	51.17	2.00	0.00	0.00	0.10	0.00
51.24	2.00	0.00	0.00	0.06	0.00	51.34	2.00	0.00	0.00	0.10	0.00
51.41	2.00	0.00	0.00	0.07	0.00	51.51	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
51.58	2.00	0.00	0.00	0.07	0.00	51.68	2.00	0.00	0.00	0.10	0.00
51.79	2.00	0.00	0.00	0.11	0.00	51.82	2.00	0.00	0.00	0.03	0.00
51.85	2.00	0.00	0.00	0.03	0.00	51.91	2.00	0.00	0.00	0.06	0.00
52.00	2.00	0.00	0.00	0.09	0.00	52.05	2.00	0.00	0.00	0.05	0.00
52.10	2.00	0.00	0.00	0.06	0.00	52.19	2.00	0.00	0.00	0.09	0.00
52.28	2.00	0.00	0.00	0.09	0.00	52.34	2.00	0.00	0.00	0.06	0.00
52.42	2.00	0.00	0.00	0.08	0.00	52.48	2.00	0.00	0.00	0.06	0.00
52.57	2.00	0.00	0.00	0.09	0.00	52.62	2.00	0.00	0.00	0.05	0.00
52.69	2.00	0.00	0.00	0.07	0.00	52.77	2.00	0.00	0.00	0.08	0.00
52.87	2.00	0.00	0.00	0.10	0.00	52.91	2.00	0.00	0.00	0.04	0.00
53.01	2.00	0.00	0.00	0.10	0.00	53.10	2.00	0.00	0.00	0.09	0.00
53.16	2.00	0.00	0.00	0.06	0.00	53.25	2.00	0.00	0.00	0.09	0.00
53.29	2.00	0.00	0.00	0.04	0.00	53.38	2.00	0.00	0.00	0.09	0.00
53.42	2.00	0.00	0.00	0.04	0.00	53.47	2.00	0.00	0.00	0.05	0.00
53.52	2.00	0.00	0.00	0.05	0.00	53.58	2.00	0.00	0.00	0.05	0.00
53.66	2.00	0.00	0.00	0.08	0.00	53.75	2.00	0.00	0.00	0.09	0.00
53.81	2.00	0.00	0.00	0.05	0.00	53.87	2.00	0.00	0.00	0.06	0.00
53.95	2.00	0.00	0.00	0.08	0.00	54.01	2.00	0.00	0.00	0.06	0.00
54.06	2.00	0.00	0.00	0.05	0.00	54.15	2.00	0.00	0.00	0.08	0.00
54.20	2.00	0.00	0.00	0.06	0.00	54.29	2.00	0.00	0.00	0.08	0.00
54.34	2.00	0.00	0.00	0.05	0.00	54.43	2.00	0.00	0.00	0.09	0.00
54.45	2.00	0.00	0.00	0.02	0.00	54.48	2.00	0.00	0.00	0.03	0.00
54.52	2.00	0.00	0.00	0.03	0.00	54.53	2.00	0.00	0.00	0.01	0.00
54.58	0.45	0.00	0.00	0.05	0.01	54.62	0.47	0.00	0.00	0.04	0.01
54.65	0.50	0.00	0.00	0.03	0.01	54.70	0.52	0.00	0.00	0.04	0.01
54.76	0.54	0.00	0.00	0.06	0.01	54.77	0.55	0.00	0.00	0.01	0.00
54.82	0.55	0.00	0.00	0.05	0.01	54.87	0.56	0.00	0.00	0.05	0.01
54.88	0.56	0.00	0.00	0.01	0.00	54.91	0.56	0.00	0.00	0.03	0.01
54.96	0.58	0.00	0.00	0.05	0.01	54.97	0.62	0.00	0.00	0.01	0.00
55.03	0.68	0.00	0.00	0.06	0.01	55.09	0.74	0.00	0.00	0.06	0.01
55.15	0.75	0.00	0.00	0.06	0.01	55.20	0.76	0.00	0.00	0.05	0.01
55.25	0.75	0.00	0.00	0.05	0.01	55.30	0.85	0.00	0.00	0.05	0.00
55.34	0.93	0.00	0.00	0.05	0.00	55.39	1.12	0.00	0.00	0.04	0.00
55.40	1.27	0.00	0.00	0.01	0.00	55.44	1.34	0.00	0.00	0.04	0.00
55.44	1.34	0.00	0.00	0.01	0.00	55.49	1.42	0.00	0.00	0.05	0.00
55.54	1.58	0.00	0.00	0.05	0.00	55.59	1.79	0.00	0.00	0.05	0.00
55.63	1.90	0.00	0.00	0.04	0.00	55.64	1.91	0.00	0.00	0.01	0.00
55.68	1.89	0.00	0.00	0.04	0.00	55.69	1.85	0.00	0.00	0.01	0.00
55.69	1.88	0.00	0.00	0.01	0.00	55.71	1.98	0.00	0.00	0.02	0.00
55.76	2.00	0.00	0.00	0.05	0.00	55.78	2.00	0.00	0.00	0.02	0.00
55.81	1.92	0.00	0.00	0.04	0.00	55.85	1.77	0.00	0.00	0.04	0.00
55.86	1.80	0.00	0.00	0.01	0.00	55.91	1.88	0.00	0.00	0.05	0.00
55.92	1.91	0.00	0.00	0.01	0.00	55.96	2.00	0.00	0.00	0.04	0.00
55.97	2.00	0.00	0.00	0.01	0.00	56.00	2.00	0.00	0.00	0.03	0.00
56.01	2.00	0.00	0.00	0.01	0.00	56.03	2.00	0.00	0.00	0.02	0.00
56.05	2.00	0.00	0.00	0.02	0.00	56.10	2.00	0.00	0.00	0.05	0.00
56.12	2.00	0.00	0.00	0.02	0.00	56.16	2.00	0.00	0.00	0.04	0.00
56.17	2.00	0.00	0.00	0.02	0.00	56.20	2.00	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
56.22	2.00	0.00	0.00	0.02	0.00	56.24	1.95	0.00	0.00	0.03	0.00
56.30	1.89	0.00	0.00	0.06	0.00	56.31	1.84	0.00	0.00	0.01	0.00
56.34	1.76	0.00	0.00	0.03	0.00	56.39	1.70	0.00	0.00	0.05	0.00
56.45	1.65	0.00	0.00	0.06	0.00	56.48	1.60	0.00	0.00	0.03	0.00
56.49	1.53	0.00	0.00	0.01	0.00	56.53	1.60	0.00	0.00	0.04	0.00
56.58	1.62	0.00	0.00	0.05	0.00	56.63	1.32	0.00	0.00	0.05	0.00
56.68	1.33	0.00	0.00	0.04	0.00	56.73	1.36	0.00	0.00	0.05	0.00
56.78	1.33	0.00	0.00	0.05	0.00	56.83	1.27	0.00	0.00	0.05	0.00
56.89	1.35	0.00	0.00	0.07	0.00	56.95	1.43	0.00	0.00	0.06	0.00
56.99	1.44	0.00	0.00	0.04	0.00	57.01	1.43	0.00	0.00	0.01	0.00
57.04	1.43	0.00	0.00	0.04	0.00	57.09	1.44	0.00	0.00	0.05	0.00
57.11	1.49	0.00	0.00	0.02	0.00	57.13	1.58	0.00	0.00	0.03	0.00
57.18	1.63	0.00	0.00	0.04	0.00	57.19	1.62	0.00	0.00	0.01	0.00
57.21	1.56	0.00	0.00	0.03	0.00	57.24	1.50	0.00	0.00	0.02	0.00
57.28	1.49	0.00	0.00	0.05	0.00	57.32	1.44	0.00	0.00	0.04	0.00
57.35	1.41	0.00	0.00	0.04	0.00	57.38	1.36	0.00	0.00	0.03	0.00
57.43	1.32	0.00	0.00	0.04	0.00	57.48	1.21	0.00	0.00	0.05	0.00
57.52	1.10	0.00	0.00	0.05	0.00	57.57	1.07	0.00	0.00	0.05	0.00
57.62	1.14	0.00	0.00	0.05	0.00	57.68	1.35	0.00	0.00	0.06	0.00
57.76	1.55	0.00	0.00	0.08	0.00	57.81	1.44	0.00	0.00	0.05	0.00
57.86	1.40	0.00	0.00	0.05	0.00	57.89	1.60	0.00	0.00	0.03	0.00
57.91	1.68	0.00	0.00	0.02	0.00	57.92	1.63	0.00	0.00	0.01	0.00
57.95	1.57	0.00	0.00	0.03	0.00	57.99	1.58	0.00	0.00	0.04	0.00
58.01	1.64	0.00	0.00	0.02	0.00	58.05	1.73	0.00	0.00	0.04	0.00
58.05	1.79	0.00	0.00	0.01	0.00	58.10	1.83	0.00	0.00	0.05	0.00
58.13	1.88	0.00	0.00	0.03	0.00	58.15	1.94	0.00	0.00	0.01	0.00
58.17	1.99	0.00	0.00	0.03	0.00	58.20	1.98	0.00	0.00	0.02	0.00
58.21	1.94	0.00	0.00	0.01	0.00	58.21	1.90	0.00	0.00	0.00	0.00
58.23	1.90	0.00	0.00	0.02	0.00	58.24	1.85	0.00	0.00	0.01	0.00
58.25	1.86	0.00	0.00	0.01	0.00	58.29	1.90	0.00	0.00	0.04	0.00
58.31	2.00	0.00	0.00	0.02	0.00	58.33	2.00	0.00	0.00	0.02	0.00
58.38	2.00	0.00	0.00	0.05	0.00	58.39	2.00	0.00	0.00	0.01	0.00
58.43	2.00	0.00	0.00	0.04	0.00	58.43	2.00	0.00	0.00	0.01	0.00
58.48	2.00	0.00	0.00	0.05	0.00	58.53	2.00	0.00	0.00	0.05	0.00
58.56	2.00	0.00	0.00	0.02	0.00	58.58	2.00	0.00	0.00	0.03	0.00
58.59	2.00	0.00	0.00	0.01	0.00	58.63	2.00	0.00	0.00	0.03	0.00
58.63	2.00	0.00	0.00	0.00	0.00	58.63	2.00	0.00	0.00	0.01	0.00
58.68	2.00	0.00	0.00	0.04	0.00	58.69	2.00	0.00	0.00	0.01	0.00
58.72	2.00	0.00	0.00	0.03	0.00	58.73	2.00	0.00	0.00	0.01	0.00
58.74	2.00	0.00	0.00	0.01	0.00	58.77	2.00	0.00	0.00	0.03	0.00
58.81	2.00	0.00	0.00	0.04	0.00	58.82	2.00	0.00	0.00	0.01	0.00
58.83	2.00	0.00	0.00	0.01	0.00	58.87	2.00	0.00	0.00	0.04	0.00
58.91	2.00	0.00	0.00	0.04	0.00	58.92	2.00	0.00	0.00	0.01	0.00
58.93	2.00	0.00	0.00	0.01	0.00	58.96	2.00	0.00	0.00	0.03	0.00
59.01	2.00	0.00	0.00	0.05	0.00	59.06	2.00	0.00	0.00	0.05	0.00
59.08	2.00	0.00	0.00	0.02	0.00	59.11	2.00	0.00	0.00	0.03	0.00
59.15	1.96	0.00	0.00	0.04	0.00	59.21	1.89	0.00	0.00	0.05	0.00
59.26	1.89	0.00	0.00	0.05	0.00	59.30	1.74	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
59.35	1.64	0.00	0.00	0.05	0.00	59.40	1.63	0.00	0.00	0.05	0.00
59.42	1.62	0.00	0.00	0.02	0.00	59.47	1.61	0.00	0.00	0.05	0.00
59.51	1.63	0.00	0.00	0.05	0.00	59.56	1.63	0.00	0.00	0.05	0.00
59.61	1.53	0.00	0.00	0.05	0.00	59.67	1.34	0.00	0.00	0.05	0.00
59.71	1.41	0.00	0.00	0.04	0.00	59.80	1.42	0.00	0.00	0.09	0.00
59.85	1.40	0.00	0.00	0.05	0.00	59.90	1.33	0.00	0.00	0.05	0.00
60.00	1.33	0.00	0.00	0.10	0.00	60.04	1.33	0.00	0.00	0.05	0.00
60.10	1.23	0.00	0.00	0.06	0.00	60.15	1.13	0.00	0.00	0.05	0.00
60.19	1.03	0.00	0.00	0.03	0.00	60.23	1.01	0.00	0.00	0.05	0.00
60.28	1.00	0.00	0.00	0.05	0.00	60.33	1.03	0.00	0.00	0.05	0.00
60.38	1.05	0.00	0.00	0.04	0.00	60.42	1.05	0.00	0.00	0.04	0.00
60.44	1.05	0.00	0.00	0.02	0.00	60.47	1.14	0.00	0.00	0.02	0.00
60.52	1.20	0.00	0.00	0.05	0.00	60.56	1.24	0.00	0.00	0.04	0.00
60.57	1.25	0.00	0.00	0.01	0.00	60.61	1.25	0.00	0.00	0.04	0.00
60.66	1.27	0.00	0.00	0.05	0.00	60.71	1.29	0.00	0.00	0.05	0.00
60.76	1.36	0.00	0.00	0.05	0.00	60.81	1.43	0.00	0.00	0.05	0.00
60.86	1.46	0.00	0.00	0.05	0.00	60.91	1.41	0.00	0.00	0.05	0.00
60.95	1.69	0.00	0.00	0.04	0.00	61.00	1.97	0.00	0.00	0.05	0.00
61.02	2.00	0.00	0.00	0.02	0.00	61.05	2.00	0.00	0.00	0.03	0.00
61.08	2.00	0.00	0.00	0.03	0.00	61.09	2.00	0.00	0.00	0.02	0.00
61.13	2.00	0.00	0.00	0.03	0.00	61.14	2.00	0.00	0.00	0.02	0.00
61.16	2.00	0.00	0.00	0.02	0.00	61.20	2.00	0.00	0.00	0.03	0.00
61.23	2.00	0.00	0.00	0.04	0.00	61.24	2.00	0.00	0.00	0.01	0.00
61.29	2.00	0.00	0.00	0.05	0.00	61.30	2.00	0.00	0.00	0.01	0.00
61.33	2.00	0.00	0.00	0.04	0.00	61.38	2.00	0.00	0.00	0.05	0.00
61.43	2.00	0.00	0.00	0.05	0.00	61.48	2.00	0.00	0.00	0.04	0.00
61.53	2.00	0.00	0.00	0.05	0.00	61.56	2.00	0.00	0.00	0.03	0.00
61.58	2.00	0.00	0.00	0.02	0.00	61.59	2.00	0.00	0.00	0.01	0.00
61.62	1.66	0.00	0.00	0.03	0.00	61.63	1.62	0.00	0.00	0.02	0.00
61.67	1.57	0.00	0.00	0.03	0.00	61.71	2.00	0.00	0.00	0.05	0.00
61.76	2.00	0.00	0.00	0.05	0.00	61.81	1.90	0.00	0.00	0.05	0.00
61.86	1.75	0.00	0.00	0.05	0.00	61.87	1.65	0.00	0.00	0.01	0.00
61.91	1.57	0.00	0.00	0.04	0.00	61.95	1.49	0.00	0.00	0.04	0.00
61.96	1.42	0.00	0.00	0.01	0.00	62.00	1.34	0.00	0.00	0.04	0.00
62.04	1.23	0.00	0.00	0.04	0.00	62.06	1.11	0.00	0.00	0.02	0.00
62.10	1.01	0.00	0.00	0.04	0.00	62.14	0.94	0.00	0.00	0.04	0.00
62.20	0.88	0.00	0.00	0.05	0.00	62.22	0.79	0.00	0.00	0.02	0.00
62.27	0.82	0.00	0.00	0.05	0.00	62.29	0.83	0.00	0.00	0.02	0.00
62.34	0.81	0.00	0.00	0.05	0.00	62.39	0.80	0.00	0.00	0.04	0.00
62.43	0.77	0.00	0.00	0.05	0.00	62.49	0.77	0.00	0.00	0.06	0.00
62.57	0.78	0.00	0.00	0.08	0.00	62.68	0.86	0.00	0.00	0.10	0.00
62.75	1.04	0.00	0.00	0.08	0.00	62.87	1.18	0.00	0.00	0.12	0.00
62.88	1.09	0.00	0.00	0.01	0.00	62.89	1.09	0.00	0.00	0.01	0.00
62.93	1.10	0.00	0.00	0.04	0.00	62.98	1.42	0.00	0.00	0.05	0.00
63.02	1.75	0.00	0.00	0.05	0.00	63.07	2.00	0.00	0.00	0.05	0.00
63.12	2.00	0.00	0.00	0.05	0.00	63.14	2.00	0.00	0.00	0.02	0.00
63.17	2.00	0.00	0.00	0.03	0.00	63.17	2.00	0.00	0.00	0.01	0.00
63.20	2.00	0.00	0.00	0.02	0.00	63.21	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
63.23	2.00	0.00	0.00	0.02	0.00	63.26	2.00	0.00	0.00	0.03	0.00
63.28	2.00	0.00	0.00	0.02	0.00	63.31	2.00	0.00	0.00	0.03	0.00
63.32	2.00	0.00	0.00	0.01	0.00	63.36	2.00	0.00	0.00	0.04	0.00
63.40	2.00	0.00	0.00	0.04	0.00						

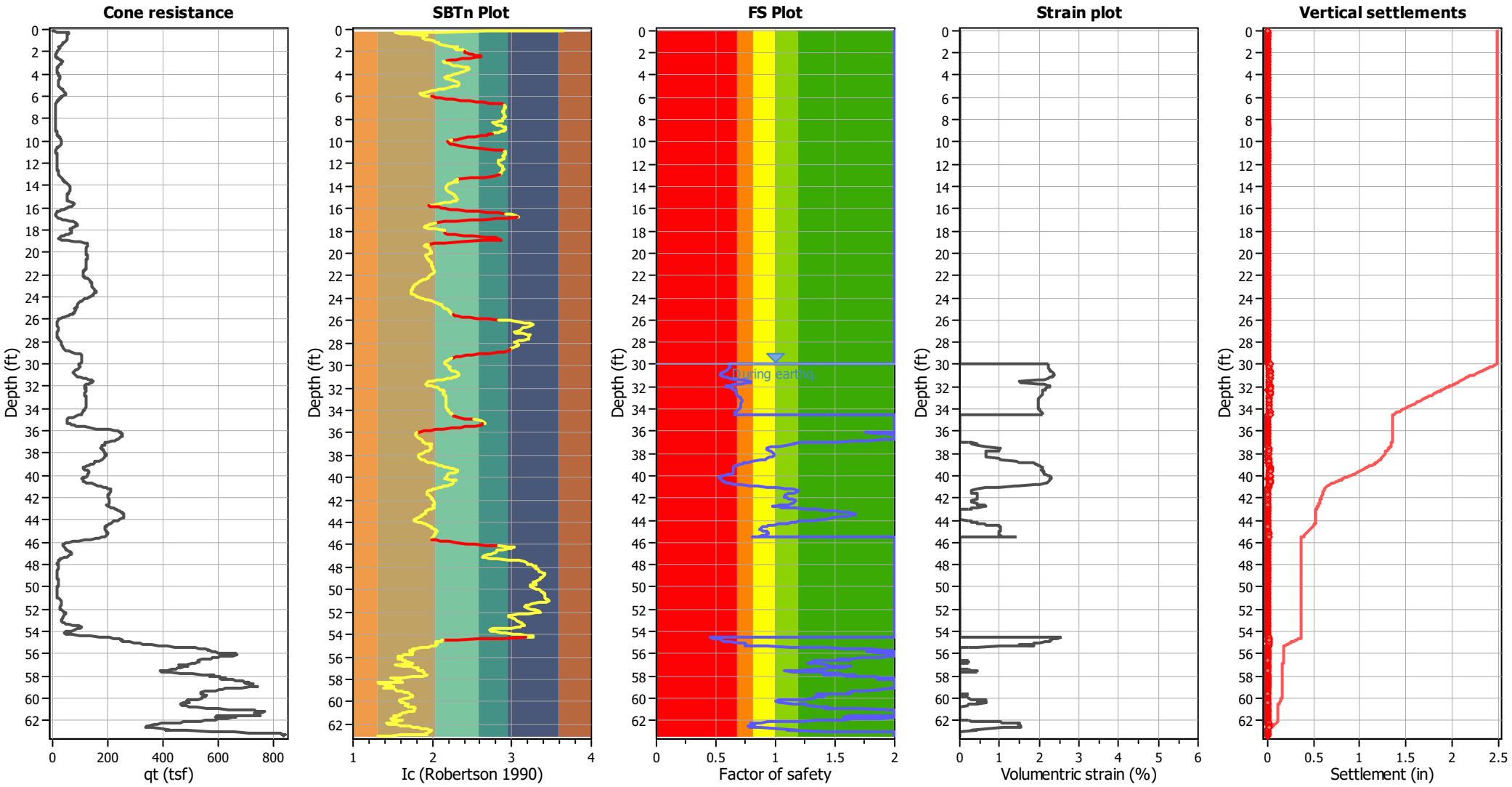
Overall liquefaction potential: 3.79

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.00	104.86	0.61	2.25	1.00	0.02	30.07	105.36	0.62	2.24	1.00	0.02
30.15	105.54	0.62	2.24	1.00	0.02	30.21	105.77	0.62	2.23	1.00	0.02
30.26	105.66	0.62	2.23	1.00	0.01	30.31	105.39	0.61	2.24	1.00	0.01
30.38	104.86	0.61	2.25	1.00	0.02	30.45	104.23	0.60	2.26	1.00	0.02
30.50	103.72	0.60	2.27	1.00	0.01	30.55	102.88	0.59	2.28	1.00	0.01
30.64	101.83	0.58	2.30	1.00	0.03	30.70	100.16	0.56	2.33	1.00	0.01
30.79	98.96	0.55	2.36	1.00	0.03	30.84	98.19	0.54	2.37	1.00	0.01
30.93	98.05	0.54	2.37	1.00	0.03	30.98	98.14	0.54	2.37	1.00	0.01
31.05	98.98	0.55	2.36	1.00	0.02	31.13	100.51	0.56	2.33	1.00	0.02
31.17	102.97	0.58	2.28	1.00	0.01	31.27	106.25	0.61	2.22	1.00	0.03
31.32	111.37	0.67	2.11	1.00	0.01	31.41	116.56	0.73	1.98	1.00	0.02
31.46	120.72	0.78	1.54	1.00	0.01	31.52	122.24	0.80	1.52	1.00	0.01
31.61	121.83	0.79	1.52	1.00	0.02	31.66	119.20	0.76	1.57	1.00	0.01
31.75	115.29	0.71	2.01	1.00	0.02	31.80	110.68	0.66	2.13	1.00	0.01
31.90	106.52	0.61	2.22	1.00	0.03	31.94	104.07	0.59	2.26	1.00	0.01
32.04	104.00	0.59	2.26	1.00	0.03	32.09	107.23	0.62	2.21	1.00	0.01
32.20	109.06	0.63	2.18	1.00	0.03	32.24	110.44	0.65	2.15	1.00	0.01
32.28	110.26	0.65	2.16	1.00	0.01	32.29	111.09	0.66	2.12	1.00	0.00
32.30	112.06	0.67	2.09	1.00	0.00	32.40	112.71	0.67	2.07	1.00	0.02
32.45	112.95	0.67	2.07	1.00	0.01	32.55	112.51	0.67	2.08	1.00	0.02
32.59	112.50	0.67	2.08	1.00	0.01	32.69	112.79	0.67	2.07	1.00	0.02
32.76	113.51	0.68	2.05	1.00	0.02	32.84	114.35	0.69	2.03	1.00	0.02
32.90	115.19	0.70	2.01	1.00	0.02	32.98	115.83	0.70	2.00	1.00	0.02
33.06	116.33	0.71	1.98	1.00	0.02	33.12	116.77	0.71	1.97	1.00	0.02
33.22	117.03	0.72	1.97	1.00	0.02	33.31	117.14	0.72	1.96	1.00	0.02
33.37	117.11	0.72	1.96	1.00	0.01	33.46	117.00	0.71	1.97	1.00	0.02
33.55	117.00	0.71	1.97	1.00	0.02	33.65	117.07	0.71	1.97	1.00	0.02
33.70	117.18	0.71	1.96	1.00	0.01	33.79	117.10	0.71	1.97	1.00	0.02
33.89	116.76	0.71	1.97	1.00	0.02	33.99	116.20	0.70	1.99	1.00	0.02
34.04	115.43	0.69	2.01	1.00	0.01	34.13	114.59	0.68	2.03	1.00	0.02
34.23	113.76	0.67	2.05	1.00	0.02	34.32	113.20	0.66	2.06	1.00	0.02
34.37	112.84	0.66	2.07	1.00	0.01	34.47	112.69	0.66	2.08	1.00	0.02
34.55	112.96	2.00	0.00	1.00	0.00	34.63	114.64	2.00	0.00	1.00	0.00
34.73	118.21	2.00	0.00	1.00	0.00	34.80	123.59	2.00	0.00	1.00	0.00
34.90	127.28	2.00	0.00	1.00	0.00	35.00	121.79	2.00	0.00	1.00	0.00
35.12	117.31	2.00	0.00	1.00	0.00	35.20	112.19	2.00	0.00	1.00	0.00
35.33	114.42	2.00	0.00	1.00	0.00	35.41	110.34	2.00	0.00	1.00	0.00
35.44	108.02	2.00	0.00	1.00	0.00	35.48	103.82	2.00	0.00	1.00	0.00
35.57	101.05	2.00	0.00	1.00	0.00	35.62	98.99	2.00	0.00	1.00	0.00
35.67	102.07	2.00	0.00	1.00	0.00	35.71	112.52	2.00	0.00	1.00	0.00
35.82	126.36	2.00	0.00	1.00	0.00	35.86	143.07	2.00	0.00	1.00	0.00
35.93	156.85	2.00	0.00	1.00	0.00	36.01	166.33	2.00	0.00	1.00	0.00
36.06	171.69	2.00	0.00	1.00	0.00	36.12	174.89	1.75	0.00	1.00	0.00
36.18	178.20	1.84	0.00	1.00	0.00	36.25	180.98	1.91	0.00	1.00	0.00
36.30	184.12	2.00	0.00	1.00	0.00	36.39	185.99	2.00	0.00	1.00	0.00
36.44	187.57	2.00	0.00	1.00	0.00	36.53	187.51	2.00	0.00	1.00	0.00
36.59	187.43	2.00	0.00	1.00	0.00	36.68	184.49	2.00	0.00	1.00	0.00
36.75	180.99	1.91	0.00	1.00	0.00	36.83	175.91	1.77	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
36.90	171.34	1.65	0.00	1.00	0.00	36.97	166.05	1.53	0.00	1.00	0.00
37.02	156.23	1.31	0.21	1.00	0.00	37.04	151.13	1.21	0.30	1.00	0.00
37.08	147.61	1.14	0.43	1.00	0.00	37.17	148.65	1.16	0.31	1.00	0.00
37.27	145.04	1.09	0.43	1.00	0.01	37.37	140.68	1.02	0.64	1.00	0.01
37.42	137.22	0.96	0.66	1.00	0.00	37.51	135.25	0.93	1.00	1.00	0.01
37.58	134.76	0.92	1.01	1.00	0.01	37.66	135.08	0.93	1.00	1.00	0.01
37.76	136.26	0.95	0.99	1.00	0.01	37.85	137.18	0.96	0.66	1.00	0.01
37.93	138.14	0.97	0.65	1.00	0.01	38.04	138.80	0.98	0.65	1.00	0.01
38.13	139.30	0.99	0.65	1.00	0.01	38.18	139.16	0.99	0.65	1.00	0.00
38.28	138.51	0.98	0.65	1.00	0.01	38.37	137.08	0.95	0.66	1.00	0.01
38.47	135.63	0.93	1.00	1.00	0.01	38.57	134.14	0.91	1.02	1.00	0.01
38.62	132.48	0.88	1.03	1.00	0.01	38.72	127.27	0.81	1.43	1.00	0.02
38.78	123.72	0.76	1.49	1.00	0.01	38.81	121.63	0.74	1.86	1.00	0.01
38.86	121.68	0.74	1.86	1.00	0.01	38.91	120.51	0.72	1.89	1.00	0.01
38.95	118.55	0.70	1.93	1.00	0.01	39.05	116.91	0.68	1.97	1.00	0.02
39.09	115.64	0.67	2.00	1.00	0.01	39.14	114.83	0.66	2.02	1.00	0.01
39.24	114.32	0.65	2.03	1.00	0.02	39.29	114.03	0.65	2.10	1.00	0.01
39.39	114.16	0.65	2.10	1.00	0.02	39.43	114.28	0.65	2.03	1.00	0.01
39.53	113.89	0.65	2.10	1.00	0.03	39.57	113.55	0.64	2.11	1.00	0.01
39.68	113.69	0.64	2.10	1.00	0.03	39.73	113.53	0.64	2.11	1.00	0.01
39.81	112.48	0.63	2.12	1.00	0.02	39.89	109.51	0.60	2.17	1.00	0.02
39.96	105.89	0.56	2.23	1.00	0.02	40.06	103.14	0.54	2.28	1.00	0.03
40.15	102.38	0.53	2.29	1.00	0.02	40.20	102.07	0.53	2.30	1.00	0.02
40.24	102.62	0.53	2.29	1.00	0.01	40.26	103.22	0.54	2.28	1.00	0.00
40.27	103.36	0.54	2.27	1.00	0.00	40.37	103.81	0.55	2.27	1.00	0.03
40.42	104.71	0.55	2.25	1.00	0.01	40.52	105.44	0.56	2.24	1.00	0.03
40.56	106.63	0.57	2.22	1.00	0.01	40.66	108.06	0.58	2.19	1.00	0.03
40.70	110.67	0.61	2.15	1.00	0.01	40.75	114.79	0.65	2.02	1.00	0.01
40.85	119.75	0.71	1.90	1.00	0.02	40.91	125.10	0.77	1.47	1.00	0.01
40.96	130.56	0.85	1.38	1.00	0.01	41.04	135.59	0.92	1.00	1.00	0.01
41.09	141.03	1.01	0.64	1.00	0.00	41.18	145.57	1.08	0.43	1.00	0.00
41.23	149.12	1.15	0.43	1.00	0.00	41.29	151.17	1.19	0.30	1.00	0.00
41.38	151.67	1.19	0.30	1.00	0.00	41.42	151.21	1.19	0.30	1.00	0.00
41.52	149.86	1.16	0.31	1.00	0.00	41.57	148.26	1.13	0.43	1.00	0.00
41.62	146.93	1.11	0.43	1.00	0.00	41.71	145.89	1.09	0.43	1.00	0.00
41.76	145.43	1.08	0.43	1.00	0.00	41.84	145.17	1.08	0.43	1.00	0.00
41.91	145.22	1.08	0.43	1.00	0.00	41.95	145.53	1.08	0.43	1.00	0.00
42.01	146.36	1.10	0.43	1.00	0.00	42.10	147.40	1.11	0.43	1.00	0.00
42.15	148.90	1.14	0.43	1.00	0.00	42.24	149.94	1.16	0.31	1.00	0.00
42.28	150.31	1.17	0.31	1.00	0.00	42.39	149.81	1.16	0.31	1.00	0.00
42.43	149.14	1.14	0.43	1.00	0.00	42.50	148.36	1.13	0.43	1.00	0.00
42.58	147.54	1.12	0.43	1.00	0.00	42.65	142.73	1.03	0.63	1.00	0.01
42.70	140.58	1.00	0.64	1.00	0.00	42.73	139.14	0.97	0.65	1.00	0.00
42.77	142.31	1.02	0.64	1.00	0.00	42.82	144.06	1.05	0.43	1.00	0.00
42.87	146.92	1.10	0.43	1.00	0.00	42.91	150.57	1.17	0.30	1.00	0.00
42.97	154.27	1.24	0.30	1.00	0.00	43.02	157.35	1.30	0.21	1.00	0.00
43.06	159.72	1.35	0.00	1.00	0.00	43.11	162.21	1.40	0.00	1.00	0.00
43.17	164.40	1.45	0.00	1.00	0.00	43.21	166.83	1.51	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
43.29	168.85	1.55	0.00	1.00	0.00	43.34	171.05	1.61	0.00	1.00	0.00
43.39	172.71	1.65	0.00	1.00	0.00	43.45	173.74	1.67	0.00	1.00	0.00
43.51	173.50	1.66	0.00	1.00	0.00	43.59	172.47	1.64	0.00	1.00	0.00
43.64	170.73	1.60	0.00	1.00	0.00	43.70	168.10	1.54	0.00	1.00	0.00
43.78	165.08	1.47	0.00	1.00	0.00	43.88	163.55	1.43	0.00	1.00	0.00
43.94	161.52	1.39	0.00	1.00	0.00	44.04	157.74	1.31	0.21	1.00	0.00
44.07	153.31	1.22	0.30	1.00	0.00	44.12	152.08	1.20	0.30	1.00	0.00
44.16	150.70	1.17	0.30	1.00	0.00	44.21	148.86	1.14	0.43	1.00	0.00
44.26	146.86	1.10	0.43	1.00	0.00	44.31	144.63	1.06	0.43	1.00	0.00
44.35	142.44	1.03	0.64	1.00	0.00	44.40	140.32	0.99	0.64	1.00	0.00
44.45	138.56	0.96	0.65	1.00	0.00	44.50	137.24	0.94	0.98	1.00	0.01
44.54	136.15	0.93	0.99	1.00	0.00	44.60	134.97	0.91	1.01	1.00	0.01
44.64	133.85	0.89	1.02	1.00	0.01	44.69	132.85	0.88	1.03	1.00	0.01
44.74	132.59	0.87	1.03	1.00	0.01	44.79	132.34	0.87	1.04	1.00	0.01
44.83	132.53	0.87	1.03	1.00	0.01	44.88	132.96	0.88	1.03	1.00	0.01
44.93	134.02	0.89	1.02	1.00	0.01	44.98	135.20	0.91	1.00	1.00	0.01
45.03	135.95	0.92	1.00	1.00	0.01	45.08	136.45	0.93	0.99	1.00	0.01
45.16	136.81	0.94	0.99	1.00	0.01	45.19	136.91	0.94	0.98	1.00	0.00
45.27	136.53	0.93	0.99	1.00	0.01	45.32	135.53	0.92	1.00	1.00	0.01
45.37	133.73	0.89	1.02	1.00	0.01	45.45	131.17	0.85	1.05	1.00	0.01
45.51	127.52	0.80	1.42	1.00	0.01	45.56	123.37	2.00	0.00	1.00	0.00
45.61	117.60	2.00	0.00	1.00	0.00	45.69	111.79	2.00	0.00	1.00	0.00
45.75	108.19	2.00	0.00	1.00	0.00	45.81	105.04	2.00	0.00	1.00	0.00
45.89	105.10	2.00	0.00	1.00	0.00	45.94	103.73	2.00	0.00	1.00	0.00
46.04	108.05	2.00	0.00	1.00	0.00	46.08	112.07	2.00	0.00	1.00	0.00
46.15	109.85	2.00	0.00	1.00	0.00	46.17	110.89	2.00	0.00	1.00	0.00
46.18	110.17	2.00	0.00	1.00	0.00	46.23	109.18	2.00	0.00	1.00	0.00
46.27	107.58	2.00	0.00	1.00	0.00	46.32	105.33	2.00	0.00	1.00	0.00
46.41	107.19	2.00	0.00	1.00	0.00	46.47	106.19	2.00	0.00	1.00	0.00
46.52	106.89	2.00	0.00	1.00	0.00	46.56	109.81	2.00	0.00	1.00	0.00
46.65	113.60	2.00	0.00	1.00	0.00	46.71	117.68	2.00	0.00	1.00	0.00
46.76	120.04	2.00	0.00	1.00	0.00	46.85	120.43	2.00	0.00	1.00	0.00
46.90	118.71	2.00	0.00	1.00	0.00	46.99	116.19	2.00	0.00	1.00	0.00
47.04	114.63	2.00	0.00	1.00	0.00	47.10	114.71	2.00	0.00	1.00	0.00
47.16	116.10	2.00	0.00	1.00	0.00	47.23	117.23	2.00	0.00	1.00	0.00
47.30	117.96	2.00	0.00	1.00	0.00	47.38	113.48	2.00	0.00	1.00	0.00
47.43	111.84	2.00	0.00	1.00	0.00	47.52	105.92	2.00	0.00	1.00	0.00
47.59	93.23	2.00	0.00	1.00	0.00	47.66	81.89	2.00	0.00	1.00	0.00
47.77	74.67	2.00	0.00	1.00	0.00	47.82	75.76	2.00	0.00	1.00	0.00
47.91	76.63	2.00	0.00	1.00	0.00	47.93	77.65	2.00	0.00	1.00	0.00
47.97	78.37	2.00	0.00	1.00	0.00	48.02	79.56	2.00	0.00	1.00	0.00
48.07	81.21	2.00	0.00	1.00	0.00	48.12	84.04	2.00	0.00	1.00	0.00
48.19	86.54	2.00	0.00	1.00	0.00	48.23	88.74	2.00	0.00	1.00	0.00
48.31	89.88	2.00	0.00	1.00	0.00	48.35	90.92	2.00	0.00	1.00	0.00
48.40	91.72	2.00	0.00	1.00	0.00	48.45	92.39	2.00	0.00	1.00	0.00
48.50	92.93	2.00	0.00	1.00	0.00	48.55	93.37	2.00	0.00	1.00	0.00
48.59	94.24	2.00	0.00	1.00	0.00	48.67	94.62	2.00	0.00	1.00	0.00
48.73	94.36	2.00	0.00	1.00	0.00	48.78	92.80	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
48.83	90.68	2.00	0.00	1.00	0.00	48.91	88.35	2.00	0.00	1.00	0.00
48.98	86.35	2.00	0.00	1.00	0.00	49.03	85.19	2.00	0.00	1.00	0.00
49.12	82.90	2.00	0.00	1.00	0.00	49.17	79.48	2.00	0.00	1.00	0.00
49.27	76.51	2.00	0.00	1.00	0.00	49.31	76.55	2.00	0.00	1.00	0.00
49.38	78.88	2.00	0.00	1.00	0.00	49.45	81.15	2.00	0.00	1.00	0.00
49.51	83.00	2.00	0.00	1.00	0.00	49.54	84.13	2.00	0.00	1.00	0.00
49.59	84.45	2.00	0.00	1.00	0.00	49.64	83.63	2.00	0.00	1.00	0.00
49.73	83.01	2.00	0.00	1.00	0.00	49.83	82.47	2.00	0.00	1.00	0.00
49.92	82.19	2.00	0.00	1.00	0.00	49.98	81.62	2.00	0.00	1.00	0.00
50.07	81.01	2.00	0.00	1.00	0.00	50.16	80.51	2.00	0.00	1.00	0.00
50.24	80.06	2.00	0.00	1.00	0.00	50.32	79.87	2.00	0.00	1.00	0.00
50.41	80.02	2.00	0.00	1.00	0.00	50.50	80.09	2.00	0.00	1.00	0.00
50.56	79.36	2.00	0.00	1.00	0.00	50.66	78.27	2.00	0.00	1.00	0.00
50.74	77.53	2.00	0.00	1.00	0.00	50.84	79.62	2.00	0.00	1.00	0.00
50.93	83.88	2.00	0.00	1.00	0.00	50.98	92.08	2.00	0.00	1.00	0.00
51.08	102.75	2.00	0.00	1.00	0.00	51.17	113.31	2.00	0.00	1.00	0.00
51.24	122.80	2.00	0.00	1.00	0.00	51.34	129.12	2.00	0.00	1.00	0.00
51.41	122.59	2.00	0.00	1.00	0.00	51.51	115.66	2.00	0.00	1.00	0.00
51.58	106.93	2.00	0.00	1.00	0.00	51.68	109.98	2.00	0.00	1.00	0.00
51.79	110.16	2.00	0.00	1.00	0.00	51.82	110.15	2.00	0.00	1.00	0.00
51.85	111.07	2.00	0.00	1.00	0.00	51.91	113.23	2.00	0.00	1.00	0.00
52.00	116.25	2.00	0.00	1.00	0.00	52.05	118.92	2.00	0.00	1.00	0.00
52.10	118.95	2.00	0.00	1.00	0.00	52.19	115.81	2.00	0.00	1.00	0.00
52.28	111.69	2.00	0.00	1.00	0.00	52.34	109.32	2.00	0.00	1.00	0.00
52.42	109.66	2.00	0.00	1.00	0.00	52.48	111.03	2.00	0.00	1.00	0.00
52.57	111.27	2.00	0.00	1.00	0.00	52.62	109.88	2.00	0.00	1.00	0.00
52.69	106.89	2.00	0.00	1.00	0.00	52.77	104.50	2.00	0.00	1.00	0.00
52.87	103.83	2.00	0.00	1.00	0.00	52.91	102.56	2.00	0.00	1.00	0.00
53.01	102.13	2.00	0.00	1.00	0.00	53.10	103.11	2.00	0.00	1.00	0.00
53.16	113.26	2.00	0.00	1.00	0.00	53.25	123.32	2.00	0.00	1.00	0.00
53.29	136.25	2.00	0.00	1.00	0.00	53.38	144.18	2.00	0.00	1.00	0.00
53.42	149.47	2.00	0.00	1.00	0.00	53.47	150.02	2.00	0.00	1.00	0.00
53.52	148.22	2.00	0.00	1.00	0.00	53.58	152.55	2.00	0.00	1.00	0.00
53.66	160.18	2.00	0.00	1.00	0.00	53.75	169.41	2.00	0.00	1.00	0.00
53.81	175.67	2.00	0.00	1.00	0.00	53.87	177.89	2.00	0.00	1.00	0.00
53.95	178.71	2.00	0.00	1.00	0.00	54.01	177.57	2.00	0.00	1.00	0.00
54.06	172.90	2.00	0.00	1.00	0.00	54.15	167.57	2.00	0.00	1.00	0.00
54.20	165.24	2.00	0.00	1.00	0.00	54.29	164.23	2.00	0.00	1.00	0.00
54.34	141.87	2.00	0.00	1.00	0.00	54.43	108.63	2.00	0.00	1.00	0.00
54.45	82.07	2.00	0.00	1.00	0.00	54.48	80.59	2.00	0.00	1.00	0.00
54.52	82.69	2.00	0.00	1.00	0.00	54.53	86.57	2.00	0.00	1.00	0.00
54.58	89.91	0.45	2.55	1.00	0.01	54.62	93.59	0.47	2.47	1.00	0.01
54.65	96.81	0.50	2.40	1.00	0.01	54.70	99.98	0.52	2.34	1.00	0.01
54.76	102.23	0.54	2.29	1.00	0.02	54.77	102.77	0.55	2.28	1.00	0.00
54.82	103.16	0.55	2.28	1.00	0.01	54.87	103.55	0.56	2.27	1.00	0.01
54.88	104.08	0.56	2.26	1.00	0.00	54.91	104.56	0.56	2.25	1.00	0.01
54.96	106.09	0.58	2.23	1.00	0.01	54.97	109.90	0.62	2.16	1.00	0.00
55.03	115.47	0.68	2.00	1.00	0.02	55.09	120.89	0.74	1.88	1.00	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
55.15	121.55	0.75	1.86	1.00	0.01	55.20	122.41	0.76	1.51	1.00	0.01
55.25	121.49	0.75	1.86	1.00	0.01	55.30	129.28	0.85	1.07	1.00	0.01
55.34	134.62	0.93	1.01	1.00	0.01	55.39	146.03	1.12	0.43	1.00	0.00
55.40	153.71	1.27	0.21	1.00	0.00	55.44	157.35	1.34	0.21	1.00	0.00
55.44	157.04	1.34	0.21	1.00	0.00	55.49	160.78	1.42	0.00	1.00	0.00
55.54	167.71	1.58	0.00	1.00	0.00	55.59	176.17	1.79	0.00	1.00	0.00
55.63	180.34	1.90	0.00	1.00	0.00	55.64	180.79	1.91	0.00	1.00	0.00
55.68	179.92	1.89	0.00	1.00	0.00	55.69	178.50	1.85	0.00	1.00	0.00
55.69	179.38	1.88	0.00	1.00	0.00	55.71	183.08	1.98	0.00	1.00	0.00
55.76	186.45	2.00	0.00	1.00	0.00	55.78	187.85	2.00	0.00	1.00	0.00
55.81	180.96	1.92	0.00	1.00	0.00	55.85	175.16	1.77	0.00	1.00	0.00
55.86	176.41	1.80	0.00	1.00	0.00	55.91	179.42	1.88	0.00	1.00	0.00
55.92	180.48	1.91	0.00	1.00	0.00	55.96	185.46	2.00	0.00	1.00	0.00
55.97	189.98	2.00	0.00	1.00	0.00	56.00	196.01	2.00	0.00	1.00	0.00
56.01	197.72	2.00	0.00	1.00	0.00	56.03	198.18	2.00	0.00	1.00	0.00
56.05	198.14	2.00	0.00	1.00	0.00	56.10	198.99	2.00	0.00	1.00	0.00
56.12	199.86	2.00	0.00	1.00	0.00	56.16	199.67	2.00	0.00	1.00	0.00
56.17	195.76	2.00	0.00	1.00	0.00	56.20	189.78	2.00	0.00	1.00	0.00
56.22	184.46	2.00	0.00	1.00	0.00	56.24	181.69	1.95	0.00	1.00	0.00
56.30	179.84	1.89	0.00	1.00	0.00	56.31	177.72	1.84	0.00	1.00	0.00
56.34	174.82	1.76	0.00	1.00	0.00	56.39	172.57	1.70	0.00	1.00	0.00
56.45	170.44	1.65	0.00	1.00	0.00	56.48	168.31	1.60	0.00	1.00	0.00
56.49	165.32	1.53	0.00	1.00	0.00	56.53	168.57	1.60	0.00	1.00	0.00
56.58	169.38	1.62	0.00	1.00	0.00	56.63	155.86	1.32	0.21	1.00	0.00
56.68	156.17	1.33	0.21	1.00	0.00	56.73	157.68	1.36	0.00	1.00	0.00
56.78	156.09	1.33	0.21	1.00	0.00	56.83	153.53	1.27	0.21	1.00	0.00
56.89	157.35	1.35	0.00	1.00	0.00	56.95	160.76	1.43	0.00	1.00	0.00
56.99	161.37	1.44	0.00	1.00	0.00	57.01	160.98	1.43	0.00	1.00	0.00
57.04	160.65	1.43	0.00	1.00	0.00	57.09	161.13	1.44	0.00	1.00	0.00
57.11	163.57	1.49	0.00	1.00	0.00	57.13	167.47	1.58	0.00	1.00	0.00
57.18	169.44	1.63	0.00	1.00	0.00	57.19	168.95	1.62	0.00	1.00	0.00
57.21	166.30	1.56	0.00	1.00	0.00	57.24	164.00	1.50	0.00	1.00	0.00
57.28	163.35	1.49	0.00	1.00	0.00	57.32	161.45	1.44	0.00	1.00	0.00
57.35	160.03	1.41	0.00	1.00	0.00	57.38	157.50	1.36	0.00	1.00	0.00
57.43	155.53	1.32	0.21	1.00	0.00	57.48	150.26	1.21	0.31	1.00	0.00
57.52	143.92	1.10	0.44	1.00	0.00	57.57	142.28	1.07	0.44	1.00	0.00
57.62	146.53	1.14	0.43	1.00	0.00	57.68	157.03	1.35	0.00	1.00	0.00
57.76	166.00	1.55	0.00	1.00	0.00	57.81	161.17	1.44	0.00	1.00	0.00
57.86	159.31	1.40	0.00	1.00	0.00	57.89	167.80	1.60	0.00	1.00	0.00
57.91	171.02	1.68	0.00	1.00	0.00	57.92	169.11	1.63	0.00	1.00	0.00
57.95	166.67	1.57	0.00	1.00	0.00	57.99	167.08	1.58	0.00	1.00	0.00
58.01	169.42	1.64	0.00	1.00	0.00	58.05	173.02	1.73	0.00	1.00	0.00
58.05	175.27	1.79	0.00	1.00	0.00	58.10	176.91	1.83	0.00	1.00	0.00
58.13	178.73	1.88	0.00	1.00	0.00	58.15	180.87	1.94	0.00	1.00	0.00
58.17	182.75	1.99	0.00	1.00	0.00	58.20	182.21	1.98	0.00	1.00	0.00
58.21	181.00	1.94	0.00	1.00	0.00	58.21	179.50	1.90	0.00	1.00	0.00
58.23	179.34	1.90	0.00	1.00	0.00	58.24	177.62	1.85	0.00	1.00	0.00
58.25	177.92	1.86	0.00	1.00	0.00	58.29	179.26	1.90	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
58.31	183.11	2.00	0.00	1.00	0.00	58.33	186.52	2.00	0.00	1.00	0.00
58.38	190.06	2.00	0.00	1.00	0.00	58.39	193.13	2.00	0.00	1.00	0.00
58.43	195.59	2.00	0.00	1.00	0.00	58.43	199.15	2.00	0.00	1.00	0.00
58.48	200.60	2.00	0.00	1.00	0.00	58.53	202.36	2.00	0.00	1.00	0.00
58.56	202.90	2.00	0.00	1.00	0.00	58.58	205.20	2.00	0.00	1.00	0.00
58.59	207.06	2.00	0.00	1.00	0.00	58.63	205.90	2.00	0.00	1.00	0.00
58.63	206.49	2.00	0.00	1.00	0.00	58.63	202.42	2.00	0.00	1.00	0.00
58.68	203.74	2.00	0.00	1.00	0.00	58.69	204.22	2.00	0.00	1.00	0.00
58.72	208.81	2.00	0.00	1.00	0.00	58.73	210.28	2.00	0.00	1.00	0.00
58.74	211.92	2.00	0.00	1.00	0.00	58.77	211.36	2.00	0.00	1.00	0.00
58.81	210.02	2.00	0.00	1.00	0.00	58.82	207.44	2.00	0.00	1.00	0.00
58.83	207.97	2.00	0.00	1.00	0.00	58.87	209.78	2.00	0.00	1.00	0.00
58.91	212.41	2.00	0.00	1.00	0.00	58.92	214.21	2.00	0.00	1.00	0.00
58.93	214.95	2.00	0.00	1.00	0.00	58.96	214.44	2.00	0.00	1.00	0.00
59.01	207.70	2.00	0.00	1.00	0.00	59.06	199.13	2.00	0.00	1.00	0.00
59.08	189.77	2.00	0.00	1.00	0.00	59.11	184.95	2.00	0.00	1.00	0.00
59.15	181.46	1.96	0.00	1.00	0.00	59.21	178.75	1.89	0.00	1.00	0.00
59.26	178.89	1.89	0.00	1.00	0.00	59.30	173.20	1.74	0.00	1.00	0.00
59.35	169.07	1.64	0.00	1.00	0.00	59.40	168.73	1.63	0.00	1.00	0.00
59.42	168.34	1.62	0.00	1.00	0.00	59.47	167.78	1.61	0.00	1.00	0.00
59.51	168.63	1.63	0.00	1.00	0.00	59.56	168.59	1.63	0.00	1.00	0.00
59.61	164.50	1.53	0.00	1.00	0.00	59.67	155.77	1.34	0.21	1.00	0.00
59.71	159.11	1.41	0.00	1.00	0.00	59.80	159.56	1.42	0.00	1.00	0.00
59.85	158.50	1.40	0.00	1.00	0.00	59.90	155.47	1.33	0.21	1.00	0.00
60.00	155.53	1.33	0.21	1.00	0.00	60.04	155.09	1.33	0.21	1.00	0.00
60.10	150.62	1.23	0.30	1.00	0.00	60.15	145.30	1.13	0.43	1.00	0.00
60.19	139.22	1.03	0.65	1.00	0.00	60.23	138.03	1.01	0.65	1.00	0.00
60.28	137.71	1.00	0.66	1.00	0.00	60.33	139.47	1.03	0.65	1.00	0.00
60.38	140.26	1.05	0.64	1.00	0.00	60.42	140.74	1.05	0.44	1.00	0.00
60.44	140.24	1.05	0.65	1.00	0.00	60.47	145.72	1.14	0.43	1.00	0.00
60.52	148.94	1.20	0.31	1.00	0.00	60.56	150.90	1.24	0.30	1.00	0.00
60.57	151.48	1.25	0.22	1.00	0.00	60.61	151.48	1.25	0.22	1.00	0.00
60.66	151.98	1.27	0.21	1.00	0.00	60.71	153.21	1.29	0.21	1.00	0.00
60.76	156.59	1.36	0.00	1.00	0.00	60.81	159.58	1.43	0.00	1.00	0.00
60.86	161.02	1.46	0.00	1.00	0.00	60.91	158.84	1.41	0.00	1.00	0.00
60.95	170.69	1.69	0.00	1.00	0.00	61.00	180.91	1.97	0.00	1.00	0.00
61.02	186.60	2.00	0.00	1.00	0.00	61.05	194.34	2.00	0.00	1.00	0.00
61.08	201.44	2.00	0.00	1.00	0.00	61.09	207.57	2.00	0.00	1.00	0.00
61.13	209.24	2.00	0.00	1.00	0.00	61.14	209.63	2.00	0.00	1.00	0.00
61.16	210.15	2.00	0.00	1.00	0.00	61.20	212.77	2.00	0.00	1.00	0.00
61.23	215.88	2.00	0.00	1.00	0.00	61.24	217.23	2.00	0.00	1.00	0.00
61.29	214.83	2.00	0.00	1.00	0.00	61.30	210.65	2.00	0.00	1.00	0.00
61.33	207.82	2.00	0.00	1.00	0.00	61.38	206.66	2.00	0.00	1.00	0.00
61.43	206.60	2.00	0.00	1.00	0.00	61.48	208.54	2.00	0.00	1.00	0.00
61.53	212.02	2.00	0.00	1.00	0.00	61.56	213.05	2.00	0.00	1.00	0.00
61.58	205.10	2.00	0.00	1.00	0.00	61.59	198.13	2.00	0.00	1.00	0.00
61.62	169.24	1.66	0.00	1.00	0.00	61.63	167.67	1.62	0.00	1.00	0.00
61.67	165.65	1.57	0.00	1.00	0.00	61.71	186.61	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
61.76	184.50	2.00	0.00	1.00	0.00	61.81	178.32	1.90	0.00	1.00	0.00
61.86	172.85	1.75	0.00	1.00	0.00	61.87	168.83	1.65	0.00	1.00	0.00
61.91	165.39	1.57	0.00	1.00	0.00	61.95	162.25	1.49	0.00	1.00	0.00
61.96	159.04	1.42	0.00	1.00	0.00	62.00	155.30	1.34	0.21	1.00	0.00
62.04	150.01	1.23	0.31	1.00	0.00	62.06	143.15	1.11	0.44	1.00	0.00
62.10	137.65	1.01	0.66	1.00	0.00	62.14	133.04	0.94	1.03	1.00	0.01
62.20	129.46	0.88	1.07	1.00	0.01	62.22	122.70	0.79	1.51	1.00	0.00
62.27	125.13	0.82	1.46	1.00	0.01	62.29	125.44	0.83	1.46	1.00	0.00
62.34	124.22	0.81	1.48	1.00	0.01	62.39	123.46	0.80	1.49	1.00	0.01
62.43	121.51	0.77	1.53	1.00	0.01	62.49	121.38	0.77	1.53	1.00	0.01
62.57	121.70	0.78	1.53	1.00	0.02	62.68	127.79	0.86	1.09	1.00	0.01
62.75	139.12	1.04	0.65	1.00	0.01	62.87	146.86	1.18	0.31	1.00	0.00
62.88	142.25	1.09	0.44	1.00	0.00	62.89	142.29	1.09	0.44	1.00	0.00
62.93	142.80	1.10	0.44	1.00	0.00	62.98	158.87	1.42	0.00	1.00	0.00
63.02	172.30	1.75	0.00	1.00	0.00	63.07	182.93	2.00	0.00	1.00	0.00
63.12	-1.00	2.00	0.00	1.00	0.00	63.14	-1.00	2.00	0.00	1.00	0.00
63.17	-1.00	2.00	0.00	1.00	0.00	63.17	-1.00	2.00	0.00	1.00	0.00
63.20	-1.00	2.00	0.00	1.00	0.00	63.21	-1.00	2.00	0.00	1.00	0.00
63.23	-1.00	2.00	0.00	1.00	0.00	63.26	-1.00	2.00	0.00	1.00	0.00
63.28	-1.00	2.00	0.00	1.00	0.00	63.31	-1.00	2.00	0.00	1.00	0.00
63.32	-1.00	2.00	0.00	1.00	0.00	63.36	-1.00	2.00	0.00	1.00	0.00
63.40	-1.00	2.00	0.00	1.00	0.00						

Total estimated settlement: 2.49

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.01	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.04	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.09	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.11	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.14	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.14	1.35	2.15	27.82	59.81	3.66	7.03	11.25
0.18	6.97	11.19	4.58	51.24	2.69	0.06	0.63
0.23	18.19	29.21	1.00	29.21	2.14	0.02	0.62
0.24	36.79	59.09	1.00	59.09	1.76	0.11	0.65
0.28	53.07	85.23	1.00	85.23	1.58	0.72	0.72
0.33	59.27	95.19	1.00	95.19	1.53	0.74	0.74
0.38	56.61	90.91	1.00	90.91	1.60	0.73	0.73
0.42	52.11	83.69	1.00	83.69	1.72	0.72	0.72
0.47	51.84	83.25	1.19	98.77	1.83	0.75	0.75
0.51	51.94	83.40	1.24	103.16	1.90	0.75	0.75
0.52	52.09	83.64	1.26	104.99	1.93	0.76	0.76
0.57	52.66	84.56	1.24	105.20	1.91	0.76	0.76
0.61	53.24	85.48	1.23	105.23	1.89	0.76	0.76
0.67	53.47	85.85	1.22	105.00	1.88	0.76	0.76
0.73	53.84	86.44	1.22	105.23	1.87	0.76	0.76
0.81	53.62	86.08	1.22	104.72	1.87	0.76	0.76
0.86	53.52	85.91	1.25	107.16	1.92	0.76	0.76
0.98	52.14	83.69	1.28	106.78	1.96	0.76	0.76
1.05	48.22	77.37	1.32	102.42	2.02	0.75	0.75
1.15	43.67	70.05	1.34	94.07	2.04	0.74	0.74
1.24	37.87	60.73	1.38	83.84	2.07	0.72	0.72
1.34	34.47	55.26	1.40	77.37	2.09	0.47	0.70
1.43	30.63	49.08	1.51	74.33	2.16	0.36	0.69
1.53	26.86	43.01	1.75	75.37	2.25	0.40	0.70
1.58	24.56	39.32	1.98	77.68	2.31	0.48	0.70
1.62	23.48	37.59	2.00	75.15	2.32	0.39	0.70
1.67	24.36	38.99	1.85	72.19	2.28	0.31	0.69
1.75	23.89	38.23	1.86	70.99	2.28	0.28	0.69
1.77	23.08	36.93	1.92	70.79	2.30	0.27	0.69
1.81	21.50	34.38	2.08	71.55	2.34	0.29	0.69
1.86	19.71	31.51	2.30	72.37	2.39	0.31	0.69
1.91	17.96	28.69	2.52	72.24	2.43	0.31	0.69
1.95	16.98	27.11	2.53	68.54	2.43	0.23	0.68
2.00	16.21	25.86	2.43	62.85	2.41	0.14	0.66
2.05	14.89	23.75	2.42	57.52	2.41	0.09	0.65
2.11	13.51	21.52	2.55	54.95	2.43	0.08	0.64
2.20	12.33	19.62	2.79	54.76	2.47	0.08	0.64
2.24	11.73	18.64	3.01	56.15	2.50	0.08	0.65
2.29	11.26	17.88	3.29	58.85	2.54	0.10	0.65
2.34	11.32	17.99	3.76	67.59	2.60	0.21	0.68
2.44	12.17	19.33	3.86	74.63	2.61	0.37	0.69
2.48	14.56	23.17	3.43	79.44	2.56	0.56	0.71
2.58	18.03	28.74	2.75	79.05	2.47	0.54	0.70

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
2.63	22.41	35.77	2.21	79.01	2.37	0.54	0.70
2.71	26.08	41.66	1.92	80.03	2.30	0.59	0.71
2.78	30.33	48.48	1.67	80.89	2.22	0.63	0.71
2.82	33.73	53.95	1.52	82.21	2.16	0.70	0.71
2.89	34.94	55.89	1.47	82.24	2.13	0.70	0.71
2.96	33.63	53.77	1.51	81.39	2.16	0.66	0.71
3.03	30.90	49.37	1.62	80.00	2.20	0.58	0.71
3.11	28.98	46.28	1.70	78.46	2.23	0.51	0.70
3.19	26.45	42.22	1.79	75.65	2.26	0.41	0.70
3.25	23.52	37.50	1.97	73.87	2.31	0.35	0.69
3.35	20.49	32.62	2.28	74.42	2.38	0.37	0.69
3.41	17.79	28.29	2.60	73.49	2.44	0.34	0.69
3.50	15.91	25.25	2.74	69.10	2.46	0.24	0.68
3.59	14.83	23.51	2.66	62.63	2.45	0.14	0.66
3.69	14.59	23.12	2.55	58.90	2.43	0.10	0.65
3.79	15.20	24.09	2.35	56.48	2.39	0.09	0.65
3.88	16.54	26.24	2.09	54.78	2.34	0.08	0.64
3.97	19.14	30.40	1.82	55.25	2.27	0.08	0.64
4.07	20.82	33.10	1.77	58.69	2.26	0.10	0.65
4.14	23.49	37.37	1.67	62.38	2.22	0.14	0.66
4.17	25.51	40.62	1.61	65.25	2.20	0.17	0.67
4.26	28.14	44.83	1.51	67.83	2.15	0.21	0.68
4.32	28.71	45.74	1.52	69.43	2.16	0.24	0.68
4.37	28.10	44.77	1.56	69.94	2.18	0.25	0.68
4.42	26.62	42.38	1.65	69.93	2.21	0.25	0.68
4.51	25.07	39.88	1.74	69.30	2.24	0.24	0.68
4.61	23.68	37.65	1.82	68.42	2.27	0.22	0.68
4.65	22.37	35.53	1.90	67.38	2.29	0.21	0.68
4.74	21.09	33.47	2.00	67.06	2.32	0.20	0.68
4.80	20.48	32.49	2.05	66.55	2.33	0.19	0.67
4.89	20.04	31.78	2.09	66.46	2.34	0.19	0.67
4.95	20.38	32.32	2.05	66.20	2.33	0.19	0.67
5.04	21.05	33.39	1.97	65.92	2.31	0.18	0.67
5.13	22.81	36.20	1.80	65.26	2.27	0.17	0.67
5.18	25.27	40.14	1.63	65.28	2.20	0.17	0.67
5.28	28.07	44.63	1.49	66.64	2.14	0.19	0.67
5.32	31.47	50.09	1.40	70.04	2.09	0.26	0.68
5.42	34.67	55.23	1.35	74.62	2.05	0.37	0.69
5.51	38.14	60.80	1.31	79.86	2.01	0.58	0.71
5.60	41.28	65.83	1.26	83.18	1.94	0.71	0.71
5.66	44.24	70.58	1.22	86.14	1.88	0.72	0.72
5.76	45.86	73.17	1.00	73.17	1.83	0.33	0.69
5.85	44.91	71.65	1.21	86.53	1.86	0.72	0.72
5.92	41.11	65.53	1.25	81.79	1.92	0.68	0.71
5.95	38.21	60.87	1.28	77.76	1.96	0.48	0.70
5.97	36.15	57.56	1.30	74.97	1.99	0.38	0.70
6.02	35.37	56.31	1.31	73.90	2.01	0.35	0.69
6.06	32.74	52.08	1.36	70.59	2.05	0.27	0.68

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.16	29.98	47.63	1.42	67.87	2.10	0.21	0.68
6.21	26.98	42.82	1.56	66.83	2.18	0.20	0.68
6.26	24.29	38.48	1.79	68.74	2.26	0.23	0.68
6.31	21.62	34.19	2.18	74.63	2.36	0.37	0.69
6.40	19.23	30.34	2.70	82.06	2.46	0.69	0.71
6.44	16.91	26.60	3.43	91.18	2.56	0.73	0.73
6.52	15.12	23.73	4.16	98.65	2.64	0.75	0.75
6.57	13.47	21.08	5.01	105.63	2.73	0.76	0.76
6.64	12.16	18.96	5.81	110.19	2.80	0.77	0.77
6.69	10.98	17.06	6.65	113.46	2.86	0.77	0.77
6.78	10.34	16.02	7.15	114.49	2.90	0.77	0.77
6.83	9.90	15.31	7.38	112.96	2.91	0.77	0.77
6.92	9.60	14.82	7.45	110.37	2.92	0.77	0.77
6.97	9.39	14.48	7.39	107.07	2.91	0.76	0.76
7.03	9.29	14.32	7.35	105.27	2.91	0.76	0.76
7.12	9.32	14.36	7.25	104.07	2.90	0.76	0.76
7.22	9.39	14.46	7.17	103.64	2.90	0.75	0.75
7.27	9.52	14.66	7.09	103.89	2.89	0.76	0.76
7.36	9.65	14.86	7.06	104.93	2.89	0.76	0.76
7.43	9.75	15.01	7.08	106.34	2.89	0.76	0.76
7.50	9.78	15.06	7.16	107.82	2.90	0.76	0.76
7.59	9.77	15.04	7.22	108.69	2.90	0.76	0.76
7.64	9.70	14.93	7.34	109.64	2.91	0.77	0.77
7.75	9.63	14.81	7.46	110.40	2.92	0.77	0.77
7.79	9.70	14.91	7.43	110.74	2.92	0.77	0.77
7.89	9.97	15.33	7.19	110.22	2.90	0.77	0.77
7.99	10.24	15.76	6.97	109.89	2.88	0.77	0.77
8.04	10.34	15.91	6.96	110.71	2.88	0.77	0.77
8.13	10.31	15.85	7.03	111.39	2.89	0.77	0.77
8.23	10.27	15.79	6.35	100.23	2.84	0.75	0.75
8.32	10.27	15.77	5.78	91.18	2.79	0.73	0.73
8.37	10.53	16.20	5.34	86.47	2.76	0.72	0.72
8.46	11.04	17.00	5.74	97.61	2.79	0.74	0.74
8.56	11.30	17.42	6.05	105.35	2.82	0.76	0.76
8.59	11.30	17.41	6.35	110.51	2.84	0.77	0.77
8.61	11.03	16.97	6.71	113.97	2.87	0.77	0.77
8.67	10.89	16.75	6.98	116.82	2.88	0.78	0.78
8.71	10.69	16.41	7.24	118.78	2.90	0.78	0.78
8.72	10.51	16.13	7.46	120.30	2.92	0.78	0.78
8.78	10.44	16.02	7.56	121.13	2.92	0.78	0.78
8.80	10.44	16.02	7.59	121.54	2.93	0.79	0.79
8.86	10.44	16.01	7.60	121.62	2.93	0.79	0.79
8.90	10.55	16.17	7.55	122.08	2.92	0.79	0.79
8.95	10.68	16.39	7.49	122.77	2.92	0.79	0.79
8.96	10.89	16.71	7.39	123.54	2.91	0.79	0.79
9.00	11.05	16.98	7.33	124.43	2.91	0.79	0.79
9.05	11.29	17.35	7.24	125.55	2.90	0.79	0.79
9.09	11.56	17.78	7.10	126.26	2.89	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.10	11.96	18.43	6.89	127.03	2.88	0.79	0.79
9.14	12.47	19.24	6.66	128.15	2.86	0.80	0.80
9.20	13.21	20.42	6.33	129.23	2.84	0.80	0.80
9.24	14.09	21.83	5.95	129.98	2.81	0.80	0.80
9.29	15.03	23.34	5.57	129.97	2.78	0.80	0.80
9.31	15.90	24.74	5.28	130.54	2.75	0.80	0.80
9.38	16.61	25.88	5.06	130.87	2.73	0.80	0.80
9.41	17.32	27.00	4.80	129.53	2.71	0.80	0.80
9.47	18.02	28.13	4.48	126.15	2.68	0.79	0.79
9.53	19.33	30.23	3.91	118.10	2.62	0.78	0.78
9.62	21.08	33.03	3.29	108.83	2.54	0.76	0.76
9.67	23.71	36.88	2.63	97.08	2.45	0.74	0.74
9.77	26.25	39.96	2.22	88.55	2.37	0.73	0.73
9.81	28.83	43.12	1.89	81.52	2.29	0.66	0.71
9.90	30.67	45.16	1.72	77.57	2.24	0.48	0.70
9.97	32.26	46.92	1.61	75.55	2.20	0.40	0.70
10.06	32.63	47.13	1.61	75.67	2.20	0.41	0.70
10.20	32.13	46.19	1.68	77.59	2.22	0.48	0.70
10.30	29.29	42.06	1.79	75.15	2.26	0.39	0.70
10.44	25.52	36.67	2.06	75.52	2.33	0.40	0.70
10.54	20.70	30.03	2.66	79.87	2.45	0.58	0.71
10.63	16.56	24.49	4.08	99.92	2.64	0.75	0.75
10.74	13.83	20.66	5.64	116.62	2.78	0.78	0.78
10.78	12.62	18.99	6.71	127.39	2.86	0.79	0.79
10.83	12.48	18.76	6.96	130.59	2.88	0.80	0.80
10.88	12.31	18.47	7.21	133.16	2.90	0.80	0.80
10.89	12.15	18.24	7.50	136.86	2.92	0.81	0.81
10.97	12.25	18.30	7.62	139.36	2.93	0.81	0.81
11.02	12.48	18.59	7.62	141.70	2.93	0.82	0.82
11.07	12.79	18.96	7.51	142.37	2.92	0.82	0.82
11.11	13.06	19.28	7.42	143.00	2.91	0.82	0.82
11.16	13.39	19.70	7.30	143.71	2.91	0.82	0.82
11.21	13.76	20.15	7.19	144.81	2.90	0.82	0.82
11.26	14.14	20.62	7.10	146.37	2.89	0.82	0.82
11.30	14.37	20.90	7.10	148.42	2.89	0.82	0.82
11.36	14.54	21.07	7.14	150.43	2.90	0.83	0.83
11.40	14.68	21.19	7.17	151.92	2.90	0.83	0.83
11.45	14.81	21.32	7.18	152.97	2.90	0.83	0.83
11.50	15.04	21.57	7.12	153.64	2.89	0.83	0.83
11.55	15.31	21.86	7.06	154.44	2.89	0.83	0.83
11.60	15.85	22.53	6.88	155.07	2.88	0.83	0.83
11.66	16.56	23.39	6.63	155.14	2.86	0.83	0.83
11.74	17.40	24.38	6.31	153.92	2.84	0.83	0.83
11.84	17.98	24.97	6.15	153.46	2.82	0.83	0.83
11.93	18.18	25.08	6.17	154.65	2.82	0.83	0.83
12.04	18.04	24.73	6.38	157.76	2.84	0.84	0.84
12.13	17.87	24.37	6.58	160.42	2.86	0.84	0.84
12.22	17.67	23.94	6.76	161.87	2.87	0.84	0.84

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.27	17.51	23.64	6.85	161.93	2.88	0.84	0.84
12.37	17.27	23.16	6.98	161.58	2.88	0.84	0.84
12.41	17.17	22.94	7.03	161.26	2.89	0.84	0.84
12.51	17.06	22.65	7.13	161.48	2.89	0.84	0.84
12.56	17.23	22.78	7.08	161.37	2.89	0.84	0.84
12.65	17.64	23.15	6.96	161.03	2.88	0.84	0.84
12.71	18.45	24.09	6.70	161.44	2.86	0.84	0.84
12.79	19.23	24.96	6.59	164.56	2.86	0.85	0.85
12.89	20.10	25.92	6.50	168.54	2.85	0.85	0.85
12.96	20.98	26.96	6.43	173.33	2.84	0.86	0.86
13.04	22.23	28.37	6.15	174.57	2.82	0.86	0.86
13.13	24.11	30.49	5.62	171.40	2.78	0.85	0.85
13.23	26.80	33.27	4.19	139.58	2.65	0.81	0.81
13.30	30.34	36.95	2.91	107.47	2.49	0.76	0.76
13.37	34.15	40.77	2.02	82.17	2.32	0.70	0.71
13.47	38.32	45.44	1.87	85.15	2.29	0.72	0.72
13.57	38.79	45.84	1.94	89.15	2.31	0.73	0.73
13.61	39.19	46.27	1.98	91.39	2.31	0.73	0.73
13.62	40.31	47.52	1.94	92.31	2.30	0.73	0.73
13.68	44.31	51.92	1.78	92.36	2.26	0.73	0.73
13.73	47.82	55.76	1.68	93.57	2.22	0.74	0.74
13.77	50.08	58.23	1.65	95.79	2.21	0.74	0.74
13.87	52.91	61.16	1.61	98.26	2.20	0.74	0.74
13.93	55.78	64.26	1.58	101.41	2.19	0.75	0.75
14.00	58.54	67.15	1.55	104.21	2.17	0.76	0.76
14.06	60.62	69.33	1.54	106.89	2.17	0.76	0.76
14.12	62.21	70.95	1.54	109.37	2.17	0.77	0.77
14.21	63.05	71.63	1.55	111.13	2.17	0.77	0.77
14.25	63.45	71.96	1.56	112.44	2.18	0.77	0.77
14.35	63.35	71.51	1.58	112.67	2.18	0.77	0.77
14.45	62.61	70.37	1.60	112.38	2.19	0.77	0.77
14.50	61.06	68.50	1.63	111.75	2.21	0.77	0.77
14.59	59.18	66.15	1.68	111.04	2.22	0.77	0.77
14.64	57.19	63.82	1.73	110.49	2.24	0.77	0.77
14.74	55.60	61.79	1.78	110.08	2.26	0.77	0.77
14.80	54.22	60.12	1.83	109.86	2.27	0.77	0.77
14.88	53.18	58.73	1.87	109.70	2.28	0.77	0.77
14.97	52.24	57.45	1.91	109.62	2.30	0.77	0.77
15.05	51.43	56.38	1.95	110.04	2.31	0.77	0.77
15.13	50.85	55.53	1.99	110.56	2.32	0.77	0.77
15.21	50.95	55.42	1.99	110.46	2.32	0.77	0.77
15.28	52.23	56.58	1.93	109.48	2.30	0.77	0.77
15.36	55.10	59.37	1.82	108.07	2.27	0.76	0.76
15.41	60.22	64.61	1.66	107.30	2.22	0.76	0.76
15.50	66.38	70.74	1.53	108.00	2.16	0.76	0.76
15.55	72.78	77.07	1.38	106.45	2.07	0.76	0.76
15.65	76.92	80.83	1.31	105.71	2.00	0.76	0.76
15.71	78.17	81.68	1.27	103.43	1.94	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.79	75.07	78.22	1.28	99.99	1.96	0.75	0.75
15.89	67.29	69.97	1.33	92.88	2.02	0.73	0.73
15.90	61.09	63.58	1.38	88.03	2.07	0.72	0.72
15.94	56.21	58.47	1.45	84.99	2.12	0.72	0.72
16.00	53.24	55.28	1.51	83.45	2.15	0.71	0.71
16.06	47.68	49.45	1.67	82.65	2.22	0.71	0.71
16.14	40.74	42.17	2.02	85.02	2.32	0.72	0.72
16.19	34.10	35.24	2.56	90.26	2.43	0.73	0.73
16.26	27.10	27.88	3.51	97.89	2.57	0.74	0.74
16.33	21.54	22.01	4.74	104.24	2.70	0.76	0.76
16.38	17.06	17.28	6.24	107.80	2.83	0.76	0.76
16.47	14.43	14.45	7.58	109.50	2.93	0.77	0.77
16.54	12.64	12.69	8.71	110.54	3.00	0.77	0.77
16.62	11.80	11.71	9.67	113.31	3.05	0.52	0.84
16.70	11.53	11.36	10.18	115.66	3.08	0.56	0.81
16.76	12.28	12.12	9.88	119.66	3.06	0.59	0.87
16.86	14.88	14.80	8.08	119.59	2.96	0.78	0.78
16.90	19.33	19.15	6.07	116.24	2.82	0.78	0.78
16.98	25.84	25.69	4.22	108.51	2.65	0.76	0.76
17.05	35.42	35.23	2.81	99.11	2.48	0.75	0.75
17.14	47.54	47.19	1.94	91.71	2.30	0.73	0.73
17.20	61.48	60.90	1.51	91.88	2.15	0.73	0.73
17.29	73.03	72.03	1.35	97.56	2.05	0.74	0.74
17.34	81.99	80.70	1.30	104.58	1.99	0.76	0.76
17.44	86.87	85.21	1.28	109.31	1.97	0.76	0.76
17.50	88.89	86.96	1.26	109.36	1.93	0.76	0.76
17.58	88.15	85.91	1.24	106.78	1.91	0.76	0.76
17.64	85.02	82.63	1.24	102.13	1.90	0.75	0.75
17.75	80.50	77.97	1.27	99.12	1.95	0.75	0.75
17.82	72.08	69.66	1.35	93.80	2.04	0.74	0.74
17.89	66.02	63.60	1.43	91.18	2.11	0.73	0.73
17.89	62.68	60.37	1.51	91.04	2.15	0.73	0.73
17.96	64.06	61.55	1.50	92.30	2.15	0.73	0.73
18.02	65.34	62.67	1.51	94.33	2.15	0.74	0.74
18.07	66.86	64.01	1.51	96.43	2.15	0.74	0.74
18.17	68.78	65.62	1.49	98.02	2.14	0.74	0.74
18.22	68.74	65.47	1.51	98.54	2.15	0.75	0.75
18.30	65.20	61.85	1.59	98.20	2.19	0.74	0.74
18.36	57.69	54.52	1.83	99.83	2.27	0.75	0.75
18.42	49.20	46.28	2.30	106.36	2.39	0.76	0.76
18.50	39.97	37.31	3.16	118.00	2.53	0.78	0.78
18.56	32.38	29.97	4.32	129.55	2.66	0.80	0.80
18.62	25.71	23.53	5.80	136.40	2.80	0.81	0.81
18.69	23.96	21.78	6.13	133.60	2.82	0.80	0.80
18.76	22.21	20.05	6.60	132.24	2.86	0.80	0.80
18.84	24.30	21.95	5.90	129.41	2.80	0.80	0.80
18.89	31.88	29.04	4.26	123.66	2.66	0.79	0.79
18.98	52.85	48.61	2.23	108.20	2.37	0.76	0.76

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
19.05	78.42	72.48	1.52	110.23	2.16	0.77	0.77
19.12	101.80	94.21	1.32	124.65	2.02	0.79	0.79
19.18	115.88	107.18	1.27	136.09	1.95	0.81	0.81
19.24	124.07	114.61	1.25	142.72	1.91	0.82	0.82
19.32	126.76	116.83	1.24	144.84	1.90	0.82	0.82
19.38	126.53	116.38	1.25	145.16	1.92	0.82	0.82
19.46	124.81	114.42	1.26	144.25	1.94	0.82	0.82
19.54	122.62	112.08	1.28	142.92	1.96	0.82	0.82
19.62	121.00	110.26	1.28	141.68	1.97	0.82	0.82
19.70	119.99	109.01	1.29	140.65	1.98	0.81	0.81
19.80	119.75	108.41	1.29	140.01	1.98	0.81	0.81
19.85	119.75	108.23	1.29	139.71	1.98	0.81	0.81
19.94	119.95	108.07	1.29	139.71	1.98	0.81	0.81
20.03	120.73	108.50	1.28	138.61	1.96	0.81	0.81
20.13	121.84	109.19	1.26	137.92	1.94	0.81	0.81
20.19	123.33	110.40	1.25	137.60	1.91	0.81	0.81
20.29	124.05	110.67	1.25	138.32	1.92	0.81	0.81
20.39	124.51	110.70	1.25	138.76	1.93	0.81	0.81
20.43	124.14	110.23	1.26	138.70	1.93	0.81	0.81
20.47	124.09	109.99	1.26	138.78	1.94	0.81	0.81
20.52	123.97	109.69	1.27	139.06	1.95	0.81	0.81
20.61	123.97	109.33	1.27	139.29	1.96	0.81	0.81
20.66	123.26	108.48	1.28	139.08	1.97	0.81	0.81
20.71	122.22	107.35	1.29	138.34	1.98	0.81	0.81
20.77	121.00	106.04	1.30	137.35	1.99	0.81	0.81
20.85	120.53	105.33	1.30	136.79	1.99	0.81	0.81
20.91	120.63	105.23	1.30	136.74	1.99	0.81	0.81
21.00	121.00	105.23	1.30	136.71	1.99	0.81	0.81
21.05	120.93	105.01	1.30	136.53	1.99	0.81	0.81
21.11	120.50	104.40	1.30	136.06	2.00	0.81	0.81
21.19	120.16	103.82	1.31	135.66	2.00	0.81	0.81
21.24	120.23	103.70	1.31	135.67	2.00	0.81	0.81
21.34	120.39	103.52	1.31	135.57	2.00	0.81	0.81
21.39	119.99	103.00	1.31	135.16	2.01	0.81	0.81
21.48	118.68	101.52	1.32	133.84	2.01	0.80	0.80
21.53	116.39	99.34	1.33	131.86	2.02	0.80	0.80
21.64	113.86	96.79	1.34	129.36	2.03	0.80	0.80
21.72	111.80	94.83	1.33	125.65	2.02	0.79	0.79
21.81	110.79	93.80	1.31	122.48	2.00	0.79	0.79
21.89	110.52	93.48	1.28	120.09	1.97	0.78	0.78
21.97	110.69	93.44	1.28	119.40	1.96	0.78	0.78
22.05	110.81	93.32	1.27	118.94	1.96	0.78	0.78
22.12	110.92	93.25	1.27	118.64	1.95	0.78	0.78
22.13	110.89	93.20	1.27	118.54	1.95	0.78	0.78
22.18	111.98	94.01	1.27	119.22	1.95	0.78	0.78
22.22	114.49	96.10	1.26	121.02	1.93	0.78	0.78
22.28	118.47	99.41	1.25	123.90	1.91	0.79	0.79
22.33	122.55	102.85	1.23	126.89	1.90	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.38	126.36	106.02	1.22	129.64	1.88	0.80	0.80
22.41	129.99	109.11	1.21	132.05	1.86	0.80	0.80
22.51	133.16	111.59	1.20	133.67	1.85	0.80	0.80
22.56	135.86	113.83	1.18	134.77	1.83	0.81	0.81
22.61	137.68	115.29	1.17	135.13	1.82	0.81	0.81
22.65	139.23	116.56	1.16	135.07	1.81	0.81	0.81
22.71	140.30	117.38	1.15	134.57	1.79	0.81	0.81
22.76	141.15	118.01	1.13	133.54	1.78	0.80	0.80
22.85	141.55	118.16	1.12	132.33	1.77	0.80	0.80
22.89	141.79	118.28	1.11	131.19	1.77	0.80	0.80
22.99	141.85	118.07	1.10	130.38	1.76	0.80	0.80
23.04	142.19	118.24	1.10	129.89	1.76	0.80	0.80
23.12	143.24	118.92	1.09	129.72	1.75	0.80	0.80
23.18	145.12	120.36	1.08	129.86	1.75	0.80	0.80
23.24	147.55	122.28	1.07	130.48	1.74	0.80	0.80
23.33	150.28	124.35	1.05	131.06	1.73	0.80	0.80
23.38	152.77	126.31	1.04	131.98	1.73	0.80	0.80
23.47	154.92	127.86	1.04	132.70	1.72	0.80	0.80
23.52	155.87	128.46	1.05	134.34	1.73	0.80	0.80
23.61	155.50	127.76	1.06	136.02	1.74	0.81	0.81
23.68	153.41	125.65	1.10	137.67	1.76	0.81	0.81
23.76	149.87	122.29	1.13	137.84	1.78	0.81	0.81
23.83	145.42	118.19	1.16	136.72	1.80	0.81	0.81
23.90	140.77	113.95	1.18	134.56	1.83	0.81	0.81
23.97	136.02	109.66	1.20	131.87	1.85	0.80	0.80
24.05	130.36	104.58	1.22	128.11	1.88	0.80	0.80
24.10	123.83	98.86	1.25	123.41	1.92	0.79	0.79
24.19	116.14	92.13	1.28	117.58	1.96	0.78	0.78
24.27	109.37	86.22	1.31	112.54	2.00	0.77	0.77
24.34	103.31	80.98	1.34	108.37	2.03	0.76	0.76
24.43	99.26	77.39	1.37	105.81	2.06	0.76	0.76
24.48	95.99	74.54	1.40	104.29	2.09	0.76	0.76
24.57	93.77	72.46	1.43	103.72	2.11	0.75	0.75
24.62	91.81	70.77	1.45	102.28	2.12	0.75	0.75
24.72	90.33	69.37	1.46	101.12	2.12	0.75	0.75
24.81	89.08	68.17	1.47	100.03	2.13	0.75	0.75
24.86	87.96	67.09	1.50	100.81	2.15	0.75	0.75
24.95	85.18	64.60	1.56	100.88	2.18	0.75	0.75
25.01	82.83	62.55	1.62	101.05	2.20	0.75	0.75
25.02	81.04	61.07	1.66	101.09	2.22	0.75	0.75
25.05	81.81	61.63	1.64	101.34	2.21	0.75	0.75
25.11	82.33	61.92	1.64	101.59	2.21	0.75	0.75
25.15	82.53	61.99	1.64	101.87	2.21	0.75	0.75
25.21	81.92	61.38	1.66	101.94	2.22	0.75	0.75
25.25	81.07	60.61	1.68	101.90	2.23	0.75	0.75
25.30	79.78	59.50	1.70	101.32	2.23	0.75	0.75
25.40	78.02	57.95	1.73	100.17	2.24	0.75	0.75
25.45	75.14	55.63	1.77	98.38	2.25	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.52	71.36	52.56	1.83	96.28	2.27	0.74	0.74
25.60	65.60	47.92	1.99	95.12	2.32	0.74	0.74
25.66	58.89	42.57	2.24	95.48	2.37	0.74	0.74
25.74	50.63	36.01	2.77	99.69	2.47	0.75	0.75
25.80	42.60	29.74	3.54	105.15	2.57	0.76	0.76
25.88	34.42	23.44	4.79	112.31	2.71	0.77	0.77
25.94	27.91	18.51	6.33	117.20	2.84	0.78	0.78
26.02	22.69	14.10	8.40	118.43	2.98	0.78	0.78
26.09	19.19	11.73	10.09	118.41	3.07	0.59	0.84
26.17	16.36	9.82	11.90	116.89	3.16	0.54	0.70
26.23	14.50	8.57	13.49	115.61	3.23	0.51	0.61
26.29	13.56	7.93	14.54	115.33	3.28	0.51	0.57
26.37	13.73	8.01	14.49	116.10	3.27	0.51	0.57
26.46	14.95	8.78	13.45	118.10	3.23	0.54	0.63
26.55	16.56	9.80	12.25	120.00	3.18	0.59	0.70
26.60	18.04	10.74	11.37	122.14	3.14	0.60	0.77
26.70	18.79	11.18	11.11	124.24	3.12	0.63	0.80
26.78	19.09	11.34	11.11	125.96	3.12	0.67	0.81
26.87	19.16	11.34	10.61	120.33	3.10	0.66	0.81
26.94	19.06	11.25	9.74	109.55	3.05	0.47	0.80
27.03	18.62	10.92	9.23	100.80	3.03	0.36	0.78
27.13	17.84	10.38	9.61	99.83	3.05	0.42	0.74
27.18	15.89	9.12	11.41	104.10	3.14	0.42	0.65
27.27	14.61	8.27	12.75	105.48	3.20	0.42	0.59
27.32	14.00	7.87	13.55	106.67	3.23	0.43	0.56
27.37	14.68	8.28	12.99	107.59	3.21	0.44	0.59
27.41	15.01	8.48	12.84	108.89	3.20	0.46	0.61
27.46	15.01	8.47	13.04	110.36	3.21	0.47	0.60
27.51	15.19	8.56	13.12	112.25	3.22	0.48	0.61
27.61	15.69	8.84	13.00	114.96	3.21	0.51	0.63
27.66	16.81	9.52	12.66	120.53	3.20	0.56	0.68
27.73	19.30	11.05	11.59	128.02	3.15	0.66	0.79
27.80	22.77	13.18	10.46	137.91	3.09	0.80	0.94
27.88	26.51	15.46	9.62	148.75	3.05	0.98	1.10
27.96	28.73	16.78	9.46	158.82	3.04	1.16	1.20
28.04	29.44	17.16	9.86	169.19	3.06	1.25	1.23
28.12	29.30	17.02	10.34	175.99	3.09	1.41	1.22
28.18	29.78	17.27	10.47	180.83	3.09	1.43	1.23
28.27	30.99	17.95	10.11	181.45	3.07	1.47	1.28
28.32	32.84	19.04	9.54	181.70	3.04	1.48	1.36
28.42	34.90	20.22	8.98	181.66	3.01	1.51	1.44
28.47	37.02	21.47	8.57	183.98	2.99	0.87	0.87
28.61	38.87	22.47	8.32	186.93	2.97	0.87	0.87
28.67	40.79	23.57	8.10	190.99	2.96	0.88	0.88
28.75	43.62	26.58	7.37	195.90	2.91	0.88	0.88
28.81	49.52	30.58	6.28	192.19	2.83	0.88	0.88
28.90	59.16	37.21	4.89	181.92	2.72	0.87	0.87
29.00	70.68	45.27	3.75	169.71	2.60	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
29.05	82.68	53.82	2.95	158.84	2.50	0.84	0.84
29.10	92.58	60.99	2.48	151.03	2.42	0.83	0.83
29.15	101.07	67.24	2.13	143.11	2.35	0.82	0.82
29.24	105.88	70.82	1.92	136.02	2.30	0.81	0.81
29.29	107.45	72.19	1.78	128.66	2.26	0.80	0.80
29.37	106.66	71.76	1.71	122.57	2.23	0.79	0.79
29.43	105.44	71.05	1.64	116.77	2.21	0.78	0.78
29.53	104.90	70.72	1.59	112.38	2.19	0.77	0.77
29.62	104.73	70.61	1.55	109.62	2.17	0.77	0.77
29.68	104.75	70.73	1.51	106.89	2.15	0.76	0.76
29.80	104.42	70.36	1.50	105.63	2.15	0.76	0.76
29.91	103.80	69.74	1.50	104.61	2.15	0.76	0.76
30.00	99.10	65.97	1.59	104.86	2.19	0.76	0.76
30.07	97.42	64.55	1.63	105.36	2.21	0.76	0.76
30.15	96.27	63.56	1.66	105.54	2.22	0.76	0.76
30.21	99.04	65.49	1.62	105.77	2.20	0.76	0.76
30.26	98.71	65.16	1.62	105.66	2.20	0.76	0.76
30.31	97.50	64.21	1.64	105.39	2.21	0.76	0.76
30.38	95.52	62.65	1.67	104.86	2.22	0.76	0.76
30.45	92.62	60.44	1.72	104.23	2.24	0.76	0.76
30.50	89.12	57.84	1.79	103.72	2.26	0.75	0.75
30.55	84.94	54.79	1.88	102.88	2.29	0.75	0.75
30.64	81.19	52.03	1.96	101.83	2.31	0.75	0.75
30.70	77.93	49.71	2.01	100.16	2.32	0.75	0.75
30.79	76.04	48.30	2.05	98.96	2.33	0.75	0.75
30.84	75.47	47.86	2.05	98.19	2.33	0.74	0.74
30.93	76.95	48.79	2.01	98.05	2.32	0.74	0.74
30.98	80.15	50.98	1.93	98.14	2.30	0.74	0.74
31.05	85.34	54.54	1.81	98.98	2.27	0.75	0.75
31.13	91.57	58.82	1.71	100.51	2.24	0.75	0.75
31.17	100.46	65.08	1.58	102.97	2.19	0.75	0.75
31.27	110.94	72.52	1.47	106.25	2.13	0.76	0.76
31.32	123.23	81.52	1.37	111.37	2.06	0.77	0.77
31.41	133.45	89.03	1.31	116.56	2.00	0.78	0.78
31.46	140.90	94.67	1.28	120.72	1.96	0.78	0.78
31.52	144.37	97.40	1.26	122.24	1.93	0.79	0.79
31.61	145.01	97.95	1.24	121.83	1.91	0.79	0.79
31.66	142.15	95.90	1.24	119.20	1.91	0.78	0.78
31.75	136.69	91.66	1.26	115.29	1.93	0.78	0.78
31.80	129.14	85.76	1.29	110.68	1.98	0.77	0.77
31.90	122.00	80.16	1.33	106.52	2.02	0.76	0.76
31.94	116.84	76.18	1.37	104.07	2.06	0.76	0.76
32.04	116.03	75.33	1.38	104.00	2.07	0.76	0.76
32.09	119.17	77.25	1.39	107.23	2.08	0.76	0.76
32.20	118.70	76.38	1.43	109.06	2.11	0.76	0.76
32.24	117.72	75.37	1.47	110.44	2.13	0.77	0.77
32.28	114.69	73.02	1.51	110.26	2.15	0.77	0.77
32.29	116.70	74.43	1.49	111.09	2.14	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
32.30	118.93	75.98	1.47	112.06	2.13	0.77	0.77
32.40	120.51	76.91	1.47	112.71	2.13	0.77	0.77
32.45	120.48	76.77	1.47	112.95	2.13	0.77	0.77
32.55	119.13	75.61	1.49	112.51	2.14	0.77	0.77
32.59	118.33	74.91	1.50	112.50	2.15	0.77	0.77
32.69	118.13	74.54	1.51	112.79	2.15	0.77	0.77
32.76	118.09	74.31	1.53	113.51	2.16	0.77	0.77
32.84	118.40	74.31	1.54	114.35	2.17	0.77	0.77
32.90	119.00	74.55	1.55	115.19	2.17	0.77	0.77
32.98	119.95	75.02	1.54	115.83	2.17	0.78	0.78
33.06	121.02	75.61	1.54	116.33	2.17	0.78	0.78
33.12	122.10	76.23	1.53	116.77	2.16	0.78	0.78
33.22	122.84	76.56	1.53	117.03	2.16	0.78	0.78
33.31	123.21	76.64	1.53	117.14	2.16	0.78	0.78
33.37	123.28	76.59	1.53	117.11	2.16	0.78	0.78
33.46	123.28	76.41	1.53	117.00	2.16	0.78	0.78
33.55	123.18	76.17	1.54	117.00	2.17	0.78	0.78
33.65	122.98	75.83	1.54	117.07	2.17	0.78	0.78
33.70	122.57	75.42	1.55	117.18	2.17	0.78	0.78
33.79	122.03	74.86	1.56	117.10	2.18	0.78	0.78
33.89	121.09	74.04	1.58	116.76	2.18	0.78	0.78
33.99	119.77	72.98	1.59	116.20	2.19	0.78	0.78
34.04	117.79	71.55	1.61	115.43	2.20	0.78	0.78
34.13	115.49	69.85	1.64	114.59	2.21	0.77	0.77
34.23	112.70	67.80	1.68	113.76	2.22	0.77	0.77
34.32	110.27	66.01	1.71	113.20	2.24	0.77	0.77
34.37	108.22	64.55	1.75	112.84	2.25	0.77	0.77
34.47	106.60	63.31	1.78	112.69	2.26	0.77	0.77
34.55	103.47	61.05	1.85	112.96	2.28	0.77	0.77
34.63	96.66	56.31	2.04	114.64	2.33	0.77	0.77
34.73	86.37	49.33	2.40	118.21	2.40	0.78	0.78
34.80	72.76	40.42	3.06	123.59	2.51	0.79	0.79
34.90	60.46	32.62	3.90	127.28	2.62	0.79	0.79
35.00	54.92	29.29	4.16	121.79	2.64	0.79	0.79
35.12	50.37	26.54	4.42	117.31	2.67	0.78	0.78
35.20	52.86	28.11	3.99	112.19	2.63	0.77	0.77
35.33	53.65	28.43	4.02	114.42	2.63	0.77	0.77
35.41	63.41	34.44	3.20	110.34	2.53	0.77	0.77
35.44	68.58	37.68	2.87	108.02	2.48	0.76	0.76
35.48	76.82	42.96	2.42	103.82	2.41	0.76	0.76
35.57	84.09	47.63	2.12	101.05	2.35	0.75	0.75
35.62	98.70	57.30	1.73	98.99	2.24	0.75	0.75
35.67	115.40	68.51	1.49	102.07	2.14	0.75	0.75
35.71	137.52	83.52	1.35	112.52	2.04	0.77	0.77
35.82	159.89	98.71	1.28	126.36	1.96	0.79	0.79
35.86	185.11	116.11	1.23	143.07	1.89	0.82	0.82
35.93	207.72	131.80	1.19	156.85	1.84	0.84	0.84
36.01	225.38	144.00	1.16	166.33	1.80	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
36.06	235.57	150.92	1.14	171.69	1.79	0.85	0.85
36.12	240.67	154.12	1.13	174.89	1.78	0.86	0.86
36.18	245.05	156.73	1.14	178.20	1.79	0.86	0.86
36.25	248.69	158.84	1.14	180.98	1.79	0.87	0.87
36.30	251.52	160.26	1.15	184.12	1.80	0.87	0.87
36.39	252.83	160.54	1.16	185.99	1.81	0.87	0.87
36.44	253.07	160.15	1.17	187.57	1.82	0.87	0.87
36.53	251.49	158.45	1.18	187.51	1.83	0.87	0.87
36.59	248.39	155.45	1.21	187.43	1.86	0.87	0.87
36.68	243.47	151.62	1.22	184.49	1.87	0.87	0.87
36.75	238.34	147.93	1.22	180.99	1.88	0.87	0.87
36.83	232.04	143.78	1.22	175.91	1.88	0.86	0.86
36.90	225.27	138.95	1.23	171.34	1.89	0.85	0.85
36.97	217.18	133.11	1.25	166.05	1.92	0.85	0.85
37.02	201.72	122.19	1.28	156.23	1.96	0.84	0.84
37.04	193.70	116.64	1.30	151.13	1.99	0.83	0.83
37.08	188.61	113.19	1.30	147.61	2.00	0.82	0.82
37.17	191.78	115.46	1.29	148.65	1.97	0.83	0.83
37.27	187.30	112.45	1.29	145.04	1.98	0.82	0.82
37.37	181.37	108.42	1.30	140.68	1.99	0.81	0.81
37.42	177.21	105.83	1.30	137.22	1.99	0.81	0.81
37.51	175.89	105.19	1.29	135.25	1.97	0.81	0.81
37.58	176.97	106.34	1.27	134.76	1.95	0.81	0.81
37.66	179.01	108.07	1.25	135.08	1.92	0.81	0.81
37.76	182.58	110.83	1.23	136.26	1.89	0.81	0.81
37.85	186.08	113.57	1.21	137.18	1.86	0.81	0.81
37.93	189.62	116.22	1.19	138.14	1.84	0.81	0.81
38.04	192.25	117.99	1.18	138.80	1.82	0.81	0.81
38.13	193.87	118.97	1.17	139.30	1.82	0.81	0.81
38.18	193.57	118.63	1.17	139.16	1.82	0.81	0.81
38.28	191.24	116.58	1.19	138.51	1.84	0.81	0.81
38.37	187.40	113.37	1.21	137.08	1.86	0.81	0.81
38.47	183.55	109.99	1.23	135.63	1.89	0.81	0.81
38.57	180.39	107.19	1.25	134.14	1.92	0.80	0.80
38.62	176.78	104.23	1.27	132.48	1.95	0.80	0.80
38.72	167.48	97.43	1.31	127.27	2.00	0.79	0.79
38.78	160.21	92.19	1.34	123.72	2.04	0.79	0.79
38.81	155.32	88.77	1.37	121.63	2.06	0.79	0.79
38.86	155.19	88.54	1.37	121.68	2.07	0.79	0.79
38.91	152.02	86.27	1.40	120.51	2.08	0.78	0.78
38.95	145.92	82.06	1.44	118.55	2.12	0.78	0.78
39.05	139.55	77.66	1.51	116.91	2.15	0.78	0.78
39.09	132.37	72.88	1.59	115.64	2.19	0.78	0.78
39.14	125.06	68.10	1.69	114.83	2.23	0.77	0.77
39.24	118.19	63.61	1.80	114.32	2.26	0.77	0.77
39.29	112.16	59.80	1.91	114.03	2.30	0.77	0.77
39.39	108.48	57.39	1.99	114.16	2.32	0.77	0.77
39.43	109.15	57.74	1.98	114.28	2.31	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.53	115.02	61.25	1.86	113.89	2.28	0.77	0.77
39.57	124.17	67.01	1.69	113.55	2.23	0.77	0.77
39.68	130.64	71.04	1.60	113.69	2.19	0.77	0.77
39.73	131.95	71.83	1.58	113.53	2.19	0.77	0.77
39.81	129.33	70.10	1.60	112.48	2.20	0.77	0.77
39.89	126.37	68.39	1.60	109.51	2.19	0.77	0.77
39.96	125.26	68.01	1.56	105.89	2.18	0.76	0.76
40.06	124.52	67.75	1.52	103.14	2.16	0.75	0.75
40.15	122.70	66.50	1.54	102.38	2.17	0.75	0.75
40.20	114.41	61.03	1.67	102.07	2.22	0.75	0.75
40.24	108.56	57.23	1.79	102.62	2.26	0.75	0.75
40.26	104.17	54.45	1.90	103.22	2.29	0.75	0.75
40.27	107.91	56.72	1.82	103.36	2.27	0.75	0.75
40.37	109.77	57.73	1.80	103.81	2.26	0.76	0.76
40.42	111.64	58.75	1.78	104.71	2.26	0.76	0.76
40.52	112.38	59.02	1.79	105.44	2.26	0.76	0.76
40.56	115.27	60.66	1.76	106.63	2.25	0.76	0.76
40.66	122.24	64.78	1.67	108.06	2.22	0.76	0.76
40.70	131.54	70.42	1.57	110.67	2.18	0.77	0.77
40.75	142.59	77.15	1.49	114.79	2.14	0.77	0.77
40.85	153.40	83.66	1.43	119.75	2.11	0.78	0.78
40.91	164.05	90.16	1.39	125.10	2.08	0.79	0.79
40.96	174.69	96.83	1.35	130.56	2.04	0.80	0.80
41.04	184.27	102.87	1.32	135.59	2.01	0.81	0.81
41.09	193.94	109.10	1.29	141.03	1.98	0.81	0.81
41.18	201.90	114.17	1.28	145.57	1.96	0.82	0.82
41.23	207.97	118.08	1.26	149.12	1.94	0.83	0.83
41.29	211.58	120.37	1.26	151.17	1.93	0.83	0.83
41.38	212.76	120.98	1.25	151.67	1.93	0.83	0.83
41.42	212.09	120.40	1.26	151.21	1.93	0.83	0.83
41.52	210.03	118.76	1.26	149.86	1.94	0.83	0.83
41.57	207.27	116.72	1.27	148.26	1.95	0.82	0.82
41.62	204.91	114.93	1.28	146.93	1.96	0.82	0.82
41.71	203.13	113.45	1.29	145.89	1.97	0.82	0.82
41.76	202.15	112.60	1.29	145.43	1.98	0.82	0.82
41.84	201.65	111.98	1.30	145.17	1.99	0.82	0.82
41.91	201.54	111.64	1.30	145.22	1.99	0.82	0.82
41.95	201.75	111.52	1.31	145.53	2.00	0.82	0.82
42.01	202.52	111.63	1.31	146.36	2.00	0.82	0.82
42.10	203.57	111.82	1.32	147.40	2.01	0.82	0.82
42.15	204.98	112.23	1.33	148.90	2.02	0.83	0.83
42.24	206.03	112.44	1.33	149.94	2.03	0.83	0.83
42.28	206.46	112.53	1.34	150.31	2.03	0.83	0.83
42.39	206.26	112.27	1.33	149.81	2.03	0.83	0.83
42.43	206.08	112.28	1.33	149.14	2.02	0.83	0.83
42.50	206.11	112.45	1.32	148.36	2.01	0.82	0.82
42.58	206.28	112.80	1.31	147.54	2.00	0.82	0.82
42.65	198.95	108.28	1.32	142.73	2.01	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.70	195.88	106.39	1.32	140.58	2.02	0.81	0.81
42.73	193.72	105.08	1.32	139.14	2.02	0.81	0.81
42.77	200.19	109.31	1.30	142.31	1.99	0.82	0.82
42.82	203.83	111.68	1.29	144.06	1.98	0.82	0.82
42.87	209.12	115.10	1.28	146.92	1.96	0.82	0.82
42.91	215.46	119.14	1.26	150.57	1.94	0.83	0.83
42.97	221.76	123.09	1.25	154.27	1.92	0.83	0.83
43.02	226.82	126.14	1.25	157.35	1.92	0.84	0.84
43.06	230.49	128.19	1.25	159.72	1.91	0.84	0.84
43.11	234.33	130.34	1.24	162.21	1.91	0.84	0.84
43.17	237.93	132.40	1.24	164.40	1.91	0.85	0.85
43.21	242.21	135.09	1.23	166.83	1.90	0.85	0.85
43.29	246.19	137.59	1.23	168.85	1.89	0.85	0.85
43.34	250.53	140.43	1.22	171.05	1.87	0.85	0.85
43.39	254.11	142.76	1.21	172.71	1.86	0.86	0.86
43.45	256.87	144.64	1.20	173.74	1.85	0.86	0.86
43.51	258.25	145.84	1.19	173.50	1.84	0.86	0.86
43.59	258.59	146.35	1.18	172.47	1.82	0.86	0.86
43.64	259.19	147.38	1.16	170.73	1.80	0.85	0.85
43.70	259.29	148.12	1.13	168.10	1.78	0.85	0.85
43.78	258.35	147.98	1.12	165.08	1.77	0.85	0.85
43.88	255.18	145.77	1.12	163.55	1.77	0.84	0.84
43.94	244.77	138.10	1.17	161.52	1.82	0.84	0.84
44.04	234.93	130.84	1.21	157.74	1.86	0.84	0.84
44.07	225.87	124.41	1.23	153.31	1.89	0.83	0.83
44.12	223.58	122.68	1.24	152.08	1.90	0.83	0.83
44.16	221.15	120.94	1.25	150.70	1.91	0.83	0.83
44.21	218.05	118.76	1.25	148.86	1.93	0.83	0.83
44.26	214.65	116.39	1.26	146.86	1.94	0.82	0.82
44.31	210.81	113.73	1.27	144.63	1.95	0.82	0.82
44.35	206.97	111.11	1.28	142.44	1.97	0.82	0.82
44.40	203.26	108.60	1.29	140.32	1.98	0.81	0.81
44.45	200.16	106.49	1.30	138.56	1.99	0.81	0.81
44.50	197.83	104.91	1.31	137.24	2.00	0.81	0.81
44.54	195.81	103.53	1.32	136.15	2.01	0.81	0.81
44.60	193.46	101.86	1.32	134.97	2.02	0.81	0.81
44.64	190.96	100.11	1.34	133.85	2.03	0.80	0.80
44.69	188.57	98.42	1.35	132.85	2.05	0.80	0.80
44.74	187.78	97.76	1.36	132.59	2.05	0.80	0.80
44.79	187.17	97.27	1.36	132.34	2.06	0.80	0.80
44.83	187.71	97.52	1.36	132.53	2.05	0.80	0.80
44.88	188.84	98.15	1.35	132.96	2.05	0.80	0.80
44.93	191.20	99.52	1.35	134.02	2.04	0.80	0.80
44.98	193.69	100.99	1.34	135.20	2.03	0.81	0.81
45.03	195.31	101.90	1.33	135.95	2.03	0.81	0.81
45.08	196.49	102.54	1.33	136.45	2.03	0.81	0.81
45.16	197.53	103.08	1.33	136.81	2.02	0.81	0.81
45.19	198.24	103.58	1.32	136.91	2.02	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
45.27	198.44	103.76	1.32	136.53	2.01	0.81	0.81
45.32	197.56	103.38	1.31	135.53	2.00	0.81	0.81
45.37	195.58	102.45	1.31	133.73	2.00	0.80	0.80
45.45	192.44	100.80	1.30	131.17	1.99	0.80	0.80
45.51	187.22	97.91	1.30	127.52	1.99	0.79	0.79
45.56	180.52	93.92	1.31	123.37	2.01	0.79	0.79
45.61	169.84	87.34	1.35	117.60	2.04	0.78	0.78
45.69	156.32	78.89	1.42	111.79	2.10	0.77	0.77
45.75	137.42	67.17	1.61	108.19	2.20	0.76	0.76
45.81	115.31	54.45	1.93	105.04	2.30	0.76	0.76
45.89	93.28	42.25	2.49	105.10	2.42	0.76	0.76
45.94	73.36	31.83	3.26	103.73	2.54	0.75	0.75
46.04	59.21	24.44	4.42	108.05	2.67	0.76	0.76
46.08	46.61	18.15	6.18	112.07	2.83	0.77	0.77
46.15	39.94	13.37	8.22	109.85	2.97	0.77	0.77
46.17	36.10	11.98	9.26	110.89	3.03	0.63	0.86
46.18	36.17	12.00	9.18	110.17	3.02	0.63	0.86
46.23	36.48	12.10	9.03	109.18	3.01	0.62	0.86
46.27	37.18	12.34	8.72	107.58	3.00	0.76	0.76
46.32	38.64	12.85	8.20	105.33	2.96	0.76	0.76
46.41	40.63	15.29	7.01	107.19	2.89	0.76	0.76
46.47	43.16	16.49	6.44	106.19	2.85	0.76	0.76
46.52	45.45	17.54	6.09	106.89	2.82	0.76	0.76
46.56	47.57	18.46	5.95	109.81	2.81	0.77	0.77
46.65	49.42	19.21	5.91	113.60	2.80	0.77	0.77
46.71	51.52	20.07	5.86	117.68	2.80	0.78	0.78
46.76	54.41	21.37	5.62	120.04	2.78	0.78	0.78
46.85	58.19	23.13	5.21	120.43	2.75	0.78	0.78
46.90	63.28	25.63	4.63	118.71	2.69	0.78	0.78
46.99	67.89	27.93	4.16	116.19	2.65	0.78	0.78
47.04	70.35	29.16	3.93	114.63	2.62	0.77	0.77
47.10	69.50	28.71	4.00	114.71	2.63	0.77	0.77
47.16	65.45	26.63	4.36	116.10	2.67	0.78	0.78
47.23	59.62	23.71	4.94	117.23	2.72	0.78	0.78
47.30	51.46	19.76	5.97	117.96	2.81	0.78	0.78
47.38	42.76	13.97	8.12	113.48	2.96	0.77	0.77
47.43	34.23	10.97	10.19	111.84	3.08	0.65	0.78
47.52	28.17	8.83	11.99	105.92	3.17	0.55	0.63
47.59	23.92	7.34	12.70	93.23	3.20	0.41	0.52
47.66	21.40	6.45	12.70	81.89	3.20	0.22	0.46
47.77	19.71	5.85	12.77	74.67	3.20	0.23	0.42
47.82	18.77	5.51	13.75	75.76	3.24	0.23	0.39
47.91	18.38	5.37	14.28	76.63	3.26	0.24	0.38
47.93	17.68	5.12	15.17	77.65	3.30	0.24	0.37
47.97	17.78	5.15	15.21	78.37	3.30	0.25	0.37
48.02	17.86	5.17	15.38	79.56	3.31	0.26	0.37
48.07	18.51	5.39	15.07	81.21	3.30	0.27	0.38
48.12	18.61	5.42	15.51	84.04	3.31	0.29	0.39

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
48.19	18.71	5.44	15.90	86.54	3.33	0.33	0.39
48.23	18.91	5.51	16.11	88.74	3.33	0.34	0.39
48.31	19.15	5.58	16.11	89.88	3.33	0.35	0.40
48.35	19.35	5.64	16.11	90.92	3.33	0.36	0.40
48.40	19.25	5.60	16.37	91.72	3.34	0.37	0.40
48.45	18.81	5.45	16.96	92.39	3.36	0.37	0.39
48.50	18.07	5.19	17.92	92.93	3.40	0.38	0.37
48.55	17.80	5.09	18.35	93.37	3.41	0.38	0.36
48.59	17.64	5.03	18.75	94.24	3.42	0.39	0.36
48.67	17.87	5.10	18.56	94.62	3.42	0.40	0.36
48.73	17.84	5.08	18.58	94.36	3.42	0.39	0.36
48.78	17.97	5.12	18.13	92.80	3.40	0.38	0.37
48.83	17.97	5.11	17.74	90.68	3.39	0.36	0.37
48.91	17.94	5.09	17.35	88.35	3.38	0.33	0.36
48.98	17.84	5.05	17.10	86.35	3.37	0.32	0.36
49.03	17.74	5.01	17.00	85.19	3.37	0.31	0.36
49.12	17.68	4.98	16.65	82.90	3.35	0.30	0.36
49.17	17.75	5.00	15.91	79.48	3.33	0.26	0.36
49.27	18.02	5.08	15.07	76.51	3.30	0.22	0.36
49.31	18.56	5.25	14.57	76.55	3.28	0.24	0.38
49.38	19.20	5.46	14.44	78.88	3.27	0.26	0.39
49.45	19.70	5.62	14.44	81.15	3.27	0.28	0.40
49.51	19.00	5.38	15.44	83.00	3.31	0.29	0.38
49.54	19.44	5.52	15.24	84.13	3.30	0.30	0.39
49.59	20.18	5.76	14.65	84.45	3.28	0.31	0.41
49.64	21.53	6.21	13.47	83.63	3.23	0.31	0.44
49.73	21.20	6.09	13.64	83.01	3.24	0.29	0.43
49.83	20.02	5.68	14.52	82.47	3.27	0.29	0.41
49.92	18.88	5.29	15.55	82.19	3.31	0.29	0.38
49.98	17.86	4.94	16.51	81.62	3.35	0.28	0.35
50.07	17.33	4.75	17.04	81.01	3.37	0.27	0.34
50.16	16.99	4.63	17.38	80.51	3.38	0.27	0.33
50.24	16.69	4.52	17.70	80.06	3.39	0.27	0.32
50.32	16.46	4.44	17.99	79.87	3.40	0.26	0.32
50.41	16.32	4.39	18.25	80.02	3.41	0.26	0.31
50.50	16.36	4.39	18.25	80.09	3.41	0.27	0.31
50.56	16.26	4.35	18.25	79.36	3.41	0.27	0.31
50.66	16.09	4.28	18.27	78.27	3.41	0.25	0.31
50.74	15.92	4.22	18.37	77.53	3.41	0.24	0.30
50.84	15.85	4.19	19.00	79.62	3.43	0.25	0.30
50.93	15.95	4.21	19.91	83.88	3.46	0.30	0.30
50.98	16.77	4.47	20.59	92.08	3.48	0.35	0.32
51.08	19.60	5.39	19.08	102.75	3.43	0.47	0.38
51.17	24.45	6.95	16.30	113.31	3.34	0.63	0.50
51.24	30.11	8.78	13.98	122.80	3.25	0.75	0.63
51.34	33.65	9.91	13.03	129.12	3.21	0.89	0.71
51.41	34.16	10.06	12.19	122.59	3.18	0.93	0.72
51.51	32.81	9.60	12.05	115.66	3.17	0.50	0.69

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
51.58	31.20	9.06	11.80	106.93	3.16	0.61	0.65
51.68	29.95	8.64	12.73	109.98	3.20	0.60	0.62
51.79	27.39	7.80	14.12	110.16	3.26	0.59	0.56
51.82	25.87	7.31	15.07	110.15	3.30	0.59	0.52
51.85	24.39	6.83	16.27	111.07	3.34	0.59	0.49
51.91	25.00	7.01	16.14	113.23	3.34	0.60	0.50
52.00	24.87	6.96	16.71	116.25	3.36	0.67	0.50
52.05	27.06	7.65	15.54	118.92	3.31	0.70	0.55
52.10	31.78	9.15	13.00	118.95	3.21	0.72	0.65
52.19	38.49	11.27	10.28	115.81	3.08	0.73	0.80
52.28	44.04	13.02	8.58	111.69	2.99	0.77	0.77
52.34	46.37	13.74	7.96	109.32	2.95	0.76	0.76
52.42	46.09	13.63	8.05	109.66	2.96	0.77	0.77
52.48	44.34	13.05	8.50	111.03	2.98	0.77	0.77
52.57	42.32	12.39	8.98	111.27	3.01	0.69	0.88
52.62	40.26	11.73	9.37	109.88	3.03	0.66	0.84
52.69	38.51	11.16	9.58	106.89	3.05	0.61	0.80
52.77	36.89	10.63	9.83	104.50	3.06	0.56	0.76
52.87	35.55	10.19	10.19	103.83	3.08	0.55	0.73
52.91	34.07	9.71	10.56	102.56	3.10	0.57	0.69
53.01	32.55	9.21	11.08	102.13	3.12	0.49	0.66
53.10	32.18	9.08	11.35	103.11	3.14	0.52	0.65
53.16	34.04	9.65	11.74	113.26	3.15	0.59	0.69
53.25	38.69	11.08	11.13	123.32	3.13	0.87	0.79
53.29	44.28	12.82	10.63	136.25	3.10	0.97	0.92
53.38	48.90	14.23	10.13	144.18	3.07	1.22	1.02
53.42	59.32	17.47	8.56	149.47	2.99	0.83	0.83
53.47	74.66	22.21	6.75	150.02	2.87	0.83	0.83
53.52	92.88	27.85	5.32	148.22	2.76	0.82	0.82
53.58	102.94	30.94	4.93	152.55	2.72	0.83	0.83
53.66	103.80	31.15	5.14	160.18	2.74	0.84	0.84
53.75	98.64	29.50	5.74	169.41	2.79	0.85	0.85
53.81	88.93	26.46	6.64	175.67	2.86	0.86	0.86
53.87	78.89	23.33	7.63	177.89	2.93	0.86	0.86
53.95	67.24	19.70	9.07	178.71	3.02	1.90	1.41
54.01	57.35	16.64	10.67	177.57	3.10	1.79	1.19
54.06	47.51	13.60	12.71	172.90	3.20	1.68	0.97
54.15	41.78	11.83	14.16	167.57	3.26	1.42	0.85
54.20	40.60	11.46	14.42	165.24	3.27	1.40	0.82
54.29	47.57	13.59	12.09	164.23	3.17	1.54	0.97
54.34	69.40	20.27	7.00	141.87	2.89	0.82	0.82
54.43	100.37	29.73	3.65	108.63	2.59	0.76	0.76
54.45	137.16	41.00	2.00	82.07	2.32	0.69	0.71
54.48	166.07	49.83	1.62	80.59	2.20	0.61	0.71
54.52	185.51	55.76	1.48	82.69	2.14	0.71	0.71
54.53	198.85	59.83	1.45	86.57	2.12	0.72	0.72
54.58	207.94	62.58	1.44	89.91	2.11	0.73	0.73
54.62	219.64	66.13	1.42	93.59	2.10	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
54.65	233.46	70.33	1.38	96.81	2.07	0.74	0.74
54.70	244.67	73.72	1.36	99.98	2.05	0.75	0.75
54.76	251.12	75.64	1.35	102.23	2.05	0.75	0.75
54.77	249.88	75.25	1.37	102.77	2.06	0.75	0.75
54.82	251.50	75.71	1.36	103.16	2.06	0.75	0.75
54.87	253.07	76.14	1.36	103.55	2.05	0.75	0.75
54.88	255.63	76.92	1.35	104.08	2.05	0.76	0.76
54.91	257.28	77.39	1.35	104.56	2.05	0.76	0.76
54.96	263.42	79.22	1.34	106.09	2.04	0.76	0.76
54.97	276.70	83.26	1.32	109.90	2.01	0.77	0.77
55.03	294.89	88.74	1.30	115.47	1.99	0.78	0.78
55.09	315.21	94.86	1.27	120.89	1.96	0.78	0.78
55.15	327.84	98.63	1.23	121.55	1.89	0.79	0.79
55.20	338.35	101.77	1.20	122.41	1.85	0.79	0.79
55.25	358.17	107.74	1.13	121.49	1.78	0.79	0.79
55.30	386.84	116.38	1.11	129.28	1.77	0.80	0.80
55.34	417.50	125.63	1.07	134.62	1.74	0.81	0.81
55.39	440.05	132.40	1.10	146.03	1.76	0.82	0.82
55.40	462.28	139.13	1.10	153.71	1.76	0.83	0.83
55.44	482.80	145.29	1.08	157.35	1.75	0.84	0.84
55.44	511.21	153.88	1.02	157.04	1.72	0.84	0.84
55.49	517.76	155.78	1.03	160.78	1.72	0.84	0.84
55.54	533.43	160.44	1.05	167.71	1.73	0.85	0.85
55.59	534.98	160.82	1.10	176.17	1.76	0.86	0.86
55.63	551.08	165.61	1.09	180.34	1.75	0.86	0.86
55.64	553.47	166.31	1.09	180.79	1.75	0.87	0.87
55.68	566.94	170.31	1.06	179.92	1.73	0.86	0.86
55.69	570.38	171.33	1.04	178.50	1.73	0.86	0.86
55.69	566.17	170.04	1.05	179.38	1.73	0.86	0.86
55.71	561.62	168.63	1.09	183.08	1.75	0.87	0.87
55.76	567.28	170.25	1.10	186.45	1.76	0.87	0.87
55.78	580.19	174.11	1.08	187.85	1.75	0.87	0.87
55.81	581.23	174.36	1.04	180.96	1.72	0.87	0.87
55.85	584.16	175.16	1.00	175.16	1.69	0.86	0.86
55.86	588.34	176.41	1.00	176.41	1.65	0.86	0.86
55.91	598.65	179.42	1.00	179.42	1.62	0.86	0.86
55.92	602.25	180.48	1.00	180.48	1.60	0.87	0.87
55.96	619.03	185.46	1.00	185.46	1.58	0.87	0.87
55.97	634.09	189.98	1.00	189.98	1.57	0.88	0.88
56.00	654.37	196.01	1.00	196.01	1.56	0.88	0.88
56.01	660.12	197.72	1.00	197.72	1.58	0.88	0.88
56.03	661.79	198.18	1.00	198.18	1.59	0.88	0.88
56.05	661.82	198.14	1.00	198.14	1.60	0.88	0.88
56.10	665.04	198.99	1.00	198.99	1.60	0.89	0.89
56.12	668.02	199.86	1.00	199.86	1.58	0.89	0.89
56.16	667.69	199.67	1.00	199.67	1.57	0.89	0.89
56.17	654.78	195.76	1.00	195.76	1.57	0.88	0.88
56.20	635.11	189.78	1.00	189.78	1.59	0.88	0.88

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
56.22	617.48	184.46	1.00	184.46	1.61	0.87	0.87
56.24	608.45	181.69	1.00	181.69	1.61	0.87	0.87
56.30	602.69	179.84	1.00	179.84	1.62	0.86	0.86
56.31	595.69	177.72	1.00	177.72	1.63	0.86	0.86
56.34	586.22	174.82	1.00	174.82	1.65	0.86	0.86
56.39	579.04	172.57	1.00	172.57	1.66	0.86	0.86
56.45	572.30	170.44	1.00	170.44	1.67	0.85	0.85
56.48	565.39	168.31	1.00	168.31	1.67	0.85	0.85
56.49	555.45	165.32	1.00	165.32	1.70	0.85	0.85
56.53	542.15	161.25	1.05	168.57	1.73	0.85	0.85
56.58	529.04	157.24	1.08	169.38	1.75	0.85	0.85
56.63	524.73	155.86	1.00	155.86	1.67	0.83	0.83
56.68	526.01	156.17	1.00	156.17	1.58	0.84	0.84
56.73	531.33	157.68	1.00	157.68	1.53	0.84	0.84
56.78	526.31	156.09	1.00	156.09	1.62	0.84	0.84
56.83	517.99	153.53	1.00	153.53	1.69	0.83	0.83
56.89	503.37	149.05	1.06	157.35	1.73	0.84	0.84
56.95	485.04	143.50	1.12	160.76	1.77	0.84	0.84
56.99	470.25	139.02	1.16	161.37	1.81	0.84	0.84
57.01	460.92	136.23	1.18	160.98	1.83	0.84	0.84
57.04	461.73	136.41	1.18	160.65	1.82	0.84	0.84
57.09	468.20	138.26	1.17	161.13	1.81	0.84	0.84
57.11	477.43	140.98	1.16	163.57	1.81	0.84	0.84
57.13	488.62	144.26	1.16	167.47	1.81	0.85	0.85
57.18	488.78	144.24	1.17	169.44	1.82	0.85	0.85
57.19	477.80	140.96	1.20	168.95	1.85	0.85	0.85
57.21	464.47	136.96	1.21	166.30	1.87	0.85	0.85
57.24	456.12	134.45	1.22	164.00	1.88	0.85	0.85
57.28	456.72	134.56	1.21	163.35	1.87	0.84	0.84
57.32	450.91	132.78	1.22	161.45	1.87	0.84	0.84
57.35	445.39	131.08	1.22	160.03	1.88	0.84	0.84
57.38	435.59	128.14	1.23	157.50	1.89	0.84	0.84
57.43	430.50	126.56	1.23	155.53	1.89	0.83	0.83
57.48	414.66	121.80	1.23	150.26	1.90	0.83	0.83
57.52	398.59	116.98	1.23	143.92	1.89	0.82	0.82
57.57	389.56	114.25	1.25	142.28	1.91	0.82	0.82
57.62	396.66	116.29	1.26	146.53	1.94	0.82	0.82
57.68	427.50	125.32	1.25	157.03	1.92	0.84	0.84
57.76	462.23	135.46	1.23	166.00	1.88	0.85	0.85
57.81	505.50	148.16	1.09	161.17	1.75	0.84	0.84
57.86	543.58	159.31	1.00	159.31	1.63	0.84	0.84
57.89	572.52	167.80	1.00	167.80	1.49	0.85	0.85
57.91	583.54	171.02	1.00	171.02	1.48	0.85	0.85
57.92	577.13	169.11	1.00	169.11	1.50	0.85	0.85
57.95	569.05	166.67	1.00	166.67	1.54	0.85	0.85
57.99	570.66	167.08	1.00	167.08	1.56	0.85	0.85
58.01	578.72	169.42	1.00	169.42	1.57	0.85	0.85
58.05	591.19	173.02	1.00	173.02	1.58	0.86	0.86

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
58.05	598.87	175.27	1.00	175.27	1.59	0.86	0.86
58.10	604.77	176.91	1.00	176.91	1.60	0.86	0.86
58.13	611.17	178.73	1.00	178.73	1.60	0.86	0.86
58.15	618.51	180.87	1.00	180.87	1.60	0.87	0.87
58.17	625.12	182.75	1.00	182.75	1.59	0.87	0.87
58.20	623.43	182.21	1.00	182.21	1.59	0.87	0.87
58.21	619.40	181.00	1.00	181.00	1.60	0.87	0.87
58.21	614.30	179.50	1.00	179.50	1.61	0.86	0.86
58.23	613.93	179.34	1.00	179.34	1.61	0.86	0.86
58.24	608.11	177.62	1.00	177.62	1.62	0.86	0.86
58.25	609.21	177.92	1.00	177.92	1.54	0.86	0.86
58.29	613.99	179.26	1.00	179.26	1.44	0.86	0.86
58.31	627.24	183.11	1.00	183.11	1.32	0.87	0.87
58.33	639.00	186.52	1.00	186.52	1.34	0.87	0.87
58.38	651.36	190.06	1.00	190.06	1.37	0.88	0.88
58.39	661.87	193.13	1.00	193.13	1.39	0.88	0.88
58.43	670.53	195.59	1.00	195.59	1.40	0.88	0.88
58.43	682.73	199.15	1.00	199.15	1.39	0.89	0.89
58.48	688.02	200.60	1.00	200.60	1.40	0.89	0.89
58.53	694.39	202.36	1.00	202.36	1.41	0.89	0.89
58.56	696.37	202.90	1.00	202.90	1.46	0.89	0.89
58.58	704.43	205.20	1.00	205.20	1.47	0.89	0.89
58.59	710.90	207.06	1.00	207.06	1.49	0.89	0.89
58.63	707.18	205.90	1.00	205.90	1.49	0.89	0.89
58.63	709.20	206.49	1.00	206.49	1.50	0.89	0.89
58.63	695.36	202.42	1.00	202.42	1.51	0.89	0.89
58.68	700.19	203.74	1.00	203.74	1.49	0.89	0.89
58.69	701.88	204.22	1.00	204.22	1.45	0.89	0.89
58.72	717.85	208.81	1.00	208.81	1.40	0.90	0.90
58.73	722.94	210.28	1.00	210.28	1.38	0.90	0.90
58.74	728.64	211.92	1.00	211.92	1.41	0.90	0.90
58.77	726.96	211.36	1.00	211.36	1.44	0.90	0.90
58.81	722.67	210.02	1.00	210.02	1.47	0.90	0.90
58.82	713.94	207.44	1.00	207.44	1.49	0.89	0.89
58.83	715.80	207.97	1.00	207.97	1.51	0.90	0.90
58.87	722.33	209.78	1.00	209.78	1.52	0.90	0.90
58.91	731.67	212.41	1.00	212.41	1.53	0.90	0.90
58.92	737.87	214.21	1.00	214.21	1.54	0.90	0.90
58.93	740.53	214.95	1.00	214.95	1.53	0.90	0.90
58.96	739.05	214.44	1.00	214.44	1.53	0.90	0.90
59.01	716.31	207.70	1.00	207.70	1.56	0.89	0.89
59.06	687.29	199.13	1.00	199.13	1.59	0.89	0.89
59.08	655.28	189.77	1.00	189.77	1.63	0.88	0.88
59.11	638.94	184.95	1.00	184.95	1.65	0.87	0.87
59.15	627.21	181.46	1.00	181.46	1.68	0.87	0.87
59.21	618.28	178.75	1.00	178.75	1.70	0.86	0.86
59.26	606.09	175.11	1.02	178.89	1.72	0.86	0.86
59.30	592.31	171.02	1.01	173.20	1.71	0.86	0.86

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.35	579.87	167.32	1.01	169.07	1.71	0.85	0.85
59.40	562.76	162.26	1.04	168.73	1.73	0.85	0.85
59.42	550.96	158.81	1.06	168.34	1.74	0.85	0.85
59.47	539.34	155.35	1.08	167.78	1.75	0.85	0.85
59.51	539.41	155.29	1.09	168.63	1.75	0.85	0.85
59.56	537.97	154.79	1.09	168.59	1.75	0.85	0.85
59.61	537.36	154.53	1.06	164.50	1.74	0.85	0.85
59.67	541.98	155.77	1.00	155.77	1.70	0.83	0.83
59.71	553.73	159.11	1.00	159.11	1.65	0.84	0.84
59.80	555.82	159.56	1.00	159.56	1.61	0.84	0.84
59.85	552.45	158.50	1.00	158.50	1.59	0.84	0.84
59.90	542.21	155.47	1.00	155.47	1.59	0.83	0.83
60.00	542.99	155.53	1.00	155.53	1.59	0.83	0.83
60.04	541.71	155.09	1.00	155.09	1.60	0.83	0.83
60.10	526.52	150.62	1.00	150.62	1.63	0.83	0.83
60.15	508.32	145.30	1.00	145.30	1.67	0.82	0.82
60.19	487.40	139.22	1.00	139.22	1.70	0.81	0.81
60.23	483.49	138.03	1.00	138.03	1.69	0.81	0.81
60.28	482.61	137.71	1.00	137.71	1.68	0.81	0.81
60.33	488.98	139.47	1.00	139.47	1.67	0.81	0.81
60.38	491.97	140.26	1.00	140.26	1.67	0.81	0.81
60.42	493.85	140.74	1.00	140.74	1.69	0.81	0.81
60.44	487.18	138.79	1.01	140.24	1.71	0.81	0.81
60.47	475.94	135.53	1.08	145.72	1.74	0.82	0.82
60.52	465.53	132.47	1.12	148.94	1.78	0.83	0.83
60.56	462.70	131.60	1.15	150.90	1.79	0.83	0.83
60.57	465.03	132.25	1.15	151.48	1.79	0.83	0.83
60.61	470.62	133.80	1.13	151.48	1.78	0.83	0.83
60.66	477.29	135.64	1.12	151.98	1.77	0.83	0.83
60.71	486.66	138.25	1.11	153.21	1.77	0.83	0.83
60.76	495.25	140.63	1.11	156.59	1.77	0.84	0.84
60.81	504.76	143.27	1.11	159.58	1.77	0.84	0.84
60.86	523.05	148.43	1.08	161.02	1.75	0.84	0.84
60.91	559.78	158.84	1.00	158.84	1.70	0.84	0.84
60.95	601.50	170.69	1.00	170.69	1.66	0.85	0.85
61.00	637.66	180.91	1.00	180.91	1.64	0.87	0.87
61.02	657.74	186.60	1.00	186.60	1.64	0.87	0.87
61.05	685.10	194.34	1.00	194.34	1.62	0.88	0.88
61.08	710.24	201.44	1.00	201.44	1.61	0.89	0.89
61.09	731.84	207.57	1.00	207.57	1.59	0.89	0.89
61.13	737.94	209.24	1.00	209.24	1.59	0.90	0.90
61.14	739.46	209.63	1.00	209.63	1.60	0.90	0.90
61.16	741.44	210.15	1.00	210.15	1.60	0.90	0.90
61.20	750.88	212.77	1.00	212.77	1.58	0.90	0.90
61.23	762.13	215.88	1.00	215.88	1.56	0.90	0.90
61.24	766.92	217.23	1.00	217.23	1.52	0.90	0.90
61.29	758.86	214.83	1.00	214.83	1.51	0.90	0.90
61.30	744.24	210.65	1.00	210.65	1.52	0.90	0.90

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
61.33	734.57	207.82	1.00	207.82	1.55	0.90	0.90
61.38	730.90	206.66	1.00	206.66	1.55	0.89	0.89
61.43	731.07	206.60	1.00	206.60	1.53	0.89	0.89
61.48	738.25	208.54	1.00	208.54	1.50	0.90	0.90
61.53	750.91	212.02	1.00	212.02	1.48	0.90	0.90
61.56	754.78	213.05	1.00	213.05	1.48	0.90	0.90
61.58	726.93	205.10	1.00	205.10	1.50	0.89	0.89
61.59	702.39	198.13	1.00	198.13	1.52	0.88	0.88
61.62	600.70	169.24	1.00	169.24	1.61	0.85	0.85
61.63	595.30	167.67	1.00	167.67	1.61	0.85	0.85
61.67	588.36	165.65	1.00	165.65	1.62	0.85	0.85
61.71	662.66	186.61	1.00	186.61	1.55	0.87	0.87
61.76	655.52	184.50	1.00	184.50	1.55	0.87	0.87
61.81	634.02	178.32	1.00	178.32	1.54	0.86	0.86
61.86	615.02	172.85	1.00	172.85	1.52	0.86	0.86
61.87	600.83	168.83	1.00	168.83	1.48	0.85	0.85
61.91	588.87	165.39	1.00	165.39	1.44	0.85	0.85
61.95	578.02	162.25	1.00	162.25	1.42	0.84	0.84
61.96	566.74	159.04	1.00	159.04	1.42	0.84	0.84
62.00	553.70	155.30	1.00	155.30	1.45	0.83	0.83
62.04	535.16	150.01	1.00	150.01	1.49	0.83	0.83
62.06	510.97	143.15	1.00	143.15	1.55	0.82	0.82
62.10	491.66	137.65	1.00	137.65	1.60	0.81	0.81
62.14	475.52	133.04	1.00	133.04	1.64	0.80	0.80
62.20	463.08	129.46	1.00	129.46	1.66	0.80	0.80
62.22	439.20	122.70	1.00	122.70	1.71	0.79	0.79
62.27	415.48	115.96	1.08	125.13	1.75	0.79	0.79
62.29	396.37	110.55	1.13	125.44	1.78	0.79	0.79
62.34	380.26	105.96	1.17	124.22	1.82	0.79	0.79
62.39	366.62	102.08	1.21	123.46	1.86	0.79	0.79
62.43	347.78	96.73	1.26	121.51	1.93	0.79	0.79
62.49	340.13	94.52	1.28	121.38	1.97	0.79	0.79
62.57	336.43	93.40	1.30	121.70	1.99	0.79	0.79
62.68	357.18	99.12	1.29	127.79	1.98	0.80	0.80
62.75	398.26	110.56	1.26	139.12	1.93	0.81	0.81
62.87	426.23	118.25	1.24	146.86	1.91	0.82	0.82
62.88	409.21	113.48	1.25	142.25	1.93	0.82	0.82
62.89	424.34	117.70	1.21	142.29	1.86	0.82	0.82
62.93	485.42	134.75	1.06	142.80	1.74	0.82	0.82
62.98	571.92	158.87	1.00	158.87	1.61	0.84	0.84
63.02	620.24	172.30	1.00	172.30	1.47	0.86	0.86
63.07	658.55	182.93	1.00	182.93	1.31	0.87	0.87
63.12	710.78	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.14	752.36	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.17	781.30	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.17	799.36	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.20	825.98	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.21	830.83	-1.00	1.00	-1.00	-1.00	0.00	0.00

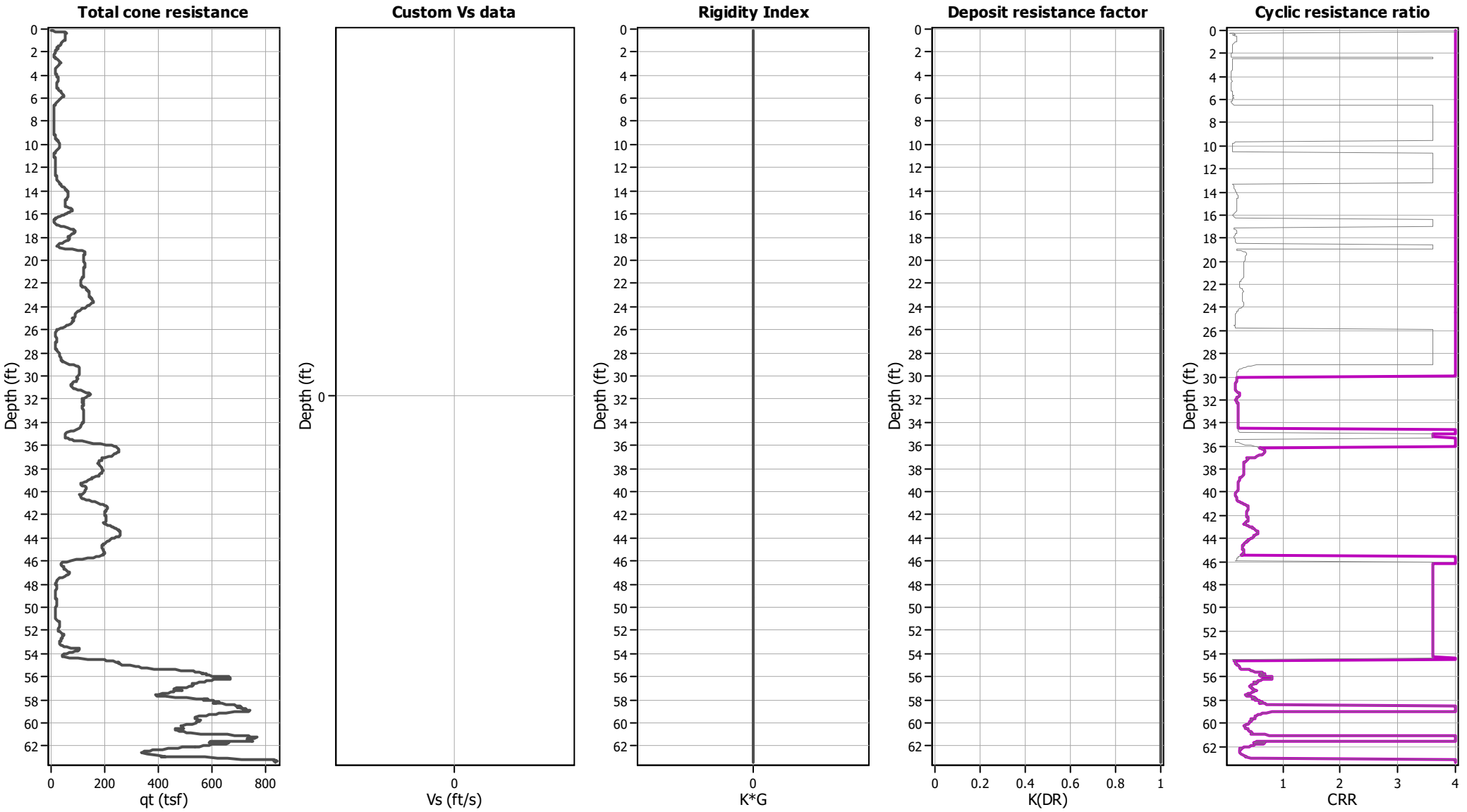
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.23	842.91	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.26	834.75	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.28	841.52	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.31	838.10	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.32	839.38	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.36	837.12	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.40	836.85	-1.00	1.00	-1.00	-1.00	0.00	0.00

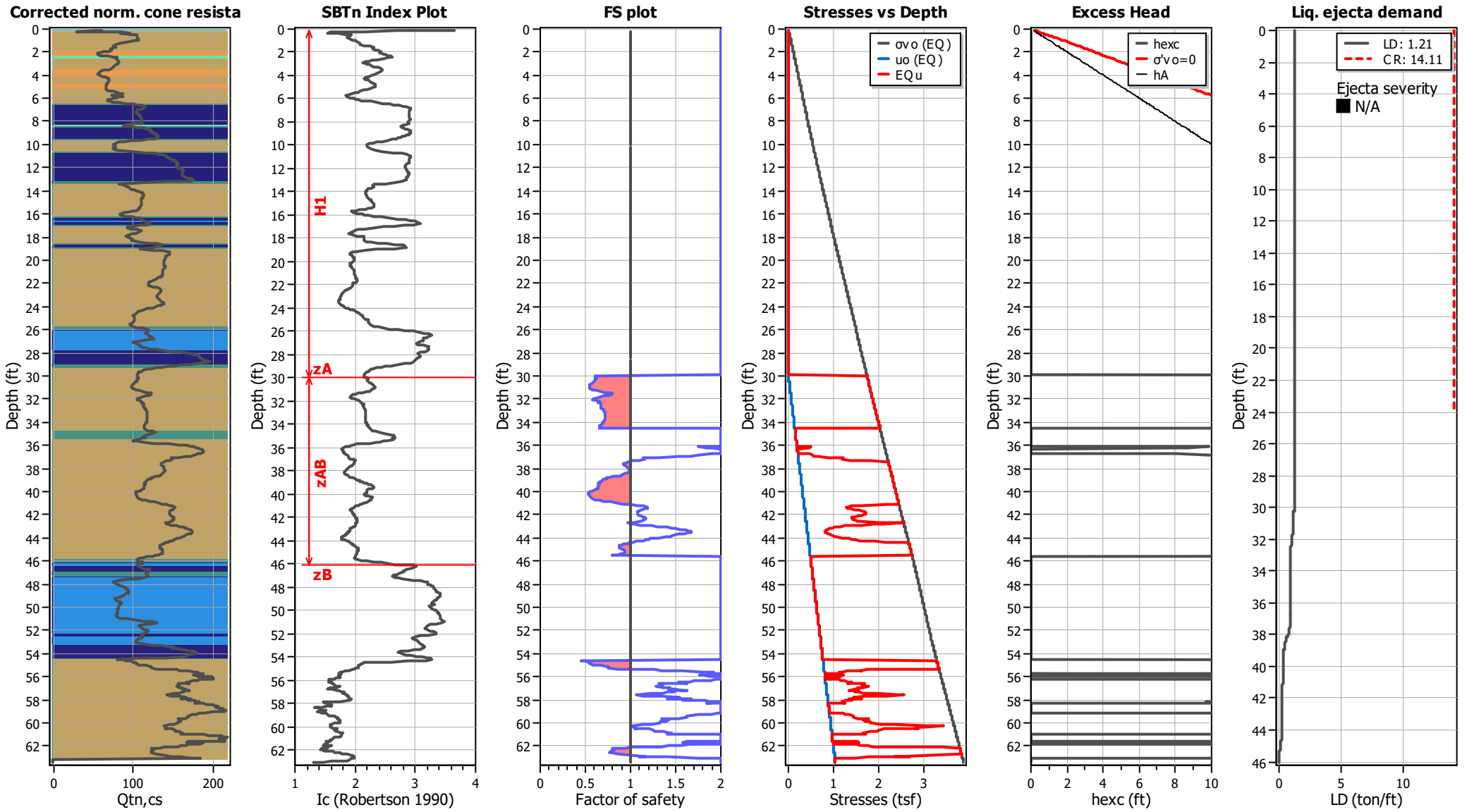
Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Aging Calculation Estimation



Ejecta Severity Estimation



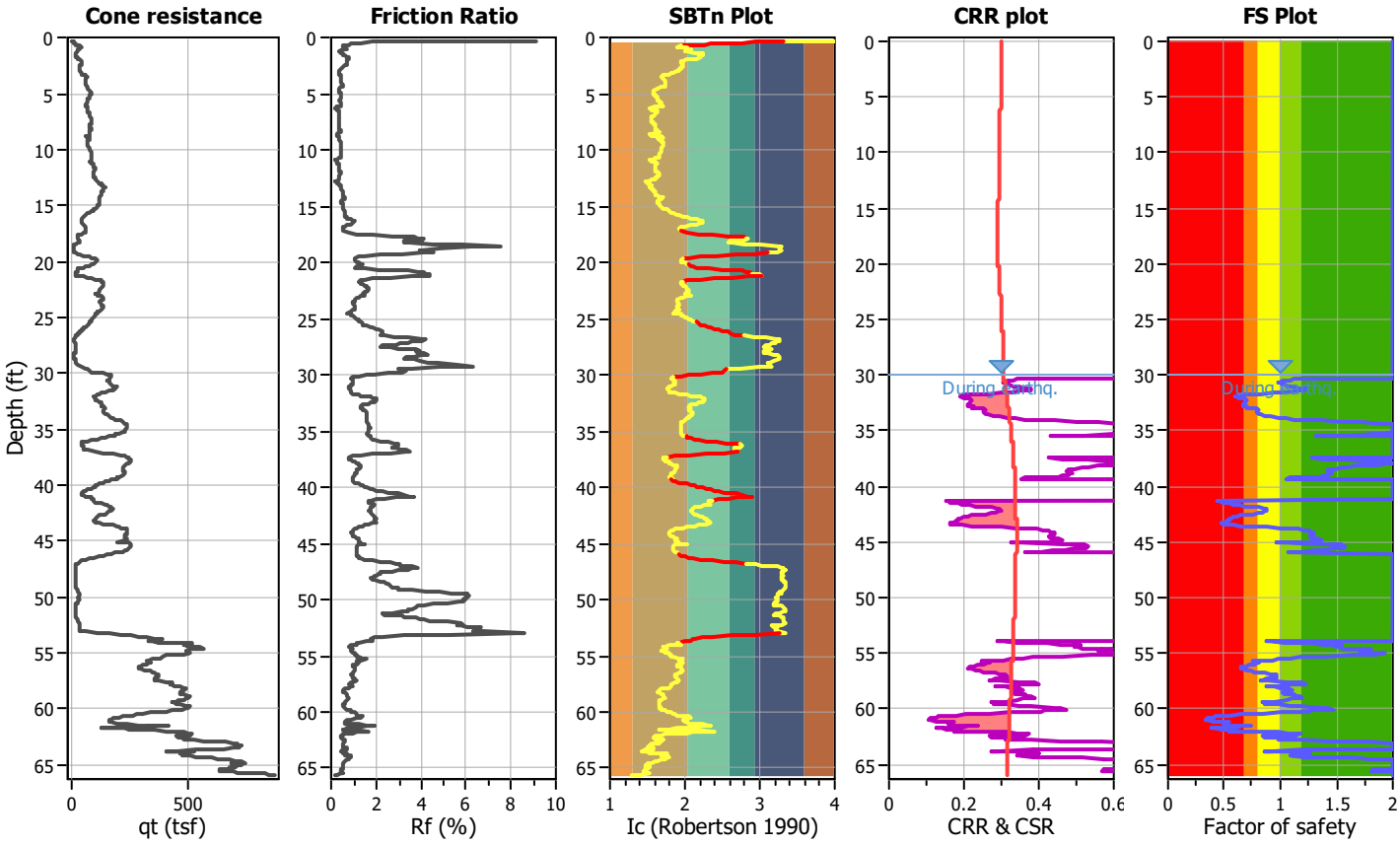
LIQUEFACTION ANALYSIS REPORT

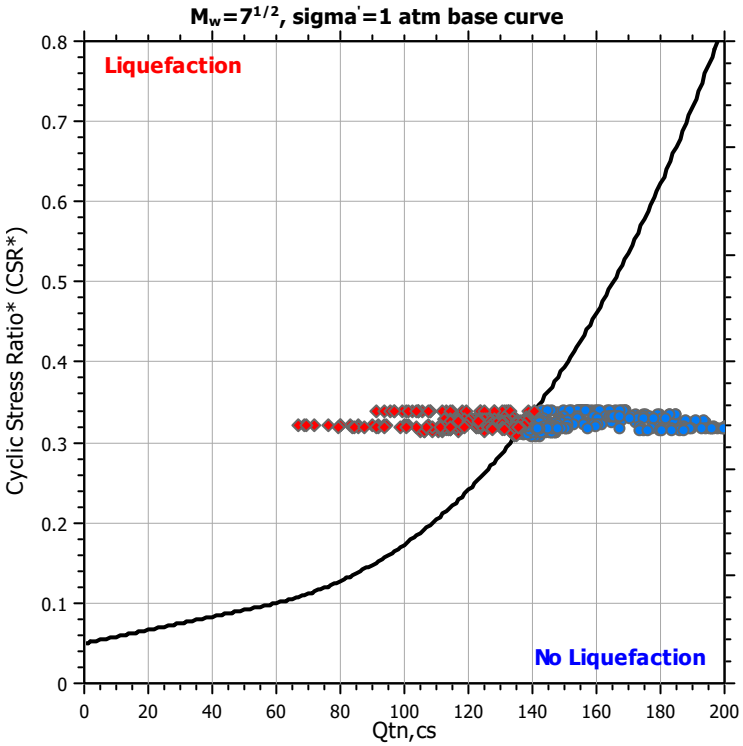
Project title : W1857-88-01 **Location : 331 The City Drive S**

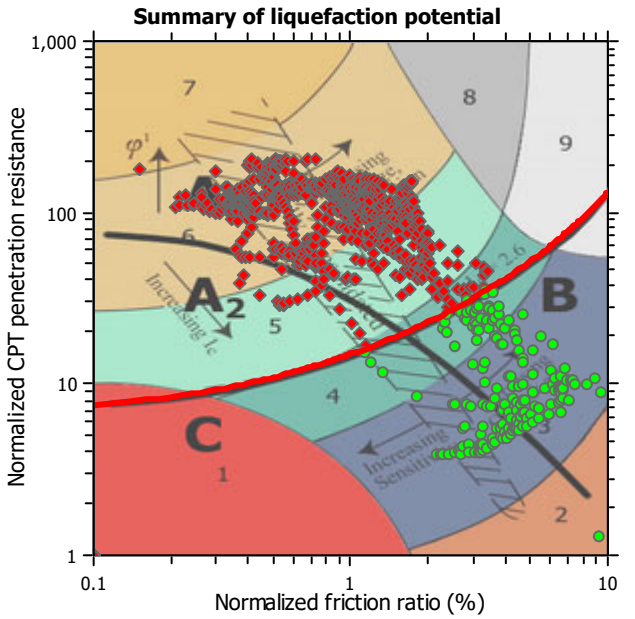
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.65	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

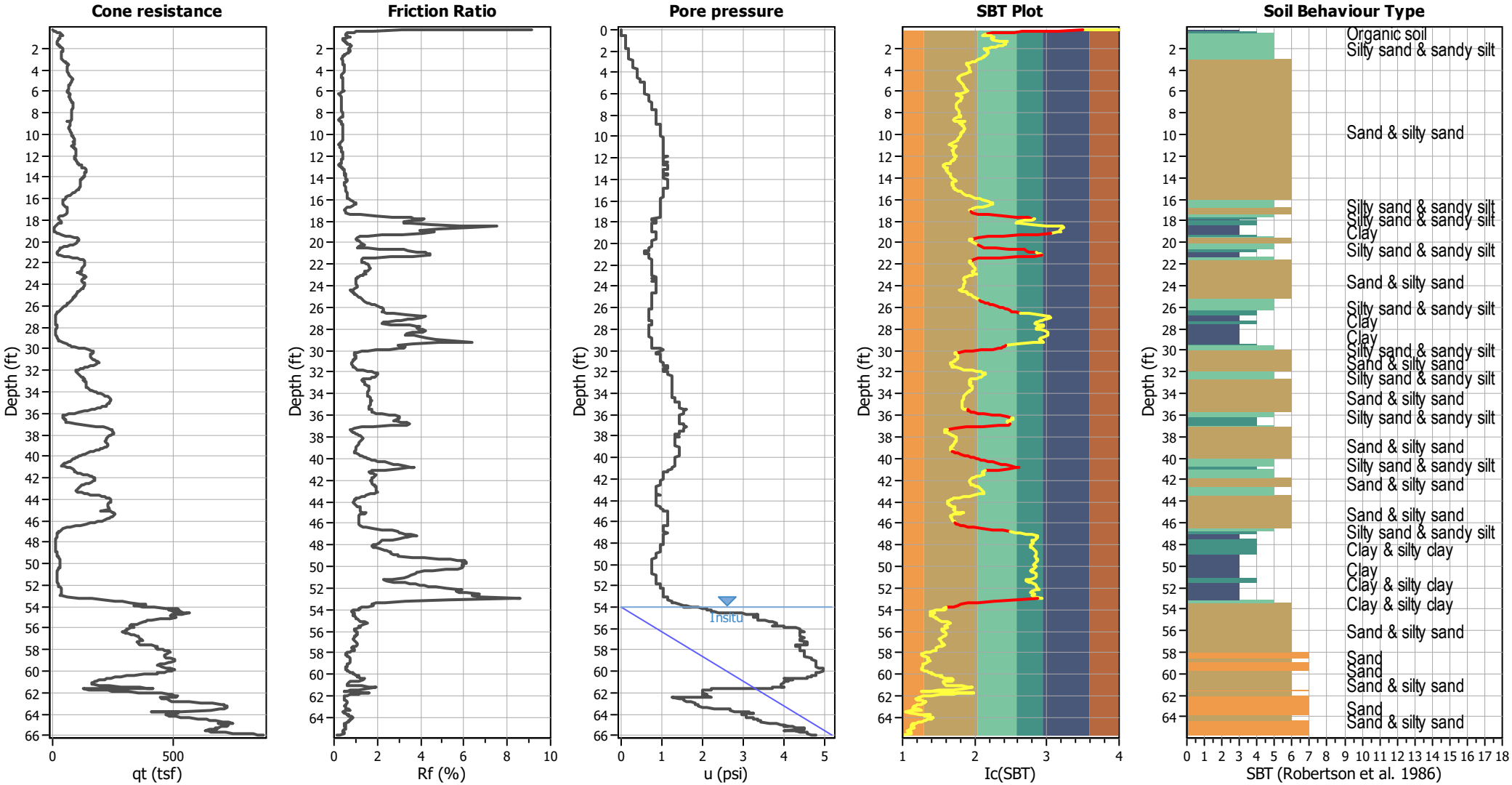






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



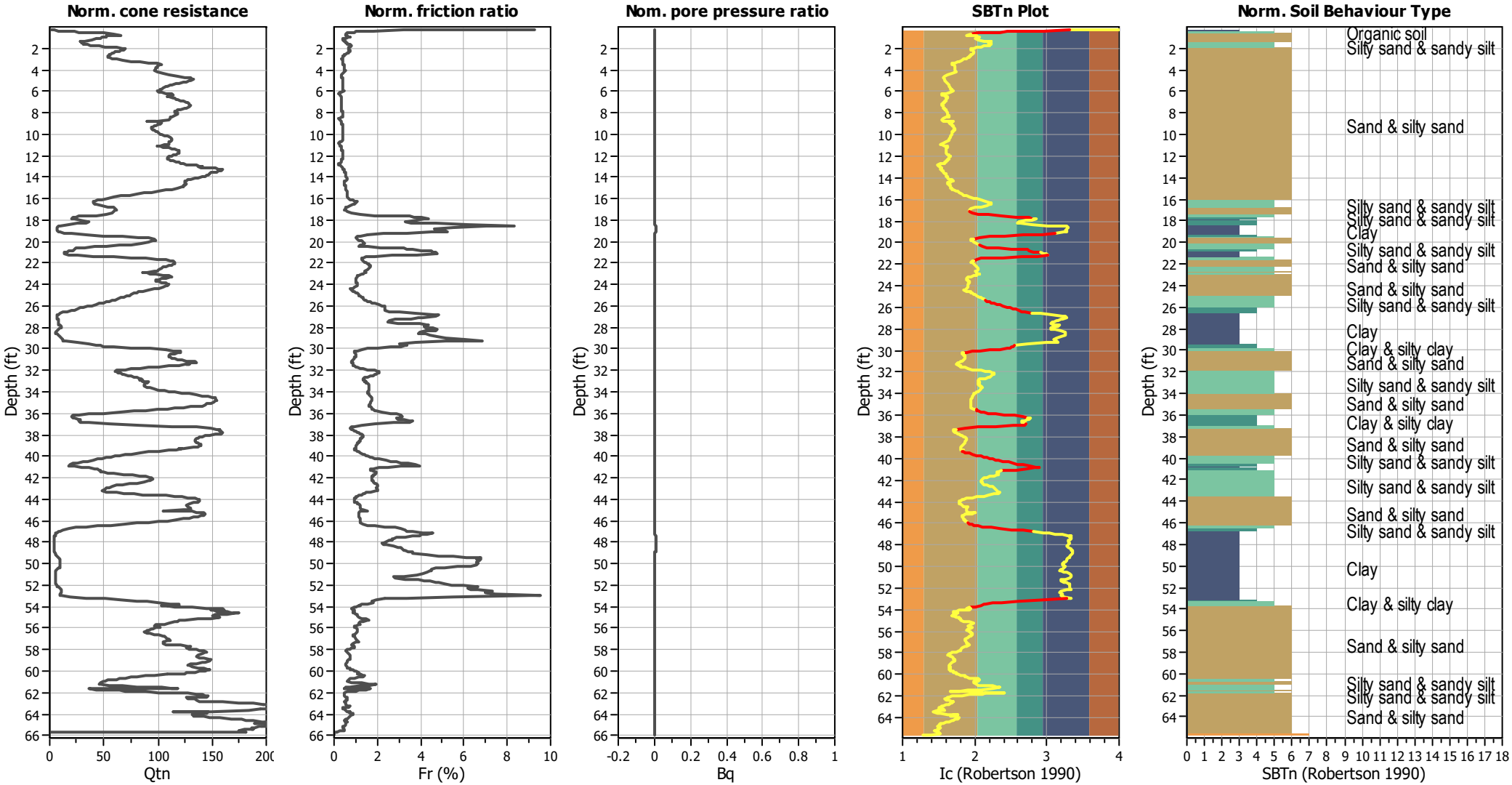
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



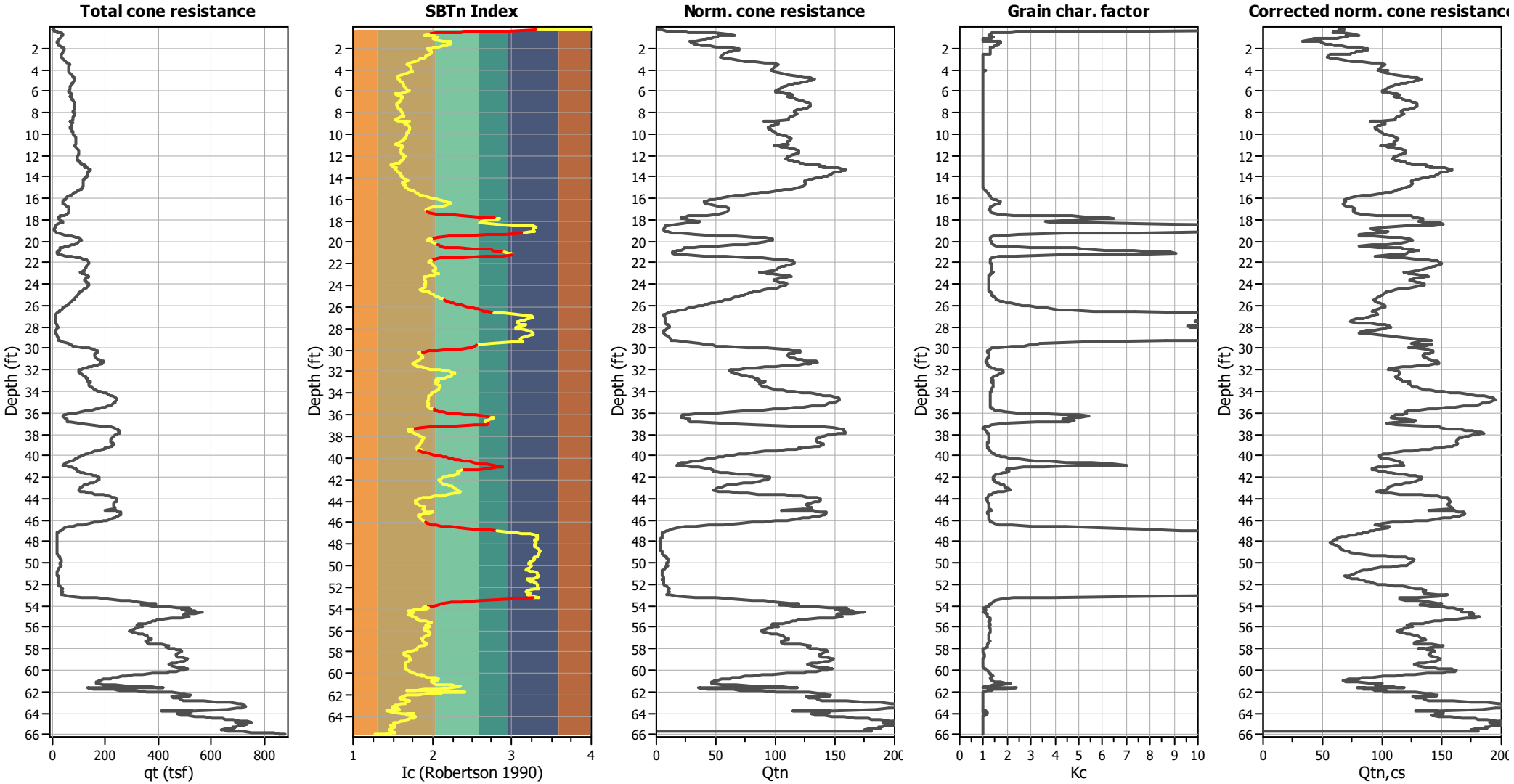
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

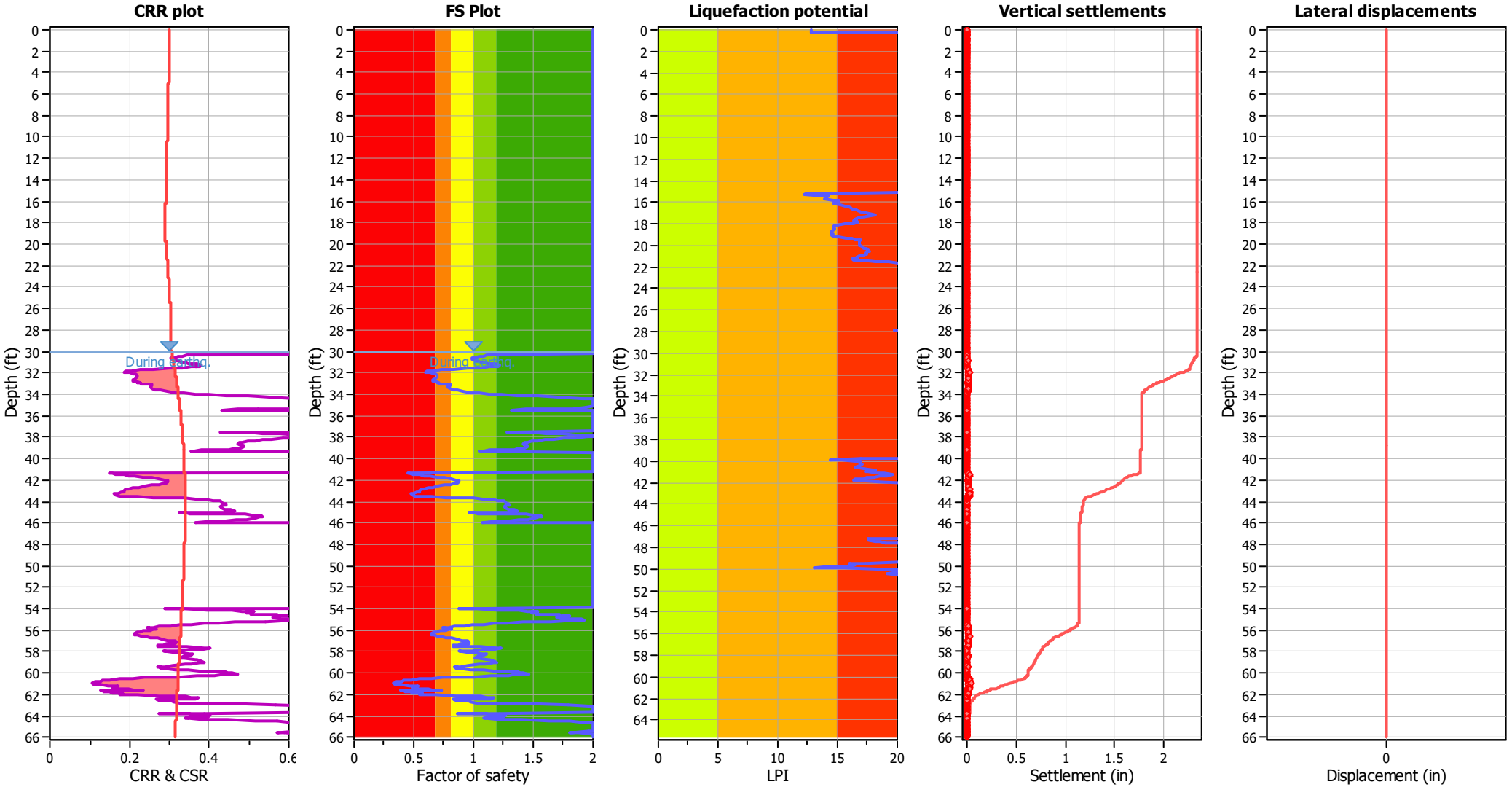
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

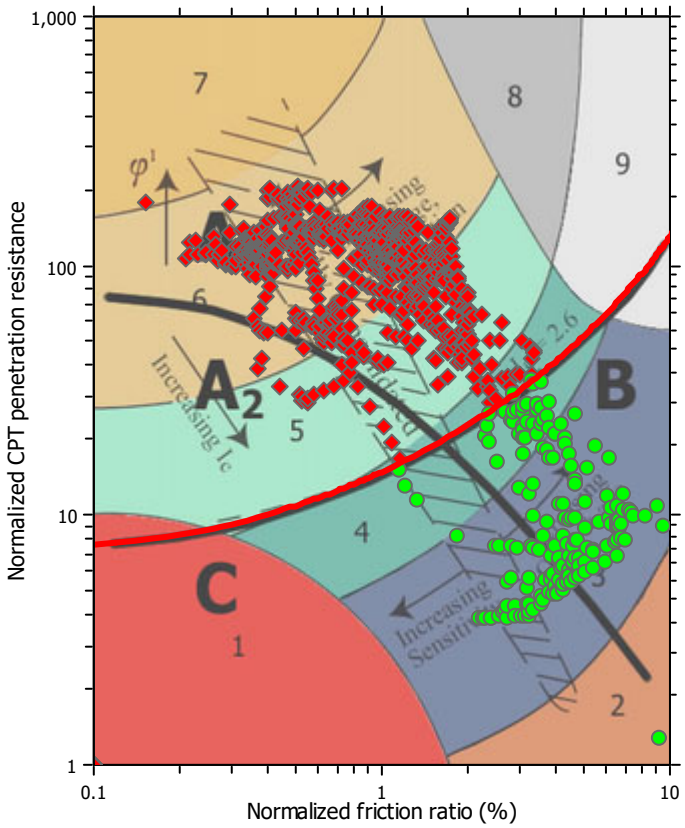
F.S. color scheme

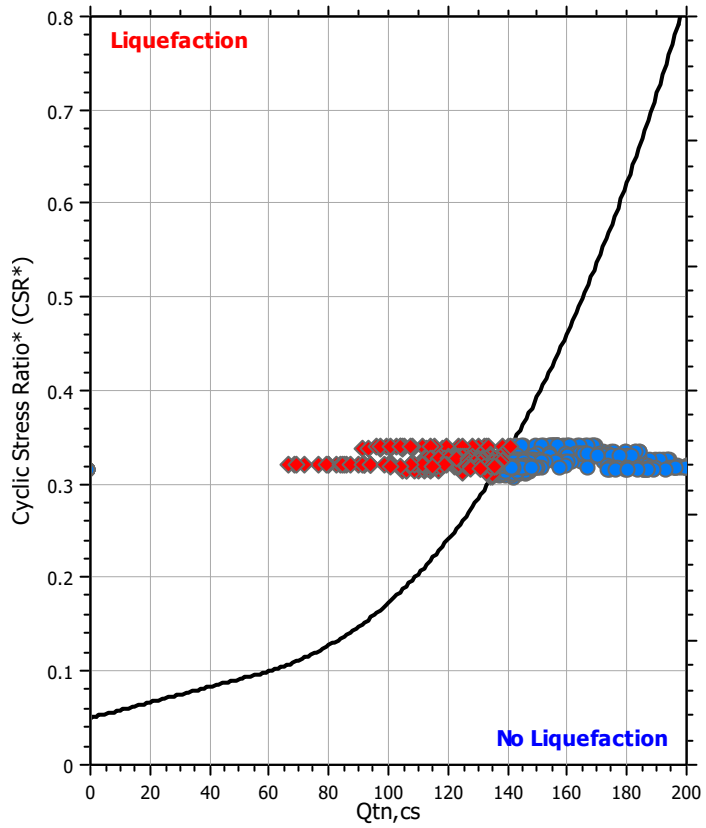
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

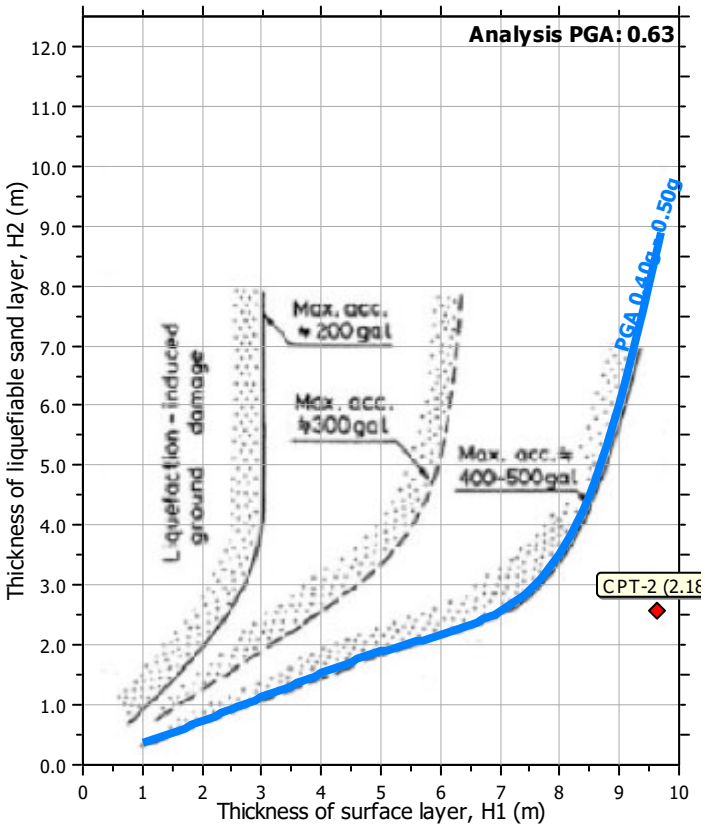
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



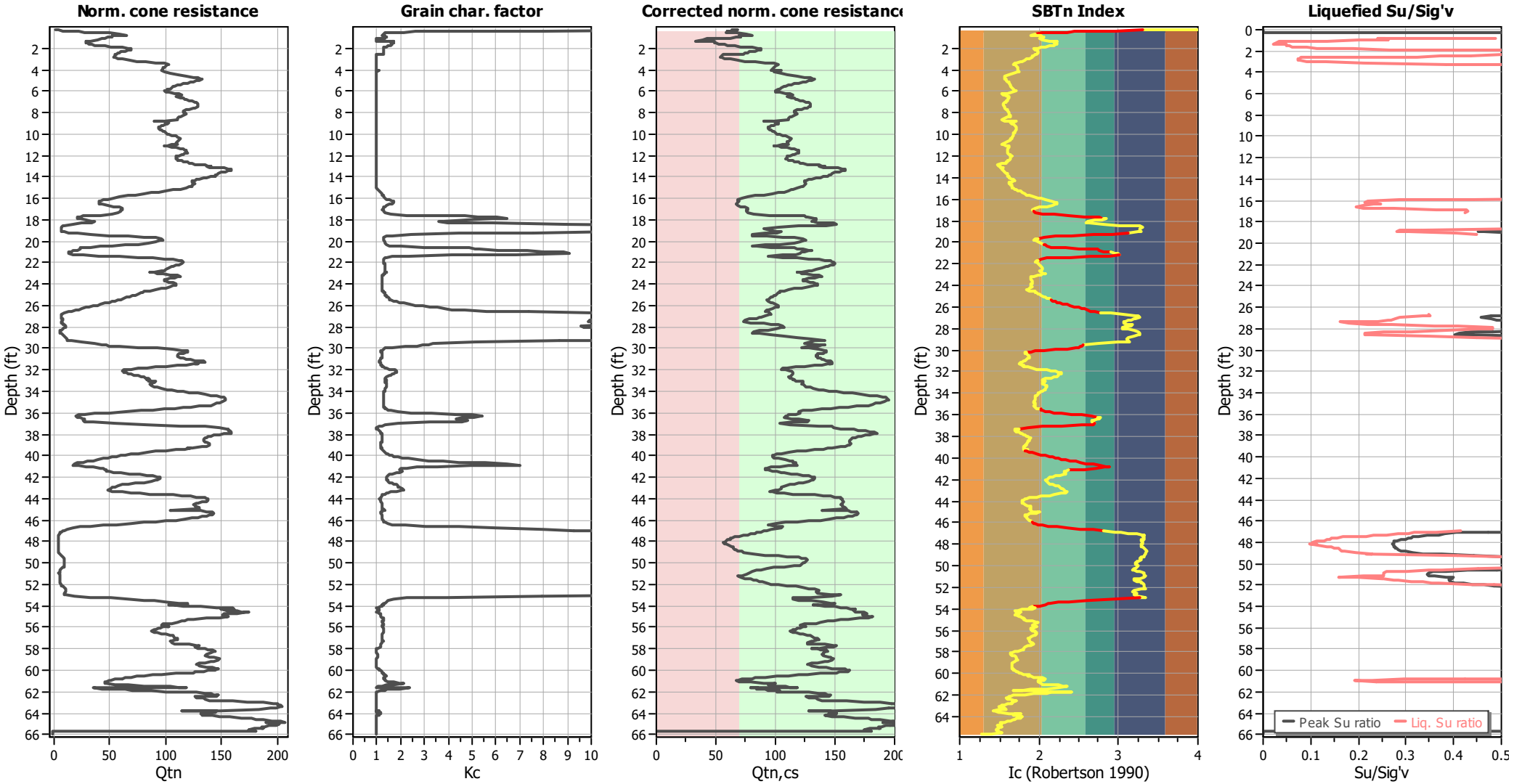




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

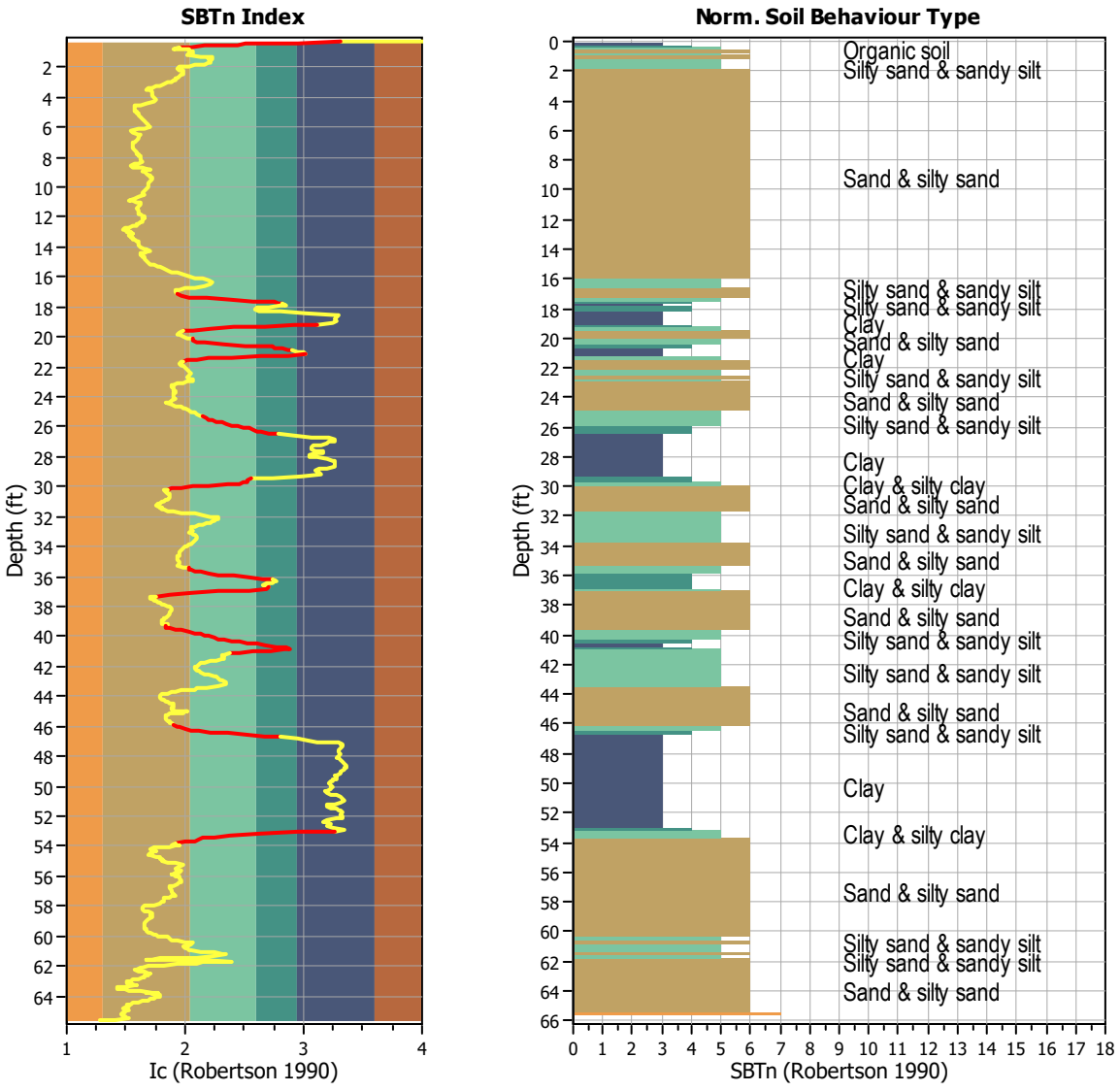
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1012
I_c maximum check value:	3.00	Total points excluded:	145
I_c change ratio value:	0.0250	Exclusion percentage:	14.33%
Minimum number of points in layer:	4	Number of layers detected:	13

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	13	Start depth: 0.36 (ft)	3	Clay
		End depth: 0.76 (ft)	6	Sand & silty sand
Transition layer 2	10	Start depth: 17.22 (ft)	6	Sand & silty sand
		End depth: 17.85 (ft)	3	Clay
Transition layer 3	7	Start depth: 19.22 (ft)	3	Clay
		End depth: 19.69 (ft)	6	Sand & silty sand
Transition layer 4	13	Start depth: 20.26 (ft)	5	Silty sand & sandy silt
		End depth: 20.96 (ft)	3	Clay
Transition layer 5	8	Start depth: 21.25 (ft)	3	Clay
		End depth: 21.69 (ft)	6	Sand & silty sand
Transition layer 6	16	Start depth: 25.41 (ft)	5	Silty sand & sandy silt
		End depth: 26.61 (ft)	3	Clay
Transition layer 7	12	Start depth: 29.63 (ft)	4	Clay & silty clay
		End depth: 30.24 (ft)	6	Sand & silty sand
Transition layer 8	11	Start depth: 35.51 (ft)	5	Silty sand & sandy silt
		End depth: 36.28 (ft)	4	Clay & silty clay
Transition layer 9	7	Start depth: 36.86 (ft)	4	Clay & silty clay
		End depth: 37.39 (ft)	6	Sand & silty sand
Transition layer 10	20	Start depth: 39.39 (ft)	6	Sand & silty sand
		End depth: 40.84 (ft)	3	Clay
Transition layer 11	7	Start depth: 40.84 (ft)	3	Clay
		End depth: 41.22 (ft)	5	Silty sand & sandy silt
Transition layer 12	11	Start depth: 46.02 (ft)	6	Sand & silty sand
		End depth: 46.84 (ft)	3	Clay
Transition layer 13	10	Start depth: 53.10 (ft)	3	Clay
		End depth: 53.92 (ft)	6	Sand & silty sand

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.01	0.00	0.00	0.00	N/A	120.90
2	0.04	-0.10	0.01	0.00	N/A	120.90
3	0.08	0.00	0.01	0.00	N/A	120.90
4	0.10	-0.10	0.01	0.00	N/A	120.90
5	0.13	0.00	0.02	0.00	N/A	120.90
6	0.18	0.00	0.03	0.00	N/A	120.90
7	0.22	0.00	0.05	0.00	N/A	120.90
8	0.27	0.00	0.08	0.00	100.00	90.68
9	0.33	2.43	0.09	0.00	81.96	94.98
10	0.36	5.87	0.09	0.00	55.30	96.98
11	0.37	7.19	0.09	0.00	43.87	97.82
12	0.38	8.30	0.10	0.00	39.79	98.46
13	0.42	9.11	0.11	0.00	36.64	99.41
14	0.44	10.73	0.12	0.00	34.37	100.58
15	0.47	11.94	0.14	0.00	31.37	101.55
16	0.47	13.87	0.14	0.00	28.15	102.58
17	0.52	16.90	0.16	0.00	24.51	103.55
18	0.56	20.24	0.17	0.00	21.06	104.60
19	0.58	24.29	0.18	0.00	17.61	105.59
20	0.61	30.26	0.19	0.10	14.26	106.54
21	0.66	37.55	0.20	0.10	11.58	107.34
22	0.76	43.02	0.21	0.10	10.25	107.74
23	0.80	41.80	0.21	0.10	11.05	107.65
24	0.81	31.17	0.21	0.10	12.33	107.41
25	0.85	33.50	0.20	0.10	13.76	107.15
26	0.86	32.59	0.20	0.10	13.66	107.29
27	0.90	32.29	0.22	0.10	14.33	107.68
28	0.95	31.78	0.24	0.10	14.92	108.07
29	1.00	31.38	0.24	0.10	14.72	106.94
30	1.05	28.44	0.12	0.10	14.03	104.83
31	1.14	26.82	0.10	0.10	5.00	101.56
32	1.24	24.39	0.08	0.10	5.00	100.45
33	1.31	21.66	0.09	0.10	5.00	100.02
34	1.36	15.49	0.10	0.10	19.77	100.07
35	1.37	16.65	0.10	0.10	20.16	100.28
36	1.39	21.17	0.10	0.10	19.32	100.40
37	1.43	17.81	0.10	0.10	18.80	100.44
38	1.44	18.12	0.10	0.10	19.86	100.33
39	1.49	18.22	0.10	0.10	19.73	100.60
40	1.53	18.72	0.11	0.10	19.64	101.22
41	1.58	19.74	0.12	0.10	19.61	102.17
42	1.63	20.55	0.14	0.10	19.60	103.26
43	1.68	21.56	0.16	0.10	19.49	104.34
44	1.72	22.98	0.18	0.10	18.93	105.39
45	1.77	25.40	0.20	0.10	17.98	106.40
46	1.82	28.04	0.22	0.19	16.68	107.38
47	1.86	31.48	0.24	0.19	15.32	108.26
48	1.92	35.02	0.26	0.19	13.84	108.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	1.97	38.77	0.26	0.19	12.52	109.50
50	2.01	42.21	0.27	0.19	11.75	110.13
51	2.09	43.83	0.31	0.19	11.40	110.51
52	2.16	43.62	0.30	0.19	11.59	110.65
53	2.20	41.70	0.29	0.19	12.00	110.35
54	2.25	39.07	0.28	0.19	12.39	109.98
55	2.31	38.77	0.27	0.19	12.55	109.49
56	2.37	37.96	0.25	0.19	12.51	108.98
57	2.40	36.64	0.24	0.19	12.56	108.51
58	2.46	36.03	0.23	0.19	12.53	107.92
59	2.54	35.22	0.20	0.19	12.28	107.21
60	2.59	34.82	0.18	0.19	5.00	106.07
61	2.69	34.01	0.14	0.19	5.00	105.12
62	2.74	33.91	0.14	0.19	5.00	104.27
63	2.83	33.91	0.13	0.29	5.00	104.04
64	2.88	33.81	0.13	0.29	5.00	103.96
65	2.98	35.32	0.13	0.29	5.00	104.13
66	3.03	37.96	0.13	0.29	5.00	104.69
67	3.12	42.41	0.15	0.29	5.00	105.94
68	3.21	46.56	0.19	0.29	5.00	107.29
69	3.27	51.52	0.21	0.29	5.00	108.51
70	3.34	56.88	0.23	0.29	5.00	109.32
71	3.41	62.75	0.24	0.29	5.00	110.12
72	3.51	66.09	0.27	0.29	5.00	110.66
73	3.55	63.76	0.28	0.29	5.00	111.08
74	3.65	61.03	0.29	0.38	5.00	111.24
75	3.75	62.45	0.30	0.38	5.00	111.31
76	3.83	61.64	0.29	0.38	5.00	111.22
77	3.94	60.22	0.28	0.38	5.00	111.12
78	4.04	61.44	0.28	0.38	5.00	111.07
79	4.13	59.21	0.29	0.38	7.02	111.59
80	4.24	61.23	0.34	0.38	5.00	111.65
81	4.38	64.57	0.29	0.38	5.00	110.97
82	4.50	69.64	0.19	0.38	4.69	110.20
83	4.62	72.57	0.25	0.48	3.95	110.29
84	4.71	80.16	0.28	0.48	3.93	111.40
85	4.75	80.92	0.29	0.48	3.90	112.19
86	4.84	81.68	0.33	0.48	3.97	112.65
87	4.89	83.70	0.33	0.57	4.02	112.99
88	4.94	83.40	0.33	0.57	4.04	113.02
89	4.98	81.68	0.33	0.57	4.17	112.97
90	5.07	80.06	0.33	0.57	4.33	112.85
91	5.13	78.54	0.33	0.57	4.49	112.71
92	5.17	76.82	0.32	0.57	4.57	112.40
93	5.27	75.00	0.30	0.57	4.72	112.10
94	5.32	72.47	0.30	0.57	4.84	111.72
95	5.42	70.75	0.28	0.57	4.99	111.41
96	5.46	69.33	0.27	0.57	5.00	111.08

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	5.56	67.91	0.26	0.57	5.00	110.88
98	5.61	66.80	0.26	0.57	5.00	110.75
99	5.71	65.89	0.26	0.57	5.00	110.68
100	5.78	64.88	0.26	0.57	5.00	110.63
101	5.85	63.97	0.26	0.57	5.00	110.57
102	5.95	62.65	0.26	0.57	5.00	110.53
103	6.00	61.84	0.26	0.57	5.00	110.86
104	6.09	62.45	0.30	0.67	5.00	109.42
105	6.14	64.47	0.11	0.67	4.43	108.06
106	6.24	67.31	0.14	0.67	3.33	106.15
107	6.30	70.75	0.17	0.67	3.46	107.71
108	6.38	73.18	0.20	0.67	3.76	108.87
109	6.46	70.24	0.23	0.67	4.34	109.63
110	6.50	65.28	0.24	0.67	4.73	110.08
111	6.56	69.74	0.25	0.67	4.82	110.41
112	6.63	71.46	0.26	0.67	4.59	110.75
113	6.68	72.67	0.26	0.67	4.51	110.97
114	6.76	73.38	0.27	0.76	4.44	111.12
115	6.82	74.39	0.27	0.76	4.37	111.23
116	6.88	75.81	0.27	0.76	4.21	111.32
117	6.96	78.34	0.27	0.76	3.98	111.40
118	7.03	80.97	0.27	0.76	3.77	111.49
119	7.11	82.29	0.27	0.76	3.64	111.55
120	7.16	82.89	0.27	0.76	3.60	111.70
121	7.26	83.91	0.29	0.76	3.62	111.86
122	7.31	84.62	0.29	0.76	3.65	112.04
123	7.40	84.72	0.29	0.76	3.70	112.13
124	7.45	84.51	0.30	0.76	3.76	112.18
125	7.54	84.31	0.30	0.86	3.86	112.16
126	7.60	83.00	0.30	0.86	3.98	112.07
127	7.68	81.17	0.29	0.86	4.16	111.94
128	7.74	79.45	0.29	0.86	4.33	111.82
129	7.83	78.44	0.29	0.86	4.51	111.77
130	7.90	77.73	0.29	0.86	4.60	111.85
131	7.98	78.85	0.30	0.86	4.65	112.09
132	8.05	80.67	0.31	0.86	4.62	112.42
133	8.12	82.29	0.32	0.86	4.65	112.70
134	8.19	82.08	0.33	0.86	4.77	112.88
135	8.27	80.57	0.34	0.86	5.03	113.00
136	8.36	78.74	0.34	0.86	5.00	112.80
137	8.41	78.04	0.31	0.86	4.51	111.23
138	8.50	78.24	0.15	0.86	3.85	109.61
139	8.60	78.95	0.18	0.86	3.40	108.40
140	8.70	79.15	0.21	0.86	3.76	109.30
141	8.74	78.14	0.22	0.86	4.96	109.52
142	8.78	55.57	0.22	0.86	5.00	109.55
143	8.81	62.96	0.23	0.96	5.00	109.69
144	8.86	72.17	0.24	0.96	5.00	110.13

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	8.91	74.09	0.25	0.96	5.00	110.49
146	8.94	75.00	0.25	0.96	5.00	110.79
147	9.02	73.89	0.27	0.96	5.00	111.08
148	9.10	72.47	0.28	0.96	5.00	111.34
149	9.17	71.15	0.28	0.96	5.00	111.44
150	9.22	69.84	0.28	0.96	5.00	111.44
151	9.31	68.83	0.28	0.96	5.00	111.41
152	9.37	68.32	0.28	0.96	5.00	111.39
153	9.42	68.32	0.28	0.96	5.00	111.39
154	9.52	69.13	0.28	0.96	5.00	111.41
155	9.60	70.04	0.28	0.96	5.00	111.49
156	9.66	71.36	0.29	0.96	5.00	111.61
157	9.74	73.18	0.29	0.96	5.00	111.74
158	9.81	74.80	0.29	0.96	5.00	111.88
159	9.89	75.71	0.30	0.96	5.00	112.10
160	9.98	76.82	0.32	0.96	5.00	112.42
161	10.03	78.54	0.33	1.05	5.00	112.78
162	10.13	80.97	0.34	1.05	5.00	113.14
163	10.23	84.21	0.35	1.05	5.00	113.45
164	10.32	86.94	0.36	1.05	5.00	113.68
165	10.38	88.16	0.36	1.05	5.00	113.80
166	10.47	89.17	0.37	1.05	5.00	113.83
167	10.57	88.66	0.36	1.05	5.00	113.81
168	10.66	87.45	0.36	1.05	4.50	112.22
169	10.76	87.65	0.16	1.05	3.90	110.65
170	10.85	87.85	0.19	1.05	3.30	108.99
171	10.92	88.46	0.22	1.05	3.57	109.92
172	11.00	89.27	0.23	1.05	4.11	110.26
173	11.07	77.73	0.23	1.05	4.54	110.35
174	11.10	79.45	0.23	1.05	4.87	110.48
175	11.15	83.40	0.25	1.05	4.71	110.88
176	11.19	85.53	0.26	1.05	4.61	111.40
177	11.24	87.25	0.28	1.05	4.59	111.90
178	11.29	89.47	0.30	1.05	4.51	112.30
179	11.34	92.21	0.31	1.05	4.40	112.73
180	11.40	95.14	0.33	1.05	4.33	113.17
181	11.47	97.27	0.35	1.05	4.32	113.59
182	11.53	97.98	0.36	1.05	4.38	113.88
183	11.58	97.87	0.36	1.05	4.42	114.06
184	11.65	98.78	0.37	1.05	4.46	114.22
185	11.72	99.39	0.38	1.05	4.50	114.36
186	11.77	99.29	0.38	1.05	4.57	114.43
187	11.82	98.28	0.38	1.05	4.67	114.45
188	11.88	97.47	0.38	1.15	5.03	114.87
189	11.97	95.95	0.45	1.05	5.00	114.84
190	12.02	94.84	0.38	1.05	5.00	114.75
191	12.06	93.42	0.38	1.05	5.00	114.18
192	12.11	92.31	0.37	1.05	5.00	114.03

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	12.21	93.32	0.36	1.05	5.00	113.85
194	12.25	92.21	0.35	1.05	5.00	113.70
195	12.30	93.22	0.35	1.05	5.01	113.58
196	12.31	93.52	0.35	1.05	4.95	113.56
197	12.32	93.52	0.35	1.05	4.93	113.57
198	12.35	93.83	0.35	1.05	4.77	113.38
199	12.40	95.24	0.32	1.05	4.60	113.25
200	12.45	96.66	0.32	1.15	4.38	113.11
201	12.52	98.38	0.32	1.05	4.29	113.28
202	12.56	100.20	0.33	1.05	4.25	113.61
203	12.62	102.33	0.36	1.05	4.25	113.99
204	12.65	103.54	0.37	1.05	3.77	113.26
205	12.71	105.16	0.23	1.15	3.23	112.19
206	12.76	106.68	0.23	1.15	2.62	110.90
207	12.83	110.12	0.23	1.15	2.60	111.55
208	12.88	114.17	0.28	1.15	2.77	112.94
209	12.93	118.52	0.37	1.15	2.90	114.26
210	12.98	124.09	0.40	1.15	3.08	115.17
211	13.03	121.66	0.41	1.15	3.06	115.51
212	13.04	125.50	0.42	1.15	3.47	115.78
213	13.07	113.26	0.46	1.05	3.50	116.29
214	13.13	129.35	0.50	1.05	3.58	116.95
215	13.17	134.31	0.54	1.05	3.26	117.70
216	13.22	139.37	0.58	1.05	3.29	118.28
217	13.27	139.88	0.62	1.05	3.36	118.74
218	13.32	141.09	0.64	1.05	3.46	119.07
219	13.37	142.31	0.66	1.05	3.56	119.26
220	13.41	140.38	0.67	1.05	3.64	119.30
221	13.46	139.27	0.66	1.05	3.75	119.26
222	13.51	137.45	0.66	1.15	3.85	119.23
223	13.56	136.13	0.66	1.15	4.04	119.31
224	13.60	134.31	0.69	1.05	4.26	119.44
225	13.66	132.39	0.70	1.05	4.38	119.40
226	13.75	131.68	0.66	1.05	4.42	119.28
227	13.80	131.27	0.66	1.05	4.39	119.11
228	13.89	130.57	0.66	1.05	4.46	119.13
229	13.94	130.36	0.67	1.05	4.60	119.22
230	13.99	128.44	0.69	1.15	4.88	119.41
231	14.09	125.71	0.72	1.15	5.27	119.59
232	14.14	121.96	0.73	1.15	5.70	119.79
233	14.23	119.13	0.76	1.15	6.08	119.87
234	14.28	117.00	0.76	1.15	5.80	119.04
235	14.38	115.38	0.51	1.15	5.31	118.06
236	14.42	116.85	0.51	1.15	4.82	116.96
237	14.52	113.76	0.52	1.15	4.88	117.10
238	14.57	116.70	0.53	1.15	4.95	117.39
239	14.67	119.74	0.57	1.15	5.03	117.62
240	14.68	116.09	0.57	1.15	5.00	117.81

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	14.70	117.61	0.58	1.15	5.00	117.84
242	14.75	115.48	0.58	1.15	5.31	117.93
243	14.80	116.60	0.59	1.15	5.43	118.05
244	14.89	116.40	0.61	1.05	5.52	118.17
245	14.94	115.59	0.61	1.05	5.70	118.20
246	15.04	112.25	0.60	1.05	5.96	118.05
247	15.13	107.59	0.59	1.05	6.34	117.77
248	15.21	101.82	0.57	1.05	6.81	117.40
249	15.28	95.75	0.55	1.05	7.34	116.95
250	15.38	89.98	0.52	1.05	7.88	116.40
251	15.47	84.21	0.48	1.05	8.48	115.75
252	15.57	77.33	0.45	1.05	9.19	115.05
253	15.67	71.05	0.42	1.05	10.08	114.27
254	15.77	63.87	0.38	0.96	11.15	113.43
255	15.86	56.78	0.35	0.96	12.43	112.60
256	15.96	51.11	0.33	0.96	13.84	112.03
257	16.05	47.27	0.34	0.96	15.41	111.80
258	16.15	43.52	0.35	0.96	17.50	112.16
259	16.25	39.98	0.42	0.96	19.14	112.43
260	16.31	39.78	0.40	0.96	20.17	112.68
261	16.39	39.78	0.40	0.96	20.08	112.48
262	16.48	39.57	0.38	0.96	19.41	112.23
263	16.59	42.10	0.35	0.96	17.84	112.02
264	16.68	47.47	0.35	0.96	15.50	111.89
265	16.76	54.25	0.33	0.96	13.16	111.73
266	16.86	59.92	0.29	0.96	11.62	111.63
267	16.92	61.94	0.31	0.96	10.95	111.65
268	17.02	61.84	0.32	0.96	10.86	111.63
269	17.11	61.13	0.29	0.96	11.26	111.95
270	17.22	60.42	0.35	0.96	11.88	112.47
271	17.35	59.61	0.39	0.96	14.04	114.30
272	17.45	55.47	0.60	0.96	18.38	116.52
273	17.55	44.33	0.88	0.96	25.48	117.93
274	17.61	30.36	0.95	0.96	33.75	118.25
275	17.64	27.02	0.93	0.76	40.43	117.69
276	17.70	24.80	0.87	0.76	43.23	117.15
277	17.75	22.67	0.84	0.76	45.31	116.73
278	17.80	21.86	0.84	0.76	46.98	116.55
279	17.85	21.56	0.84	0.86	48.89	116.96
280	17.94	21.26	1.00	0.86	45.90	117.91
281	17.99	30.26	1.09	0.86	40.69	119.19
282	18.09	37.65	1.19	0.86	35.41	120.26
283	18.15	41.30	1.27	0.76	34.54	120.72
284	18.23	36.03	1.26	0.76	36.66	120.67
285	18.33	30.87	1.23	0.76	46.11	119.75
286	18.43	14.17	1.16	0.76	59.31	117.89
287	18.52	10.22	0.82	0.76	78.74	114.99
288	18.59	9.41	0.56	0.76	81.21	111.71

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	18.72	8.10	0.35	0.76	78.82	108.87
290	18.81	7.79	0.30	0.76	77.80	106.89
291	18.87	7.69	0.30	0.76	78.37	106.65
292	18.95	7.69	0.32	0.86	79.72	107.66
293	19.05	8.40	0.43	0.86	76.48	109.13
294	19.14	10.73	0.48	0.86	66.73	110.57
295	19.22	14.78	0.48	0.86	53.52	111.65
296	19.29	20.75	0.49	0.86	39.10	113.06
297	19.38	34.31	0.56	0.86	26.85	114.86
298	19.44	55.26	0.63	0.86	19.18	117.03
299	19.53	74.70	0.80	0.86	14.77	118.92
300	19.62	90.89	0.91	0.86	12.57	120.49
301	19.69	102.43	1.00	0.76	11.54	121.67
302	19.79	108.50	1.15	0.76	11.36	122.57
303	19.86	109.41	1.24	0.76	11.84	123.28
304	19.97	106.58	1.33	0.76	12.61	123.60
305	20.07	101.72	1.35	0.76	13.52	123.57
306	20.16	94.94	1.29	0.76	14.68	123.29
307	20.26	85.73	1.27	0.76	14.95	121.49
308	20.34	72.77	0.61	0.67	15.95	119.48
309	20.43	59.51	0.65	0.67	17.67	117.13
310	20.50	47.17	0.70	0.67	23.52	117.36
311	20.60	37.15	0.83	0.67	30.86	117.42
312	20.62	28.74	0.85	0.67	38.22	117.36
313	20.63	25.51	0.86	0.57	41.38	117.35
314	20.68	29.96	0.89	0.57	42.41	117.60
315	20.73	27.73	0.95	0.57	43.48	118.01
316	20.82	25.20	1.01	0.57	47.06	118.03
317	20.87	23.48	0.98	0.57	50.17	117.77
318	20.91	21.66	0.93	0.57	52.49	117.09
319	20.96	19.53	0.83	0.67	55.24	116.20
320	21.05	17.51	0.75	0.67	58.65	115.41
321	21.11	15.69	0.75	0.67	59.61	115.06
322	21.17	17.71	0.75	0.67	59.41	115.10
323	21.25	17.91	0.76	0.67	50.49	115.80
324	21.30	28.04	0.80	0.67	37.44	117.17
325	21.37	47.77	0.89	0.67	25.95	118.97
326	21.45	69.84	1.01	0.76	19.10	120.73
327	21.49	88.87	1.16	0.76	15.54	122.37
328	21.58	104.65	1.36	0.76	13.61	123.67
329	21.64	116.80	1.47	0.76	12.50	124.67
330	21.69	125.61	1.57	0.76	11.91	125.41
331	21.78	131.07	1.71	0.76	11.69	126.01
332	21.83	134.51	1.80	0.76	11.79	126.54
333	21.89	135.73	1.90	0.76	12.04	126.96
334	21.98	136.03	2.02	0.76	12.40	127.34
335	22.03	136.23	2.09	0.76	12.75	127.63
336	22.12	135.42	2.15	0.76	13.09	127.77

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	22.22	132.99	2.16	0.76	13.41	127.81
338	22.26	131.17	2.15	0.76	13.69	127.73
339	22.36	128.44	2.12	0.76	13.97	127.61
340	22.41	125.51	2.10	0.76	14.35	127.56
341	22.51	123.38	2.14	0.76	14.15	127.06
342	22.60	121.66	1.74	0.76	13.83	126.45
343	22.70	118.93	1.65	0.76	13.30	125.68
344	22.75	117.41	1.61	0.76	13.43	125.41
345	22.84	114.27	1.59	0.76	14.48	125.10
346	22.89	96.25	1.56	0.76	14.75	124.96
347	22.90	110.88	1.55	0.76	15.01	124.78
348	22.94	107.49	1.51	0.76	13.97	124.76
349	23.00	111.94	1.47	0.76	13.47	124.67
350	23.08	117.61	1.47	0.86	12.40	124.71
351	23.13	127.23	1.45	0.86	11.31	124.84
352	23.20	136.23	1.45	0.86	10.47	124.96
353	23.27	138.66	1.46	0.86	10.12	124.97
354	23.33	136.23	1.43	0.76	10.11	124.75
355	23.42	131.78	1.34	0.86	10.24	124.32
356	23.48	126.62	1.25	0.76	10.39	123.80
357	23.57	122.37	1.20	0.86	10.62	123.46
358	23.61	120.44	1.20	0.86	10.81	123.34
359	23.66	120.75	1.21	0.86	10.87	123.44
360	23.73	123.28	1.25	0.86	10.80	123.73
361	23.80	128.04	1.32	0.86	10.61	124.10
362	23.85	132.49	1.37	0.86	10.45	124.49
363	23.94	135.32	1.42	0.86	10.34	124.75
364	24.00	136.54	1.44	0.86	10.35	124.89
365	24.09	135.73	1.44	0.86	10.44	124.90
366	24.16	133.80	1.43	0.86	10.68	124.85
367	24.24	130.46	1.43	0.86	10.08	123.73
368	24.33	125.81	0.86	0.86	9.54	122.48
369	24.43	121.05	0.88	0.86	8.99	121.06
370	24.52	116.40	0.91	0.86	9.98	121.07
371	24.58	105.36	0.92	0.86	10.82	121.05
372	24.59	104.91	0.92	0.86	11.52	121.00
373	24.63	103.24	0.93	0.76	11.65	121.07
374	24.68	104.45	0.95	0.76	11.99	121.27
375	24.77	102.63	1.00	0.76	12.42	121.51
376	24.82	100.30	1.03	0.76	13.12	121.77
377	24.92	97.98	1.08	0.76	13.83	121.94
378	25.01	95.24	1.10	0.76	14.55	122.06
379	25.06	92.41	1.11	0.76	15.23	122.08
380	25.16	89.47	1.12	0.76	15.90	122.02
381	25.25	86.54	1.11	0.76	16.59	121.94
382	25.30	83.50	1.11	0.76	17.28	121.83
383	25.41	80.57	1.11	0.76	18.09	121.73
384	25.49	77.23	1.11	0.76	18.98	121.65

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	25.55	73.99	1.11	0.76	20.07	121.62
386	25.64	70.65	1.15	0.76	21.32	121.62
387	25.70	67.11	1.16	0.76	22.79	121.64
388	25.79	63.26	1.19	0.76	24.37	121.58
389	25.89	59.31	1.18	0.76	26.26	121.42
390	25.94	54.15	1.17	0.76	28.33	121.11
391	26.02	49.29	1.13	0.76	30.48	120.54
392	26.12	44.64	1.03	0.76	32.30	119.79
393	26.17	41.19	0.94	0.67	34.00	118.80
394	26.28	36.64	0.83	0.67	35.82	117.81
395	26.36	33.20	0.76	0.67	37.65	116.64
396	26.45	30.06	0.64	0.67	40.39	115.51
397	26.50	25.00	0.59	0.67	44.96	114.33
398	26.61	19.74	0.56	0.67	52.70	113.36
399	26.70	15.69	0.53	0.67	63.56	112.54
400	26.77	12.45	0.54	0.67	73.76	111.85
401	26.85	10.73	0.52	0.67	77.64	111.21
402	26.94	12.35	0.44	0.67	78.19	110.57
403	27.04	11.23	0.43	0.67	74.40	110.13
404	27.14	12.25	0.42	0.67	72.81	110.00
405	27.23	13.16	0.41	0.76	69.26	109.81
406	27.28	13.26	0.38	0.76	67.37	109.59
407	27.29	13.21	0.37	0.76	64.60	108.54
408	27.38	13.36	0.25	0.76	63.04	107.81
409	27.48	13.26	0.28	0.76	62.75	107.60
410	27.57	13.16	0.35	0.76	65.67	108.83
411	27.64	13.36	0.41	0.76	68.02	109.83
412	27.65	13.36	0.43	0.67	70.74	111.13
413	27.74	13.56	0.57	0.67	69.81	112.46
414	27.80	16.60	0.65	0.67	65.76	114.19
415	27.90	20.55	0.77	0.67	61.65	115.18
416	27.99	20.34	0.77	0.67	61.92	115.44
417	28.07	17.11	0.72	0.67	66.57	114.64
418	28.16	13.87	0.62	0.67	72.64	113.23
419	28.25	12.35	0.50	0.67	76.77	111.52
420	28.34	11.34	0.41	0.67	77.68	109.88
421	28.44	10.83	0.35	0.67	77.85	108.83
422	28.53	10.83	0.35	0.67	78.14	108.53
423	28.62	10.83	0.37	0.67	77.38	110.10
424	28.76	13.56	0.57	0.67	72.35	112.51
425	28.86	18.22	0.74	0.76	67.30	115.27
426	28.96	21.15	0.97	0.76	65.09	117.31
427	29.08	21.56	1.17	0.76	67.25	119.00
428	29.19	21.15	1.43	0.76	69.03	120.29
429	29.29	23.48	1.60	0.76	57.91	120.47
430	29.39	37.85	0.97	0.76	42.67	122.13
431	29.50	60.73	1.83	0.76	33.13	124.03
432	29.63	74.39	2.28	0.76	32.04	126.13

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	29.65	65.49	2.34	0.76	31.66	126.80
434	29.66	70.75	2.34	0.76	31.48	126.90
435	29.72	76.72	2.35	0.76	30.48	126.99
436	29.80	73.08	2.34	0.76	28.82	127.09
437	29.85	83.60	2.30	0.96	24.74	127.25
438	29.94	111.74	2.18	1.05	19.12	127.53
439	30.00	139.37	2.11	0.96	14.70	127.66
440	30.05	155.36	1.99	0.96	11.90	127.40
441	30.14	164.17	1.72	0.86	10.16	126.80
442	30.19	168.22	1.55	0.86	9.10	126.23
443	30.24	170.24	1.55	0.86	8.70	126.01
444	30.29	170.34	1.56	0.86	8.77	126.09
445	30.38	168.42	1.60	0.96	9.02	126.13
446	30.43	164.37	1.60	0.96	9.33	126.13
447	30.48	161.54	1.59	0.96	9.59	126.05
448	30.54	158.91	1.58	0.96	9.78	125.95
449	30.62	156.98	1.55	0.96	9.79	125.86
450	30.67	159.11	1.54	0.96	9.79	125.78
451	30.72	157.18	1.54	0.96	9.69	125.76
452	30.76	159.31	1.53	0.96	9.55	125.70
453	30.86	161.84	1.49	0.96	9.23	125.64
454	30.91	164.98	1.48	0.96	8.91	125.62
455	30.95	168.42	1.49	0.96	8.55	125.64
456	31.03	173.38	1.47	0.96	8.12	125.67
457	31.10	179.65	1.45	1.05	7.69	125.73
458	31.15	185.02	1.48	1.05	7.34	125.89
459	31.20	190.38	1.52	1.05	7.18	126.13
460	31.26	193.52	1.57	1.05	7.15	126.36
461	31.34	193.62	1.60	1.05	7.71	126.40
462	31.37	171.46	1.60	1.05	7.87	126.43
463	31.38	188.76	1.60	1.15	8.09	126.36
464	31.43	183.91	1.58	1.15	7.77	126.31
465	31.47	181.17	1.53	1.15	8.03	126.07
466	31.55	172.87	1.49	1.15	8.51	125.78
467	31.59	160.83	1.47	1.15	9.39	125.48
468	31.66	147.27	1.45	1.15	10.59	125.21
469	31.73	135.12	1.45	1.05	12.03	125.03
470	31.78	124.80	1.48	1.05	13.62	124.95
471	31.84	115.28	1.53	1.05	15.49	125.08
472	31.93	106.78	1.65	1.05	17.52	125.26
473	31.98	99.59	1.73	1.15	19.53	125.52
474	32.02	94.84	1.82	1.15	20.69	125.90
475	32.09	100.05	1.96	1.15	21.58	126.26
476	32.16	96.05	2.03	1.15	21.57	126.59
477	32.22	100.51	2.04	1.15	21.42	126.73
478	32.27	104.25	2.05	1.15	20.75	126.84
479	32.34	105.67	2.06	1.24	20.20	126.90
480	32.42	108.10	2.04	1.24	19.56	126.93

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	32.46	112.85	2.02	1.24	18.55	126.88
482	32.54	118.12	1.95	1.24	17.41	126.77
483	32.60	122.16	1.87	1.24	16.07	126.34
484	32.67	124.90	1.62	1.24	15.05	125.97
485	32.75	127.33	1.63	1.24	14.32	125.74
486	32.81	130.26	1.68	1.24	14.20	126.03
487	32.89	133.50	1.79	1.24	14.12	126.37
488	32.94	136.34	1.83	1.24	14.96	126.52
489	32.95	118.52	1.84	1.24	14.91	126.69
490	33.00	138.16	1.90	1.24	14.89	126.92
491	33.06	141.90	1.98	1.24	14.05	127.30
492	33.11	143.12	2.03	1.24	14.18	127.55
493	33.20	141.70	2.09	1.24	14.56	127.71
494	33.25	138.76	2.13	1.24	15.10	127.86
495	33.34	136.54	2.19	1.24	15.55	127.94
496	33.38	135.73	2.19	1.24	15.74	128.03
497	33.48	137.75	2.22	1.24	15.68	128.19
498	33.58	141.70	2.30	1.24	15.42	128.42
499	33.63	146.25	2.34	1.24	15.06	128.72
500	33.73	152.23	2.43	1.24	14.62	129.02
501	33.82	158.70	2.51	1.24	14.13	129.36
502	33.87	165.89	2.57	1.24	13.67	129.70
503	33.96	172.57	2.69	1.24	13.23	130.04
504	34.02	179.65	2.77	1.24	12.84	130.48
505	34.11	189.47	2.95	1.24	12.43	131.00
506	34.18	200.91	3.15	1.24	12.08	131.61
507	34.26	211.03	3.36	1.24	11.89	132.25
508	34.35	219.33	3.65	1.24	11.82	132.88
509	34.44	227.93	3.92	1.34	11.72	133.37
510	34.49	235.22	3.98	1.34	11.56	133.69
511	34.59	238.66	4.05	1.34	11.45	133.86
512	34.69	239.88	4.13	1.34	11.44	133.98
513	34.76	241.39	4.15	1.34	11.40	134.01
514	34.83	241.50	4.07	1.43	11.43	134.00
515	34.93	238.86	4.12	1.43	11.44	133.81
516	35.02	233.50	3.89	1.43	11.54	133.60
517	35.12	229.05	3.79	1.43	11.46	133.22
518	35.22	226.72	3.60	1.43	11.42	132.94
519	35.30	223.58	3.51	1.43	11.44	132.63
520	35.38	216.29	3.41	1.43	12.34	132.31
521	35.43	185.73	3.36	1.43	13.07	132.03
522	35.46	192.21	3.30	1.53	13.71	131.78
523	35.51	190.18	3.21	1.62	13.68	131.56
524	35.56	179.15	3.11	1.62	14.30	131.05
525	35.66	160.93	2.83	1.53	15.30	130.47
526	35.70	150.40	2.73	1.53	16.62	129.73
527	35.80	133.20	2.53	1.53	18.63	129.08
528	35.89	111.94	2.45	1.53	21.97	128.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	35.96	88.76	2.31	1.53	26.84	127.15
530	36.04	66.50	1.99	1.43	32.56	125.33
531	36.14	49.39	1.45	1.43	38.50	123.16
532	36.19	40.49	1.23	1.43	42.06	121.28
533	36.28	40.49	1.16	1.43	44.05	120.76
534	36.33	40.49	1.27	1.43	43.63	120.56
535	36.42	40.49	1.14	1.43	42.36	120.82
536	36.48	45.85	1.23	1.43	39.85	121.28
537	36.52	51.52	1.40	1.43	38.41	122.62
538	36.62	55.67	1.74	1.43	38.39	123.71
539	36.68	55.06	1.84	1.43	39.88	124.37
540	36.77	51.42	1.88	1.43	40.89	124.37
541	36.86	51.92	1.78	1.43	39.71	124.46
542	36.90	60.53	1.84	1.53	32.23	124.83
543	37.00	90.49	1.76	1.53	21.98	125.79
544	37.10	143.32	1.82	1.62	14.18	126.63
545	37.20	187.14	1.82	1.53	9.48	127.07
546	37.29	217.10	1.62	1.53	7.15	127.31
547	37.39	234.82	1.72	1.53	6.16	127.69
548	37.49	245.04	1.93	1.53	6.15	128.39
549	37.53	245.80	2.08	1.53	6.43	129.01
550	37.58	245.80	2.19	1.43	6.79	129.47
551	37.62	246.56	2.33	1.43	7.05	129.90
552	37.69	251.11	2.46	1.43	7.41	130.49
553	37.77	253.95	2.76	1.43	7.74	131.04
554	37.82	255.46	2.89	1.34	8.12	131.53
555	37.87	255.46	3.00	1.34	8.40	131.80
556	37.91	253.54	3.09	1.34	8.73	131.98
557	37.97	249.09	3.14	1.34	9.14	132.07
558	38.06	242.00	3.17	1.43	9.58	132.05
559	38.10	234.61	3.14	1.34	9.96	131.95
560	38.17	230.06	3.08	1.34	10.09	131.72
561	38.25	227.93	2.95	1.34	9.95	131.37
562	38.35	226.21	2.75	1.34	9.74	130.98
563	38.40	223.18	2.65	1.34	9.59	130.66
564	38.46	220.85	2.61	1.34	9.55	130.46
565	38.54	220.85	2.57	1.34	9.50	130.34
566	38.60	220.85	2.53	1.34	9.36	130.20
567	38.69	220.85	2.46	1.34	9.14	130.07
568	38.74	224.90	2.42	1.34	8.84	129.97
569	38.83	228.95	2.40	1.34	8.66	130.01
570	38.88	229.65	2.47	1.34	8.43	129.87
571	38.97	228.95	2.27	1.43	8.33	129.71
572	39.02	227.63	2.26	1.43	8.17	129.42
573	39.11	225.10	2.21	1.43	8.23	129.25
574	39.16	220.54	2.14	1.43	8.40	128.95
575	39.23	209.82	2.04	1.43	9.12	128.58
576	39.24	186.03	2.02	1.43	9.26	128.31

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	39.28	206.53	1.96	1.43	9.26	128.10
578	39.32	203.24	1.90	1.43	8.75	127.86
579	39.39	195.95	1.80	1.43	9.08	127.52
580	39.47	184.41	1.77	1.43	9.80	127.22
581	39.54	171.46	1.78	1.43	10.93	127.03
582	39.62	158.50	1.78	1.43	12.28	126.82
583	39.71	145.24	1.76	1.43	13.78	126.57
584	39.76	133.40	1.75	1.43	15.25	126.29
585	39.85	124.80	1.72	1.43	16.63	126.05
586	39.90	117.71	1.71	1.43	17.85	125.82
587	40.00	111.03	1.69	1.34	19.15	125.63
588	40.06	104.35	1.69	1.34	20.49	125.46
589	40.15	98.68	1.69	1.34	21.96	125.31
590	40.21	92.91	1.69	1.34	23.70	125.27
591	40.29	86.84	1.76	1.34	25.91	125.29
592	40.35	79.96	1.83	1.34	28.93	125.45
593	40.43	72.17	1.95	1.34	31.85	125.15
594	40.52	64.47	1.72	1.34	35.38	124.58
595	40.58	54.86	1.64	1.34	39.26	123.64
596	40.67	46.25	1.54	1.34	44.53	122.80
597	40.77	39.47	1.43	1.34	48.71	122.20
598	40.84	39.12	1.45	1.34	51.09	121.91
599	40.89	38.77	1.46	1.24	47.89	122.14
600	40.94	48.89	1.45	1.24	41.53	122.58
601	41.03	61.54	1.47	1.24	34.10	123.11
602	41.08	73.89	1.47	1.24	28.70	123.52
603	41.14	83.60	1.45	1.15	25.34	123.76
604	41.22	88.56	1.45	1.15	23.58	123.93
605	41.28	90.89	1.47	1.15	23.00	124.13
606	41.33	91.80	1.53	1.05	23.16	124.56
607	41.42	93.22	1.69	1.05	23.59	125.16
608	41.47	95.85	1.84	1.05	23.66	125.86
609	41.52	101.92	1.97	1.05	22.91	126.69
610	41.62	114.27	2.20	1.05	21.31	127.57
611	41.67	130.16	2.38	1.05	19.54	128.55
612	41.76	145.55	2.62	1.05	17.95	129.34
613	41.82	157.59	2.74	1.05	16.90	130.00
614	41.90	165.99	2.90	1.05	16.15	130.44
615	41.99	172.67	2.96	1.05	15.70	130.73
616	42.05	176.01	2.98	1.05	15.44	130.86
617	42.15	175.71	3.00	0.96	15.47	130.91
618	42.23	173.89	3.02	0.96	15.76	130.92
619	42.30	170.34	3.03	0.96	16.20	130.85
620	42.38	164.37	2.97	0.96	16.79	130.64
621	42.48	156.17	2.87	0.96	17.75	130.21
622	42.57	140.79	2.70	0.96	19.03	129.66
623	42.64	128.95	2.56	0.86	20.48	129.02
624	42.72	120.14	2.42	0.86	21.44	128.37

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	42.82	114.47	2.21	0.86	22.03	127.72
626	42.90	109.51	2.08	0.86	22.42	127.19
627	42.97	106.07	2.04	0.86	23.04	126.89
628	43.06	102.53	2.03	0.86	23.94	126.76
629	43.15	98.28	2.05	0.86	24.28	126.30
630	43.20	95.44	1.73	0.86	23.92	125.87
631	43.30	99.49	1.72	0.86	21.66	125.62
632	43.40	117.61	1.75	0.86	18.56	126.10
633	43.48	142.51	1.83	0.96	16.70	126.59
634	43.51	137.14	1.89	0.96	15.94	126.91
635	43.52	137.65	1.91	0.86	15.16	127.23
636	43.56	163.87	1.98	0.86	13.67	127.68
637	43.61	178.84	2.08	0.86	11.96	128.22
638	43.67	193.82	2.13	0.86	10.83	128.59
639	43.72	206.98	2.13	0.86	9.87	128.82
640	43.80	217.20	2.15	0.86	9.14	128.98
641	43.85	225.30	2.16	0.86	8.63	129.13
642	43.90	231.68	2.18	0.86	8.26	129.25
643	43.94	236.74	2.19	0.86	7.97	129.33
644	43.99	240.69	2.18	0.86	7.76	129.35
645	44.08	242.00	2.18	0.86	7.68	129.38
646	44.14	241.90	2.20	0.86	7.83	129.54
647	44.22	240.59	2.33	0.86	8.11	129.75
648	44.28	238.66	2.39	0.86	8.47	129.97
649	44.33	235.63	2.43	0.86	8.80	130.11
650	44.40	232.69	2.50	0.86	9.29	130.33
651	44.48	228.44	2.64	0.86	9.67	130.62
652	44.52	232.74	2.75	0.86	10.35	131.05
653	44.61	224.49	3.00	0.96	10.26	131.06
654	44.72	232.79	2.65	0.96	10.27	131.18
655	44.77	237.24	2.86	0.96	9.91	131.18
656	44.91	238.36	2.94	1.05	10.09	131.47
657	44.95	237.95	2.96	1.05	10.63	131.50
658	45.02	218.72	2.98	1.05	10.98	131.47
659	45.04	225.50	2.97	1.15	13.35	131.14
660	45.06	152.63	2.96	1.15	12.86	131.13
661	45.11	232.29	2.89	1.15	12.30	131.08
662	45.15	240.38	2.84	1.15	9.78	131.30
663	45.21	247.16	2.81	1.15	9.27	131.31
664	45.25	253.14	2.82	1.15	8.95	131.37
665	45.30	256.98	2.86	1.15	8.80	131.48
666	45.35	258.70	2.90	1.15	8.79	131.59
667	45.41	258.40	2.92	1.15	8.84	131.65
668	45.49	258.10	2.93	1.15	8.94	131.65
669	45.55	254.45	2.91	1.15	9.06	131.57
670	45.63	249.80	2.86	1.15	9.25	131.42
671	45.69	244.23	2.81	1.15	9.48	131.22
672	45.78	236.94	2.74	1.15	9.80	131.01

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	45.84	228.64	2.69	1.15	10.17	130.69
674	45.93	218.52	2.57	1.15	10.59	130.25
675	46.02	205.87	2.39	1.15	11.15	129.68
676	46.08	190.89	2.26	1.15	11.83	128.94
677	46.16	174.39	2.03	1.15	12.80	128.17
678	46.24	157.89	1.90	1.15	14.14	127.35
679	46.31	139.07	1.81	1.15	16.32	126.66
680	46.41	117.21	1.75	1.05	19.70	126.05
681	46.48	95.75	1.74	1.05	24.72	125.44
682	46.56	74.29	1.72	1.05	31.32	124.66
683	46.65	57.08	1.60	1.05	39.23	123.40
684	46.75	42.81	1.33	1.05	46.43	121.67
685	46.84	36.34	1.06	1.05	55.36	119.83
686	46.94	30.67	0.95	1.05	60.33	118.19
687	47.02	25.20	0.82	1.15	66.74	116.92
688	47.08	21.46	0.75	1.15	74.89	115.79
689	47.12	17.41	0.72	1.15	81.21	115.04
690	47.16	17.36	0.69	1.05	83.23	114.56
691	47.21	18.72	0.65	1.05	82.03	114.08
692	47.27	17.31	0.59	1.05	81.52	113.39
693	47.35	16.30	0.53	1.05	83.53	112.58
694	47.40	15.59	0.49	1.05	83.45	111.48
695	47.50	15.28	0.39	1.05	82.43	110.45
696	47.55	15.18	0.36	1.05	80.62	109.38
697	47.61	14.98	0.33	1.05	80.14	108.87
698	47.69	14.78	0.32	1.05	80.47	108.49
699	47.76	14.37	0.31	1.05	81.28	108.16
700	47.83	13.97	0.29	1.05	81.76	107.60
701	47.93	13.66	0.26	1.05	81.12	106.97
702	48.02	13.87	0.24	1.05	80.49	106.61
703	48.09	13.87	0.26	1.05	79.44	106.28
704	48.18	13.87	0.22	0.96	80.27	106.53
705	48.27	13.76	0.27	0.96	81.39	107.03
706	48.37	13.97	0.31	0.96	83.22	107.94
707	48.46	14.17	0.33	0.96	84.23	108.58
708	48.52	14.17	0.35	0.96	85.01	108.99
709	48.60	14.17	0.36	0.96	85.57	109.30
710	48.70	14.37	0.37	0.96	85.68	109.56
711	48.79	14.57	0.38	0.96	85.16	109.83
712	48.85	14.98	0.40	0.96	84.80	110.40
713	48.94	15.59	0.45	0.86	84.36	111.35
714	49.04	16.60	0.53	0.86	82.26	112.03
715	49.13	17.81	0.50	0.86	82.44	114.35
716	49.23	20.45	0.95	0.86	79.90	116.80
717	49.33	25.10	1.19	0.86	78.26	119.08
718	49.38	26.52	1.32	0.86	79.49	120.23
719	49.42	22.98	1.49	0.86	79.52	121.11
720	49.48	28.24	1.64	0.76	79.69	121.78

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	49.53	28.85	1.70	0.76	76.78	122.38
722	49.58	29.25	1.78	0.76	76.54	122.73
723	49.63	30.16	1.86	0.76	76.14	123.06
724	49.72	30.87	1.90	0.76	75.17	123.25
725	49.77	31.68	1.88	0.76	74.33	123.29
726	49.83	31.68	1.86	0.76	74.18	123.23
727	49.92	30.87	1.85	0.76	75.14	123.07
728	49.97	29.55	1.80	0.76	75.30	122.90
729	50.04	30.72	1.75	0.76	76.58	122.68
730	50.11	28.14	1.74	0.76	75.95	122.69
731	50.20	30.57	1.79	0.76	74.75	122.53
732	50.27	31.88	1.62	0.76	72.22	122.03
733	50.34	29.86	1.37	0.76	71.16	120.74
734	50.45	26.72	1.07	0.76	72.38	119.07
735	50.54	23.68	0.89	0.76	75.35	117.45
736	50.59	20.75	0.82	0.76	79.17	116.17
737	50.68	18.93	0.71	0.76	82.34	115.07
738	50.79	18.02	0.62	0.76	83.79	114.12
739	50.88	17.41	0.60	0.76	83.70	113.63
740	50.98	17.97	0.60	0.86	84.20	113.54
741	51.07	17.51	0.60	0.86	82.59	113.17
742	51.17	17.91	0.50	0.86	77.88	112.22
743	51.24	19.84	0.38	0.86	73.04	111.69
744	51.33	20.75	0.47	0.86	72.41	112.26
745	51.46	19.94	0.60	0.86	75.43	113.32
746	51.46	19.53	0.60	0.86	78.27	114.06
747	51.51	19.89	0.66	0.86	79.25	114.37
748	51.56	19.84	0.68	0.86	80.43	114.92
749	51.65	19.84	0.75	0.86	81.58	115.41
750	51.71	20.14	0.80	0.86	82.75	115.96
751	51.79	20.24	0.85	0.86	82.76	116.41
752	51.85	21.05	0.88	0.96	82.60	117.17
753	51.94	22.37	1.05	0.96	82.55	118.05
754	51.99	22.87	1.16	0.96	82.91	119.26
755	52.09	24.39	1.38	0.96	83.97	120.45
756	52.19	25.20	1.63	0.96	79.61	121.96
757	52.28	33.60	1.89	1.05	72.62	123.41
758	52.35	41.19	2.10	1.05	70.52	124.45
759	52.43	34.41	2.30	1.05	71.21	125.03
760	52.52	35.53	2.36	1.05	74.91	125.21
761	52.62	35.53	2.39	1.05	74.30	125.23
762	52.72	35.73	2.30	1.05	73.23	125.06
763	52.81	36.64	2.18	1.05	76.25	125.06
764	52.91	30.36	2.50	1.05	84.74	125.89
765	53.00	26.92	3.37	1.05	78.34	127.32
766	53.10	54.35	3.37	1.15	54.98	129.03
767	53.20	105.77	3.09	1.15	36.28	130.96
768	53.29	164.47	4.18	1.15	25.56	132.47

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	53.38	221.05	4.12	1.24	20.37	133.80
770	53.46	256.07	4.20	1.24	17.07	134.82
771	53.53	303.03	5.14	1.24	16.36	136.29
772	53.63	317.00	6.49	1.34	15.39	137.26
773	53.73	349.49	5.84	1.43	13.15	137.28
774	53.82	418.82	4.63	1.53	10.93	136.47
775	53.92	396.66	4.29	1.62	10.04	135.51
776	53.94	347.57	4.04	1.72	10.76	134.94
777	53.96	336.23	3.96	1.53	11.60	134.54
778	53.97	324.90	3.90	1.82	10.87	134.48
779	54.05	386.03	3.80	1.91	9.65	134.60
780	54.08	421.76	3.84	2.01	7.98	134.88
781	54.13	470.95	3.88	2.01	6.82	135.32
782	54.19	526.82	4.09	2.10	6.18	136.15
783	54.25	558.50	4.85	2.10	6.33	136.53
784	54.28	487.24	4.52	2.20	6.83	136.70
785	54.29	486.79	4.52	2.20	7.28	136.40
786	54.34	486.33	4.52	2.20	7.28	136.41
787	54.35	487.45	4.52	2.20	7.16	136.45
788	54.40	502.73	4.55	2.29	6.91	136.58
789	54.44	524.39	4.66	2.29	6.59	136.78
790	54.49	539.67	4.74	2.39	6.33	136.88
791	54.53	542.71	4.62	2.39	6.16	137.00
792	54.57	556.27	4.81	2.68	6.01	137.19
793	54.58	575.70	5.00	2.96	6.08	137.28
794	54.63	571.25	5.32	3.06	6.35	137.28
795	54.68	535.62	5.13	3.15	7.02	137.28
796	54.73	501.92	5.33	3.35	7.61	137.28
797	54.78	493.82	5.24	3.25	7.81	137.28
798	54.83	503.13	4.96	3.35	8.02	137.28
799	54.88	483.80	5.42	3.25	8.15	137.28
800	54.92	504.35	5.80	3.35	8.44	137.28
801	54.97	513.76	5.91	3.35	8.28	137.28
802	55.02	514.17	5.71	3.35	8.29	137.28
803	55.12	512.24	5.99	3.35	9.19	137.28
804	55.17	437.14	6.44	3.35	10.90	137.28
805	55.25	397.97	6.94	3.54	12.33	137.28
806	55.31	396.35	6.00	3.63	12.48	137.28
807	55.36	388.16	5.24	3.73	11.51	136.87
808	55.45	379.86	4.35	3.82	10.76	135.80
809	55.50	375.10	3.96	3.82	10.78	135.09
810	55.60	342.61	4.16	3.82	11.41	134.98
811	55.65	335.83	4.33	3.82	12.01	134.55
812	55.71	318.11	3.48	3.73	11.81	133.90
813	55.75	318.32	3.23	4.01	11.15	133.00
814	55.79	324.59	3.09	4.01	10.75	132.84
815	55.84	332.28	3.22	4.01	10.43	132.92
816	55.89	340.38	3.26	4.11	10.29	133.07

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	55.90	341.19	3.24	4.30	10.16	133.10
818	55.94	341.70	3.23	4.30	10.40	133.09
819	55.99	325.71	3.29	4.40	10.86	133.10
820	56.03	315.28	3.33	4.40	11.37	133.06
821	56.08	312.45	3.28	4.40	11.60	132.92
822	56.14	307.08	3.17	4.40	11.73	132.73
823	56.22	299.39	3.13	4.40	11.94	132.53
824	56.28	293.01	3.09	4.49	12.14	132.38
825	56.33	290.28	3.03	4.40	12.22	132.35
826	56.38	294.23	3.11	4.40	12.04	132.26
827	56.45	297.47	2.97	4.40	11.65	132.30
828	56.52	312.14	3.01	4.40	11.06	132.37
829	56.62	327.93	3.08	4.40	10.51	132.50
830	56.66	335.32	3.02	4.40	9.79	132.45
831	56.73	351.82	2.83	4.40	9.62	132.89
832	56.81	362.85	3.53	4.49	9.77	133.43
833	56.95	356.47	3.65	4.40	10.06	134.06
834	57.00	370.75	3.68	4.40	10.03	134.48
835	57.09	389.98	4.06	4.40	10.22	134.71
836	57.19	358.40	4.02	4.59	10.60	134.88
837	57.27	357.18	4.00	4.49	11.00	134.55
838	57.35	346.35	3.69	4.59	10.13	133.80
839	57.44	369.23	2.85	4.49	9.47	132.97
840	57.50	352.73	2.88	4.59	8.69	132.46
841	57.52	370.95	2.99	4.30	8.68	133.16
842	57.58	410.42	3.60	4.30	8.49	134.41
843	57.63	446.56	4.36	4.30	8.42	135.32
844	57.72	439.07	4.21	4.40	8.40	135.58
845	57.77	431.17	3.97	4.40	8.22	135.14
846	57.82	430.77	3.67	4.40	7.74	134.36
847	57.91	426.51	3.05	4.40	6.86	133.51
848	57.96	452.73	2.75	4.40	6.01	132.56
849	58.02	449.09	2.48	4.40	5.35	132.23
850	58.09	474.69	2.59	4.49	5.13	132.30
851	58.16	483.80	2.77	4.49	4.92	132.61
852	58.25	495.95	2.73	4.49	5.00	132.98
853	58.30	493.42	2.98	4.49	5.44	133.54
854	58.40	473.38	3.46	4.49	5.94	133.95
855	58.50	471.86	3.32	4.49	6.39	134.14
856	58.56	460.12	3.32	4.49	6.35	134.03
857	58.64	470.34	3.32	4.49	6.52	134.15
858	58.73	463.76	3.50	4.68	6.66	134.73
859	58.78	490.08	4.08	4.68	6.43	134.94
860	58.88	510.42	3.53	4.68	6.01	135.03
861	58.97	519.43	3.50	4.78	5.46	134.39
862	59.07	503.03	3.11	4.78	5.31	133.97
863	59.13	496.05	2.99	4.78	5.28	133.42
864	59.23	481.47	2.88	4.78	5.21	132.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	59.31	476.41	2.60	4.78	5.30	132.24
866	59.38	435.32	2.31	4.78	5.27	131.56
867	59.41	439.12	2.27	4.78	5.38	131.23
868	59.46	442.91	2.34	4.78	5.29	131.28
869	59.51	448.48	2.34	4.78	5.27	131.25
870	59.57	439.07	2.23	4.78	5.63	132.20
871	59.66	467.91	3.25	4.87	5.58	132.94
872	59.75	505.97	3.06	4.97	6.03	134.45
873	59.80	502.83	4.04	4.97	6.32	135.37
874	59.85	510.42	4.53	4.97	6.89	136.20
875	59.91	512.45	4.44	4.97	7.09	136.30
876	59.99	489.57	4.24	4.97	7.40	136.48
877	60.05	494.33	4.91	4.87	8.36	136.97
878	60.09	458.80	5.56	4.78	9.17	137.25
879	60.14	440.99	5.00	4.78	9.81	137.14
880	60.19	433.30	4.90	4.78	9.70	136.76
881	60.22	439.07	4.84	4.78	9.61	136.51
882	60.28	430.16	4.56	4.78	10.15	136.19
883	60.33	369.53	4.52	4.78	11.14	135.77
884	60.38	343.82	4.41	4.78	12.93	135.37
885	60.42	303.34	4.35	4.68	14.24	134.92
886	60.48	281.88	4.12	4.68	14.94	133.83
887	60.57	260.63	2.98	4.59	14.40	131.99
888	60.66	244.74	2.02	4.59	13.41	129.58
889	60.68	226.11	1.72	4.49	12.77	127.88
890	60.69	225.45	1.67	4.01	12.50	126.95
891	60.74	224.80	1.43	4.11	12.59	126.30
892	60.79	202.83	1.36	4.21	12.85	125.42
893	60.84	190.99	1.24	4.11	13.42	124.52
894	60.89	182.49	1.05	4.11	13.76	123.73
895	60.98	173.38	1.04	4.01	14.35	123.40
896	61.03	167.00	1.14	4.01	16.66	125.09
897	61.08	163.66	1.94	4.01	20.32	128.00
898	61.18	163.76	3.09	3.92	22.76	129.84
899	61.23	166.29	2.90	3.92	24.31	131.32
900	61.31	174.39	3.66	3.92	20.35	131.18
901	61.42	241.39	2.47	3.92	15.65	131.06
902	61.47	293.32	2.18	4.01	10.48	129.51
903	61.51	326.62	1.66	3.92	7.95	129.12
904	61.54	373.78	1.86	3.73	6.66	129.28
905	61.57	397.87	2.12	3.73	6.17	130.14
906	61.58	415.68	2.20	3.54	5.00	130.33
907	61.61	442.20	1.90	3.54	6.02	129.76
908	61.63	322.26	1.78	2.77	6.49	129.08
909	61.63	338.36	1.80	2.77	11.34	128.31
910	61.66	112.95	1.97	2.20	16.91	128.00
911	61.67	122.67	2.10	2.20	26.40	127.65
912	61.70	152.93	2.30	2.20	22.91	128.46

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	61.71	183.20	2.33	2.20	19.72	129.29
914	61.76	206.48	2.50	2.10	17.47	129.99
915	61.80	229.45	2.69	2.01	15.78	130.50
916	61.84	250.50	2.60	2.01	13.82	130.39
917	61.86	271.15	2.16	2.01	11.07	129.64
918	61.93	317.51	1.72	2.01	8.65	128.83
919	61.98	348.28	1.71	2.01	5.00	128.76
920	62.04	407.39	1.86	2.01	5.00	130.00
921	62.09	460.93	2.44	2.10	5.00	130.94
922	62.14	486.94	2.29	2.01	4.65	131.59
923	62.19	497.77	2.32	2.01	4.30	131.67
924	62.24	512.55	2.43	2.01	4.19	131.86
925	62.26	516.39	2.43	2.01	4.03	131.99
926	62.29	528.94	2.40	2.10	4.03	131.96
927	62.38	511.74	2.40	2.20	4.39	132.48
928	62.44	506.37	2.97	2.10	5.19	132.83
929	62.46	452.63	2.92	2.10	5.89	133.06
930	62.47	448.12	2.80	1.24	6.21	132.63
931	62.51	443.62	2.61	1.43	5.98	132.52
932	62.56	469.23	2.76	1.53	5.91	132.86
933	62.60	479.04	3.12	1.53	5.80	133.25
934	62.65	484.51	2.99	1.53	5.69	133.25
935	62.70	481.58	2.73	1.53	5.44	132.87
936	62.75	480.87	2.67	1.53	5.25	132.60
937	62.80	486.64	2.68	1.62	4.98	132.62
938	62.85	516.90	2.69	1.62	4.37	132.78
939	62.89	572.26	2.69	1.72	3.80	133.35
940	62.97	618.32	3.10	1.82	3.40	134.28
941	63.04	668.31	3.58	1.82	3.09	135.14
942	63.09	716.80	3.59	1.82	2.87	135.70
943	63.13	724.18	3.74	1.91	2.94	136.16
944	63.19	705.46	4.21	1.91	3.36	136.94
945	63.23	719.83	4.89	1.91	3.84	137.28
946	63.28	735.32	5.37	1.91	4.17	137.28
947	63.32	725.10	5.58	2.01	3.85	137.28
948	63.38	727.02	3.92	2.10	2.64	135.83
949	63.44	724.79	1.47	2.10	1.89	134.28
950	63.52	728.13	3.49	2.29	1.92	134.03
951	63.57	693.42	3.66	2.68	2.71	135.18
952	63.66	670.44	3.03	2.68	3.13	134.92
953	63.73	614.77	3.31	2.77	4.81	133.80
954	63.76	319.53	2.86	3.15	6.52	133.28
955	63.76	432.39	2.88	3.15	7.53	132.72
956	63.78	483.50	2.92	3.15	6.10	133.35
957	63.81	499.59	3.22	3.15	5.61	134.22
958	63.85	555.36	3.75	3.15	5.72	134.88
959	63.86	524.19	3.76	3.15	6.14	135.34
960	63.91	488.05	3.95	3.25	6.96	135.56

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	63.94	481.37	4.28	3.06	7.58	135.81
962	63.95	481.78	4.31	2.96	7.84	136.00
963	64.00	477.73	4.30	2.96	7.92	135.94
964	64.02	469.13	4.22	2.96	7.88	135.77
965	64.05	472.67	4.05	2.96	7.62	135.55
966	64.09	485.42	3.89	2.96	7.39	135.35
967	64.11	476.31	3.87	3.06	7.15	135.11
968	64.15	478.34	3.65	3.06	6.89	134.84
969	64.20	492.00	3.47	3.06	6.53	134.82
970	64.25	512.45	3.75	3.06	6.14	134.94
971	64.29	533.19	3.70	3.06	5.78	135.26
972	64.34	561.33	3.79	3.25	5.01	135.28
973	64.43	616.49	3.54	3.25	4.34	135.35
974	64.48	639.47	3.59	3.35	3.80	135.20
975	64.53	636.74	3.43	3.35	3.33	134.70
976	64.58	651.72	2.78	3.35	3.10	134.64
977	64.63	676.61	3.45	3.44	2.91	135.01
978	64.68	713.46	3.79	3.44	3.16	136.27
979	64.73	738.66	4.50	3.44	3.23	136.63
980	64.77	703.94	3.99	3.44	3.00	136.64
981	64.82	764.06	3.71	3.63	2.55	136.18
982	64.87	785.42	3.67	3.63	2.65	135.90
983	64.89	648.27	3.66	3.82	2.87	135.82
984	64.93	708.09	3.69	3.82	3.20	135.78
985	64.94	712.24	3.73	3.92	2.93	135.98
986	64.98	726.92	3.83	3.92	2.86	136.11
987	64.99	737.75	3.84	4.01	2.79	136.19
988	65.03	737.24	3.82	4.01	2.77	136.10
989	65.08	721.96	3.70	4.11	2.68	135.79
990	65.13	721.76	3.39	4.01	2.53	135.18
991	65.17	702.63	3.00	4.21	2.31	134.38
992	65.22	686.23	2.70	4.30	2.22	133.76
993	65.23	678.84	2.70	4.30	2.19	133.47
994	65.28	679.40	2.71	4.40	2.24	133.50
995	65.32	679.40	2.75	4.49	2.48	134.03
996	65.37	679.95	3.32	4.49	2.63	134.36
997	65.42	680.97	3.11	4.49	2.78	134.78
998	65.47	692.71	3.26	4.49	2.89	134.63
999	65.48	641.09	3.19	4.40	3.08	134.58
1000	65.49	637.65	3.11	4.01	3.14	134.13
1001	65.52	637.65	2.79	4.40	3.09	133.95
1002	65.57	634.21	2.97	4.30	1.61	130.82
1003	65.62	664.97	0.00	4.40	0.17	126.03
1004	65.67	684.10	0.00	4.49	N/A	87.36
1005	65.69	698.07	0.00	4.59	N/A	87.36
1006	65.72	709.31	0.00	4.59	N/A	87.36
1007	65.77	749.49	0.00	4.59	N/A	87.36
1008	65.82	797.77	0.00	4.59	N/A	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	65.86	824.89	0.00	4.59	N/A	87.36
1010	65.86	813.05	0.00	4.59	N/A	87.36
1011	65.91	862.75	0.00	4.68	N/A	87.36
1012	65.96	886.13	0.00	4.78	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.01	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
2	0.04	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
3	0.08	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
4	0.10	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
5	0.13	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
6	0.18	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
7	0.22	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
8	0.27	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
9	0.33	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
10	0.36	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
11	0.37	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
12	0.38	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
13	0.42	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
14	0.44	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
15	0.47	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
16	0.47	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
17	0.52	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
18	0.56	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
19	0.58	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
20	0.61	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
21	0.66	0.04	0.00	0.04	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
22	0.76	0.04	0.00	0.04	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
23	0.80	0.04	0.00	0.04	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
24	0.81	0.04	0.00	0.04	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
25	0.85	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
26	0.86	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
27	0.90	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
28	0.95	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
29	1.00	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
30	1.05	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
31	1.14	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
32	1.24	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
33	1.31	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
34	1.36	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
35	1.37	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
36	1.39	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
37	1.43	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
38	1.44	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
39	1.49	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
40	1.53	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
41	1.58	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
42	1.63	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
43	1.68	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
44	1.72	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
45	1.77	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
46	1.82	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
47	1.86	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
48	1.92	0.10	0.00	0.10	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	1.97	0.10	0.00	0.10	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
50	2.01	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
51	2.09	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
52	2.16	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
53	2.20	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
54	2.25	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
55	2.31	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
56	2.37	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
57	2.40	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
58	2.46	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
59	2.54	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
60	2.59	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
61	2.69	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
62	2.74	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
63	2.83	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
64	2.88	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
65	2.98	0.16	0.00	0.16	1.00	0.407	1.36	0.300	1.00	1.00	2.000	No
66	3.03	0.16	0.00	0.16	0.99	0.407	1.36	0.300	1.00	1.00	2.000	No
67	3.12	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
68	3.21	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
69	3.27	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
70	3.34	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
71	3.41	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
72	3.51	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
73	3.55	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
74	3.65	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
75	3.75	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
76	3.83	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
77	3.94	0.21	0.00	0.21	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
78	4.04	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
79	4.13	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
80	4.24	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
81	4.38	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
82	4.50	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
83	4.62	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
84	4.71	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
85	4.75	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
86	4.84	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
87	4.89	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
88	4.94	0.27	0.00	0.27	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
89	4.98	0.27	0.00	0.27	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
90	5.07	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
91	5.13	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
92	5.17	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
93	5.27	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
94	5.32	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
95	5.42	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
96	5.46	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	5.56	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
98	5.61	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
99	5.71	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
100	5.78	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
101	5.85	0.32	0.00	0.32	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
102	5.95	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
103	6.00	0.33	0.00	0.33	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
104	6.09	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
105	6.14	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
106	6.24	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
107	6.30	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
108	6.38	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
109	6.46	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
110	6.50	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
111	6.56	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
112	6.63	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
113	6.68	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
114	6.76	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
115	6.82	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
116	6.88	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
117	6.96	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
118	7.03	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
119	7.11	0.39	0.00	0.39	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
120	7.16	0.39	0.00	0.39	0.99	0.403	1.36	0.297	1.00	1.00	2.000	No
121	7.26	0.39	0.00	0.39	0.99	0.403	1.36	0.297	1.00	1.00	2.000	No
122	7.31	0.40	0.00	0.40	0.98	0.403	1.36	0.297	1.00	1.00	2.000	No
123	7.40	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
124	7.45	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
125	7.54	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
126	7.60	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
127	7.68	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
128	7.74	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
129	7.83	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
130	7.90	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
131	7.98	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
132	8.05	0.44	0.00	0.44	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
133	8.12	0.44	0.00	0.44	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
134	8.19	0.45	0.00	0.45	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
135	8.27	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
136	8.36	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
137	8.41	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
138	8.50	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
139	8.60	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
140	8.70	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
141	8.74	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
142	8.78	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
143	8.81	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
144	8.86	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	8.91	0.49	0.00	0.49	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
146	8.94	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
147	9.02	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
148	9.10	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
149	9.17	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
150	9.22	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
151	9.31	0.51	0.00	0.51	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
152	9.37	0.51	0.00	0.51	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
153	9.42	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
154	9.52	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
155	9.60	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
156	9.66	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
157	9.74	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
158	9.81	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
159	9.89	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
160	9.98	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
161	10.03	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
162	10.13	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
163	10.23	0.56	0.00	0.56	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
164	10.32	0.57	0.00	0.57	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
165	10.38	0.57	0.00	0.57	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
166	10.47	0.57	0.00	0.57	0.98	0.401	1.36	0.294	1.00	1.00	2.000	No
167	10.57	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
168	10.66	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
169	10.76	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
170	10.85	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
171	10.92	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
172	11.00	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
173	11.07	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
174	11.10	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
175	11.15	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
176	11.19	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
177	11.24	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
178	11.29	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
179	11.34	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
180	11.40	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
181	11.47	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
182	11.53	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
183	11.58	0.64	0.00	0.64	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
184	11.65	0.64	0.00	0.64	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
185	11.72	0.64	0.00	0.64	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
186	11.77	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
187	11.82	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
188	11.88	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
189	11.97	0.66	0.00	0.66	0.97	0.399	1.36	0.294	1.00	1.00	2.000	No
190	12.02	0.66	0.00	0.66	0.97	0.399	1.36	0.294	1.00	1.00	2.000	No
191	12.06	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
192	12.11	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	12.21	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
194	12.25	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
195	12.30	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
196	12.31	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
197	12.32	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
198	12.35	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
199	12.40	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
200	12.45	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
201	12.52	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
202	12.56	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
203	12.62	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
204	12.65	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
205	12.71	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
206	12.76	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
207	12.83	0.71	0.00	0.71	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
208	12.88	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
209	12.93	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
210	12.98	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
211	13.03	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
212	13.04	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
213	13.07	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
214	13.13	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
215	13.17	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
216	13.22	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
217	13.27	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
218	13.32	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
219	13.37	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
220	13.41	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
221	13.46	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
222	13.51	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
223	13.56	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
224	13.60	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
225	13.66	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
226	13.75	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
227	13.80	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
228	13.89	0.77	0.00	0.77	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
229	13.94	0.77	0.00	0.77	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
230	13.99	0.78	0.00	0.78	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
231	14.09	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
232	14.14	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
233	14.23	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
234	14.28	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
235	14.38	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
236	14.42	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
237	14.52	0.81	0.00	0.81	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
238	14.57	0.81	0.00	0.81	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
239	14.67	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
240	14.68	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	14.70	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
242	14.75	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
243	14.80	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
244	14.89	0.83	0.00	0.83	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
245	14.94	0.83	0.00	0.83	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
246	15.04	0.84	0.00	0.84	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
247	15.13	0.84	0.00	0.84	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
248	15.21	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
249	15.28	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
250	15.38	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
251	15.47	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
252	15.57	0.87	0.00	0.87	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
253	15.67	0.87	0.00	0.87	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
254	15.77	0.88	0.00	0.88	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
255	15.86	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
256	15.96	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
257	16.05	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
258	16.15	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
259	16.25	0.91	0.00	0.91	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
260	16.31	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
261	16.39	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
262	16.48	0.92	0.00	0.92	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
263	16.59	0.93	0.00	0.93	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
264	16.68	0.93	0.00	0.93	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
265	16.76	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
266	16.86	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
267	16.92	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
268	17.02	0.95	0.00	0.95	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
269	17.11	0.96	0.00	0.96	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
270	17.22	0.96	0.00	0.96	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
271	17.35	0.97	0.00	0.97	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
272	17.45	0.97	0.00	0.97	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
273	17.55	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
274	17.61	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
275	17.64	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
276	17.70	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
277	17.75	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
278	17.80	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
279	17.85	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
280	17.94	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
281	17.99	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
282	18.09	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
283	18.15	1.02	0.00	1.02	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
284	18.23	1.02	0.00	1.02	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
285	18.33	1.03	0.00	1.03	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
286	18.43	1.03	0.00	1.03	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
287	18.52	1.04	0.00	1.04	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
288	18.59	1.04	0.00	1.04	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	18.72	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
290	18.81	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
291	18.87	1.06	0.00	1.06	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
292	18.95	1.06	0.00	1.06	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
293	19.05	1.07	0.00	1.07	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
294	19.14	1.07	0.00	1.07	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
295	19.22	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
296	19.29	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
297	19.38	1.09	0.00	1.09	0.96	0.392	1.36	0.289	0.99	1.00	2.000	Yes
298	19.44	1.09	0.00	1.09	0.96	0.392	1.36	0.289	0.99	1.00	2.000	Yes
299	19.53	1.09	0.00	1.09	0.96	0.392	1.36	0.288	0.99	1.00	2.000	Yes
300	19.62	1.10	0.00	1.10	0.96	0.392	1.36	0.288	0.99	1.00	2.000	Yes
301	19.69	1.10	0.00	1.10	0.96	0.392	1.36	0.288	0.99	1.00	2.000	Yes
302	19.79	1.11	0.00	1.11	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
303	19.86	1.11	0.00	1.11	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
304	19.97	1.12	0.00	1.12	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
305	20.07	1.13	0.00	1.13	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
306	20.16	1.13	0.00	1.13	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
307	20.26	1.14	0.00	1.14	0.96	0.392	1.36	0.288	0.99	1.00	2.000	Yes
308	20.34	1.14	0.00	1.14	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
309	20.43	1.15	0.00	1.15	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
310	20.50	1.15	0.00	1.15	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
311	20.60	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
312	20.62	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
313	20.63	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
314	20.68	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
315	20.73	1.17	0.00	1.17	0.95	0.391	1.36	0.288	0.98	1.00	2.000	Yes
316	20.82	1.17	0.00	1.17	0.95	0.391	1.36	0.287	0.98	1.00	2.000	Yes
317	20.87	1.17	0.00	1.17	0.95	0.391	1.36	0.287	0.98	1.00	2.000	Yes
318	20.91	1.18	0.00	1.18	0.95	0.391	1.36	0.287	0.98	1.00	2.000	Yes
319	20.96	1.18	0.00	1.18	0.95	0.391	1.36	0.287	0.98	1.00	2.000	Yes
320	21.05	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
321	21.11	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
322	21.17	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
323	21.25	1.20	0.00	1.20	0.95	0.390	1.36	0.287	0.98	1.00	2.000	Yes
324	21.30	1.20	0.00	1.20	0.95	0.390	1.36	0.287	0.98	1.00	2.000	Yes
325	21.37	1.20	0.00	1.20	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
326	21.45	1.21	0.00	1.21	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
327	21.49	1.21	0.00	1.21	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
328	21.58	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
329	21.64	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
330	21.69	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
331	21.78	1.23	0.00	1.23	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
332	21.83	1.23	0.00	1.23	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
333	21.89	1.24	0.00	1.24	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
334	21.98	1.24	0.00	1.24	0.95	0.390	1.36	0.286	0.97	1.00	2.000	No
335	22.03	1.25	0.00	1.25	0.95	0.390	1.36	0.286	0.97	1.00	2.000	No
336	22.12	1.25	0.00	1.25	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	22.22	1.26	0.00	1.26	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
338	22.26	1.26	0.00	1.26	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
339	22.36	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
340	22.41	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
341	22.51	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
342	22.60	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
343	22.70	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
344	22.75	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
345	22.84	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
346	22.89	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
347	22.90	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
348	22.94	1.30	0.00	1.30	0.95	0.388	1.36	0.286	0.96	1.00	2.000	No
349	23.00	1.31	0.00	1.31	0.95	0.388	1.36	0.286	0.96	1.00	2.000	No
350	23.08	1.31	0.00	1.31	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
351	23.13	1.31	0.00	1.31	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
352	23.20	1.32	0.00	1.32	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
353	23.27	1.32	0.00	1.32	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
354	23.33	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
355	23.42	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
356	23.48	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
357	23.57	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
358	23.61	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
359	23.66	1.35	0.00	1.35	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
360	23.73	1.35	0.00	1.35	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
361	23.80	1.36	0.00	1.36	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
362	23.85	1.36	0.00	1.36	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
363	23.94	1.36	0.00	1.36	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
364	24.00	1.37	0.00	1.37	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
365	24.09	1.37	0.00	1.37	0.94	0.387	1.36	0.285	0.95	1.00	2.000	No
366	24.16	1.38	0.00	1.38	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
367	24.24	1.38	0.00	1.38	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
368	24.33	1.39	0.00	1.39	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
369	24.43	1.40	0.00	1.40	0.94	0.386	1.36	0.284	0.95	1.00	2.000	No
370	24.52	1.40	0.00	1.40	0.94	0.386	1.36	0.284	0.95	1.00	2.000	No
371	24.58	1.40	0.00	1.40	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
372	24.59	1.40	0.00	1.40	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
373	24.63	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
374	24.68	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
375	24.77	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
376	24.82	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
377	24.92	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
378	25.01	1.43	0.00	1.43	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
379	25.06	1.43	0.00	1.43	0.94	0.386	1.36	0.283	0.94	1.00	2.000	No
380	25.16	1.44	0.00	1.44	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
381	25.25	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
382	25.30	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
383	25.41	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
384	25.49	1.46	0.00	1.46	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	25.55	1.46	0.00	1.46	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
386	25.64	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
387	25.70	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
388	25.79	1.48	0.00	1.48	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
389	25.89	1.48	0.00	1.48	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
390	25.94	1.49	0.00	1.49	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
391	26.02	1.49	0.00	1.49	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
392	26.12	1.50	0.00	1.50	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
393	26.17	1.50	0.00	1.50	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
394	26.28	1.51	0.00	1.51	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
395	26.36	1.51	0.00	1.51	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
396	26.45	1.52	0.00	1.52	0.94	0.383	1.36	0.282	0.93	1.00	2.000	Yes
397	26.50	1.52	0.00	1.52	0.94	0.383	1.36	0.282	0.93	1.00	2.000	Yes
398	26.61	1.53	0.00	1.53	0.94	0.383	1.36	0.282	0.93	1.00	2.000	Yes
399	26.70	1.53	0.00	1.53	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
400	26.77	1.54	0.00	1.54	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
401	26.85	1.54	0.00	1.54	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
402	26.94	1.54	0.00	1.54	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
403	27.04	1.55	0.00	1.55	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
404	27.14	1.56	0.00	1.56	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
405	27.23	1.56	0.00	1.56	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
406	27.28	1.56	0.00	1.56	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
407	27.29	1.56	0.00	1.56	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
408	27.38	1.57	0.00	1.57	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
409	27.48	1.57	0.00	1.57	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
410	27.57	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
411	27.64	1.58	0.00	1.58	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
412	27.65	1.58	0.00	1.58	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
413	27.74	1.59	0.00	1.59	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
414	27.80	1.59	0.00	1.59	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
415	27.90	1.60	0.00	1.60	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
416	27.99	1.60	0.00	1.60	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
417	28.07	1.61	0.00	1.61	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
418	28.16	1.61	0.00	1.61	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
419	28.25	1.62	0.00	1.62	0.93	0.380	1.36	0.280	0.92	1.00	2.000	No
420	28.34	1.62	0.00	1.62	0.93	0.380	1.36	0.280	0.92	1.00	2.000	No
421	28.44	1.63	0.00	1.63	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
422	28.53	1.63	0.00	1.63	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
423	28.62	1.64	0.00	1.64	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
424	28.76	1.65	0.00	1.65	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
425	28.86	1.65	0.00	1.65	0.93	0.379	1.36	0.279	0.91	1.00	2.000	No
426	28.96	1.66	0.00	1.66	0.93	0.379	1.36	0.279	0.91	1.00	2.000	No
427	29.08	1.66	0.00	1.66	0.93	0.379	1.36	0.279	0.91	1.00	2.000	No
428	29.19	1.67	0.00	1.67	0.92	0.379	1.36	0.278	0.91	1.00	2.000	No
429	29.29	1.68	0.00	1.68	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
430	29.39	1.68	0.00	1.68	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
431	29.50	1.69	0.00	1.69	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
432	29.63	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	29.65	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
434	29.66	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
435	29.72	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
436	29.80	1.71	0.00	1.71	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
437	29.85	1.71	0.00	1.71	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
438	29.94	1.72	0.00	1.72	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
439	30.00	1.72	0.00	1.72	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
440	30.05	1.72	0.00	1.72	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
441	30.14	1.73	0.00	1.73	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
442	30.19	1.73	0.01	1.73	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
443	30.24	1.74	0.01	1.73	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
444	30.29	1.74	0.01	1.73	0.92	0.378	1.36	0.278	0.91	1.00	0.307	No
445	30.38	1.75	0.01	1.73	0.92	0.379	1.36	0.278	0.91	1.00	0.307	No
446	30.43	1.75	0.01	1.74	0.92	0.379	1.36	0.279	0.91	1.00	0.308	No
447	30.48	1.75	0.01	1.74	0.92	0.379	1.36	0.279	0.91	1.00	0.308	No
448	30.54	1.76	0.02	1.74	0.92	0.379	1.36	0.279	0.91	1.00	0.308	No
449	30.62	1.76	0.02	1.74	0.92	0.380	1.36	0.279	0.91	1.00	0.309	No
450	30.67	1.76	0.02	1.74	0.92	0.380	1.36	0.279	0.91	1.00	0.309	No
451	30.72	1.77	0.02	1.74	0.92	0.380	1.36	0.280	0.90	1.00	0.309	No
452	30.76	1.77	0.02	1.75	0.92	0.380	1.36	0.280	0.90	1.00	0.309	No
453	30.86	1.78	0.03	1.75	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
454	30.91	1.78	0.03	1.75	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
455	30.95	1.78	0.03	1.75	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
456	31.03	1.79	0.03	1.75	0.92	0.382	1.36	0.281	0.90	1.00	0.310	No
457	31.10	1.79	0.03	1.76	0.91	0.382	1.36	0.281	0.90	1.00	0.311	No
458	31.15	1.79	0.04	1.76	0.91	0.382	1.36	0.281	0.90	1.00	0.311	No
459	31.20	1.80	0.04	1.76	0.91	0.382	1.36	0.281	0.90	1.00	0.311	No
460	31.26	1.80	0.04	1.76	0.91	0.383	1.36	0.281	0.90	1.00	0.311	No
461	31.34	1.81	0.04	1.76	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
462	31.37	1.81	0.04	1.77	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
463	31.38	1.81	0.04	1.77	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
464	31.43	1.81	0.04	1.77	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
465	31.47	1.81	0.05	1.77	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
466	31.55	1.82	0.05	1.77	0.91	0.384	1.36	0.282	0.90	1.00	0.313	No
467	31.59	1.82	0.05	1.77	0.91	0.384	1.36	0.282	0.90	1.00	0.313	No
468	31.66	1.83	0.05	1.77	0.91	0.384	1.36	0.282	0.90	1.00	0.313	No
469	31.73	1.83	0.05	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.314	No
470	31.78	1.83	0.06	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.314	No
471	31.84	1.84	0.06	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.314	No
472	31.93	1.84	0.06	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.314	No
473	31.98	1.85	0.06	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.315	No
474	32.02	1.85	0.06	1.79	0.91	0.386	1.36	0.284	0.90	1.00	0.315	No
475	32.09	1.85	0.07	1.79	0.91	0.386	1.36	0.284	0.90	1.00	0.315	No
476	32.16	1.86	0.07	1.79	0.91	0.386	1.36	0.284	0.90	1.00	0.315	No
477	32.22	1.86	0.07	1.79	0.91	0.386	1.36	0.284	0.90	1.00	0.316	No
478	32.27	1.86	0.07	1.79	0.91	0.387	1.36	0.284	0.90	1.00	0.316	No
479	32.34	1.87	0.07	1.80	0.91	0.387	1.36	0.284	0.90	1.00	0.316	No
480	32.42	1.87	0.08	1.80	0.91	0.387	1.36	0.285	0.90	1.00	0.316	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	32.46	1.88	0.08	1.80	0.91	0.387	1.36	0.285	0.90	1.00	0.317	No
482	32.54	1.88	0.08	1.80	0.91	0.388	1.36	0.285	0.90	1.00	0.317	No
483	32.60	1.89	0.08	1.80	0.91	0.388	1.36	0.285	0.90	1.00	0.317	No
484	32.67	1.89	0.08	1.81	0.91	0.388	1.36	0.285	0.90	1.00	0.317	No
485	32.75	1.89	0.09	1.81	0.91	0.388	1.36	0.285	0.90	1.00	0.318	No
486	32.81	1.90	0.09	1.81	0.90	0.389	1.36	0.286	0.90	1.00	0.318	No
487	32.89	1.90	0.09	1.81	0.90	0.389	1.36	0.286	0.90	1.00	0.318	No
488	32.94	1.91	0.09	1.82	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
489	32.95	1.91	0.09	1.82	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
490	33.00	1.91	0.09	1.82	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
491	33.06	1.91	0.10	1.82	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
492	33.11	1.92	0.10	1.82	0.90	0.390	1.36	0.286	0.90	1.00	0.319	No
493	33.20	1.92	0.10	1.82	0.90	0.390	1.36	0.287	0.90	1.00	0.320	No
494	33.25	1.93	0.10	1.83	0.90	0.390	1.36	0.287	0.90	1.00	0.320	No
495	33.34	1.93	0.10	1.83	0.90	0.390	1.36	0.287	0.90	1.00	0.320	No
496	33.38	1.94	0.11	1.83	0.90	0.390	1.36	0.287	0.90	1.00	0.320	No
497	33.48	1.94	0.11	1.83	0.90	0.391	1.36	0.287	0.90	1.00	0.321	No
498	33.58	1.95	0.11	1.84	0.90	0.391	1.36	0.287	0.90	1.00	0.321	No
499	33.63	1.95	0.11	1.84	0.90	0.391	1.36	0.288	0.90	1.00	0.321	No
500	33.73	1.96	0.12	1.84	0.90	0.391	1.36	0.288	0.90	1.00	0.322	No
501	33.82	1.96	0.12	1.84	0.90	0.392	1.36	0.288	0.89	1.00	0.322	No
502	33.87	1.97	0.12	1.85	0.90	0.392	1.36	0.288	0.89	1.00	0.322	No
503	33.96	1.97	0.12	1.85	0.90	0.392	1.36	0.288	0.89	1.00	0.322	No
504	34.02	1.98	0.13	1.85	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
505	34.11	1.98	0.13	1.85	0.90	0.393	1.36	0.289	0.89	1.00	0.323	No
506	34.18	1.99	0.13	1.86	0.90	0.393	1.36	0.289	0.89	1.00	0.323	No
507	34.26	1.99	0.13	1.86	0.90	0.393	1.36	0.289	0.89	1.00	0.323	No
508	34.35	2.00	0.14	1.86	0.90	0.393	1.36	0.289	0.89	1.00	0.324	No
509	34.44	2.00	0.14	1.87	0.89	0.393	1.36	0.289	0.89	1.00	0.324	No
510	34.49	2.01	0.14	1.87	0.89	0.394	1.36	0.289	0.89	1.00	0.324	No
511	34.59	2.01	0.14	1.87	0.89	0.394	1.36	0.290	0.89	1.00	0.325	No
512	34.69	2.02	0.15	1.87	0.89	0.394	1.36	0.290	0.89	1.00	0.325	No
513	34.76	2.03	0.15	1.88	0.89	0.394	1.36	0.290	0.89	1.00	0.325	No
514	34.83	2.03	0.15	1.88	0.89	0.394	1.36	0.290	0.89	1.00	0.325	No
515	34.93	2.04	0.15	1.88	0.89	0.395	1.36	0.290	0.89	1.00	0.326	No
516	35.02	2.04	0.16	1.89	0.89	0.395	1.36	0.290	0.89	1.00	0.326	No
517	35.12	2.05	0.16	1.89	0.89	0.395	1.36	0.291	0.89	1.00	0.326	No
518	35.22	2.06	0.16	1.89	0.89	0.395	1.36	0.291	0.89	1.00	0.327	No
519	35.30	2.06	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	0.327	No
520	35.38	2.07	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	0.327	No
521	35.43	2.07	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	0.327	No
522	35.46	2.07	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	0.327	No
523	35.51	2.08	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
524	35.56	2.08	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
525	35.66	2.08	0.18	1.91	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
526	35.70	2.09	0.18	1.91	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
527	35.80	2.09	0.18	1.91	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
528	35.89	2.10	0.18	1.92	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	35.96	2.10	0.19	1.92	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
530	36.04	2.11	0.19	1.92	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
531	36.14	2.12	0.19	1.92	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
532	36.19	2.12	0.19	1.93	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
533	36.28	2.12	0.20	1.93	0.88	0.398	1.36	0.292	0.89	1.00	2.000	Yes
534	36.33	2.13	0.20	1.93	0.88	0.398	1.36	0.292	0.89	1.00	0.330	No
535	36.42	2.13	0.20	1.93	0.88	0.398	1.36	0.293	0.89	1.00	0.330	No
536	36.48	2.14	0.20	1.93	0.88	0.398	1.36	0.293	0.89	1.00	0.330	No
537	36.52	2.14	0.20	1.94	0.88	0.398	1.36	0.293	0.89	1.00	0.330	No
538	36.62	2.14	0.21	1.94	0.88	0.398	1.36	0.293	0.89	1.00	0.330	No
539	36.68	2.15	0.21	1.94	0.88	0.398	1.36	0.293	0.89	1.00	0.331	No
540	36.77	2.15	0.21	1.94	0.88	0.398	1.36	0.293	0.89	1.00	0.331	No
541	36.86	2.16	0.21	1.95	0.88	0.399	1.36	0.293	0.89	1.00	2.000	Yes
542	36.90	2.16	0.22	1.95	0.88	0.399	1.36	0.293	0.89	1.00	2.000	Yes
543	37.00	2.17	0.22	1.95	0.88	0.399	1.36	0.293	0.88	1.00	2.000	Yes
544	37.10	2.17	0.22	1.95	0.88	0.399	1.36	0.293	0.88	1.00	2.000	Yes
545	37.20	2.18	0.22	1.96	0.87	0.399	1.36	0.293	0.88	1.00	2.000	Yes
546	37.29	2.19	0.23	1.96	0.87	0.399	1.36	0.294	0.88	1.00	2.000	Yes
547	37.39	2.19	0.23	1.96	0.87	0.399	1.36	0.294	0.88	1.00	2.000	Yes
548	37.49	2.20	0.23	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
549	37.53	2.20	0.24	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
550	37.58	2.21	0.24	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
551	37.62	2.21	0.24	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
552	37.69	2.21	0.24	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
553	37.77	2.22	0.24	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
554	37.82	2.22	0.24	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
555	37.87	2.22	0.25	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
556	37.91	2.23	0.25	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
557	37.97	2.23	0.25	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
558	38.06	2.24	0.25	1.99	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
559	38.10	2.24	0.25	1.99	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
560	38.17	2.24	0.25	1.99	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
561	38.25	2.25	0.26	1.99	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
562	38.35	2.26	0.26	2.00	0.87	0.401	1.36	0.294	0.88	1.00	0.334	No
563	38.40	2.26	0.26	2.00	0.86	0.401	1.36	0.295	0.88	1.00	0.334	No
564	38.46	2.26	0.26	2.00	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
565	38.54	2.27	0.27	2.00	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
566	38.60	2.27	0.27	2.00	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
567	38.69	2.28	0.27	2.01	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
568	38.74	2.28	0.27	2.01	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
569	38.83	2.29	0.28	2.01	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
570	38.88	2.29	0.28	2.01	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
571	38.97	2.30	0.28	2.02	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
572	39.02	2.30	0.28	2.02	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
573	39.11	2.31	0.28	2.02	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
574	39.16	2.31	0.29	2.02	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
575	39.23	2.31	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
576	39.24	2.31	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	39.28	2.32	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
578	39.32	2.32	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
579	39.39	2.32	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	2.000	Yes
580	39.47	2.33	0.30	2.03	0.86	0.401	1.36	0.295	0.88	1.00	2.000	Yes
581	39.54	2.33	0.30	2.04	0.86	0.401	1.36	0.295	0.88	1.00	2.000	Yes
582	39.62	2.34	0.30	2.04	0.85	0.401	1.36	0.295	0.88	1.00	2.000	Yes
583	39.71	2.34	0.30	2.04	0.85	0.401	1.36	0.295	0.88	1.00	2.000	Yes
584	39.76	2.35	0.30	2.04	0.85	0.401	1.36	0.295	0.88	1.00	2.000	Yes
585	39.85	2.35	0.31	2.05	0.85	0.401	1.36	0.295	0.88	1.00	2.000	Yes
586	39.90	2.36	0.31	2.05	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
587	40.00	2.36	0.31	2.05	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
588	40.06	2.37	0.31	2.05	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
589	40.15	2.37	0.32	2.05	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
590	40.21	2.38	0.32	2.06	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
591	40.29	2.38	0.32	2.06	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
592	40.35	2.38	0.32	2.06	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
593	40.43	2.39	0.33	2.06	0.85	0.402	1.36	0.295	0.87	1.00	2.000	Yes
594	40.52	2.39	0.33	2.07	0.85	0.402	1.36	0.295	0.87	1.00	2.000	Yes
595	40.58	2.40	0.33	2.07	0.85	0.402	1.36	0.295	0.87	1.00	2.000	Yes
596	40.67	2.40	0.33	2.07	0.85	0.402	1.36	0.295	0.87	1.00	2.000	Yes
597	40.77	2.41	0.34	2.07	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
598	40.84	2.41	0.34	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
599	40.89	2.42	0.34	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
600	40.94	2.42	0.34	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
601	41.03	2.43	0.34	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
602	41.08	2.43	0.35	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
603	41.14	2.43	0.35	2.09	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
604	41.22	2.44	0.35	2.09	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
605	41.28	2.44	0.35	2.09	0.84	0.402	1.36	0.295	0.87	1.00	0.338	No
606	41.33	2.44	0.35	2.09	0.84	0.402	1.36	0.295	0.87	1.00	0.338	No
607	41.42	2.45	0.36	2.09	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
608	41.47	2.45	0.36	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
609	41.52	2.46	0.36	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
610	41.62	2.46	0.36	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
611	41.67	2.47	0.36	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
612	41.76	2.47	0.37	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
613	41.82	2.48	0.37	2.11	0.83	0.402	1.36	0.295	0.87	1.00	0.339	No
614	41.90	2.48	0.37	2.11	0.83	0.402	1.36	0.295	0.87	1.00	0.339	No
615	41.99	2.49	0.37	2.11	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
616	42.05	2.49	0.38	2.11	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
617	42.15	2.50	0.38	2.12	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
618	42.23	2.50	0.38	2.12	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
619	42.30	2.51	0.38	2.12	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
620	42.38	2.51	0.39	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
621	42.48	2.52	0.39	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
622	42.57	2.52	0.39	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
623	42.64	2.53	0.39	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
624	42.72	2.53	0.40	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	42.82	2.54	0.40	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
626	42.90	2.55	0.40	2.14	0.82	0.401	1.36	0.295	0.87	1.00	0.339	No
627	42.97	2.55	0.40	2.15	0.82	0.401	1.36	0.295	0.87	1.00	0.339	No
628	43.06	2.56	0.41	2.15	0.82	0.401	1.36	0.295	0.87	1.00	0.340	No
629	43.15	2.56	0.41	2.15	0.82	0.401	1.36	0.295	0.87	1.00	0.340	No
630	43.20	2.56	0.41	2.15	0.82	0.401	1.36	0.295	0.87	1.00	0.340	No
631	43.30	2.57	0.41	2.16	0.82	0.401	1.36	0.295	0.87	1.00	0.340	No
632	43.40	2.58	0.42	2.16	0.82	0.401	1.36	0.294	0.87	1.00	0.340	No
633	43.48	2.58	0.42	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
634	43.51	2.58	0.42	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
635	43.52	2.58	0.42	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
636	43.56	2.59	0.42	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
637	43.61	2.59	0.42	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
638	43.67	2.59	0.43	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
639	43.72	2.60	0.43	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
640	43.80	2.60	0.43	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
641	43.85	2.61	0.43	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
642	43.90	2.61	0.43	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
643	43.94	2.61	0.43	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
644	43.99	2.62	0.44	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
645	44.08	2.62	0.44	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
646	44.14	2.62	0.44	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
647	44.22	2.63	0.44	2.19	0.81	0.400	1.36	0.294	0.86	1.00	0.340	No
648	44.28	2.63	0.45	2.19	0.81	0.400	1.36	0.294	0.86	1.00	0.340	No
649	44.33	2.64	0.45	2.19	0.81	0.400	1.36	0.294	0.86	1.00	0.340	No
650	44.40	2.64	0.45	2.19	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
651	44.48	2.65	0.45	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
652	44.52	2.65	0.45	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
653	44.61	2.66	0.46	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
654	44.72	2.66	0.46	2.20	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
655	44.77	2.67	0.46	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
656	44.91	2.67	0.47	2.21	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
657	44.95	2.68	0.47	2.21	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
658	45.02	2.68	0.47	2.21	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
659	45.04	2.68	0.47	2.21	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
660	45.06	2.69	0.47	2.22	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
661	45.11	2.69	0.47	2.22	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
662	45.15	2.69	0.47	2.22	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
663	45.21	2.69	0.47	2.22	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
664	45.25	2.70	0.48	2.22	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
665	45.30	2.70	0.48	2.22	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
666	45.35	2.70	0.48	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
667	45.41	2.71	0.48	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
668	45.49	2.71	0.48	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
669	45.55	2.72	0.49	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
670	45.63	2.72	0.49	2.24	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No
671	45.69	2.73	0.49	2.24	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No
672	45.78	2.73	0.49	2.24	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	45.84	2.74	0.49	2.24	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
674	45.93	2.74	0.50	2.25	0.79	0.397	1.36	0.292	0.86	1.00	0.339	No
675	46.02	2.75	0.50	2.25	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
676	46.08	2.75	0.50	2.25	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
677	46.16	2.76	0.50	2.25	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
678	46.24	2.76	0.51	2.26	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
679	46.31	2.77	0.51	2.26	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
680	46.41	2.77	0.51	2.26	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
681	46.48	2.78	0.51	2.26	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
682	46.56	2.78	0.52	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
683	46.65	2.79	0.52	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
684	46.75	2.79	0.52	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
685	46.84	2.80	0.53	2.27	0.78	0.396	1.36	0.291	0.86	1.00	2.000	Yes
686	46.94	2.81	0.53	2.28	0.78	0.396	1.36	0.291	0.86	1.00	0.339	No
687	47.02	2.81	0.53	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
688	47.08	2.81	0.53	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
689	47.12	2.82	0.53	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
690	47.16	2.82	0.54	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
691	47.21	2.82	0.54	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
692	47.27	2.82	0.54	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
693	47.35	2.83	0.54	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
694	47.40	2.83	0.54	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
695	47.50	2.84	0.55	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
696	47.55	2.84	0.55	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
697	47.61	2.84	0.55	2.29	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
698	47.69	2.85	0.55	2.30	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
699	47.76	2.85	0.55	2.30	0.78	0.394	1.36	0.290	0.86	1.00	0.338	No
700	47.83	2.85	0.56	2.30	0.77	0.394	1.36	0.290	0.86	1.00	0.338	No
701	47.93	2.86	0.56	2.30	0.77	0.394	1.36	0.290	0.86	1.00	0.338	No
702	48.02	2.87	0.56	2.30	0.77	0.394	1.36	0.290	0.86	1.00	0.338	No
703	48.09	2.87	0.56	2.30	0.77	0.394	1.36	0.289	0.86	1.00	0.338	No
704	48.18	2.87	0.57	2.31	0.77	0.394	1.36	0.289	0.86	1.00	0.338	No
705	48.27	2.88	0.57	2.31	0.77	0.393	1.36	0.289	0.86	1.00	0.338	No
706	48.37	2.88	0.57	2.31	0.77	0.393	1.36	0.289	0.86	1.00	0.338	No
707	48.46	2.89	0.58	2.31	0.77	0.393	1.36	0.289	0.86	1.00	0.338	No
708	48.52	2.89	0.58	2.31	0.77	0.393	1.36	0.289	0.86	1.00	0.338	No
709	48.60	2.90	0.58	2.32	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
710	48.70	2.90	0.58	2.32	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
711	48.79	2.91	0.59	2.32	0.77	0.392	1.36	0.289	0.85	1.00	0.338	No
712	48.85	2.91	0.59	2.32	0.76	0.392	1.36	0.288	0.85	1.00	0.338	No
713	48.94	2.92	0.59	2.32	0.76	0.392	1.36	0.288	0.85	1.00	0.337	No
714	49.04	2.92	0.59	2.33	0.76	0.392	1.36	0.288	0.85	1.00	0.337	No
715	49.13	2.93	0.60	2.33	0.76	0.392	1.36	0.288	0.85	1.00	0.337	No
716	49.23	2.93	0.60	2.33	0.76	0.392	1.36	0.288	0.85	1.00	0.337	No
717	49.33	2.94	0.60	2.33	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No
718	49.38	2.94	0.60	2.34	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No
719	49.42	2.94	0.61	2.34	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No
720	49.48	2.95	0.61	2.34	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	49.53	2.95	0.61	2.34	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
722	49.58	2.95	0.61	2.34	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
723	49.63	2.96	0.61	2.34	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
724	49.72	2.96	0.62	2.35	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
725	49.77	2.96	0.62	2.35	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
726	49.83	2.97	0.62	2.35	0.75	0.390	1.36	0.287	0.85	1.00	0.337	No
727	49.92	2.97	0.62	2.35	0.75	0.390	1.36	0.287	0.85	1.00	0.337	No
728	49.97	2.98	0.62	2.35	0.75	0.390	1.36	0.287	0.85	1.00	0.336	No
729	50.04	2.98	0.63	2.36	0.75	0.390	1.36	0.287	0.85	1.00	0.336	No
730	50.11	2.99	0.63	2.36	0.75	0.390	1.36	0.287	0.85	1.00	0.336	No
731	50.20	2.99	0.63	2.36	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
732	50.27	3.00	0.63	2.36	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
733	50.34	3.00	0.63	2.36	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
734	50.45	3.01	0.64	2.37	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
735	50.54	3.01	0.64	2.37	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
736	50.59	3.01	0.64	2.37	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
737	50.68	3.02	0.65	2.37	0.75	0.388	1.36	0.286	0.85	1.00	0.336	No
738	50.79	3.03	0.65	2.38	0.74	0.388	1.36	0.285	0.85	1.00	0.336	No
739	50.88	3.03	0.65	2.38	0.74	0.388	1.36	0.285	0.85	1.00	0.335	No
740	50.98	3.04	0.65	2.38	0.74	0.388	1.36	0.285	0.85	1.00	0.335	No
741	51.07	3.04	0.66	2.38	0.74	0.388	1.36	0.285	0.85	1.00	0.335	No
742	51.17	3.05	0.66	2.39	0.74	0.387	1.36	0.285	0.85	1.00	0.335	No
743	51.24	3.05	0.66	2.39	0.74	0.387	1.36	0.285	0.85	1.00	0.335	No
744	51.33	3.06	0.67	2.39	0.74	0.387	1.36	0.285	0.85	1.00	0.335	No
745	51.46	3.06	0.67	2.39	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
746	51.46	3.06	0.67	2.39	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
747	51.51	3.07	0.67	2.40	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
748	51.56	3.07	0.67	2.40	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
749	51.65	3.07	0.68	2.40	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
750	51.71	3.08	0.68	2.40	0.74	0.386	1.36	0.284	0.85	1.00	0.334	No
751	51.79	3.08	0.68	2.40	0.73	0.386	1.36	0.284	0.85	1.00	0.334	No
752	51.85	3.09	0.68	2.40	0.73	0.386	1.36	0.284	0.85	1.00	0.334	No
753	51.94	3.09	0.68	2.41	0.73	0.386	1.36	0.284	0.85	1.00	0.334	No
754	51.99	3.09	0.69	2.41	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
755	52.09	3.10	0.69	2.41	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
756	52.19	3.11	0.69	2.41	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
757	52.28	3.11	0.70	2.42	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
758	52.35	3.12	0.70	2.42	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
759	52.43	3.12	0.70	2.42	0.73	0.384	1.36	0.283	0.85	1.00	0.334	No
760	52.52	3.13	0.70	2.42	0.73	0.384	1.36	0.282	0.85	1.00	0.333	No
761	52.62	3.13	0.71	2.43	0.73	0.384	1.36	0.282	0.85	1.00	0.333	No
762	52.72	3.14	0.71	2.43	0.73	0.384	1.36	0.282	0.85	1.00	0.333	No
763	52.81	3.14	0.71	2.43	0.72	0.383	1.36	0.282	0.85	1.00	0.333	No
764	52.91	3.15	0.71	2.44	0.72	0.383	1.36	0.282	0.85	1.00	0.333	No
765	53.00	3.16	0.72	2.44	0.72	0.383	1.36	0.282	0.85	1.00	0.333	No
766	53.10	3.16	0.72	2.44	0.72	0.383	1.36	0.281	0.85	1.00	2.000	Yes
767	53.20	3.17	0.72	2.45	0.72	0.382	1.36	0.281	0.85	1.00	2.000	Yes
768	53.29	3.18	0.73	2.45	0.72	0.382	1.36	0.281	0.85	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	53.38	3.18	0.73	2.45	0.72	0.382	1.36	0.281	0.85	1.00	2.000	Yes
770	53.46	3.19	0.73	2.46	0.72	0.382	1.36	0.281	0.85	1.00	2.000	Yes
771	53.53	3.19	0.73	2.46	0.72	0.382	1.36	0.281	0.84	1.00	2.000	Yes
772	53.63	3.20	0.74	2.46	0.72	0.381	1.36	0.280	0.84	1.00	2.000	Yes
773	53.73	3.21	0.74	2.47	0.72	0.381	1.36	0.280	0.84	1.00	2.000	Yes
774	53.82	3.21	0.74	2.47	0.71	0.381	1.36	0.280	0.84	1.00	2.000	Yes
775	53.92	3.22	0.75	2.47	0.71	0.380	1.36	0.280	0.84	1.00	2.000	Yes
776	53.94	3.22	0.75	2.47	0.71	0.380	1.36	0.280	0.84	1.00	0.331	No
777	53.96	3.22	0.75	2.47	0.71	0.380	1.36	0.280	0.84	1.00	0.331	No
778	53.97	3.22	0.75	2.47	0.71	0.380	1.36	0.280	0.84	1.00	0.331	No
779	54.05	3.23	0.75	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
780	54.08	3.23	0.75	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
781	54.13	3.23	0.75	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
782	54.19	3.24	0.75	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
783	54.25	3.24	0.76	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
784	54.28	3.24	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
785	54.29	3.24	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
786	54.34	3.25	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
787	54.35	3.25	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
788	54.40	3.25	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
789	54.44	3.25	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
790	54.49	3.26	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
791	54.53	3.26	0.77	2.50	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
792	54.57	3.26	0.77	2.50	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
793	54.58	3.26	0.77	2.50	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
794	54.63	3.27	0.77	2.50	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
795	54.68	3.27	0.77	2.50	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
796	54.73	3.27	0.77	2.50	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
797	54.78	3.28	0.77	2.50	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
798	54.83	3.28	0.77	2.51	0.70	0.378	1.36	0.278	0.84	1.00	0.330	No
799	54.88	3.28	0.78	2.51	0.70	0.378	1.36	0.278	0.84	1.00	0.330	No
800	54.92	3.29	0.78	2.51	0.70	0.378	1.36	0.278	0.84	1.00	0.330	No
801	54.97	3.29	0.78	2.51	0.70	0.378	1.36	0.278	0.84	1.00	0.330	No
802	55.02	3.29	0.78	2.51	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
803	55.12	3.30	0.78	2.52	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
804	55.17	3.30	0.79	2.52	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
805	55.25	3.31	0.79	2.52	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
806	55.31	3.31	0.79	2.52	0.70	0.377	1.36	0.277	0.84	1.00	0.329	No
807	55.36	3.32	0.79	2.53	0.70	0.376	1.36	0.277	0.84	1.00	0.329	No
808	55.45	3.32	0.79	2.53	0.70	0.376	1.36	0.277	0.84	1.00	0.329	No
809	55.50	3.33	0.80	2.53	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
810	55.60	3.33	0.80	2.53	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
811	55.65	3.34	0.80	2.54	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
812	55.71	3.34	0.80	2.54	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
813	55.75	3.34	0.80	2.54	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
814	55.79	3.35	0.80	2.54	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
815	55.84	3.35	0.81	2.54	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
816	55.89	3.35	0.81	2.55	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	55.90	3.35	0.81	2.55	0.69	0.375	1.36	0.276	0.84	1.00	0.329	No
818	55.94	3.36	0.81	2.55	0.69	0.375	1.36	0.276	0.84	1.00	0.328	No
819	55.99	3.36	0.81	2.55	0.69	0.375	1.36	0.275	0.84	1.00	0.328	No
820	56.03	3.36	0.81	2.55	0.69	0.375	1.36	0.275	0.84	1.00	0.328	No
821	56.08	3.37	0.81	2.55	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
822	56.14	3.37	0.82	2.55	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
823	56.22	3.38	0.82	2.56	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
824	56.28	3.38	0.82	2.56	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
825	56.33	3.38	0.82	2.56	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
826	56.38	3.39	0.82	2.56	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
827	56.45	3.39	0.83	2.56	0.69	0.373	1.36	0.275	0.84	1.00	0.328	No
828	56.52	3.39	0.83	2.57	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
829	56.62	3.40	0.83	2.57	0.69	0.373	1.36	0.274	0.84	1.00	0.327	No
830	56.66	3.40	0.83	2.57	0.69	0.373	1.36	0.274	0.84	1.00	0.327	No
831	56.73	3.41	0.83	2.57	0.69	0.373	1.36	0.274	0.84	1.00	0.327	No
832	56.81	3.41	0.84	2.58	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
833	56.95	3.42	0.84	2.58	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
834	57.00	3.43	0.84	2.58	0.68	0.372	1.36	0.273	0.84	1.00	0.327	No
835	57.09	3.43	0.85	2.59	0.68	0.372	1.36	0.273	0.84	1.00	0.327	No
836	57.19	3.44	0.85	2.59	0.68	0.371	1.36	0.273	0.84	1.00	0.327	No
837	57.27	3.45	0.85	2.59	0.68	0.371	1.36	0.273	0.84	1.00	0.326	No
838	57.35	3.45	0.85	2.60	0.68	0.371	1.36	0.273	0.84	1.00	0.326	No
839	57.44	3.46	0.86	2.60	0.68	0.371	1.36	0.273	0.84	1.00	0.326	No
840	57.50	3.46	0.86	2.60	0.68	0.371	1.36	0.272	0.84	1.00	0.326	No
841	57.52	3.46	0.86	2.60	0.68	0.370	1.36	0.272	0.84	1.00	0.326	No
842	57.58	3.47	0.86	2.60	0.68	0.370	1.36	0.272	0.84	1.00	0.326	No
843	57.63	3.47	0.86	2.61	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
844	57.72	3.48	0.86	2.61	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
845	57.77	3.48	0.87	2.61	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
846	57.82	3.48	0.87	2.61	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
847	57.91	3.49	0.87	2.62	0.68	0.369	1.36	0.272	0.83	1.00	0.326	No
848	57.96	3.49	0.87	2.62	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
849	58.02	3.49	0.87	2.62	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
850	58.09	3.50	0.88	2.62	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
851	58.16	3.50	0.88	2.63	0.67	0.369	1.36	0.271	0.83	1.00	0.325	No
852	58.25	3.51	0.88	2.63	0.67	0.368	1.36	0.271	0.83	1.00	0.325	No
853	58.30	3.51	0.88	2.63	0.67	0.368	1.36	0.271	0.83	1.00	0.325	No
854	58.40	3.52	0.89	2.63	0.67	0.368	1.36	0.271	0.83	1.00	0.325	No
855	58.50	3.53	0.89	2.64	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
856	58.56	3.53	0.89	2.64	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
857	58.64	3.54	0.89	2.64	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
858	58.73	3.54	0.90	2.65	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
859	58.78	3.55	0.90	2.65	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
860	58.88	3.55	0.90	2.65	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
861	58.97	3.56	0.90	2.65	0.67	0.367	1.36	0.269	0.83	1.00	0.324	No
862	59.07	3.57	0.91	2.66	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
863	59.13	3.57	0.91	2.66	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
864	59.23	3.58	0.91	2.66	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	59.31	3.58	0.91	2.67	0.66	0.366	1.36	0.269	0.83	1.00	0.323	No
866	59.38	3.59	0.92	2.67	0.66	0.365	1.36	0.269	0.83	1.00	0.323	No
867	59.41	3.59	0.92	2.67	0.66	0.365	1.36	0.269	0.83	1.00	0.323	No
868	59.46	3.59	0.92	2.67	0.66	0.365	1.36	0.269	0.83	1.00	0.323	No
869	59.51	3.59	0.92	2.67	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
870	59.57	3.60	0.92	2.68	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
871	59.66	3.60	0.93	2.68	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
872	59.75	3.61	0.93	2.68	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
873	59.80	3.61	0.93	2.68	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
874	59.85	3.62	0.93	2.69	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
875	59.91	3.62	0.93	2.69	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
876	59.99	3.63	0.94	2.69	0.66	0.364	1.36	0.268	0.83	1.00	0.322	No
877	60.05	3.63	0.94	2.69	0.66	0.364	1.36	0.267	0.83	1.00	0.322	No
878	60.09	3.63	0.94	2.69	0.66	0.364	1.36	0.267	0.83	1.00	0.322	No
879	60.14	3.64	0.94	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
880	60.19	3.64	0.94	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
881	60.22	3.64	0.94	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
882	60.28	3.65	0.94	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
883	60.33	3.65	0.95	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
884	60.38	3.65	0.95	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
885	60.42	3.66	0.95	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
886	60.48	3.66	0.95	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
887	60.57	3.67	0.95	2.71	0.65	0.362	1.36	0.266	0.83	1.00	0.322	No
888	60.66	3.67	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
889	60.68	3.67	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
890	60.69	3.67	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
891	60.74	3.68	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
892	60.79	3.68	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
893	60.84	3.68	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
894	60.89	3.69	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
895	60.98	3.69	0.97	2.73	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
896	61.03	3.69	0.97	2.73	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
897	61.08	3.70	0.97	2.73	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
898	61.18	3.70	0.97	2.73	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
899	61.23	3.71	0.97	2.73	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
900	61.31	3.71	0.98	2.74	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
901	61.42	3.72	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
902	61.47	3.72	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
903	61.51	3.73	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
904	61.54	3.73	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
905	61.57	3.73	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
906	61.58	3.73	0.99	2.75	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
907	61.61	3.73	0.99	2.75	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
908	61.63	3.73	0.99	2.75	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
909	61.63	3.73	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
910	61.66	3.74	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
911	61.67	3.74	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
912	61.70	3.74	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	61.71	3.74	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
914	61.76	3.74	0.99	2.75	0.65	0.359	1.36	0.264	0.83	1.00	0.320	No
915	61.80	3.75	0.99	2.75	0.65	0.359	1.36	0.264	0.83	1.00	0.320	No
916	61.84	3.75	0.99	2.75	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
917	61.86	3.75	0.99	2.75	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
918	61.93	3.75	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
919	61.98	3.76	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
920	62.04	3.76	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
921	62.09	3.76	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.319	No
922	62.14	3.77	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.319	No
923	62.19	3.77	1.00	2.77	0.64	0.358	1.36	0.264	0.83	1.00	0.319	No
924	62.24	3.77	1.01	2.77	0.64	0.358	1.36	0.263	0.83	1.00	0.319	No
925	62.26	3.77	1.01	2.77	0.64	0.358	1.36	0.263	0.83	1.00	0.319	No
926	62.29	3.78	1.01	2.77	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
927	62.38	3.78	1.01	2.77	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
928	62.44	3.79	1.01	2.77	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
929	62.46	3.79	1.01	2.78	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
930	62.47	3.79	1.01	2.78	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
931	62.51	3.79	1.01	2.78	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
932	62.56	3.79	1.02	2.78	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
933	62.60	3.80	1.02	2.78	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
934	62.65	3.80	1.02	2.78	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
935	62.70	3.80	1.02	2.78	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
936	62.75	3.81	1.02	2.79	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
937	62.80	3.81	1.02	2.79	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
938	62.85	3.81	1.02	2.79	0.64	0.357	1.36	0.262	0.82	1.00	0.318	No
939	62.89	3.82	1.03	2.79	0.64	0.357	1.36	0.262	0.82	1.00	0.318	No
940	62.97	3.82	1.03	2.79	0.64	0.357	1.36	0.262	0.82	1.00	0.318	No
941	63.04	3.83	1.03	2.80	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
942	63.09	3.83	1.03	2.80	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
943	63.13	3.83	1.03	2.80	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
944	63.19	3.84	1.04	2.80	0.63	0.356	1.36	0.262	0.82	1.00	0.318	No
945	63.23	3.84	1.04	2.80	0.63	0.356	1.36	0.262	0.82	1.00	0.318	No
946	63.28	3.84	1.04	2.81	0.63	0.356	1.36	0.262	0.82	1.00	0.318	No
947	63.32	3.85	1.04	2.81	0.63	0.356	1.36	0.261	0.82	1.00	0.318	No
948	63.38	3.85	1.04	2.81	0.63	0.356	1.36	0.261	0.82	1.00	0.318	No
949	63.44	3.85	1.04	2.81	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
950	63.52	3.86	1.05	2.81	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
951	63.57	3.86	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
952	63.66	3.87	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
953	63.73	3.87	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
954	63.76	3.88	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
955	63.76	3.88	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
956	63.78	3.88	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
957	63.81	3.88	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
958	63.85	3.88	1.06	2.83	0.63	0.354	1.36	0.261	0.82	1.00	0.317	No
959	63.86	3.88	1.06	2.83	0.63	0.354	1.36	0.261	0.82	1.00	0.317	No
960	63.91	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	63.94	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
962	63.95	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
963	64.00	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
964	64.02	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
965	64.05	3.90	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
966	64.09	3.90	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
967	64.11	3.90	1.06	2.84	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
968	64.15	3.90	1.07	2.84	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
969	64.20	3.91	1.07	2.84	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
970	64.25	3.91	1.07	2.84	0.63	0.353	1.36	0.260	0.82	1.00	0.317	No
971	64.29	3.91	1.07	2.84	0.63	0.353	1.36	0.260	0.82	1.00	0.317	No
972	64.34	3.92	1.07	2.84	0.63	0.353	1.36	0.260	0.82	1.00	0.317	No
973	64.43	3.92	1.07	2.85	0.63	0.353	1.36	0.260	0.82	1.00	0.316	No
974	64.48	3.92	1.08	2.85	0.63	0.353	1.36	0.259	0.82	1.00	0.316	No
975	64.53	3.93	1.08	2.85	0.63	0.353	1.36	0.259	0.82	1.00	0.316	No
976	64.58	3.93	1.08	2.85	0.62	0.353	1.36	0.259	0.82	1.00	0.316	No
977	64.63	3.93	1.08	2.85	0.62	0.353	1.36	0.259	0.82	1.00	0.316	No
978	64.68	3.94	1.08	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
979	64.73	3.94	1.08	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
980	64.77	3.94	1.08	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
981	64.82	3.95	1.09	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
982	64.87	3.95	1.09	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
983	64.89	3.95	1.09	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
984	64.93	3.95	1.09	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
985	64.94	3.96	1.09	2.87	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
986	64.98	3.96	1.09	2.87	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
987	64.99	3.96	1.09	2.87	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
988	65.03	3.96	1.09	2.87	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
989	65.08	3.96	1.09	2.87	0.62	0.352	1.36	0.258	0.82	1.00	0.316	No
990	65.13	3.97	1.10	2.87	0.62	0.351	1.36	0.258	0.82	1.00	0.316	No
991	65.17	3.97	1.10	2.87	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
992	65.22	3.97	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
993	65.23	3.98	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
994	65.28	3.98	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
995	65.32	3.98	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
996	65.37	3.98	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
997	65.42	3.99	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
998	65.47	3.99	1.11	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
999	65.48	3.99	1.11	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
1000	65.49	3.99	1.11	2.89	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
1001	65.52	3.99	1.11	2.89	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
1002	65.57	4.00	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1003	65.62	4.00	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1004	65.67	4.00	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1005	65.69	4.00	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1006	65.72	4.01	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1007	65.77	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No
1008	65.82	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	65.86	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No
1010	65.86	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No
1011	65.91	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No
1012	65.96	4.02	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.01	-0.03	N/A	-11.45	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
2	0.04	-0.03	N/A	-18.30	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
3	0.08	-0.07	N/A	-13.93	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
4	0.10	-0.03	N/A	-40.02	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
5	0.13	-0.03	N/A	-55.83	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
6	0.18	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
7	0.22	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
8	0.27	0.81	4.01	9.28	1.00	1.28	50.14	63.98	4.000	No	Yes	2.00
9	0.33	2.77	3.31	3.21	1.00	4.42	15.47	68.30	4.000	No	Yes	2.00
10	0.36	5.16	2.95	1.83	1.00	8.26	7.99	66.07	4.000	Yes	Yes	2.00
11	0.37	7.12	2.76	1.34	0.84	11.41	5.40	61.61	4.000	Yes	Yes	2.00
12	0.38	8.20	2.69	1.21	0.81	13.14	4.58	60.15	4.000	Yes	Yes	2.00
13	0.42	9.38	2.63	1.15	0.80	15.03	3.98	59.88	4.000	Yes	Yes	2.00
14	0.44	10.59	2.58	1.15	0.78	16.98	3.58	60.79	4.000	Yes	No	2.00
15	0.47	12.18	2.52	1.09	0.76	19.53	3.09	60.26	4.000	Yes	No	2.00
16	0.47	14.24	2.44	1.01	0.74	22.83	2.61	59.51	4.000	Yes	No	2.00
17	0.52	17.00	2.35	0.91	0.71	27.27	2.14	58.39	4.000	Yes	No	2.00
18	0.56	20.48	2.26	0.82	0.69	32.85	1.78	58.60	4.000	Yes	No	2.00
19	0.58	24.93	2.16	0.72	0.66	40.00	1.52	60.77	4.000	Yes	No	2.00
20	0.61	30.70	2.05	0.62	0.62	49.27	1.35	66.61	4.000	Yes	No	2.00
21	0.66	36.94	1.95	0.54	0.59	59.30	1.27	75.22	4.000	Yes	No	2.00
22	0.76	40.79	1.89	0.50	0.58	65.47	1.23	80.72	4.000	Yes	No	2.00
23	0.80	38.66	1.93	0.54	0.59	62.05	1.25	77.85	4.000	No	No	2.00
24	0.81	35.49	1.98	0.58	0.60	56.95	1.29	73.41	4.000	No	No	2.00
25	0.85	32.42	2.03	0.63	0.62	52.02	1.33	69.37	4.000	No	No	2.00
26	0.86	32.79	2.03	0.63	0.62	52.62	1.33	69.99	4.000	No	No	2.00
27	0.90	32.22	2.05	0.69	0.62	51.69	1.35	70.01	4.000	No	No	2.00
28	0.95	31.82	2.07	0.73	0.63	51.04	1.38	70.34	4.000	No	No	2.00
29	1.00	30.53	2.06	0.67	0.63	48.97	1.37	67.09	4.000	No	No	2.00
30	1.05	28.88	2.04	0.54	0.62	46.31	1.34	62.22	4.000	No	No	2.00
31	1.14	26.55	2.01	0.38	0.61	42.56	1.00	42.56	4.000	No	No	2.00
32	1.24	24.29	2.04	0.37	0.62	38.92	1.00	38.92	4.000	No	No	2.00
33	1.31	20.51	2.14	0.44	0.65	32.85	1.00	32.85	4.000	No	No	2.00
34	1.36	17.93	2.22	0.53	0.67	28.70	1.67	48.03	4.000	No	No	2.00
35	1.37	17.77	2.23	0.55	0.68	28.44	1.71	48.50	4.000	No	No	2.00
36	1.39	18.54	2.21	0.53	0.67	29.68	1.64	48.64	4.000	No	No	2.00
37	1.43	19.03	2.19	0.52	0.67	30.46	1.60	48.73	4.000	No	No	2.00
38	1.44	18.05	2.23	0.54	0.68	28.88	1.68	48.54	4.000	No	No	2.00
39	1.49	18.35	2.22	0.55	0.67	29.36	1.67	49.05	4.000	No	No	2.00
40	1.53	18.89	2.22	0.58	0.67	30.23	1.66	50.30	4.000	No	No	2.00
41	1.58	19.67	2.22	0.62	0.67	31.47	1.66	52.29	4.000	No	No	2.00
42	1.63	20.62	2.22	0.68	0.67	32.99	1.66	54.77	4.000	No	No	2.00
43	1.68	21.70	2.21	0.74	0.67	34.72	1.65	57.36	4.000	No	No	2.00
44	1.72	23.31	2.20	0.77	0.67	37.31	1.61	60.04	4.000	No	No	2.00
45	1.77	25.48	2.17	0.79	0.66	40.78	1.54	62.93	4.000	No	No	2.00
46	1.82	28.31	2.13	0.78	0.65	45.33	1.46	66.36	4.000	No	No	2.00
47	1.86	31.52	2.08	0.77	0.63	50.48	1.40	70.45	4.000	No	No	2.00
48	1.92	35.09	2.03	0.73	0.62	56.22	1.34	75.14	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	1.97	38.67	1.98	0.69	0.60	61.96	1.29	80.21	4.000	No	No	2.00
50	2.01	41.61	1.95	0.68	0.59	66.68	1.27	84.88	4.000	No	No	2.00
51	2.09	43.22	1.94	0.68	0.59	69.27	1.26	87.55	4.000	No	No	2.00
52	2.16	43.05	1.95	0.70	0.59	68.99	1.27	87.53	4.000	No	No	2.00
53	2.20	41.47	1.96	0.71	0.60	66.43	1.28	85.02	4.000	No	No	2.00
54	2.25	39.85	1.98	0.71	0.60	63.83	1.29	82.39	4.000	No	No	2.00
55	2.31	38.60	1.99	0.69	0.60	61.82	1.30	80.09	4.000	No	No	2.00
56	2.37	37.79	1.98	0.66	0.60	60.52	1.29	78.32	4.000	No	No	2.00
57	2.40	36.88	1.99	0.64	0.60	59.05	1.30	76.51	4.000	No	No	2.00
58	2.46	35.97	1.98	0.61	0.60	57.57	1.29	74.55	4.000	No	No	2.00
59	2.54	35.36	1.97	0.57	0.60	56.59	1.29	72.87	4.000	No	No	2.00
60	2.59	34.69	1.96	0.50	0.59	55.51	1.00	55.51	4.000	No	No	2.00
61	2.69	34.25	1.94	0.45	0.59	54.80	1.00	54.80	4.000	No	No	2.00
62	2.74	33.95	1.92	0.40	0.58	54.31	1.00	54.31	4.000	No	No	2.00
63	2.83	33.88	1.92	0.39	0.58	54.19	1.00	54.19	4.000	No	No	2.00
64	2.88	34.35	1.91	0.38	0.58	54.94	1.00	54.94	4.000	No	No	2.00
65	2.98	35.70	1.89	0.37	0.57	57.10	1.00	57.10	4.000	No	No	2.00
66	3.03	38.57	1.85	0.36	0.56	61.71	1.00	61.71	4.000	No	No	2.00
67	3.12	42.31	1.82	0.38	0.55	67.72	1.00	67.72	4.000	No	No	2.00
68	3.21	46.83	1.79	0.40	0.55	74.97	1.00	74.97	4.000	No	No	2.00
69	3.27	51.66	1.76	0.41	0.54	82.72	1.00	82.72	4.000	No	No	2.00
70	3.34	57.05	1.72	0.40	0.52	91.38	1.00	91.38	4.000	No	No	2.00
71	3.41	61.91	1.69	0.40	0.51	99.18	1.00	99.18	4.000	No	No	2.00
72	3.51	64.20	1.68	0.41	0.51	102.85	1.00	102.85	4.000	No	No	2.00
73	3.55	63.63	1.70	0.44	0.52	101.93	1.00	101.93	4.000	No	No	2.00
74	3.65	62.42	1.72	0.46	0.52	99.97	1.00	99.97	4.000	No	No	2.00
75	3.75	61.71	1.73	0.47	0.53	98.83	1.00	98.83	4.000	No	No	2.00
76	3.83	61.44	1.73	0.47	0.53	98.39	1.00	98.39	4.000	No	No	2.00
77	3.94	61.11	1.73	0.47	0.53	97.84	1.00	97.84	4.000	No	No	2.00
78	4.04	60.30	1.73	0.47	0.53	96.53	1.00	96.53	4.000	No	No	2.00
79	4.13	60.63	1.75	0.50	0.53	97.06	1.08	104.72	4.000	No	No	2.00
80	4.24	61.68	1.74	0.50	0.53	98.73	1.00	98.73	4.000	No	No	2.00
81	4.38	65.15	1.68	0.42	0.51	104.30	1.00	104.30	4.000	No	No	2.00
82	4.50	68.93	1.62	0.35	0.50	110.36	1.00	110.36	4.000	No	No	2.00
83	4.62	74.13	1.57	0.32	0.50	118.70	1.00	118.70	4.000	No	No	2.00
84	4.71	77.89	1.57	0.35	0.50	124.73	1.00	124.73	4.000	No	No	2.00
85	4.75	80.93	1.57	0.37	0.50	129.61	1.00	129.61	4.000	No	No	2.00
86	4.84	82.11	1.58	0.39	0.50	131.50	1.00	131.50	4.000	No	No	2.00
87	4.89	82.93	1.58	0.40	0.50	132.82	1.00	132.82	4.000	No	No	2.00
88	4.94	82.93	1.58	0.40	0.50	132.82	1.00	132.82	4.000	No	No	2.00
89	4.98	81.72	1.59	0.41	0.50	130.87	1.00	130.87	4.000	No	No	2.00
90	5.07	80.10	1.60	0.41	0.50	128.25	1.00	128.25	4.000	No	No	2.00
91	5.13	78.48	1.61	0.42	0.50	125.65	1.00	125.65	4.000	No	No	2.00
92	5.17	76.79	1.61	0.41	0.50	122.93	1.00	122.93	4.000	No	No	2.00
93	5.27	74.77	1.62	0.41	0.50	119.67	1.00	119.67	4.000	No	No	2.00
94	5.32	72.75	1.63	0.40	0.50	116.42	1.00	116.42	4.000	No	No	2.00
95	5.42	70.86	1.64	0.40	0.50	113.37	1.00	113.37	4.000	No	No	2.00
96	5.46	69.34	1.64	0.39	0.50	110.93	1.00	110.93	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	5.56	68.02	1.65	0.39	0.50	108.80	1.00	108.80	4.000	No	No	2.00
98	5.61	66.87	1.66	0.39	0.50	106.96	1.00	106.96	4.000	No	No	2.00
99	5.71	65.86	1.66	0.40	0.51	105.32	1.00	105.32	4.000	No	No	2.00
100	5.78	64.92	1.67	0.40	0.51	103.80	1.00	103.80	4.000	No	No	2.00
101	5.85	63.84	1.68	0.41	0.51	102.06	1.00	102.06	4.000	No	No	2.00
102	5.95	62.83	1.69	0.42	0.52	100.42	1.00	100.42	4.000	No	No	2.00
103	6.00	62.32	1.71	0.44	0.52	99.61	1.00	99.61	4.000	No	No	2.00
104	6.09	62.93	1.66	0.36	0.51	100.57	1.00	100.57	4.000	No	No	2.00
105	6.14	64.75	1.60	0.29	0.50	103.50	1.00	103.50	4.000	No	No	2.00
106	6.24	67.52	1.53	0.21	0.50	107.94	1.00	107.94	4.000	No	No	2.00
107	6.30	70.42	1.54	0.24	0.50	112.60	1.00	112.60	4.000	No	No	2.00
108	6.38	71.40	1.56	0.28	0.50	114.16	1.00	114.16	4.000	No	No	2.00
109	6.46	69.58	1.60	0.32	0.50	111.22	1.00	111.22	4.000	No	No	2.00
110	6.50	68.43	1.62	0.35	0.50	109.38	1.00	109.38	4.000	No	No	2.00
111	6.56	68.84	1.63	0.36	0.50	110.02	1.00	110.02	4.000	No	No	2.00
112	6.63	71.30	1.61	0.36	0.50	113.98	1.00	113.98	4.000	No	No	2.00
113	6.68	72.51	1.61	0.37	0.50	115.92	1.00	115.92	4.000	No	No	2.00
114	6.76	73.49	1.61	0.37	0.50	117.34	1.00	117.34	4.000	No	No	2.00
115	6.82	74.54	1.60	0.37	0.50	118.51	1.00	118.51	4.000	No	No	2.00
116	6.88	76.19	1.59	0.36	0.50	120.59	1.00	120.59	4.000	No	No	2.00
117	6.96	78.38	1.58	0.35	0.50	123.33	1.00	123.33	4.000	No	No	2.00
118	7.03	80.54	1.56	0.34	0.50	126.09	1.00	126.09	4.000	No	No	2.00
119	7.11	82.06	1.55	0.34	0.50	127.75	1.00	127.75	4.000	No	No	2.00
120	7.16	83.04	1.55	0.34	0.50	128.83	1.00	128.83	4.000	No	No	2.00
121	7.26	83.82	1.55	0.34	0.50	129.11	1.00	129.11	4.000	No	No	2.00
122	7.31	84.43	1.56	0.35	0.50	129.55	1.00	129.55	4.000	No	No	2.00
123	7.40	84.63	1.56	0.35	0.50	129.06	1.00	129.06	4.000	No	No	2.00
124	7.45	84.52	1.56	0.35	0.50	128.43	1.00	128.43	4.000	No	No	2.00
125	7.54	83.95	1.57	0.35	0.50	126.75	1.00	126.75	4.000	No	No	2.00
126	7.60	82.84	1.58	0.36	0.50	124.58	1.00	124.58	4.000	No	No	2.00
127	7.68	81.22	1.59	0.36	0.50	121.42	1.00	121.42	4.000	No	No	2.00
128	7.74	79.70	1.60	0.36	0.50	118.70	1.00	118.70	4.000	No	No	2.00
129	7.83	78.55	1.61	0.37	0.50	116.27	1.00	116.27	4.000	No	No	2.00
130	7.90	78.35	1.61	0.37	0.50	115.47	1.00	115.47	4.000	No	No	2.00
131	7.98	79.10	1.62	0.38	0.50	115.95	1.00	115.95	4.000	No	No	2.00
132	8.05	80.62	1.62	0.39	0.50	117.66	1.00	117.66	4.000	No	No	2.00
133	8.12	81.69	1.62	0.40	0.50	118.66	1.00	118.66	4.000	No	No	2.00
134	8.19	81.66	1.62	0.41	0.50	118.08	1.00	118.08	4.000	No	No	2.00
135	8.27	80.48	1.64	0.42	0.50	115.81	1.00	115.81	4.000	No	No	2.00
136	8.36	79.13	1.65	0.42	0.50	113.39	1.00	113.39	4.000	No	No	2.00
137	8.41	78.35	1.61	0.34	0.50	111.75	1.00	111.75	4.000	No	No	2.00
138	8.50	78.42	1.57	0.27	0.50	111.21	1.00	111.21	4.000	No	No	2.00
139	8.60	78.79	1.54	0.23	0.50	111.10	1.00	111.10	4.000	No	No	2.00
140	8.70	78.76	1.56	0.26	0.50	110.43	1.00	110.43	4.000	No	No	2.00
141	8.74	70.97	1.64	0.31	0.50	99.16	1.00	99.16	4.000	No	No	2.00
142	8.78	65.57	1.68	0.35	0.51	92.36	1.00	92.36	4.000	No	No	2.00
143	8.81	63.58	1.71	0.37	0.52	89.84	1.00	89.84	4.000	No	No	2.00
144	8.86	69.75	1.66	0.34	0.51	97.38	1.00	97.38	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	8.91	73.77	1.64	0.34	0.50	102.14	1.00	102.14	4.000	No	No	2.00
146	8.94	74.34	1.64	0.35	0.50	102.81	1.00	102.81	4.000	No	No	2.00
147	9.02	73.80	1.66	0.36	0.51	101.95	1.00	101.95	4.000	No	No	2.00
148	9.10	72.52	1.68	0.39	0.51	100.12	1.00	100.12	4.000	No	No	2.00
149	9.17	71.17	1.69	0.40	0.52	98.18	1.00	98.18	4.000	No	No	2.00
150	9.22	69.95	1.70	0.41	0.52	96.47	1.00	96.47	4.000	No	No	2.00
151	9.31	69.01	1.71	0.42	0.52	94.84	1.00	94.84	4.000	No	No	2.00
152	9.37	68.50	1.72	0.42	0.52	93.92	1.00	93.92	4.000	No	No	2.00
153	9.42	68.60	1.72	0.42	0.52	93.81	1.00	93.81	4.000	No	No	2.00
154	9.52	69.18	1.72	0.41	0.52	94.01	1.00	94.01	4.000	No	No	2.00
155	9.60	70.19	1.71	0.41	0.52	94.84	1.00	94.84	4.000	No	No	2.00
156	9.66	71.54	1.70	0.41	0.52	96.20	1.00	96.20	4.000	No	No	2.00
157	9.74	73.13	1.69	0.40	0.52	97.75	1.00	97.75	4.000	No	No	2.00
158	9.81	74.58	1.69	0.40	0.51	99.20	1.00	99.20	4.000	No	No	2.00
159	9.89	75.79	1.68	0.40	0.51	100.34	1.00	100.34	4.000	No	No	2.00
160	9.98	77.04	1.68	0.41	0.51	101.50	1.00	101.50	4.000	No	No	2.00
161	10.03	78.79	1.68	0.42	0.51	103.47	1.00	103.47	4.000	No	No	2.00
162	10.13	81.26	1.67	0.42	0.51	106.04	1.00	106.04	4.000	No	No	2.00
163	10.23	84.06	1.66	0.42	0.51	108.97	1.00	108.97	4.000	No	No	2.00
164	10.32	86.45	1.65	0.42	0.50	111.33	1.00	111.33	4.000	No	No	2.00
165	10.38	88.11	1.65	0.42	0.50	112.97	1.00	112.97	4.000	No	No	2.00
166	10.47	88.68	1.65	0.41	0.50	113.17	1.00	113.17	4.000	No	No	2.00
167	10.57	88.44	1.65	0.41	0.50	112.36	1.00	112.36	4.000	No	No	2.00
168	10.66	87.94	1.61	0.34	0.50	111.05	1.00	111.05	4.000	No	No	2.00
169	10.76	87.67	1.57	0.27	0.50	110.18	1.00	110.18	4.000	No	No	2.00
170	10.85	88.00	1.53	0.22	0.50	110.11	1.00	110.11	4.000	No	No	2.00
171	10.92	88.54	1.55	0.24	0.50	110.44	1.00	110.44	4.000	No	No	2.00
172	11.00	85.17	1.58	0.27	0.50	105.80	1.00	105.80	4.000	No	No	2.00
173	11.07	82.17	1.61	0.29	0.50	101.74	1.00	101.74	4.000	No	No	2.00
174	11.10	80.21	1.63	0.30	0.50	99.18	1.00	99.18	4.000	No	No	2.00
175	11.15	82.81	1.62	0.30	0.50	102.16	1.00	102.16	4.000	No	No	2.00
176	11.19	85.41	1.61	0.31	0.50	105.18	1.00	105.18	4.000	No	No	2.00
177	11.24	87.43	1.61	0.32	0.50	107.45	1.00	107.45	4.000	No	No	2.00
178	11.29	89.66	1.61	0.33	0.50	109.95	1.00	109.95	4.000	No	No	2.00
179	11.34	92.29	1.60	0.34	0.50	112.96	1.00	112.96	4.000	No	No	2.00
180	11.40	94.89	1.60	0.35	0.50	115.81	1.00	115.81	4.000	No	No	2.00
181	11.47	96.81	1.60	0.36	0.50	117.83	1.00	117.83	4.000	No	No	2.00
182	11.53	97.72	1.60	0.37	0.50	118.60	1.00	118.60	4.000	No	No	2.00
183	11.58	98.23	1.60	0.37	0.50	118.97	1.00	118.97	4.000	No	No	2.00
184	11.65	98.70	1.61	0.38	0.50	119.16	1.00	119.16	4.000	No	No	2.00
185	11.72	99.17	1.61	0.38	0.50	119.34	1.00	119.34	4.000	No	No	2.00
186	11.77	99.00	1.61	0.39	0.50	118.88	1.00	118.88	4.000	No	No	2.00
187	11.82	98.36	1.62	0.39	0.50	117.83	1.00	117.83	4.000	No	No	2.00
188	11.88	97.25	1.64	0.42	0.50	116.19	1.00	116.19	4.000	No	No	2.00
189	11.97	96.10	1.65	0.43	0.50	114.49	1.00	114.49	4.000	No	No	2.00
190	12.02	94.75	1.65	0.43	0.50	112.75	1.00	112.75	4.000	No	No	2.00
191	12.06	93.54	1.65	0.40	0.50	110.95	1.00	110.95	4.000	No	No	2.00
192	12.11	93.03	1.65	0.40	0.50	110.11	1.00	110.11	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	12.21	92.63	1.65	0.39	0.50	109.15	1.00	109.15	4.000	No	No	2.00
194	12.25	92.93	1.64	0.38	0.50	109.21	1.00	109.21	4.000	No	No	2.00
195	12.30	93.00	1.64	0.38	0.50	109.05	1.00	109.05	4.000	No	No	2.00
196	12.31	93.44	1.63	0.37	0.50	109.51	1.00	109.51	4.000	No	No	2.00
197	12.32	93.64	1.63	0.37	0.50	109.72	1.00	109.72	4.000	No	No	2.00
198	12.35	94.21	1.62	0.36	0.50	110.25	1.00	110.25	4.000	No	No	2.00
199	12.40	95.26	1.61	0.35	0.50	111.26	1.00	111.26	4.000	No	No	2.00
200	12.45	96.78	1.60	0.33	0.50	112.82	1.00	112.82	4.000	No	No	2.00
201	12.52	98.43	1.60	0.33	0.50	114.40	1.00	114.40	4.000	No	No	2.00
202	12.56	100.32	1.59	0.34	0.50	116.43	1.00	116.43	4.000	No	No	2.00
203	12.62	102.04	1.59	0.35	0.50	118.16	1.00	118.16	4.000	No	No	2.00
204	12.65	103.69	1.56	0.31	0.50	119.90	1.00	119.90	4.000	No	No	2.00
205	12.71	105.14	1.53	0.26	0.50	121.32	1.00	121.32	4.000	No	No	2.00
206	12.76	107.34	1.48	0.22	0.50	123.61	1.00	123.61	4.000	No	No	2.00
207	12.83	110.34	1.48	0.23	0.50	126.74	1.00	126.74	4.000	No	No	2.00
208	12.88	114.29	1.50	0.26	0.50	131.03	1.00	131.03	4.000	No	No	2.00
209	12.93	118.94	1.50	0.30	0.50	136.14	1.00	136.14	4.000	No	No	2.00
210	12.98	121.44	1.52	0.33	0.50	138.73	1.00	138.73	4.000	No	No	2.00
211	13.03	123.77	1.52	0.33	0.50	141.10	1.00	141.10	4.000	No	No	2.00
212	13.04	120.16	1.54	0.36	0.50	136.93	1.00	136.93	4.000	No	No	2.00
213	13.07	122.72	1.54	0.38	0.50	139.66	1.00	139.66	4.000	No	No	2.00
214	13.13	125.66	1.55	0.40	0.50	142.70	1.00	142.70	4.000	No	No	2.00
215	13.17	134.36	1.53	0.40	0.50	152.37	1.00	152.37	4.000	No	No	2.00
216	13.22	137.87	1.53	0.42	0.50	156.08	1.00	156.08	4.000	No	No	2.00
217	13.27	140.13	1.54	0.44	0.50	158.31	1.00	158.31	4.000	No	No	2.00
218	13.32	141.11	1.54	0.46	0.50	159.12	1.00	159.12	4.000	No	No	2.00
219	13.37	141.28	1.55	0.47	0.50	159.00	1.00	159.00	4.000	No	No	2.00
220	13.41	140.67	1.55	0.47	0.50	158.02	1.00	158.02	4.000	No	No	2.00
221	13.46	139.05	1.56	0.48	0.50	155.85	1.00	155.85	4.000	No	No	2.00
222	13.51	137.63	1.57	0.48	0.50	153.98	1.00	153.98	4.000	No	No	2.00
223	13.56	135.98	1.58	0.49	0.50	151.81	1.00	151.81	4.000	No	No	2.00
224	13.60	134.29	1.59	0.51	0.50	149.65	1.00	149.65	4.000	No	No	2.00
225	13.66	132.81	1.60	0.52	0.50	147.65	1.00	147.65	4.000	No	No	2.00
226	13.75	131.80	1.60	0.51	0.50	145.98	1.00	145.98	4.000	No	No	2.00
227	13.80	131.19	1.60	0.51	0.50	145.02	1.00	145.02	4.000	No	No	2.00
228	13.89	130.75	1.61	0.51	0.50	144.01	1.00	144.01	4.000	No	No	2.00
229	13.94	129.81	1.61	0.52	0.50	142.69	1.00	142.69	4.000	No	No	2.00
230	13.99	128.19	1.63	0.54	0.50	140.62	1.00	140.62	4.000	No	No	2.00
231	14.09	125.39	1.65	0.57	0.50	137.21	1.00	137.21	4.000	No	No	2.00
232	14.14	122.28	1.68	0.61	0.51	133.79	1.00	133.79	4.000	No	No	2.00
233	14.23	119.38	1.70	0.64	0.52	130.35	1.00	130.35	4.000	No	No	2.00
234	14.28	117.19	1.68	0.58	0.51	127.54	1.00	127.54	4.000	No	No	2.00
235	14.38	116.43	1.66	0.51	0.50	125.95	1.00	125.95	4.000	No	No	2.00
236	14.42	115.35	1.63	0.45	0.50	124.40	1.00	124.40	4.000	No	No	2.00
237	14.52	115.79	1.63	0.45	0.50	124.40	1.00	124.40	4.000	No	No	2.00
238	14.57	116.75	1.64	0.47	0.50	125.23	1.00	125.23	4.000	No	No	2.00
239	14.67	117.53	1.64	0.48	0.50	125.60	1.00	125.60	4.000	No	No	2.00
240	14.68	117.83	1.64	0.49	0.50	125.93	1.00	125.93	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	14.70	116.41	1.65	0.50	0.50	124.39	1.00	124.39	4.000	No	No	2.00
242	14.75	116.58	1.66	0.50	0.50	124.38	1.00	124.38	4.000	No	No	2.00
243	14.80	116.18	1.66	0.51	0.51	123.80	1.00	123.80	4.000	No	No	2.00
244	14.89	116.21	1.67	0.52	0.51	123.45	1.00	123.45	4.000	No	No	2.00
245	14.94	114.76	1.68	0.53	0.51	121.75	1.00	121.75	4.000	No	No	2.00
246	15.04	111.83	1.69	0.54	0.52	118.29	1.00	118.29	4.000	No	No	2.00
247	15.13	107.24	1.71	0.55	0.52	113.18	1.01	114.51	4.000	No	No	2.00
248	15.21	101.74	1.74	0.56	0.53	107.19	1.06	113.68	4.000	No	No	2.00
249	15.28	95.87	1.76	0.57	0.54	100.87	1.10	111.36	4.000	No	No	2.00
250	15.38	90.00	1.79	0.58	0.54	94.46	1.14	107.63	4.000	No	No	2.00
251	15.47	83.86	1.82	0.58	0.55	87.79	1.17	102.77	4.000	No	No	2.00
252	15.57	77.55	1.85	0.59	0.56	80.97	1.20	97.12	4.000	No	No	2.00
253	15.67	70.76	1.89	0.60	0.57	73.71	1.23	90.52	4.000	No	No	2.00
254	15.77	63.91	1.93	0.61	0.59	66.40	1.26	83.47	4.000	No	No	2.00
255	15.86	57.27	1.98	0.63	0.60	59.33	1.29	76.63	4.000	No	No	2.00
256	15.96	51.73	2.03	0.67	0.62	53.45	1.34	71.45	4.000	No	No	2.00
257	16.05	47.31	2.09	0.73	0.63	48.75	1.40	68.25	4.000	No	No	2.00
258	16.15	43.60	2.15	0.86	0.65	44.83	1.51	67.79	4.000	No	No	2.00
259	16.25	41.11	2.20	0.97	0.67	42.13	1.63	68.47	4.000	No	No	2.00
260	16.31	39.86	2.23	1.04	0.68	40.76	1.71	69.57	4.000	No	No	2.00
261	16.39	39.72	2.23	1.02	0.68	40.48	1.70	68.78	4.000	No	No	2.00
262	16.48	40.50	2.21	0.96	0.67	41.08	1.65	67.59	4.000	No	No	2.00
263	16.59	43.06	2.17	0.86	0.66	43.47	1.53	66.70	4.000	No	No	2.00
264	16.68	47.95	2.09	0.73	0.64	48.20	1.40	67.68	4.000	No	No	2.00
265	16.76	53.89	2.01	0.61	0.61	53.96	1.31	70.90	4.000	No	No	2.00
266	16.86	58.72	1.95	0.54	0.59	58.53	1.27	74.31	4.000	No	No	2.00
267	16.92	61.25	1.92	0.51	0.58	60.90	1.25	76.25	4.000	No	No	2.00
268	17.02	61.65	1.92	0.50	0.58	61.10	1.25	76.36	4.000	No	No	2.00
269	17.11	61.14	1.94	0.53	0.59	60.41	1.26	76.12	4.000	No	No	2.00
270	17.22	60.40	1.96	0.58	0.60	59.48	1.28	75.94	4.000	Yes	No	2.00
271	17.35	58.51	2.04	0.78	0.62	57.44	1.34	77.19	4.000	Yes	No	2.00
272	17.45	53.15	2.18	1.20	0.66	52.07	1.57	81.76	4.000	Yes	No	2.00
273	17.55	43.40	2.38	1.91	0.72	42.36	2.26	95.58	4.000	Yes	No	2.00
274	17.61	33.92	2.57	2.79	0.78	32.93	3.48	114.42	4.000	Yes	No	2.00
275	17.64	27.41	2.70	3.46	0.82	26.45	4.70	124.38	4.000	Yes	Yes	2.00
276	17.70	24.84	2.75	3.68	0.83	23.84	5.27	125.58	4.000	Yes	Yes	2.00
277	17.75	23.12	2.79	3.84	0.84	22.09	5.71	126.01	4.000	Yes	Yes	2.00
278	17.80	22.04	2.82	4.00	0.85	20.96	6.07	127.17	4.000	Yes	Yes	2.00
279	17.85	21.57	2.85	4.36	0.86	20.45	6.49	132.79	4.000	Yes	Yes	2.00
280	17.94	24.37	2.80	4.19	0.85	23.10	5.83	134.72	4.000	No	Yes	2.00
281	17.99	29.74	2.70	3.80	0.82	28.29	4.75	134.51	4.000	No	Yes	2.00
282	18.09	36.42	2.60	3.34	0.79	34.65	3.76	130.35	4.000	No	Yes	2.00
283	18.15	38.34	2.58	3.31	0.78	36.42	3.61	131.44	4.000	No	No	2.00
284	18.23	36.08	2.63	3.58	0.80	34.09	3.99	135.89	4.000	No	Yes	2.00
285	18.33	27.03	2.80	4.68	0.85	25.22	5.88	148.20	4.000	No	Yes	2.00
286	18.43	18.43	3.01	6.17	1.00	16.85	8.99	151.54	4.000	No	Yes	2.00
287	18.52	11.28	3.27	8.30	1.00	9.87	14.46	142.66	4.000	No	Yes	2.00
288	18.59	9.25	3.30	7.06	1.00	7.88	15.23	120.07	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	18.72	8.44	3.27	5.49	1.00	7.05	14.48	102.14	4.000	No	Yes	2.00
290	18.81	7.87	3.26	4.64	1.00	6.47	14.17	91.69	4.000	No	Yes	2.00
291	18.87	7.73	3.27	4.61	1.00	6.32	14.34	90.62	4.000	No	Yes	2.00
292	18.95	7.94	3.28	5.10	1.00	6.48	14.76	95.67	4.000	No	Yes	2.00
293	19.05	8.95	3.24	5.23	1.00	7.39	13.77	101.75	4.000	No	Yes	2.00
294	19.14	11.32	3.12	4.53	1.00	9.56	10.96	104.74	4.000	No	Yes	2.00
295	19.22	15.43	2.92	3.38	0.89	13.37	7.56	101.14	4.000	Yes	Yes	2.00
296	19.29	23.29	2.67	2.31	0.81	20.64	4.44	91.70	4.000	Yes	Yes	2.00
297	19.38	36.79	2.41	1.58	0.73	33.12	2.43	80.52	4.000	Yes	No	2.00
298	19.44	54.77	2.21	1.24	0.67	49.78	1.63	81.04	4.000	Yes	No	2.00
299	19.53	73.63	2.06	1.07	0.63	67.13	1.37	92.11	4.000	Yes	No	2.00
300	19.62	89.35	1.99	1.02	0.60	81.50	1.30	105.61	4.000	Yes	No	2.00
301	19.69	100.62	1.95	1.03	0.59	91.73	1.27	116.28	4.000	Yes	No	2.00
302	19.79	106.79	1.94	1.07	0.59	97.11	1.26	122.62	4.000	No	No	2.00
303	19.86	108.17	1.96	1.16	0.60	98.11	1.28	125.15	4.000	No	No	2.00
304	19.97	105.91	1.99	1.25	0.60	95.65	1.30	124.06	4.000	No	No	2.00
305	20.07	101.09	2.02	1.32	0.61	90.89	1.33	120.48	4.000	No	No	2.00
306	20.16	94.14	2.06	1.40	0.63	84.23	1.37	115.28	4.000	No	No	2.00
307	20.26	84.49	2.07	1.27	0.63	75.23	1.38	103.79	4.000	Yes	No	2.00
308	20.34	72.68	2.10	1.18	0.64	64.34	1.43	91.71	4.000	Yes	No	2.00
309	20.43	59.83	2.16	1.11	0.66	52.55	1.52	80.02	4.000	Yes	No	2.00
310	20.50	47.95	2.33	1.55	0.71	41.63	2.03	84.51	4.000	Yes	No	2.00
311	20.60	37.70	2.50	2.17	0.76	32.23	3.01	96.91	4.000	Yes	No	2.00
312	20.62	30.48	2.66	2.88	0.81	25.73	4.28	110.02	4.000	Yes	Yes	2.00
313	20.63	28.08	2.72	3.22	0.82	23.58	4.89	115.31	4.000	Yes	Yes	2.00
314	20.68	27.74	2.74	3.38	0.83	23.22	5.10	118.43	4.000	Yes	Yes	2.00
315	20.73	27.64	2.76	3.60	0.83	23.06	5.32	122.67	4.000	Yes	Yes	2.00
316	20.82	25.48	2.82	4.04	0.85	21.06	6.08	128.12	4.000	Yes	Yes	2.00
317	20.87	23.45	2.87	4.37	0.87	19.23	6.78	130.45	4.000	Yes	Yes	2.00
318	20.91	21.57	2.91	4.48	0.88	17.54	7.32	128.42	4.000	Yes	Yes	2.00
319	20.96	19.58	2.95	4.54	1.00	15.59	7.98	124.40	4.000	Yes	Yes	2.00
320	21.05	17.59	3.00	4.73	1.00	13.84	8.82	122.12	4.000	No	Yes	2.00
321	21.11	16.98	3.02	4.74	1.00	13.29	9.07	120.49	4.000	No	Yes	2.00
322	21.17	17.11	3.01	4.72	1.00	13.36	9.02	120.44	4.000	No	Yes	2.00
323	21.25	21.23	2.88	3.84	0.87	17.01	6.86	116.62	4.000	Yes	Yes	2.00
324	21.30	31.25	2.64	2.71	0.80	25.68	4.13	106.03	4.000	Yes	Yes	2.00
325	21.37	48.56	2.39	1.90	0.72	40.77	2.31	94.37	4.000	Yes	No	2.00
326	21.45	68.84	2.20	1.51	0.67	58.49	1.62	94.86	4.000	Yes	No	2.00
327	21.49	87.80	2.09	1.36	0.64	75.10	1.41	105.59	4.000	Yes	No	2.00
328	21.58	103.45	2.02	1.30	0.62	88.68	1.33	117.80	4.000	Yes	No	2.00
329	21.64	115.70	1.98	1.28	0.60	99.28	1.29	128.46	4.000	Yes	No	2.00
330	21.69	124.50	1.96	1.29	0.60	106.86	1.28	136.49	4.000	Yes	No	2.00
331	21.78	130.41	1.95	1.31	0.59	111.69	1.27	142.03	4.000	No	No	2.00
332	21.83	133.78	1.96	1.36	0.59	114.42	1.27	145.79	4.000	No	No	2.00
333	21.89	135.43	1.97	1.42	0.60	115.57	1.28	148.03	4.000	No	No	2.00
334	21.98	136.01	1.98	1.49	0.60	115.67	1.29	149.32	4.000	No	No	2.00
335	22.03	135.90	1.99	1.55	0.61	115.31	1.30	150.06	4.000	No	No	2.00
336	22.12	134.89	2.01	1.60	0.61	114.06	1.31	149.60	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	22.22	133.20	2.02	1.63	0.61	112.20	1.32	148.31	4.000	No	No	2.00
338	22.26	130.88	2.03	1.65	0.62	110.01	1.33	146.45	4.000	No	No	2.00
339	22.36	128.38	2.04	1.67	0.62	107.52	1.34	144.21	4.000	No	No	2.00
340	22.41	125.79	2.05	1.70	0.62	105.07	1.36	142.38	4.000	No	No	2.00
341	22.51	123.53	2.04	1.63	0.62	102.88	1.35	138.65	4.000	No	No	2.00
342	22.60	121.33	2.03	1.54	0.62	100.82	1.34	134.71	4.000	No	No	2.00
343	22.70	119.34	2.01	1.41	0.61	98.95	1.32	130.43	4.000	No	No	2.00
344	22.75	116.88	2.02	1.40	0.61	96.72	1.32	127.90	4.000	No	No	2.00
345	22.84	109.32	2.05	1.47	0.62	89.92	1.36	122.31	4.000	No	No	2.00
346	22.89	107.14	2.06	1.48	0.63	87.93	1.37	120.57	4.000	No	No	2.00
347	22.90	104.88	2.07	1.49	0.63	85.98	1.38	118.82	4.000	No	No	2.00
348	22.94	110.11	2.04	1.39	0.62	90.42	1.34	121.26	4.000	No	No	2.00
349	23.00	112.36	2.02	1.34	0.61	92.21	1.32	122.07	4.000	No	No	2.00
350	23.08	118.94	1.98	1.24	0.60	97.70	1.29	126.15	4.000	No	No	2.00
351	23.13	127.04	1.94	1.16	0.59	104.57	1.26	131.91	4.000	No	No	2.00
352	23.20	134.05	1.90	1.10	0.58	110.43	1.24	136.83	4.000	No	No	2.00
353	23.27	137.05	1.89	1.07	0.57	112.81	1.23	138.66	4.000	No	No	2.00
354	23.33	135.57	1.89	1.05	0.57	111.40	1.23	136.90	4.000	No	No	2.00
355	23.42	131.55	1.89	1.03	0.58	107.76	1.23	132.83	4.000	No	No	2.00
356	23.48	126.94	1.90	1.01	0.58	103.73	1.24	128.30	4.000	No	No	2.00
357	23.57	123.16	1.91	1.00	0.58	100.30	1.24	124.68	4.000	No	No	2.00
358	23.61	121.20	1.92	1.01	0.58	98.52	1.25	122.97	4.000	No	No	2.00
359	23.66	121.50	1.92	1.02	0.58	98.62	1.25	123.25	4.000	No	No	2.00
360	23.73	124.04	1.92	1.03	0.58	100.52	1.25	125.44	4.000	No	No	2.00
361	23.80	127.95	1.91	1.04	0.58	103.59	1.24	128.73	4.000	No	No	2.00
362	23.85	131.96	1.90	1.05	0.58	106.79	1.24	132.25	4.000	No	No	2.00
363	23.94	134.80	1.90	1.06	0.58	108.87	1.24	134.50	4.000	No	No	2.00
364	24.00	135.88	1.90	1.07	0.58	109.59	1.24	135.41	4.000	No	No	2.00
365	24.09	135.37	1.90	1.07	0.58	108.86	1.24	134.81	4.000	No	No	2.00
366	24.16	133.34	1.91	1.09	0.58	106.93	1.24	133.09	4.000	No	No	2.00
367	24.24	130.04	1.89	0.97	0.57	104.25	1.23	128.02	4.000	No	No	2.00
368	24.33	125.79	1.86	0.85	0.57	100.75	1.21	122.05	4.000	No	No	2.00
369	24.43	121.10	1.84	0.74	0.56	96.90	1.19	115.53	4.000	No	No	2.00
370	24.52	114.28	1.88	0.80	0.57	90.85	1.23	111.31	4.000	No	No	2.00
371	24.58	108.90	1.92	0.85	0.58	86.13	1.25	107.54	4.000	No	No	2.00
372	24.59	104.52	1.95	0.89	0.59	82.40	1.27	104.41	4.000	No	No	2.00
373	24.63	104.21	1.95	0.90	0.59	82.05	1.27	104.24	4.000	No	No	2.00
374	24.68	103.45	1.96	0.94	0.60	81.24	1.28	103.96	4.000	No	No	2.00
375	24.77	102.47	1.98	0.98	0.60	80.14	1.29	103.52	4.000	No	No	2.00
376	24.82	100.31	2.01	1.05	0.61	78.15	1.31	102.59	4.000	No	No	2.00
377	24.92	97.85	2.03	1.11	0.62	75.83	1.34	101.32	4.000	No	No	2.00
378	25.01	95.22	2.06	1.17	0.63	73.42	1.36	100.09	4.000	No	No	2.00
379	25.06	92.38	2.08	1.22	0.63	70.94	1.39	98.75	4.000	No	No	2.00
380	25.16	89.48	2.10	1.27	0.64	68.36	1.42	97.29	4.000	No	No	2.00
381	25.25	86.51	2.13	1.31	0.65	65.75	1.46	95.92	4.000	No	No	2.00
382	25.30	83.55	2.15	1.35	0.65	63.24	1.50	94.77	4.000	No	No	2.00
383	25.41	80.44	2.17	1.40	0.66	60.52	1.55	93.81	4.000	Yes	No	2.00
384	25.49	77.27	2.20	1.47	0.67	57.80	1.61	93.24	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	25.55	73.97	2.23	1.55	0.68	55.02	1.70	93.42	4.000	Yes	No	2.00
386	25.64	70.59	2.27	1.65	0.69	52.13	1.81	94.24	4.000	Yes	No	2.00
387	25.70	67.02	2.31	1.78	0.70	49.15	1.95	95.94	4.000	Yes	No	2.00
388	25.79	63.24	2.35	1.91	0.71	46.00	2.13	97.75	4.000	Yes	No	2.00
389	25.89	58.92	2.40	2.05	0.73	42.45	2.35	99.94	4.000	Yes	No	2.00
390	25.94	54.26	2.45	2.20	0.74	38.75	2.63	101.97	4.000	Yes	No	2.00
391	26.02	49.37	2.50	2.32	0.76	34.89	2.95	102.81	4.000	Yes	No	2.00
392	26.12	45.05	2.54	2.37	0.77	31.51	3.23	101.92	4.000	Yes	No	2.00
393	26.17	40.83	2.57	2.37	0.78	28.31	3.52	99.58	4.000	Yes	No	2.00
394	26.28	37.02	2.61	2.37	0.79	25.37	3.84	97.30	4.000	Yes	Yes	2.00
395	26.36	33.31	2.65	2.33	0.80	22.57	4.17	94.10	4.000	Yes	Yes	2.00
396	26.45	29.43	2.70	2.37	0.82	19.65	4.69	92.22	4.000	Yes	Yes	2.00
397	26.50	24.94	2.78	2.55	0.84	16.31	5.63	91.86	4.000	Yes	Yes	2.00
398	26.61	20.15	2.91	3.01	0.88	12.75	7.37	93.95	4.000	Yes	Yes	2.00
399	26.70	15.97	3.07	3.75	1.00	9.43	10.10	95.23	4.000	No	Yes	2.00
400	26.77	12.97	3.21	4.62	1.00	7.45	12.95	96.46	4.000	No	Yes	2.00
401	26.85	11.85	3.26	4.83	1.00	6.70	14.12	94.58	4.000	No	Yes	2.00
402	26.94	11.45	3.27	4.67	1.00	6.41	14.29	91.60	4.000	No	Yes	2.00
403	27.04	11.95	3.22	4.13	1.00	6.71	13.15	88.25	4.000	No	Yes	2.00
404	27.14	12.22	3.20	3.92	1.00	6.86	12.68	86.95	4.000	No	Yes	2.00
405	27.23	12.90	3.15	3.53	1.00	7.27	11.66	84.75	4.000	No	Yes	2.00
406	27.28	13.22	3.13	3.30	1.00	7.46	11.13	83.02	4.000	No	Yes	2.00
407	27.29	13.29	3.09	2.84	1.00	7.50	10.38	77.81	4.000	No	Yes	2.00
408	27.38	13.29	3.07	2.57	1.00	7.47	9.96	74.44	4.000	No	Yes	2.00
409	27.48	13.27	3.06	2.51	1.00	7.43	9.89	73.48	4.000	No	Yes	2.00
410	27.57	13.27	3.10	2.97	1.00	7.41	10.67	79.00	4.000	No	Yes	2.00
411	27.64	13.30	3.13	3.39	1.00	7.41	11.31	83.76	4.000	No	Yes	2.00
412	27.65	13.44	3.17	3.99	1.00	7.49	12.08	90.43	4.000	No	Yes	2.00
413	27.74	14.52	3.16	4.27	1.00	8.14	11.82	96.17	4.000	No	Yes	2.00
414	27.80	16.91	3.10	4.34	1.00	9.63	10.69	102.90	4.000	No	Yes	2.00
415	27.90	19.17	3.05	4.16	1.00	11.00	9.59	105.58	4.000	No	Yes	2.00
416	27.99	19.34	3.05	4.25	1.00	11.07	9.67	106.99	4.000	No	Yes	2.00
417	28.07	17.12	3.11	4.55	1.00	9.65	10.91	105.31	4.000	No	Yes	2.00
418	28.16	14.45	3.20	4.79	1.00	7.96	12.63	100.58	4.000	No	Yes	2.00
419	28.25	12.53	3.25	4.68	1.00	6.75	13.86	93.48	4.000	No	Yes	2.00
420	28.34	11.52	3.26	4.24	1.00	6.10	14.13	86.20	4.000	No	Yes	2.00
421	28.44	11.01	3.26	3.94	1.00	5.76	14.19	81.77	4.000	No	Yes	2.00
422	28.53	10.84	3.26	3.87	1.00	5.64	14.27	80.51	4.000	No	Yes	2.00
423	28.62	11.75	3.26	4.25	1.00	6.17	14.04	86.70	4.000	No	Yes	2.00
424	28.76	14.21	3.19	4.46	1.00	7.64	12.54	95.81	4.000	No	Yes	2.00
425	28.86	17.65	3.12	4.75	1.00	9.69	11.11	107.72	4.000	No	Yes	2.00
426	28.96	20.32	3.09	5.14	1.00	11.26	10.51	118.36	4.000	No	Yes	2.00
427	29.08	21.30	3.12	6.06	1.00	11.80	11.10	130.98	4.000	No	Yes	2.00
428	29.19	22.07	3.15	6.87	1.00	12.21	11.60	141.58	4.000	No	Yes	2.00
429	29.29	27.50	2.99	5.17	1.00	15.40	8.64	133.06	4.000	No	Yes	2.00
430	29.39	40.70	2.74	3.77	0.83	25.08	5.15	129.21	4.000	No	Yes	2.00
431	29.50	57.67	2.55	3.03	0.77	36.81	3.37	124.06	4.000	No	No	2.00
432	29.63	66.88	2.53	3.30	0.77	42.86	3.19	136.79	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	29.65	70.22	2.52	3.39	0.76	45.09	3.13	141.18	4.000	Yes	No	2.00
434	29.66	71.00	2.52	3.38	0.76	45.61	3.10	141.50	4.000	Yes	No	2.00
435	29.72	73.53	2.50	3.27	0.76	47.34	2.95	139.57	4.000	Yes	No	2.00
436	29.80	77.81	2.46	3.07	0.75	50.31	2.70	135.94	4.000	Yes	No	2.00
437	29.85	89.49	2.36	2.59	0.72	58.79	2.17	127.49	4.000	Yes	No	2.00
438	29.94	111.58	2.20	2.00	0.67	75.08	1.62	121.89	4.000	Yes	No	2.00
439	30.00	135.50	2.06	1.57	0.63	93.20	1.37	127.60	4.000	Yes	No	2.00
440	30.05	152.98	1.96	1.28	0.60	106.83	1.28	136.43	4.000	Yes	No	2.00
441	30.14	162.60	1.89	1.09	0.58	114.57	1.23	140.95	4.000	Yes	No	2.00
442	30.19	167.56	1.84	0.97	0.56	118.78	1.20	142.08	4.000	Yes	No	2.00
443	30.24	169.61	1.83	0.93	0.56	120.45	1.18	142.19	4.000	Yes	No	2.00
444	30.29	169.68	1.83	0.93	0.56	120.31	1.18	142.38	0.348	No	No	1.14
445	30.38	167.72	1.84	0.95	0.56	118.51	1.19	141.39	0.343	No	No	1.12
446	30.43	164.79	1.85	0.98	0.56	116.05	1.20	139.76	0.334	No	No	1.09
447	30.48	161.62	1.87	0.99	0.57	113.47	1.21	137.67	0.323	No	No	1.05
448	30.54	159.16	1.87	1.00	0.57	111.46	1.22	135.86	0.313	No	No	1.02
449	30.62	158.35	1.87	0.99	0.57	110.69	1.22	134.98	0.309	No	No	1.00
450	30.67	157.77	1.87	0.99	0.57	110.16	1.22	134.34	0.305	No	No	0.99
451	30.72	158.55	1.87	0.98	0.57	110.67	1.22	134.61	0.307	No	No	0.99
452	30.76	159.46	1.86	0.96	0.57	111.32	1.21	134.89	0.308	No	No	1.00
453	30.86	162.06	1.85	0.94	0.56	113.16	1.20	135.92	0.314	No	No	1.01
454	30.91	165.09	1.84	0.91	0.56	115.46	1.19	137.26	0.321	No	No	1.03
455	30.95	168.94	1.82	0.88	0.55	118.37	1.17	138.94	0.329	No	No	1.06
456	31.03	173.83	1.80	0.85	0.55	122.03	1.15	140.71	0.339	No	No	1.09
457	31.10	179.36	1.78	0.83	0.54	126.19	1.13	142.33	0.348	No	No	1.12
458	31.15	185.03	1.76	0.81	0.54	130.44	1.10	144.07	0.358	No	No	1.15
459	31.20	189.66	1.75	0.81	0.53	133.76	1.09	146.05	0.370	No	No	1.19
460	31.26	192.52	1.75	0.82	0.53	135.69	1.09	147.81	0.380	No	No	1.22
461	31.34	186.22	1.78	0.86	0.54	130.42	1.13	147.23	0.377	No	No	1.21
462	31.37	184.63	1.79	0.87	0.54	129.08	1.14	146.99	0.375	No	No	1.20
463	31.38	181.39	1.80	0.89	0.55	126.56	1.15	145.70	0.368	No	No	1.18
464	31.43	184.63	1.78	0.86	0.54	129.02	1.13	146.17	0.370	No	No	1.19
465	31.47	179.33	1.80	0.87	0.55	124.92	1.15	143.44	0.354	No	No	1.13
466	31.55	171.64	1.82	0.88	0.55	118.91	1.17	139.35	0.332	No	No	1.06
467	31.59	160.34	1.86	0.93	0.57	110.19	1.21	132.93	0.298	No	No	0.95
468	31.66	147.76	1.91	1.00	0.58	100.47	1.24	124.83	0.261	No	No	0.83
469	31.73	135.75	1.97	1.09	0.60	91.20	1.28	116.80	0.228	No	No	0.73
470	31.78	125.08	2.02	1.21	0.62	83.04	1.33	110.36	0.205	No	No	0.65
471	31.84	115.64	2.09	1.36	0.63	75.76	1.40	106.34	0.192	No	No	0.61
472	31.93	107.23	2.16	1.55	0.65	69.27	1.51	104.84	0.187	No	No	0.60
473	31.98	100.42	2.22	1.75	0.67	64.06	1.66	106.04	0.191	No	No	0.61
474	32.02	98.18	2.25	1.90	0.68	62.19	1.75	108.88	0.200	No	No	0.64
475	32.09	97.00	2.27	2.03	0.69	61.07	1.83	111.87	0.210	No	No	0.67
476	32.16	98.89	2.27	2.07	0.69	62.18	1.83	113.86	0.217	No	No	0.69
477	32.22	100.29	2.27	2.07	0.69	63.04	1.82	114.52	0.220	No	No	0.70
478	32.27	103.49	2.25	2.02	0.68	65.22	1.76	114.53	0.220	No	No	0.70
479	32.34	106.02	2.24	1.97	0.68	66.91	1.71	114.38	0.219	No	No	0.69
480	32.42	108.89	2.22	1.91	0.67	68.85	1.66	114.11	0.218	No	No	0.69

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	32.46	113.04	2.19	1.80	0.66	71.82	1.58	113.62	0.216	No	No	0.68
482	32.54	117.73	2.15	1.68	0.65	75.15	1.51	113.25	0.215	No	No	0.68
483	32.60	121.74	2.11	1.51	0.64	78.23	1.43	112.00	0.211	No	No	0.66
484	32.67	124.81	2.07	1.39	0.63	80.60	1.38	111.53	0.209	No	No	0.66
485	32.75	127.51	2.05	1.31	0.62	82.59	1.35	111.85	0.210	No	No	0.66
486	32.81	130.38	2.05	1.32	0.62	84.43	1.35	113.95	0.218	No	No	0.68
487	32.89	133.38	2.04	1.34	0.62	86.29	1.35	116.21	0.226	No	No	0.71
488	32.94	129.47	2.07	1.43	0.63	83.21	1.38	114.84	0.221	No	No	0.69
489	32.95	131.02	2.07	1.44	0.63	84.23	1.38	116.07	0.225	No	No	0.71
490	33.00	132.88	2.07	1.46	0.63	85.36	1.38	117.56	0.231	No	No	0.72
491	33.06	141.08	2.04	1.42	0.62	91.06	1.34	122.40	0.251	No	No	0.79
492	33.11	142.26	2.04	1.45	0.62	91.66	1.35	123.66	0.256	No	No	0.80
493	33.20	141.21	2.06	1.50	0.63	90.60	1.36	123.53	0.255	No	No	0.80
494	33.25	139.02	2.08	1.56	0.63	88.78	1.39	123.06	0.253	No	No	0.79
495	33.34	137.03	2.09	1.61	0.64	87.07	1.41	122.48	0.251	No	No	0.78
496	33.38	136.69	2.10	1.63	0.64	86.68	1.42	122.68	0.252	No	No	0.79
497	33.48	138.41	2.10	1.64	0.64	87.63	1.41	123.78	0.256	No	No	0.80
498	33.58	141.92	2.09	1.64	0.63	89.83	1.40	125.79	0.265	No	No	0.83
499	33.63	146.74	2.07	1.63	0.63	93.05	1.38	128.81	0.279	No	No	0.87
500	33.73	152.41	2.06	1.61	0.63	96.75	1.37	132.15	0.295	No	No	0.92
501	33.82	158.96	2.04	1.60	0.62	101.09	1.35	136.16	0.315	No	No	0.98
502	33.87	165.74	2.03	1.58	0.62	105.66	1.33	140.58	0.338	No	No	1.05
503	33.96	172.72	2.01	1.57	0.61	110.29	1.32	145.13	0.364	No	No	1.13
504	34.02	180.58	2.00	1.57	0.61	115.54	1.30	150.66	0.398	No	No	1.23
505	34.11	190.03	1.98	1.57	0.60	121.77	1.29	157.32	0.442	No	No	1.37
506	34.18	200.49	1.97	1.59	0.60	128.68	1.28	164.99	0.498	No	No	1.54
507	34.26	210.44	1.96	1.63	0.60	135.11	1.28	172.52	0.558	No	No	1.72
508	34.35	219.45	1.96	1.68	0.60	140.77	1.28	179.50	0.618	No	No	1.91
509	34.44	227.51	1.95	1.71	0.59	145.83	1.27	185.53	0.674	No	No	2.00
510	34.49	233.96	1.95	1.72	0.59	150.02	1.27	190.23	0.720	No	No	2.00
511	34.59	237.94	1.94	1.72	0.59	152.42	1.27	192.83	0.747	No	No	2.00
512	34.69	240.00	1.94	1.73	0.59	153.47	1.26	194.12	0.760	No	No	2.00
513	34.76	240.94	1.94	1.72	0.59	153.92	1.26	194.53	0.765	No	No	2.00
514	34.83	240.60	1.94	1.72	0.59	153.43	1.26	194.02	0.759	No	No	2.00
515	34.93	237.97	1.94	1.71	0.59	151.43	1.26	191.54	0.733	No	No	2.00
516	35.02	233.82	1.95	1.70	0.59	148.39	1.27	188.08	0.699	No	No	2.00
517	35.12	229.78	1.94	1.65	0.59	145.60	1.27	184.23	0.662	No	No	2.00
518	35.22	226.47	1.94	1.62	0.59	143.26	1.26	181.13	0.633	No	No	1.94
519	35.30	222.22	1.94	1.59	0.59	140.29	1.26	177.46	0.600	No	No	1.83
520	35.38	208.55	1.98	1.66	0.60	130.48	1.29	168.21	0.523	No	No	1.60
521	35.43	198.10	2.00	1.71	0.61	123.09	1.31	161.35	0.471	No	No	1.44
522	35.46	189.40	2.03	1.76	0.62	116.99	1.33	155.80	0.432	No	No	1.32
523	35.51	187.20	2.03	1.73	0.62	115.53	1.33	153.78	4.000	Yes	No	2.00
524	35.56	176.78	2.05	1.75	0.62	108.45	1.35	146.76	4.000	Yes	No	2.00
525	35.66	163.52	2.08	1.79	0.63	99.31	1.39	138.53	4.000	Yes	No	2.00
526	35.70	148.20	2.13	1.85	0.65	89.01	1.46	130.03	4.000	Yes	No	2.00
527	35.80	131.87	2.19	1.98	0.66	77.90	1.59	123.66	4.000	Yes	No	2.00
528	35.89	111.32	2.28	2.22	0.69	64.17	1.87	119.95	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	35.96	89.09	2.41	2.59	0.73	49.72	2.43	120.81	4.000	Yes	No	2.00
530	36.04	68.24	2.54	2.90	0.77	36.73	3.28	120.37	4.000	Yes	No	2.00
531	36.14	52.15	2.66	3.11	0.81	27.04	4.33	117.01	4.000	Yes	Yes	2.00
532	36.19	43.48	2.73	3.10	0.83	22.01	5.03	110.69	4.000	Yes	Yes	2.00
533	36.28	40.51	2.77	3.18	0.84	20.23	5.44	110.05	4.000	Yes	Yes	2.00
534	36.33	40.51	2.76	3.10	0.84	20.24	5.35	108.32	3.600	No	Yes	2.00
535	36.42	42.30	2.74	3.02	0.83	21.24	5.09	108.08	3.600	No	Yes	2.00
536	36.48	45.97	2.69	2.87	0.81	23.38	4.59	107.27	3.600	No	Yes	2.00
537	36.52	51.03	2.66	2.98	0.81	26.20	4.31	112.95	3.600	No	Yes	2.00
538	36.62	54.10	2.66	3.19	0.81	27.78	4.31	119.67	3.600	No	Yes	2.00
539	36.68	54.07	2.69	3.50	0.81	27.55	4.59	126.59	3.600	No	Yes	2.00
540	36.77	52.82	2.71	3.61	0.82	26.73	4.79	128.11	3.600	No	Yes	2.00
541	36.86	54.64	2.69	3.49	0.81	27.76	4.56	126.60	4.000	Yes	Yes	2.00
542	36.90	67.67	2.53	2.74	0.77	35.75	3.22	115.19	4.000	Yes	No	2.00
543	37.00	98.14	2.29	1.88	0.69	55.13	1.87	103.13	4.000	Yes	No	2.00
544	37.10	140.34	2.04	1.30	0.62	83.45	1.35	112.56	4.000	Yes	No	2.00
545	37.20	182.54	1.86	0.97	0.57	113.15	1.21	136.84	4.000	Yes	No	2.00
546	37.29	213.04	1.75	0.82	0.53	135.23	1.09	147.30	4.000	Yes	No	2.00
547	37.39	232.34	1.70	0.76	0.52	149.01	1.00	149.01	4.000	Yes	No	2.00
548	37.49	241.91	1.70	0.80	0.52	155.00	1.00	155.00	0.426	No	No	1.28
549	37.53	245.57	1.72	0.85	0.52	156.74	1.02	160.20	0.462	No	No	1.39
550	37.58	246.07	1.73	0.90	0.53	156.33	1.06	165.44	0.501	No	No	1.51
551	37.62	247.84	1.75	0.95	0.53	156.88	1.08	169.66	0.534	No	No	1.60
552	37.69	250.56	1.77	1.01	0.54	157.82	1.11	175.10	0.579	No	No	1.74
553	37.77	253.53	1.78	1.07	0.54	158.95	1.13	179.78	0.620	No	No	1.86
554	37.82	254.98	1.80	1.14	0.55	159.10	1.15	183.39	0.654	No	No	1.96
555	37.87	254.84	1.81	1.18	0.55	158.42	1.17	184.85	0.667	No	No	2.00
556	37.91	252.72	1.83	1.23	0.56	156.44	1.18	184.82	0.667	No	No	2.00
557	37.97	248.23	1.85	1.27	0.56	152.87	1.20	183.06	0.650	No	No	1.95
558	38.06	241.92	1.87	1.31	0.57	148.07	1.21	179.59	0.619	No	No	1.85
559	38.10	235.58	1.88	1.34	0.57	143.53	1.22	175.74	0.585	No	No	1.75
560	38.17	230.89	1.89	1.34	0.57	140.30	1.23	172.34	0.556	No	No	1.67
561	38.25	228.09	1.88	1.30	0.57	138.57	1.22	169.66	0.534	No	No	1.60
562	38.35	225.79	1.87	1.25	0.57	137.24	1.22	167.11	0.514	No	No	1.54
563	38.40	223.43	1.87	1.21	0.57	135.86	1.21	164.83	0.496	No	No	1.48
564	38.46	221.65	1.86	1.19	0.57	134.68	1.21	163.21	0.484	No	No	1.45
565	38.54	220.87	1.86	1.18	0.57	134.09	1.21	162.26	0.477	No	No	1.43
566	38.60	220.87	1.86	1.15	0.56	134.14	1.21	161.69	0.473	No	No	1.41
567	38.69	222.22	1.85	1.12	0.56	135.09	1.20	161.77	0.474	No	No	1.41
568	38.74	224.92	1.83	1.09	0.56	137.05	1.19	162.53	0.479	No	No	1.43
569	38.83	227.85	1.82	1.08	0.56	138.91	1.18	163.73	0.488	No	No	1.46
570	38.88	229.20	1.81	1.05	0.55	139.97	1.17	163.54	0.487	No	No	1.45
571	38.97	228.76	1.81	1.03	0.55	139.65	1.16	162.47	0.479	No	No	1.43
572	39.02	227.25	1.80	1.00	0.55	138.83	1.16	160.45	0.464	No	No	1.38
573	39.11	224.44	1.81	0.99	0.55	136.82	1.16	158.54	0.451	No	No	1.34
574	39.16	218.51	1.81	0.99	0.55	132.80	1.17	154.99	0.426	No	No	1.27
575	39.23	205.48	1.85	1.02	0.56	123.73	1.20	148.10	0.382	No	No	1.14
576	39.24	200.81	1.85	1.01	0.56	120.69	1.20	145.08	0.364	No	No	1.08

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	39.28	198.62	1.85	1.00	0.56	119.29	1.20	143.39	0.354	No	No	1.05
578	39.32	201.93	1.83	0.94	0.56	121.86	1.18	144.08	0.358	No	No	1.07
579	39.39	194.55	1.84	0.95	0.56	116.84	1.20	139.67	4.000	Yes	No	2.00
580	39.47	183.96	1.88	0.98	0.57	109.44	1.22	133.48	4.000	Yes	No	2.00
581	39.54	171.48	1.92	1.05	0.58	100.68	1.25	125.99	4.000	Yes	No	2.00
582	39.62	158.42	1.98	1.14	0.60	91.63	1.29	117.99	4.000	Yes	No	2.00
583	39.71	145.73	2.03	1.23	0.62	82.95	1.33	110.70	4.000	Yes	No	2.00
584	39.76	134.50	2.08	1.32	0.63	75.46	1.39	105.08	4.000	Yes	No	2.00
585	39.85	125.32	2.13	1.40	0.65	69.36	1.46	101.34	4.000	Yes	No	2.00
586	39.90	117.87	2.17	1.48	0.66	64.48	1.53	98.95	4.000	Yes	No	2.00
587	40.00	111.05	2.20	1.56	0.67	60.00	1.63	97.53	4.000	Yes	No	2.00
588	40.06	104.71	2.24	1.65	0.68	55.91	1.73	96.96	4.000	Yes	No	2.00
589	40.15	98.67	2.28	1.75	0.69	52.00	1.87	97.18	4.000	Yes	No	2.00
590	40.21	92.83	2.33	1.90	0.71	48.24	2.05	98.86	4.000	Yes	No	2.00
591	40.29	86.59	2.39	2.09	0.72	44.24	2.31	102.19	4.000	Yes	No	2.00
592	40.35	79.68	2.46	2.39	0.75	39.85	2.72	108.27	4.000	Yes	No	2.00
593	40.43	72.22	2.53	2.63	0.77	35.37	3.16	111.81	4.000	Yes	No	2.00
594	40.52	63.85	2.60	2.88	0.79	30.51	3.76	114.58	4.000	Yes	Yes	2.00
595	40.58	55.21	2.68	3.09	0.81	25.70	4.47	115.00	4.000	Yes	Yes	2.00
596	40.67	46.88	2.77	3.45	0.84	21.09	5.54	116.83	4.000	Yes	Yes	2.00
597	40.77	41.63	2.85	3.76	0.86	18.24	6.45	117.65	4.000	Yes	Yes	2.00
598	40.84	39.14	2.89	3.94	0.87	16.87	6.99	117.99	4.000	Yes	Yes	2.00
599	40.89	42.28	2.83	3.65	0.86	18.55	6.27	116.25	4.000	Yes	Yes	2.00
600	40.94	49.75	2.72	3.09	0.82	22.62	4.92	111.31	4.000	Yes	Yes	2.00
601	41.03	61.46	2.57	2.48	0.78	29.20	3.53	103.18	4.000	Yes	No	2.00
602	41.08	73.03	2.45	2.07	0.74	35.94	2.68	96.47	4.000	Yes	No	2.00
603	41.14	82.03	2.37	1.83	0.72	41.30	2.24	92.51	4.000	Yes	No	2.00
604	41.22	87.70	2.33	1.71	0.71	44.68	2.04	90.97	4.000	Yes	No	2.00
605	41.28	90.43	2.31	1.68	0.70	46.24	1.97	91.29	0.151	No	No	0.45
606	41.33	91.99	2.32	1.74	0.70	46.96	1.99	93.52	0.156	No	No	0.46
607	41.42	93.64	2.33	1.85	0.71	47.61	2.04	97.02	0.165	No	No	0.49
608	41.47	97.01	2.33	1.94	0.71	49.31	2.04	100.81	0.175	No	No	0.52
609	41.52	104.03	2.31	1.97	0.70	53.17	1.96	104.48	0.186	No	No	0.55
610	41.62	115.47	2.27	1.93	0.69	59.72	1.81	107.92	0.197	No	No	0.58
611	41.67	130.01	2.22	1.88	0.67	68.21	1.66	112.91	0.214	No	No	0.63
612	41.76	144.45	2.17	1.82	0.66	76.74	1.54	118.23	0.234	No	No	0.69
613	41.82	156.39	2.14	1.79	0.65	83.80	1.48	123.75	0.256	No	No	0.76
614	41.90	165.43	2.11	1.76	0.64	89.14	1.44	128.02	0.275	No	No	0.81
615	41.99	171.57	2.10	1.74	0.64	92.73	1.41	131.05	0.289	No	No	0.85
616	42.05	174.81	2.09	1.73	0.63	94.61	1.40	132.58	0.297	No	No	0.88
617	42.15	175.22	2.09	1.74	0.63	94.64	1.40	132.77	0.298	No	No	0.88
618	42.23	173.33	2.10	1.77	0.64	93.24	1.42	132.06	0.294	No	No	0.87
619	42.30	169.55	2.11	1.80	0.64	90.73	1.44	130.51	0.287	No	No	0.85
620	42.38	163.64	2.13	1.84	0.65	86.97	1.47	127.88	0.274	No	No	0.81
621	42.48	153.79	2.16	1.88	0.66	80.87	1.53	123.60	0.256	No	No	0.75
622	42.57	141.98	2.20	1.94	0.67	73.69	1.62	119.15	0.237	No	No	0.70
623	42.64	129.97	2.24	2.01	0.68	66.53	1.73	115.28	0.222	No	No	0.66
624	42.72	121.20	2.27	2.02	0.69	61.42	1.82	111.72	0.210	No	No	0.62

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	42.82	114.72	2.29	1.99	0.69	57.72	1.88	108.24	0.198	No	No	0.58
626	42.90	110.03	2.30	1.96	0.70	55.08	1.91	105.42	0.189	No	No	0.56
627	42.97	106.05	2.31	1.98	0.70	52.74	1.98	104.32	0.186	No	No	0.55
628	43.06	102.31	2.34	2.04	0.71	50.43	2.08	104.69	0.187	No	No	0.55
629	43.15	98.76	2.35	2.01	0.71	48.44	2.11	102.43	0.180	No	No	0.53
630	43.20	97.75	2.34	1.92	0.71	48.00	2.07	99.54	0.172	No	No	0.51
631	43.30	104.19	2.28	1.70	0.69	51.99	1.84	95.67	0.161	No	No	0.48
632	43.40	119.88	2.19	1.51	0.66	61.38	1.58	97.12	0.165	No	No	0.49
633	43.48	132.43	2.13	1.40	0.65	68.91	1.47	100.97	0.176	No	No	0.52
634	43.51	139.11	2.10	1.37	0.64	72.90	1.43	103.89	0.184	No	No	0.54
635	43.52	146.23	2.08	1.34	0.63	77.22	1.39	107.23	0.195	No	No	0.57
636	43.56	160.13	2.03	1.26	0.62	85.83	1.33	114.20	0.219	No	No	0.64
637	43.61	178.86	1.96	1.17	0.60	97.60	1.28	124.81	0.261	No	No	0.77
638	43.67	193.23	1.92	1.11	0.58	106.74	1.25	133.29	0.300	No	No	0.88
639	43.72	206.01	1.88	1.05	0.57	115.04	1.22	140.56	0.338	No	No	1.00
640	43.80	216.51	1.85	1.00	0.56	121.88	1.20	145.95	0.369	No	No	1.09
641	43.85	224.74	1.82	0.97	0.56	127.26	1.18	149.84	0.393	No	No	1.16
642	43.90	231.25	1.81	0.95	0.55	131.51	1.16	152.56	0.410	No	No	1.21
643	43.94	236.38	1.79	0.94	0.55	134.87	1.14	154.37	0.422	No	No	1.24
644	43.99	239.82	1.78	0.92	0.54	137.13	1.13	155.28	0.428	No	No	1.26
645	44.08	241.54	1.78	0.92	0.54	138.11	1.13	155.65	0.431	No	No	1.27
646	44.14	241.51	1.79	0.94	0.54	137.71	1.14	156.49	0.436	No	No	1.28
647	44.22	240.40	1.80	0.97	0.55	136.41	1.15	157.19	0.441	No	No	1.30
648	44.28	238.31	1.82	1.01	0.55	134.50	1.17	157.37	0.442	No	No	1.30
649	44.33	235.67	1.83	1.05	0.56	132.35	1.18	156.78	0.438	No	No	1.29
650	44.40	232.27	1.85	1.10	0.56	129.52	1.20	155.80	0.432	No	No	1.27
651	44.48	231.30	1.87	1.15	0.57	128.25	1.22	155.90	0.432	No	No	1.27
652	44.52	228.57	1.90	1.24	0.58	125.64	1.24	155.24	0.428	No	No	1.26
653	44.61	230.02	1.89	1.23	0.58	126.41	1.23	155.88	0.432	No	No	1.27
654	44.72	231.52	1.90	1.24	0.58	127.03	1.23	156.70	0.438	No	No	1.29
655	44.77	236.14	1.88	1.21	0.57	130.05	1.22	159.04	0.454	No	No	1.34
656	44.91	237.86	1.89	1.24	0.57	130.46	1.23	160.27	0.463	No	No	1.36
657	44.95	231.69	1.91	1.29	0.58	126.16	1.24	156.88	0.439	No	No	1.29
658	45.02	227.41	1.92	1.32	0.59	123.19	1.25	154.33	0.422	No	No	1.24
659	45.04	198.97	2.01	1.51	0.61	104.88	1.32	138.44	0.327	No	No	0.96
660	45.06	203.49	2.00	1.46	0.61	107.81	1.30	140.63	0.339	No	No	1.00
661	45.11	208.45	1.98	1.41	0.60	111.04	1.29	143.03	0.352	No	No	1.04
662	45.15	239.96	1.87	1.20	0.57	131.64	1.22	160.49	0.464	No	No	1.37
663	45.21	246.91	1.85	1.16	0.56	136.23	1.20	163.81	0.489	No	No	1.44
664	45.25	252.44	1.84	1.13	0.56	139.80	1.19	166.43	0.509	No	No	1.50
665	45.30	256.29	1.83	1.13	0.56	142.11	1.18	168.34	0.524	No	No	1.54
666	45.35	258.04	1.83	1.13	0.56	143.02	1.18	169.35	0.532	No	No	1.57
667	45.41	258.42	1.83	1.14	0.56	143.02	1.19	169.64	0.534	No	No	1.57
668	45.49	257.00	1.84	1.15	0.56	141.89	1.19	168.87	0.528	No	No	1.55
669	45.55	254.13	1.84	1.15	0.56	139.97	1.19	167.24	0.515	No	No	1.52
670	45.63	249.51	1.85	1.16	0.56	136.90	1.20	164.52	0.494	No	No	1.46
671	45.69	243.67	1.86	1.16	0.57	133.19	1.21	161.09	0.469	No	No	1.38
672	45.78	236.62	1.88	1.18	0.57	128.61	1.22	156.88	0.439	No	No	1.29

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	45.84	228.05	1.89	1.18	0.58	123.25	1.23	151.68	0.405	No	No	1.19
674	45.93	217.69	1.91	1.19	0.58	116.85	1.24	145.18	0.365	No	No	1.07
675	46.02	205.11	1.93	1.19	0.59	109.16	1.26	137.24	4.000	Yes	No	2.00
676	46.08	190.40	1.96	1.19	0.60	100.37	1.28	128.00	4.000	Yes	No	2.00
677	46.16	174.41	1.99	1.20	0.61	90.73	1.30	118.20	4.000	Yes	No	2.00
678	46.24	157.13	2.04	1.24	0.62	80.39	1.35	108.31	4.000	Yes	No	2.00
679	46.31	138.07	2.12	1.34	0.64	68.91	1.44	99.54	4.000	Yes	No	2.00
680	46.41	117.36	2.22	1.54	0.67	56.54	1.67	94.32	4.000	Yes	No	2.00
681	46.48	95.77	2.36	1.87	0.72	44.06	2.17	95.41	4.000	Yes	No	2.00
682	46.56	75.72	2.51	2.32	0.76	32.98	3.08	101.49	4.000	Yes	No	2.00
683	46.65	58.08	2.68	2.81	0.81	23.81	4.47	106.39	4.000	Yes	Yes	2.00
684	46.75	45.43	2.81	3.12	0.85	17.64	5.95	104.92	4.000	Yes	Yes	2.00
685	46.84	36.62	2.95	3.29	1.00	12.08	8.01	96.75	4.000	Yes	Yes	2.00
686	46.94	30.75	3.03	3.37	1.00	9.96	9.25	92.20	3.600	No	Yes	2.00
687	47.02	25.79	3.12	3.65	1.00	8.18	10.96	89.65	3.600	No	Yes	2.00
688	47.08	21.37	3.22	4.12	1.00	6.60	13.29	87.68	3.600	No	Yes	2.00
689	47.12	18.76	3.30	4.53	1.00	5.66	15.23	86.24	3.600	No	Yes	2.00
690	47.16	17.85	3.33	4.58	1.00	5.33	15.88	84.67	3.600	No	Yes	2.00
691	47.21	17.81	3.31	4.30	1.00	5.32	15.49	82.35	3.600	No	Yes	2.00
692	47.27	17.46	3.31	4.03	1.00	5.18	15.33	79.44	3.600	No	Yes	2.00
693	47.35	16.42	3.33	3.97	1.00	4.80	15.97	76.72	3.600	No	Yes	2.00
694	47.40	15.74	3.33	3.65	1.00	4.56	15.95	72.71	3.600	No	Yes	2.00
695	47.50	15.37	3.32	3.29	1.00	4.42	15.62	68.97	3.600	No	Yes	2.00
696	47.55	15.16	3.29	2.90	1.00	4.34	15.04	65.28	3.600	No	Yes	2.00
697	47.61	15.00	3.29	2.76	1.00	4.27	14.89	63.67	3.600	No	Yes	2.00
698	47.69	14.73	3.29	2.69	1.00	4.17	15.00	62.57	3.600	No	Yes	2.00
699	47.76	14.39	3.30	2.67	1.00	4.05	15.25	61.71	3.600	No	Yes	2.00
700	47.83	14.02	3.31	2.58	1.00	3.91	15.40	60.22	3.600	No	Yes	2.00
701	47.93	13.85	3.30	2.41	1.00	3.84	15.20	58.40	3.600	No	Yes	2.00
702	48.02	13.82	3.29	2.31	1.00	3.82	15.00	57.34	3.600	No	Yes	2.00
703	48.09	13.88	3.28	2.19	1.00	3.84	14.67	56.35	3.600	No	Yes	2.00
704	48.18	13.85	3.29	2.28	1.00	3.82	14.94	57.05	3.600	No	Yes	2.00
705	48.27	13.88	3.30	2.43	1.00	3.82	15.29	58.44	3.600	No	Yes	2.00
706	48.37	13.98	3.33	2.72	1.00	3.85	15.87	61.09	3.600	No	Yes	2.00
707	48.46	14.12	3.34	2.92	1.00	3.89	16.20	62.98	3.600	No	Yes	2.00
708	48.52	14.18	3.35	3.07	1.00	3.90	16.46	64.25	3.600	No	Yes	2.00
709	48.60	14.25	3.35	3.18	1.00	3.92	16.64	65.23	3.600	No	Yes	2.00
710	48.70	14.38	3.35	3.25	1.00	3.96	16.68	65.99	3.600	No	Yes	2.00
711	48.79	14.65	3.35	3.27	1.00	4.04	16.50	66.70	3.600	No	Yes	2.00
712	48.85	15.06	3.34	3.39	1.00	4.18	16.39	68.42	3.600	No	Yes	2.00
713	48.94	15.74	3.34	3.61	1.00	4.40	16.24	71.44	3.600	No	Yes	2.00
714	49.04	16.68	3.31	3.62	1.00	4.71	15.57	73.34	3.600	No	Yes	2.00
715	49.13	18.30	3.32	4.31	1.00	5.25	15.62	82.09	3.600	No	Yes	2.00
716	49.23	21.13	3.29	4.85	1.00	6.21	14.82	92.00	3.600	No	Yes	2.00
717	49.33	24.04	3.27	5.48	1.00	7.18	14.31	102.80	3.600	No	Yes	2.00
718	49.38	24.88	3.28	6.09	1.00	7.46	14.69	109.60	3.600	No	Yes	2.00
719	49.42	25.93	3.28	6.47	1.00	7.81	14.70	114.80	3.600	No	Yes	2.00
720	49.48	26.70	3.28	6.79	1.00	8.06	14.75	118.93	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	49.53	28.79	3.25	6.60	1.00	8.76	13.86	121.43	3.600	No	Yes	2.00
722	49.58	29.43	3.24	6.72	1.00	8.97	13.78	123.62	3.600	No	Yes	2.00
723	49.63	30.10	3.24	6.80	1.00	9.19	13.66	125.52	3.600	No	Yes	2.00
724	49.72	30.91	3.23	6.72	1.00	9.44	13.37	126.23	3.600	No	Yes	2.00
725	49.77	31.42	3.22	6.60	1.00	9.60	13.13	125.98	3.600	No	Yes	2.00
726	49.83	31.42	3.22	6.55	1.00	9.59	13.08	125.40	3.600	No	Yes	2.00
727	49.92	30.71	3.23	6.62	1.00	9.33	13.37	124.67	3.600	No	Yes	2.00
728	49.97	30.39	3.23	6.56	1.00	9.21	13.41	123.55	3.600	No	Yes	2.00
729	50.04	29.48	3.25	6.66	1.00	8.89	13.80	122.65	3.600	No	Yes	2.00
730	50.11	29.82	3.24	6.56	1.00	8.99	13.61	122.33	3.600	No	Yes	2.00
731	50.20	30.21	3.22	6.30	1.00	9.10	13.25	120.55	3.600	No	Yes	2.00
732	50.27	30.78	3.19	5.73	1.00	9.28	12.51	116.01	3.600	No	Yes	2.00
733	50.34	29.50	3.18	5.11	1.00	8.83	12.20	107.79	3.600	No	Yes	2.00
734	50.45	26.76	3.19	4.68	1.00	7.90	12.55	99.22	3.600	No	Yes	2.00
735	50.54	23.73	3.23	4.48	1.00	6.88	13.43	92.39	3.600	No	Yes	2.00
736	50.59	21.13	3.28	4.47	1.00	6.01	14.59	87.71	3.600	No	Yes	2.00
737	50.68	19.24	3.32	4.43	1.00	5.37	15.59	83.78	3.600	No	Yes	2.00
738	50.79	18.13	3.33	4.26	1.00	4.99	16.06	80.17	3.600	No	Yes	2.00
739	50.88	17.81	3.33	4.10	1.00	4.88	16.03	78.18	3.600	No	Yes	2.00
740	50.98	17.64	3.34	4.11	1.00	4.81	16.19	77.89	3.600	No	Yes	2.00
741	51.07	17.81	3.32	3.85	1.00	4.86	15.67	76.09	3.600	No	Yes	2.00
742	51.17	18.43	3.26	3.21	1.00	5.05	14.19	71.67	3.600	No	Yes	2.00
743	51.24	19.51	3.20	2.74	1.00	5.40	12.74	68.77	3.600	No	Yes	2.00
744	51.33	20.19	3.19	2.81	1.00	5.61	12.56	70.43	3.600	No	Yes	2.00
745	51.46	20.09	3.23	3.28	1.00	5.56	13.45	74.75	3.600	No	Yes	2.00
746	51.46	19.80	3.27	3.71	1.00	5.46	14.31	78.20	3.600	No	Yes	2.00
747	51.51	19.77	3.28	3.88	1.00	5.45	14.62	79.60	3.600	No	Yes	2.00
748	51.56	19.87	3.29	4.15	1.00	5.47	14.98	82.02	3.600	No	Yes	2.00
749	51.65	19.95	3.31	4.41	1.00	5.49	15.35	84.26	3.600	No	Yes	2.00
750	51.71	20.09	3.32	4.71	1.00	5.53	15.72	86.89	3.600	No	Yes	2.00
751	51.79	20.49	3.32	4.86	1.00	5.65	15.73	88.80	3.600	No	Yes	2.00
752	51.85	21.23	3.32	5.11	1.00	5.88	15.68	92.19	3.600	No	Yes	2.00
753	51.94	22.11	3.32	5.42	1.00	6.15	15.66	96.33	3.600	No	Yes	2.00
754	51.99	23.22	3.32	5.95	1.00	6.51	15.77	102.62	3.600	No	Yes	2.00
755	52.09	24.17	3.33	6.60	1.00	6.80	16.12	109.52	3.600	No	Yes	2.00
756	52.19	27.74	3.28	6.62	1.00	7.93	14.73	116.81	3.600	No	Yes	2.00
757	52.28	33.34	3.20	6.19	1.00	9.72	12.62	122.63	3.600	No	Yes	2.00
758	52.35	36.42	3.17	6.29	1.00	10.69	12.02	128.41	3.600	No	Yes	2.00
759	52.43	37.06	3.18	6.64	1.00	10.87	12.22	132.82	3.600	No	Yes	2.00
760	52.52	35.17	3.22	7.33	1.00	10.25	13.30	136.28	3.600	No	Yes	2.00
761	52.62	35.61	3.22	7.23	1.00	10.37	13.11	135.93	3.600	No	Yes	2.00
762	52.72	35.98	3.20	6.96	1.00	10.46	12.80	133.92	3.600	No	Yes	2.00
763	52.81	34.26	3.24	7.47	1.00	9.89	13.70	135.53	3.600	No	Yes	2.00
764	52.91	31.32	3.34	9.52	1.00	8.94	16.37	146.31	3.600	No	Yes	2.00
765	53.00	37.23	3.27	9.04	1.00	10.79	14.34	154.70	3.600	No	Yes	2.00
766	53.10	62.36	2.95	5.53	1.00	18.71	7.92	148.13	4.000	Yes	Yes	2.00
767	53.20	108.21	2.62	3.37	1.00	33.14	3.92	129.79	4.000	Yes	Yes	2.00
768	53.29	163.78	2.38	2.36	1.00	50.57	2.27	114.61	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	53.38	213.88	2.24	1.98	1.00	66.21	1.72	114.09	4.000	Yes	No	2.00
770	53.46	260.07	2.14	1.75	1.00	80.59	1.49	119.81	4.000	Yes	No	2.00
771	53.53	292.05	2.12	1.83	1.00	90.48	1.45	130.93	4.000	Yes	No	2.00
772	53.63	323.19	2.09	1.82	1.00	100.02	1.40	139.93	4.000	Yes	No	2.00
773	53.73	361.79	2.01	1.58	1.00	111.85	1.31	146.92	4.000	Yes	No	2.00
774	53.82	388.35	1.92	1.28	1.00	119.89	1.25	150.03	4.000	Yes	No	2.00
775	53.92	387.71	1.89	1.12	1.00	119.45	1.23	146.54	4.000	Yes	No	2.00
776	53.94	360.18	1.92	1.15	1.00	110.85	1.25	138.23	0.326	No	No	0.98
777	53.96	336.26	1.95	1.19	1.00	103.38	1.27	131.20	0.290	No	No	0.88
778	53.97	349.08	1.92	1.12	1.00	107.34	1.25	134.16	0.305	No	No	0.92
779	54.05	377.59	1.87	1.03	1.00	116.04	1.22	141.00	0.341	No	No	1.03
780	54.08	426.28	1.79	0.91	1.00	131.09	1.15	150.15	0.395	No	No	1.19
781	54.13	473.21	1.74	0.84	1.00	145.55	1.06	154.41	0.422	No	No	1.28
782	54.19	518.79	1.70	0.83	1.00	159.56	1.00	159.56	0.458	No	No	1.38
783	54.25	524.22	1.71	0.86	1.00	161.12	1.01	162.94	0.482	No	No	1.46
784	54.28	510.87	1.74	0.91	1.00	156.95	1.06	166.66	0.510	No	No	1.54
785	54.29	486.82	1.76	0.94	1.00	149.48	1.10	164.40	0.493	No	No	1.49
786	54.34	486.89	1.76	0.94	1.00	149.42	1.10	164.35	0.493	No	No	1.49
787	54.35	492.20	1.75	0.93	1.00	151.05	1.09	164.72	0.496	No	No	1.50
788	54.40	504.89	1.74	0.91	1.00	154.89	1.07	165.62	0.503	No	No	1.52
789	54.44	522.30	1.72	0.90	1.00	160.18	1.04	166.45	0.509	No	No	1.54
790	54.49	535.62	1.71	0.88	1.00	164.19	1.01	165.88	0.505	No	No	1.53
791	54.53	546.25	1.70	0.87	1.00	167.39	1.00	167.39	0.516	No	No	1.56
792	54.57	558.27	1.69	0.87	1.00	171.02	1.00	171.02	0.545	No	No	1.65
793	54.58	567.78	1.70	0.89	1.00	173.92	1.00	173.92	0.569	No	No	1.72
794	54.63	560.90	1.71	0.92	1.00	171.71	1.01	173.90	0.569	No	No	1.72
795	54.68	536.31	1.75	0.99	1.00	164.04	1.08	176.93	0.595	No	No	1.80
796	54.73	510.50	1.78	1.03	1.00	156.00	1.12	175.12	0.579	No	No	1.75
797	54.78	499.67	1.79	1.04	1.00	152.59	1.14	173.29	0.564	No	No	1.71
798	54.83	493.63	1.80	1.06	1.00	150.64	1.15	172.82	0.560	No	No	1.70
799	54.88	497.14	1.80	1.09	1.00	151.64	1.15	175.08	0.579	No	No	1.75
800	54.92	500.68	1.81	1.15	1.00	152.65	1.17	178.37	0.608	No	No	1.84
801	54.97	510.81	1.81	1.14	1.00	155.66	1.16	180.73	0.629	No	No	1.91
802	55.02	513.44	1.81	1.15	1.00	156.38	1.16	181.62	0.637	No	No	1.93
803	55.12	487.90	1.85	1.25	1.00	148.39	1.20	178.01	0.605	No	No	1.83
804	55.17	449.17	1.92	1.45	1.00	136.44	1.25	170.63	0.542	No	No	1.64
805	55.25	410.54	1.98	1.59	1.00	124.51	1.29	160.49	0.464	No	No	1.41
806	55.31	394.21	1.98	1.55	1.00	119.43	1.29	154.46	0.423	No	No	1.28
807	55.36	388.18	1.95	1.35	1.00	117.52	1.27	148.87	0.387	No	No	1.17
808	55.45	381.09	1.91	1.20	1.00	115.23	1.25	143.68	0.356	No	No	1.08
809	55.50	365.91	1.92	1.15	1.00	110.54	1.25	137.89	0.324	No	No	0.98
810	55.60	351.24	1.94	1.19	1.00	105.95	1.26	133.93	0.303	No	No	0.92
811	55.65	332.24	1.96	1.21	1.00	100.11	1.28	128.15	0.276	No	No	0.84
812	55.71	324.14	1.96	1.15	1.00	97.58	1.27	124.39	0.259	No	No	0.79
813	55.75	320.40	1.93	1.03	1.00	96.40	1.26	121.19	0.246	No	No	0.75
814	55.79	325.12	1.91	0.99	1.00	97.79	1.25	121.90	0.248	No	No	0.76
815	55.84	332.47	1.90	0.97	1.00	99.97	1.24	123.76	0.256	No	No	0.78
816	55.89	338.01	1.90	0.97	1.00	101.60	1.23	125.39	0.263	No	No	0.80

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	55.90	341.15	1.89	0.96	1.00	102.54	1.23	126.17	0.267	No	No	0.81
818	55.94	336.26	1.90	0.98	1.00	101.02	1.24	124.98	0.262	No	No	0.80
819	55.99	327.63	1.92	1.01	1.00	98.34	1.25	122.89	0.253	No	No	0.77
820	56.03	317.88	1.94	1.05	1.00	95.34	1.26	120.41	0.242	No	No	0.74
821	56.08	311.67	1.95	1.06	1.00	93.40	1.27	118.54	0.235	No	No	0.72
822	56.14	306.37	1.95	1.05	1.00	91.74	1.27	116.74	0.228	No	No	0.69
823	56.22	299.89	1.96	1.06	1.00	89.70	1.28	114.65	0.220	No	No	0.67
824	56.28	294.29	1.97	1.06	1.00	87.95	1.28	112.90	0.214	No	No	0.65
825	56.33	292.57	1.97	1.06	1.00	87.39	1.29	112.38	0.212	No	No	0.65
826	56.38	294.06	1.97	1.04	1.00	87.79	1.28	112.46	0.212	No	No	0.65
827	56.45	301.34	1.95	1.02	1.00	89.92	1.27	114.23	0.219	No	No	0.67
828	56.52	312.58	1.93	0.98	1.00	93.24	1.25	117.01	0.229	No	No	0.70
829	56.62	325.19	1.90	0.94	1.00	96.94	1.24	120.21	0.242	No	No	0.74
830	56.66	338.42	1.87	0.89	1.00	100.88	1.22	123.02	0.253	No	No	0.77
831	56.73	350.06	1.87	0.90	1.00	104.30	1.21	126.65	0.269	No	No	0.82
832	56.81	357.11	1.87	0.94	1.00	106.33	1.22	129.59	0.282	No	No	0.86
833	56.95	363.42	1.89	1.01	1.00	108.06	1.23	132.64	0.297	No	No	0.91
834	57.00	372.46	1.88	1.03	1.00	110.72	1.23	135.80	0.313	No	No	0.96
835	57.09	373.11	1.89	1.06	1.00	110.80	1.23	136.52	0.317	No	No	0.97
836	57.19	368.58	1.91	1.10	1.00	109.32	1.24	135.85	0.313	No	No	0.96
837	57.27	354.04	1.92	1.11	1.00	104.88	1.25	131.44	0.291	No	No	0.89
838	57.35	357.65	1.89	0.99	1.00	105.87	1.23	130.16	0.285	No	No	0.87
839	57.44	356.17	1.86	0.89	1.00	105.33	1.21	127.36	0.272	No	No	0.83
840	57.50	364.37	1.83	0.81	1.00	107.70	1.18	127.07	0.271	No	No	0.83
841	57.52	378.10	1.83	0.84	1.00	111.77	1.18	131.85	0.293	No	No	0.90
842	57.58	409.37	1.82	0.90	1.00	121.03	1.17	141.73	0.345	No	No	1.06
843	57.63	432.08	1.81	0.95	1.00	127.73	1.17	149.17	0.389	No	No	1.19
844	57.72	439.00	1.81	0.96	1.00	129.66	1.17	151.31	0.402	No	No	1.23
845	57.77	433.73	1.80	0.92	1.00	128.03	1.16	148.26	0.383	No	No	1.18
846	57.82	429.55	1.78	0.84	1.00	126.71	1.13	143.29	0.354	No	No	1.09
847	57.91	436.73	1.74	0.73	1.00	128.72	1.06	137.09	0.320	No	No	0.98
848	57.96	442.84	1.69	0.63	1.00	130.46	1.00	130.46	0.287	No	No	0.88
849	58.02	458.90	1.66	0.57	1.00	135.16	1.00	135.16	0.310	No	No	0.95
850	58.09	469.26	1.65	0.56	1.00	138.12	1.00	138.12	0.325	No	No	1.00
851	58.16	484.88	1.63	0.56	1.00	142.65	1.00	142.65	0.350	No	No	1.08
852	58.25	491.12	1.64	0.58	1.00	144.36	1.00	144.36	0.360	No	No	1.11
853	58.30	487.65	1.66	0.63	1.00	143.26	1.00	143.26	0.353	No	No	1.09
854	58.40	479.62	1.69	0.68	1.00	140.74	1.00	140.74	0.339	No	No	1.04
855	58.50	468.52	1.71	0.72	1.00	137.31	1.02	139.77	0.334	No	No	1.03
856	58.56	467.50	1.71	0.71	1.00	136.92	1.01	138.70	0.328	No	No	1.01
857	58.64	464.81	1.72	0.73	1.00	136.01	1.03	140.28	0.337	No	No	1.04
858	58.73	474.79	1.73	0.77	1.00	138.81	1.05	145.16	0.364	No	No	1.12
859	58.78	488.15	1.72	0.76	1.00	142.67	1.02	145.87	0.369	No	No	1.14
860	58.88	506.71	1.69	0.74	1.00	147.98	1.00	147.98	0.381	No	No	1.18
861	58.97	511.03	1.66	0.67	1.00	149.10	1.00	149.10	0.388	No	No	1.20
862	59.07	506.24	1.66	0.64	1.00	147.53	1.00	147.53	0.379	No	No	1.17
863	59.13	493.59	1.65	0.61	1.00	143.73	1.00	143.73	0.356	No	No	1.10
864	59.23	484.71	1.65	0.59	1.00	140.99	1.00	140.99	0.341	No	No	1.05

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	59.31	464.47	1.65	0.56	1.00	134.94	1.00	134.94	0.308	No	No	0.95
866	59.38	450.35	1.65	0.54	1.00	130.71	1.00	130.71	0.288	No	No	0.89
867	59.41	439.19	1.66	0.53	1.00	127.40	1.00	127.40	0.272	No	No	0.84
868	59.46	443.57	1.65	0.53	1.00	128.62	1.00	128.62	0.278	No	No	0.86
869	59.51	443.56	1.65	0.52	1.00	128.55	1.00	128.55	0.278	No	No	0.86
870	59.57	451.89	1.67	0.58	1.00	130.91	1.00	130.91	0.289	No	No	0.89
871	59.66	471.05	1.67	0.61	1.00	136.37	1.00	136.37	0.316	No	No	0.98
872	59.75	492.31	1.70	0.71	1.00	142.44	1.00	142.44	0.349	No	No	1.08
873	59.80	506.48	1.71	0.77	1.00	146.48	1.01	147.84	0.380	No	No	1.18
874	59.85	508.64	1.74	0.86	1.00	147.04	1.07	156.99	0.440	No	No	1.36
875	59.91	504.22	1.75	0.88	1.00	145.65	1.08	158.02	0.447	No	No	1.39
876	59.99	498.85	1.77	0.91	1.00	143.96	1.11	159.53	0.458	No	No	1.42
877	60.05	480.97	1.81	1.03	1.00	138.68	1.17	161.59	0.472	No	No	1.47
878	60.09	464.78	1.85	1.12	1.00	133.92	1.20	160.52	0.465	No	No	1.44
879	60.14	444.43	1.88	1.17	1.00	127.94	1.22	156.08	0.434	No	No	1.35
880	60.19	437.86	1.87	1.13	1.00	125.96	1.22	153.23	0.415	No	No	1.29
881	60.22	434.25	1.87	1.11	1.00	124.88	1.21	151.55	0.404	No	No	1.25
882	60.28	412.99	1.89	1.13	1.00	118.63	1.23	145.94	0.369	No	No	1.15
883	60.33	381.24	1.93	1.19	1.00	109.36	1.26	137.48	0.322	No	No	1.00
884	60.38	338.97	2.00	1.32	1.00	97.07	1.31	126.83	0.270	No	No	0.84
885	60.42	309.75	2.05	1.40	1.00	88.57	1.35	119.65	0.239	No	No	0.74
886	60.48	282.02	2.07	1.37	1.00	80.50	1.38	111.02	0.207	No	No	0.64
887	60.57	262.48	2.05	1.17	1.00	74.78	1.36	101.50	0.177	No	No	0.55
888	60.66	243.89	2.02	0.93	1.00	69.35	1.32	91.67	0.152	No	No	0.47
889	60.68	232.16	1.99	0.79	1.00	65.95	1.30	85.85	0.139	No	No	0.43
890	60.69	225.51	1.98	0.72	1.00	64.02	1.29	82.84	0.133	No	No	0.41
891	60.74	217.75	1.99	0.69	1.00	61.75	1.30	80.07	0.128	No	No	0.40
892	60.79	206.27	2.00	0.66	1.00	58.41	1.30	76.18	0.121	No	No	0.38
893	60.84	192.16	2.02	0.64	1.00	54.32	1.32	71.82	0.114	No	No	0.36
894	60.89	182.35	2.03	0.62	1.00	51.47	1.33	68.64	0.110	No	No	0.34
895	60.98	174.35	2.05	0.63	1.00	49.12	1.36	66.57	0.107	No	No	0.33
896	61.03	168.07	2.13	0.84	1.00	47.30	1.46	69.19	0.111	No	No	0.35
897	61.08	164.86	2.24	1.28	1.00	46.35	1.72	79.69	0.127	No	No	0.40
898	61.18	164.63	2.31	1.64	1.00	46.24	1.95	90.12	0.148	No	No	0.46
899	61.23	168.20	2.35	1.96	1.00	47.23	2.12	100.04	0.173	No	No	0.54
900	61.31	194.08	2.24	1.58	1.00	54.62	1.72	94.03	0.157	No	No	0.49
901	61.42	236.42	2.09	1.19	1.00	66.70	1.41	94.11	0.158	No	No	0.49
902	61.47	287.17	1.90	0.74	1.00	81.21	1.24	100.64	0.175	No	No	0.55
903	61.51	331.30	1.79	0.58	1.00	93.81	1.14	107.25	0.195	No	No	0.61
904	61.54	366.14	1.73	0.52	1.00	103.76	1.05	108.54	0.199	No	No	0.62
905	61.57	395.83	1.70	0.53	1.00	112.23	1.00	112.23	0.211	No	No	0.66
906	61.58	418.64	1.67	0.50	1.00	118.74	1.00	118.74	0.236	No	No	0.74
907	61.61	393.43	1.70	0.50	1.00	111.49	1.00	111.49	0.209	No	No	0.65
908	61.63	367.65	1.72	0.50	1.00	104.10	1.03	107.07	0.194	No	No	0.61
909	61.63	257.89	1.94	0.73	1.00	72.70	1.26	91.77	0.152	No	No	0.47
910	61.66	191.36	2.14	1.04	1.00	53.66	1.48	79.27	0.126	No	No	0.39
911	61.67	129.55	2.40	1.69	1.00	35.97	2.37	85.35	0.138	No	No	0.43
912	61.70	152.96	2.31	1.50	1.00	42.66	1.96	83.80	0.135	No	No	0.42

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	61.71	180.90	2.22	1.34	1.00	50.64	1.67	84.55	0.136	No	No	0.43
914	61.76	206.41	2.15	1.24	1.00	57.90	1.51	87.45	0.142	No	No	0.44
915	61.80	228.84	2.10	1.15	1.00	64.28	1.42	91.10	0.150	No	No	0.47
916	61.84	250.40	2.03	1.01	1.00	70.41	1.34	94.04	0.157	No	No	0.49
917	61.86	279.75	1.93	0.78	1.00	78.77	1.26	98.87	0.170	No	No	0.53
918	61.93	312.34	1.82	0.60	1.00	88.02	1.18	103.69	0.184	No	No	0.57
919	61.98	357.76	1.73	0.50	1.00	100.92	1.00	100.92	0.176	No	No	0.55
920	62.04	405.56	1.68	0.50	1.00	114.48	1.00	114.48	0.220	No	No	0.69
921	62.09	451.78	1.64	0.49	1.00	127.59	1.00	127.59	0.273	No	No	0.86
922	62.14	481.91	1.62	0.49	1.00	136.10	1.00	136.10	0.314	No	No	0.98
923	62.19	499.12	1.60	0.47	1.00	140.93	1.00	140.93	0.340	No	No	1.07
924	62.24	508.93	1.59	0.47	1.00	143.65	1.00	143.65	0.356	No	No	1.11
925	62.26	519.32	1.58	0.47	1.00	146.58	1.00	146.58	0.373	No	No	1.17
926	62.29	519.05	1.58	0.47	1.00	146.46	1.00	146.46	0.372	No	No	1.17
927	62.38	515.71	1.60	0.51	1.00	145.37	1.00	145.37	0.366	No	No	1.15
928	62.44	490.28	1.65	0.57	1.00	138.07	1.00	138.07	0.325	No	No	1.02
929	62.46	469.07	1.69	0.62	1.00	132.02	1.00	132.02	0.294	No	No	0.92
930	62.47	448.15	1.70	0.62	1.00	126.07	1.00	126.07	0.266	No	No	0.84
931	62.51	453.68	1.69	0.61	1.00	127.59	1.00	127.59	0.273	No	No	0.86
932	62.56	463.98	1.69	0.61	1.00	130.45	1.00	130.45	0.286	No	No	0.90
933	62.60	477.62	1.68	0.62	1.00	134.26	1.00	134.26	0.305	No	No	0.96
934	62.65	481.73	1.68	0.62	1.00	135.35	1.00	135.35	0.311	No	No	0.97
935	62.70	482.34	1.66	0.58	1.00	135.46	1.00	135.46	0.311	No	No	0.98
936	62.75	483.05	1.65	0.56	1.00	135.59	1.00	135.59	0.312	No	No	0.98
937	62.80	494.83	1.64	0.55	1.00	138.85	1.00	138.85	0.329	No	No	1.03
938	62.85	525.29	1.60	0.52	1.00	147.40	1.00	147.40	0.378	No	No	1.19
939	62.89	569.18	1.56	0.50	1.00	159.73	1.00	159.73	0.459	No	No	1.44
940	62.97	619.66	1.54	0.51	1.00	173.86	1.00	173.86	0.569	No	No	1.79
941	63.04	667.84	1.52	0.52	1.00	187.32	1.00	187.32	0.691	No	No	2.00
942	63.09	703.12	1.50	0.52	1.00	197.18	1.00	197.18	0.793	No	No	2.00
943	63.13	715.51	1.51	0.54	1.00	200.57	1.00	200.57	4.000	No	No	2.00
944	63.19	716.52	1.54	0.60	1.00	200.74	1.00	200.74	4.000	No	No	2.00
945	63.23	720.23	1.57	0.67	1.00	201.69	1.00	201.69	4.000	No	No	2.00
946	63.28	726.78	1.59	0.73	1.00	203.42	1.00	203.42	4.000	No	No	2.00
947	63.32	729.18	1.57	0.68	1.00	204.02	1.00	204.02	4.000	No	No	2.00
948	63.38	725.67	1.49	0.51	1.00	202.89	1.00	202.89	4.000	No	No	2.00
949	63.44	726.68	1.43	0.41	1.00	203.06	1.00	203.06	4.000	No	No	2.00
950	63.52	715.48	1.43	0.40	1.00	199.75	1.00	199.75	0.821	No	No	2.00
951	63.57	697.37	1.49	0.49	1.00	194.57	1.00	194.57	0.765	No	No	2.00
952	63.66	659.58	1.52	0.51	1.00	183.79	1.00	183.79	0.657	No	No	2.00
953	63.73	534.95	1.63	0.58	1.00	148.76	1.00	148.76	0.386	No	No	1.22
954	63.76	455.61	1.72	0.67	1.00	126.50	1.03	130.54	0.287	No	No	0.90
955	63.76	411.85	1.77	0.71	1.00	114.24	1.12	127.66	0.274	No	No	0.86
956	63.78	471.87	1.70	0.64	1.00	131.02	1.00	131.02	0.289	No	No	0.91
957	63.81	512.86	1.67	0.65	1.00	142.46	1.00	142.46	0.349	No	No	1.10
958	63.85	526.43	1.68	0.68	1.00	146.19	1.00	146.19	0.371	No	No	1.17
959	63.86	522.58	1.70	0.74	1.00	145.10	1.00	145.10	0.364	No	No	1.15
960	63.91	497.92	1.74	0.81	1.00	138.14	1.07	148.35	0.384	No	No	1.21

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	63.94	483.78	1.77	0.87	1.00	134.14	1.12	150.35	0.396	No	No	1.25
962	63.95	480.34	1.79	0.90	1.00	133.15	1.14	151.38	0.403	No	No	1.27
963	64.00	476.26	1.79	0.91	1.00	131.94	1.14	150.67	0.398	No	No	1.26
964	64.02	473.22	1.79	0.89	1.00	131.08	1.14	149.37	0.390	No	No	1.23
965	64.05	475.78	1.78	0.86	1.00	131.75	1.12	148.02	0.382	No	No	1.20
966	64.09	478.18	1.77	0.83	1.00	132.36	1.11	146.64	0.373	No	No	1.18
967	64.11	480.07	1.75	0.80	1.00	132.86	1.09	144.77	0.362	No	No	1.14
968	64.15	482.26	1.74	0.77	1.00	133.43	1.07	142.44	0.349	No	No	1.10
969	64.20	494.31	1.72	0.74	1.00	136.71	1.03	141.24	0.342	No	No	1.08
970	64.25	512.59	1.70	0.72	1.00	141.74	1.00	141.74	0.345	No	No	1.09
971	64.29	535.70	1.68	0.70	1.00	148.11	1.00	148.11	0.382	No	No	1.21
972	64.34	570.38	1.64	0.65	1.00	157.68	1.00	157.68	0.445	No	No	1.40
973	64.43	605.81	1.60	0.60	1.00	167.40	1.00	167.40	0.516	No	No	1.63
974	64.48	630.95	1.56	0.56	1.00	174.30	1.00	174.30	0.572	No	No	1.81
975	64.53	642.69	1.53	0.51	1.00	177.47	1.00	177.47	0.600	No	No	1.90
976	64.58	655.07	1.52	0.49	1.00	180.82	1.00	180.82	0.630	No	No	1.99
977	64.63	680.65	1.51	0.49	1.00	187.83	1.00	187.83	0.696	No	No	2.00
978	64.68	709.63	1.52	0.55	1.00	195.77	1.00	195.77	0.778	No	No	2.00
979	64.73	718.74	1.53	0.57	1.00	198.20	1.00	198.20	0.804	No	No	2.00
980	64.77	735.60	1.51	0.56	1.00	202.79	1.00	202.79	4.000	No	No	2.00
981	64.82	751.19	1.48	0.51	1.00	207.01	1.00	207.01	4.000	No	No	2.00
982	64.87	732.64	1.49	0.51	1.00	201.76	1.00	201.76	4.000	No	No	2.00
983	64.89	713.98	1.50	0.52	1.00	196.56	1.00	196.56	0.786	No	No	2.00
984	64.93	689.59	1.53	0.54	1.00	189.73	1.00	189.73	0.715	No	No	2.00
985	64.94	715.81	1.51	0.53	1.00	196.96	1.00	196.96	0.791	No	No	2.00
986	64.98	725.69	1.50	0.53	1.00	199.62	1.00	199.62	0.820	No	No	2.00
987	64.99	734.03	1.50	0.52	1.00	201.90	1.00	201.90	4.000	No	No	2.00
988	65.03	732.37	1.50	0.52	1.00	201.35	1.00	201.35	4.000	No	No	2.00
989	65.08	727.04	1.49	0.50	1.00	199.79	1.00	199.79	0.822	No	No	2.00
990	65.13	715.51	1.48	0.47	1.00	196.50	1.00	196.50	0.786	No	No	2.00
991	65.17	703.60	1.46	0.43	1.00	193.13	1.00	193.13	0.750	No	No	2.00
992	65.22	689.29	1.45	0.41	1.00	189.08	1.00	189.08	0.709	No	No	2.00
993	65.23	681.55	1.45	0.40	1.00	186.93	1.00	186.93	0.687	No	No	2.00
994	65.28	679.28	1.46	0.40	1.00	186.22	1.00	186.22	0.681	No	No	2.00
995	65.32	679.65	1.47	0.43	1.00	186.24	1.00	186.24	0.681	No	No	2.00
996	65.37	680.17	1.49	0.45	1.00	186.30	1.00	186.30	0.681	No	No	2.00
997	65.42	684.61	1.50	0.48	1.00	187.42	1.00	187.42	0.692	No	No	2.00
998	65.47	671.65	1.50	0.48	1.00	183.76	1.00	183.76	0.657	No	No	2.00
999	65.48	657.21	1.52	0.49	1.00	179.77	1.00	179.77	0.620	No	No	1.97
1000	65.49	638.86	1.52	0.48	1.00	174.70	1.00	174.70	0.576	No	No	1.83
1001	65.52	636.56	1.52	0.47	1.00	174.01	1.00	174.01	0.570	No	No	1.81
1002	65.57	645.67	1.41	0.30	1.00	176.43	1.00	176.43	0.591	No	No	1.88
1003	65.62	661.16	1.28	0.15	1.00	180.61	1.00	180.61	0.628	No	No	1.99
1004	65.67	682.44	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1005	65.69	697.23	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1006	65.72	719.02	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1007	65.77	752.26	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1008	65.82	790.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	65.86	811.97	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1010	65.86	833.63	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1011	65.91	854.04	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1012	65.96	878.41	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.01	2.00	0.00	0.00	0.03	0.00	0.04	2.00	0.00	0.00	0.03	0.00
0.08	2.00	0.00	0.00	0.04	0.00	0.10	2.00	0.00	0.00	0.02	0.00
0.13	2.00	0.00	0.00	0.03	0.00	0.18	2.00	0.00	0.00	0.04	0.00
0.22	2.00	0.00	0.00	0.05	0.00	0.27	2.00	0.00	0.00	0.05	0.00
0.33	2.00	0.00	0.00	0.05	0.00	0.36	2.00	0.00	0.00	0.03	0.00
0.37	2.00	0.00	0.00	0.01	0.00	0.38	2.00	0.00	0.00	0.01	0.00
0.42	2.00	0.00	0.00	0.04	0.00	0.44	2.00	0.00	0.00	0.03	0.00
0.47	2.00	0.00	0.00	0.02	0.00	0.47	2.00	0.00	0.00	0.01	0.00
0.52	2.00	0.00	0.00	0.04	0.00	0.56	2.00	0.00	0.00	0.05	0.00
0.58	2.00	0.00	0.00	0.01	0.00	0.61	2.00	0.00	0.00	0.03	0.00
0.66	2.00	0.00	0.00	0.05	0.00	0.76	2.00	0.00	0.00	0.09	0.00
0.80	2.00	0.00	0.00	0.05	0.00	0.81	2.00	0.00	0.00	0.01	0.00
0.85	2.00	0.00	0.00	0.04	0.00	0.86	2.00	0.00	0.00	0.01	0.00
0.90	2.00	0.00	0.00	0.04	0.00	0.95	2.00	0.00	0.00	0.04	0.00
1.00	2.00	0.00	0.00	0.05	0.00	1.05	2.00	0.00	0.00	0.06	0.00
1.14	2.00	0.00	0.00	0.09	0.00	1.24	2.00	0.00	0.00	0.09	0.00
1.31	2.00	0.00	0.00	0.08	0.00	1.36	2.00	0.00	0.00	0.05	0.00
1.37	2.00	0.00	0.00	0.01	0.00	1.39	2.00	0.00	0.00	0.02	0.00
1.43	2.00	0.00	0.00	0.04	0.00	1.44	2.00	0.00	0.00	0.01	0.00
1.49	2.00	0.00	0.00	0.06	0.00	1.53	2.00	0.00	0.00	0.04	0.00
1.58	2.00	0.00	0.00	0.05	0.00	1.63	2.00	0.00	0.00	0.05	0.00
1.68	2.00	0.00	0.00	0.05	0.00	1.72	2.00	0.00	0.00	0.05	0.00
1.77	2.00	0.00	0.00	0.05	0.00	1.82	2.00	0.00	0.00	0.05	0.00
1.86	2.00	0.00	0.00	0.04	0.00	1.92	2.00	0.00	0.00	0.05	0.00
1.97	2.00	0.00	0.00	0.05	0.00	2.01	2.00	0.00	0.00	0.05	0.00
2.09	2.00	0.00	0.00	0.07	0.00	2.16	2.00	0.00	0.00	0.07	0.00
2.20	2.00	0.00	0.00	0.04	0.00	2.25	2.00	0.00	0.00	0.05	0.00
2.31	2.00	0.00	0.00	0.06	0.00	2.37	2.00	0.00	0.00	0.06	0.00
2.40	2.00	0.00	0.00	0.03	0.00	2.46	2.00	0.00	0.00	0.06	0.00
2.54	2.00	0.00	0.00	0.08	0.00	2.59	2.00	0.00	0.00	0.05	0.00
2.69	2.00	0.00	0.00	0.10	0.00	2.74	2.00	0.00	0.00	0.05	0.00
2.83	2.00	0.00	0.00	0.10	0.00	2.88	2.00	0.00	0.00	0.05	0.00
2.98	2.00	0.00	0.00	0.10	0.00	3.03	2.00	0.00	0.00	0.05	0.00
3.12	2.00	0.00	0.00	0.08	0.00	3.21	2.00	0.00	0.00	0.09	0.00
3.27	2.00	0.00	0.00	0.06	0.00	3.34	2.00	0.00	0.00	0.08	0.00
3.41	2.00	0.00	0.00	0.07	0.00	3.51	2.00	0.00	0.00	0.10	0.00
3.55	2.00	0.00	0.00	0.05	0.00	3.65	2.00	0.00	0.00	0.10	0.00
3.75	2.00	0.00	0.00	0.10	0.00	3.83	2.00	0.00	0.00	0.09	0.00
3.94	2.00	0.00	0.00	0.10	0.00	4.04	2.00	0.00	0.00	0.10	0.00
4.13	2.00	0.00	0.00	0.09	0.00	4.24	2.00	0.00	0.00	0.11	0.00
4.38	2.00	0.00	0.00	0.13	0.00	4.50	2.00	0.00	0.00	0.12	0.00
4.62	2.00	0.00	0.00	0.12	0.00	4.71	2.00	0.00	0.00	0.10	0.00
4.75	2.00	0.00	0.00	0.04	0.00	4.84	2.00	0.00	0.00	0.08	0.00
4.89	2.00	0.00	0.00	0.05	0.00	4.94	2.00	0.00	0.00	0.05	0.00
4.98	2.00	0.00	0.00	0.04	0.00	5.07	2.00	0.00	0.00	0.09	0.00
5.13	2.00	0.00	0.00	0.05	0.00	5.17	2.00	0.00	0.00	0.05	0.00
5.27	2.00	0.00	0.00	0.09	0.00	5.32	2.00	0.00	0.00	0.05	0.00
5.42	2.00	0.00	0.00	0.10	0.00	5.46	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
5.56	2.00	0.00	0.00	0.10	0.00	5.61	2.00	0.00	0.00	0.05	0.00
5.71	2.00	0.00	0.00	0.09	0.00	5.78	2.00	0.00	0.00	0.08	0.00
5.85	2.00	0.00	0.00	0.07	0.00	5.95	2.00	0.00	0.00	0.10	0.00
6.00	2.00	0.00	0.00	0.05	0.00	6.09	2.00	0.00	0.00	0.10	0.00
6.14	2.00	0.00	0.00	0.05	0.00	6.24	2.00	0.00	0.00	0.09	0.00
6.30	2.00	0.00	0.00	0.06	0.00	6.38	2.00	0.00	0.00	0.09	0.00
6.46	2.00	0.00	0.00	0.08	0.00	6.50	2.00	0.00	0.00	0.04	0.00
6.56	2.00	0.00	0.00	0.07	0.00	6.63	2.00	0.00	0.00	0.06	0.00
6.68	2.00	0.00	0.00	0.05	0.00	6.76	2.00	0.00	0.00	0.08	0.00
6.82	2.00	0.00	0.00	0.06	0.00	6.88	2.00	0.00	0.00	0.06	0.00
6.96	2.00	0.00	0.00	0.08	0.00	7.03	2.00	0.00	0.00	0.07	0.00
7.11	2.00	0.00	0.00	0.08	0.00	7.16	2.00	0.00	0.00	0.05	0.00
7.26	2.00	0.00	0.00	0.10	0.00	7.31	2.00	0.00	0.00	0.05	0.00
7.40	2.00	0.00	0.00	0.09	0.00	7.45	2.00	0.00	0.00	0.05	0.00
7.54	2.00	0.00	0.00	0.09	0.00	7.60	2.00	0.00	0.00	0.06	0.00
7.68	2.00	0.00	0.00	0.09	0.00	7.74	2.00	0.00	0.00	0.05	0.00
7.83	2.00	0.00	0.00	0.09	0.00	7.90	2.00	0.00	0.00	0.07	0.00
7.98	2.00	0.00	0.00	0.08	0.00	8.05	2.00	0.00	0.00	0.07	0.00
8.12	2.00	0.00	0.00	0.08	0.00	8.19	2.00	0.00	0.00	0.07	0.00
8.27	2.00	0.00	0.00	0.07	0.00	8.36	2.00	0.00	0.00	0.10	0.00
8.41	2.00	0.00	0.00	0.05	0.00	8.50	2.00	0.00	0.00	0.09	0.00
8.60	2.00	0.00	0.00	0.10	0.00	8.70	2.00	0.00	0.00	0.09	0.00
8.74	2.00	0.00	0.00	0.05	0.00	8.78	2.00	0.00	0.00	0.03	0.00
8.81	2.00	0.00	0.00	0.03	0.00	8.86	2.00	0.00	0.00	0.05	0.00
8.91	2.00	0.00	0.00	0.04	0.00	8.94	2.00	0.00	0.00	0.04	0.00
9.02	2.00	0.00	0.00	0.08	0.00	9.10	2.00	0.00	0.00	0.07	0.00
9.17	2.00	0.00	0.00	0.07	0.00	9.22	2.00	0.00	0.00	0.05	0.00
9.31	2.00	0.00	0.00	0.09	0.00	9.37	2.00	0.00	0.00	0.06	0.00
9.42	2.00	0.00	0.00	0.05	0.00	9.52	2.00	0.00	0.00	0.10	0.00
9.60	2.00	0.00	0.00	0.08	0.00	9.66	2.00	0.00	0.00	0.06	0.00
9.74	2.00	0.00	0.00	0.08	0.00	9.81	2.00	0.00	0.00	0.07	0.00
9.89	2.00	0.00	0.00	0.08	0.00	9.98	2.00	0.00	0.00	0.09	0.00
10.03	2.00	0.00	0.00	0.06	0.00	10.13	2.00	0.00	0.00	0.09	0.00
10.23	2.00	0.00	0.00	0.10	0.00	10.32	2.00	0.00	0.00	0.09	0.00
10.38	2.00	0.00	0.00	0.06	0.00	10.47	2.00	0.00	0.00	0.09	0.00
10.57	2.00	0.00	0.00	0.10	0.00	10.66	2.00	0.00	0.00	0.09	0.00
10.76	2.00	0.00	0.00	0.10	0.00	10.85	2.00	0.00	0.00	0.10	0.00
10.92	2.00	0.00	0.00	0.07	0.00	11.00	2.00	0.00	0.00	0.08	0.00
11.07	2.00	0.00	0.00	0.06	0.00	11.10	2.00	0.00	0.00	0.03	0.00
11.15	2.00	0.00	0.00	0.05	0.00	11.19	2.00	0.00	0.00	0.04	0.00
11.24	2.00	0.00	0.00	0.05	0.00	11.29	2.00	0.00	0.00	0.05	0.00
11.34	2.00	0.00	0.00	0.05	0.00	11.40	2.00	0.00	0.00	0.07	0.00
11.47	2.00	0.00	0.00	0.06	0.00	11.53	2.00	0.00	0.00	0.06	0.00
11.58	2.00	0.00	0.00	0.04	0.00	11.65	2.00	0.00	0.00	0.07	0.00
11.72	2.00	0.00	0.00	0.07	0.00	11.77	2.00	0.00	0.00	0.05	0.00
11.82	2.00	0.00	0.00	0.05	0.00	11.88	2.00	0.00	0.00	0.06	0.00
11.97	2.00	0.00	0.00	0.09	0.00	12.02	2.00	0.00	0.00	0.05	0.00
12.06	2.00	0.00	0.00	0.05	0.00	12.11	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
12.21	2.00	0.00	0.00	0.10	0.00	12.25	2.00	0.00	0.00	0.04	0.00
12.30	2.00	0.00	0.00	0.05	0.00	12.31	2.00	0.00	0.00	0.01	0.00
12.32	2.00	0.00	0.00	0.01	0.00	12.35	2.00	0.00	0.00	0.03	0.00
12.40	2.00	0.00	0.00	0.05	0.00	12.45	2.00	0.00	0.00	0.05	0.00
12.52	2.00	0.00	0.00	0.08	0.00	12.56	2.00	0.00	0.00	0.04	0.00
12.62	2.00	0.00	0.00	0.06	0.00	12.65	2.00	0.00	0.00	0.04	0.00
12.71	2.00	0.00	0.00	0.05	0.00	12.76	2.00	0.00	0.00	0.05	0.00
12.83	2.00	0.00	0.00	0.07	0.00	12.88	2.00	0.00	0.00	0.05	0.00
12.93	2.00	0.00	0.00	0.05	0.00	12.98	2.00	0.00	0.00	0.05	0.00
13.03	2.00	0.00	0.00	0.05	0.00	13.04	2.00	0.00	0.00	0.01	0.00
13.07	2.00	0.00	0.00	0.04	0.00	13.13	2.00	0.00	0.00	0.05	0.00
13.17	2.00	0.00	0.00	0.04	0.00	13.22	2.00	0.00	0.00	0.05	0.00
13.27	2.00	0.00	0.00	0.05	0.00	13.32	2.00	0.00	0.00	0.04	0.00
13.37	2.00	0.00	0.00	0.05	0.00	13.41	2.00	0.00	0.00	0.04	0.00
13.46	2.00	0.00	0.00	0.05	0.00	13.51	2.00	0.00	0.00	0.04	0.00
13.56	2.00	0.00	0.00	0.05	0.00	13.60	2.00	0.00	0.00	0.04	0.00
13.66	2.00	0.00	0.00	0.06	0.00	13.75	2.00	0.00	0.00	0.09	0.00
13.80	2.00	0.00	0.00	0.05	0.00	13.89	2.00	0.00	0.00	0.09	0.00
13.94	2.00	0.00	0.00	0.05	0.00	13.99	2.00	0.00	0.00	0.05	0.00
14.09	2.00	0.00	0.00	0.09	0.00	14.14	2.00	0.00	0.00	0.06	0.00
14.23	2.00	0.00	0.00	0.09	0.00	14.28	2.00	0.00	0.00	0.05	0.00
14.38	2.00	0.00	0.00	0.10	0.00	14.42	2.00	0.00	0.00	0.04	0.00
14.52	2.00	0.00	0.00	0.10	0.00	14.57	2.00	0.00	0.00	0.05	0.00
14.67	2.00	0.00	0.00	0.10	0.00	14.68	2.00	0.00	0.00	0.01	0.00
14.70	2.00	0.00	0.00	0.02	0.00	14.75	2.00	0.00	0.00	0.05	0.00
14.80	2.00	0.00	0.00	0.04	0.00	14.89	2.00	0.00	0.00	0.10	0.00
14.94	2.00	0.00	0.00	0.05	0.00	15.04	2.00	0.00	0.00	0.10	0.00
15.13	2.00	0.00	0.00	0.09	0.00	15.21	2.00	0.00	0.00	0.08	0.00
15.28	2.00	0.00	0.00	0.07	0.00	15.38	2.00	0.00	0.00	0.10	0.00
15.47	2.00	0.00	0.00	0.09	0.00	15.57	2.00	0.00	0.00	0.10	0.00
15.67	2.00	0.00	0.00	0.09	0.00	15.77	2.00	0.00	0.00	0.10	0.00
15.86	2.00	0.00	0.00	0.10	0.00	15.96	2.00	0.00	0.00	0.09	0.00
16.05	2.00	0.00	0.00	0.10	0.00	16.15	2.00	0.00	0.00	0.09	0.00
16.25	2.00	0.00	0.00	0.10	0.00	16.31	2.00	0.00	0.00	0.06	0.00
16.39	2.00	0.00	0.00	0.08	0.00	16.48	2.00	0.00	0.00	0.10	0.00
16.59	2.00	0.00	0.00	0.10	0.00	16.68	2.00	0.00	0.00	0.09	0.00
16.76	2.00	0.00	0.00	0.08	0.00	16.86	2.00	0.00	0.00	0.10	0.00
16.92	2.00	0.00	0.00	0.06	0.00	17.02	2.00	0.00	0.00	0.09	0.00
17.11	2.00	0.00	0.00	0.10	0.00	17.22	2.00	0.00	0.00	0.11	0.00
17.35	2.00	0.00	0.00	0.13	0.00	17.45	2.00	0.00	0.00	0.10	0.00
17.55	2.00	0.00	0.00	0.10	0.00	17.61	2.00	0.00	0.00	0.07	0.00
17.64	2.00	0.00	0.00	0.03	0.00	17.70	2.00	0.00	0.00	0.06	0.00
17.75	2.00	0.00	0.00	0.04	0.00	17.80	2.00	0.00	0.00	0.05	0.00
17.85	2.00	0.00	0.00	0.05	0.00	17.94	2.00	0.00	0.00	0.10	0.00
17.99	2.00	0.00	0.00	0.04	0.00	18.09	2.00	0.00	0.00	0.10	0.00
18.15	2.00	0.00	0.00	0.06	0.00	18.23	2.00	0.00	0.00	0.08	0.00
18.33	2.00	0.00	0.00	0.10	0.00	18.43	2.00	0.00	0.00	0.10	0.00
18.52	2.00	0.00	0.00	0.10	0.00	18.59	2.00	0.00	0.00	0.07	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
18.72	2.00	0.00	0.00	0.13	0.00	18.81	2.00	0.00	0.00	0.09	0.00
18.87	2.00	0.00	0.00	0.06	0.00	18.95	2.00	0.00	0.00	0.08	0.00
19.05	2.00	0.00	0.00	0.10	0.00	19.14	2.00	0.00	0.00	0.09	0.00
19.22	2.00	0.00	0.00	0.07	0.00	19.29	2.00	0.00	0.00	0.08	0.00
19.38	2.00	0.00	0.00	0.09	0.00	19.44	2.00	0.00	0.00	0.06	0.00
19.53	2.00	0.00	0.00	0.09	0.00	19.62	2.00	0.00	0.00	0.09	0.00
19.69	2.00	0.00	0.00	0.07	0.00	19.79	2.00	0.00	0.00	0.10	0.00
19.86	2.00	0.00	0.00	0.07	0.00	19.97	2.00	0.00	0.00	0.10	0.00
20.07	2.00	0.00	0.00	0.10	0.00	20.16	2.00	0.00	0.00	0.09	0.00
20.26	2.00	0.00	0.00	0.10	0.00	20.34	2.00	0.00	0.00	0.08	0.00
20.43	2.00	0.00	0.00	0.09	0.00	20.50	2.00	0.00	0.00	0.07	0.00
20.60	2.00	0.00	0.00	0.10	0.00	20.62	2.00	0.00	0.00	0.02	0.00
20.63	2.00	0.00	0.00	0.01	0.00	20.68	2.00	0.00	0.00	0.05	0.00
20.73	2.00	0.00	0.00	0.05	0.00	20.82	2.00	0.00	0.00	0.09	0.00
20.87	2.00	0.00	0.00	0.05	0.00	20.91	2.00	0.00	0.00	0.05	0.00
20.96	2.00	0.00	0.00	0.05	0.00	21.05	2.00	0.00	0.00	0.09	0.00
21.11	2.00	0.00	0.00	0.06	0.00	21.17	2.00	0.00	0.00	0.06	0.00
21.25	2.00	0.00	0.00	0.08	0.00	21.30	2.00	0.00	0.00	0.06	0.00
21.37	2.00	0.00	0.00	0.06	0.00	21.45	2.00	0.00	0.00	0.08	0.00
21.49	2.00	0.00	0.00	0.05	0.00	21.58	2.00	0.00	0.00	0.09	0.00
21.64	2.00	0.00	0.00	0.06	0.00	21.69	2.00	0.00	0.00	0.05	0.00
21.78	2.00	0.00	0.00	0.09	0.00	21.83	2.00	0.00	0.00	0.05	0.00
21.89	2.00	0.00	0.00	0.06	0.00	21.98	2.00	0.00	0.00	0.09	0.00
22.03	2.00	0.00	0.00	0.05	0.00	22.12	2.00	0.00	0.00	0.09	0.00
22.22	2.00	0.00	0.00	0.10	0.00	22.26	2.00	0.00	0.00	0.05	0.00
22.36	2.00	0.00	0.00	0.09	0.00	22.41	2.00	0.00	0.00	0.05	0.00
22.51	2.00	0.00	0.00	0.10	0.00	22.60	2.00	0.00	0.00	0.09	0.00
22.70	2.00	0.00	0.00	0.10	0.00	22.75	2.00	0.00	0.00	0.05	0.00
22.84	2.00	0.00	0.00	0.10	0.00	22.89	2.00	0.00	0.00	0.05	0.00
22.90	2.00	0.00	0.00	0.01	0.00	22.94	2.00	0.00	0.00	0.04	0.00
23.00	2.00	0.00	0.00	0.06	0.00	23.08	2.00	0.00	0.00	0.08	0.00
23.13	2.00	0.00	0.00	0.05	0.00	23.20	2.00	0.00	0.00	0.07	0.00
23.27	2.00	0.00	0.00	0.07	0.00	23.33	2.00	0.00	0.00	0.06	0.00
23.42	2.00	0.00	0.00	0.09	0.00	23.48	2.00	0.00	0.00	0.06	0.00
23.57	2.00	0.00	0.00	0.09	0.00	23.61	2.00	0.00	0.00	0.04	0.00
23.66	2.00	0.00	0.00	0.05	0.00	23.73	2.00	0.00	0.00	0.07	0.00
23.80	2.00	0.00	0.00	0.07	0.00	23.85	2.00	0.00	0.00	0.05	0.00
23.94	2.00	0.00	0.00	0.09	0.00	24.00	2.00	0.00	0.00	0.05	0.00
24.09	2.00	0.00	0.00	0.09	0.00	24.16	2.00	0.00	0.00	0.07	0.00
24.24	2.00	0.00	0.00	0.07	0.00	24.33	2.00	0.00	0.00	0.10	0.00
24.43	2.00	0.00	0.00	0.10	0.00	24.52	2.00	0.00	0.00	0.09	0.00
24.58	2.00	0.00	0.00	0.06	0.00	24.59	2.00	0.00	0.00	0.01	0.00
24.63	2.00	0.00	0.00	0.04	0.00	24.68	2.00	0.00	0.00	0.05	0.00
24.77	2.00	0.00	0.00	0.10	0.00	24.82	2.00	0.00	0.00	0.05	0.00
24.92	2.00	0.00	0.00	0.10	0.00	25.01	2.00	0.00	0.00	0.09	0.00
25.06	2.00	0.00	0.00	0.06	0.00	25.16	2.00	0.00	0.00	0.09	0.00
25.25	2.00	0.00	0.00	0.09	0.00	25.30	2.00	0.00	0.00	0.05	0.00
25.41	2.00	0.00	0.00	0.11	0.00	25.49	2.00	0.00	0.00	0.09	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
25.55	2.00	0.00	0.00	0.05	0.00	25.64	2.00	0.00	0.00	0.09	0.00
25.70	2.00	0.00	0.00	0.06	0.00	25.79	2.00	0.00	0.00	0.09	0.00
25.89	2.00	0.00	0.00	0.10	0.00	25.94	2.00	0.00	0.00	0.06	0.00
26.02	2.00	0.00	0.00	0.08	0.00	26.12	2.00	0.00	0.00	0.09	0.00
26.17	2.00	0.00	0.00	0.05	0.00	26.28	2.00	0.00	0.00	0.11	0.00
26.36	2.00	0.00	0.00	0.09	0.00	26.45	2.00	0.00	0.00	0.09	0.00
26.50	2.00	0.00	0.00	0.05	0.00	26.61	2.00	0.00	0.00	0.11	0.00
26.70	2.00	0.00	0.00	0.09	0.00	26.77	2.00	0.00	0.00	0.07	0.00
26.85	2.00	0.00	0.00	0.08	0.00	26.94	2.00	0.00	0.00	0.09	0.00
27.04	2.00	0.00	0.00	0.09	0.00	27.14	2.00	0.00	0.00	0.10	0.00
27.23	2.00	0.00	0.00	0.09	0.00	27.28	2.00	0.00	0.00	0.05	0.00
27.29	2.00	0.00	0.00	0.01	0.00	27.38	2.00	0.00	0.00	0.09	0.00
27.48	2.00	0.00	0.00	0.10	0.00	27.57	2.00	0.00	0.00	0.09	0.00
27.64	2.00	0.00	0.00	0.07	0.00	27.65	2.00	0.00	0.00	0.01	0.00
27.74	2.00	0.00	0.00	0.09	0.00	27.80	2.00	0.00	0.00	0.06	0.00
27.90	2.00	0.00	0.00	0.10	0.00	27.99	2.00	0.00	0.00	0.09	0.00
28.07	2.00	0.00	0.00	0.08	0.00	28.16	2.00	0.00	0.00	0.09	0.00
28.25	2.00	0.00	0.00	0.09	0.00	28.34	2.00	0.00	0.00	0.09	0.00
28.44	2.00	0.00	0.00	0.10	0.00	28.53	2.00	0.00	0.00	0.09	0.00
28.62	2.00	0.00	0.00	0.09	0.00	28.76	2.00	0.00	0.00	0.14	0.00
28.86	2.00	0.00	0.00	0.10	0.00	28.96	2.00	0.00	0.00	0.10	0.00
29.08	2.00	0.00	0.00	0.11	0.00	29.19	2.00	0.00	0.00	0.12	0.00
29.29	2.00	0.00	0.00	0.10	0.00	29.39	2.00	0.00	0.00	0.09	0.00
29.50	2.00	0.00	0.00	0.11	0.00	29.63	2.00	0.00	0.00	0.13	0.00
29.65	2.00	0.00	0.00	0.02	0.00	29.66	2.00	0.00	0.00	0.01	0.00
29.72	2.00	0.00	0.00	0.06	0.00	29.80	2.00	0.00	0.00	0.09	0.00
29.85	2.00	0.00	0.00	0.05	0.00	29.94	2.00	0.00	0.00	0.09	0.00
30.00	2.00	0.00	0.00	0.06	0.00	30.05	2.00	0.00	0.00	0.05	0.00
30.14	2.00	0.00	0.00	0.09	0.00	30.19	2.00	0.00	0.00	0.05	0.00
30.24	2.00	0.00	0.00	0.05	0.00	30.29	1.14	0.00	0.00	0.05	0.00
30.38	1.12	0.00	0.00	0.09	0.00	30.43	1.09	0.00	0.00	0.05	0.00
30.48	1.05	0.00	0.00	0.05	0.00	30.54	1.02	0.00	0.00	0.06	0.00
30.62	1.00	0.00	0.00	0.08	0.00	30.67	0.99	0.01	90006887.17	0.05	0.00
30.72	0.99	0.01	161806562 5614.33	0.05	0.00	30.76	1.00	0.00	811703898	0.04	0.00
30.86	1.01	0.00	0.00	0.10	0.00	30.91	1.03	0.00	0.00	0.05	0.00
30.95	1.06	0.00	0.00	0.05	0.00	31.03	1.09	0.00	0.00	0.07	0.00
31.10	1.12	0.00	0.00	0.07	0.00	31.15	1.15	0.00	0.00	0.05	0.00
31.20	1.19	0.00	0.00	0.05	0.00	31.26	1.22	0.00	0.00	0.06	0.00
31.34	1.21	0.00	0.00	0.08	0.00	31.37	1.20	0.00	0.00	0.02	0.00
31.38	1.18	0.00	0.00	0.01	0.00	31.43	1.19	0.00	0.00	0.05	0.00
31.47	1.13	0.00	0.00	0.05	0.00	31.55	1.06	0.00	0.00	0.07	0.00
31.59	0.95	0.05	66.65	0.05	0.00	31.66	0.83	0.17	2.22	0.06	0.02
31.73	0.73	0.27	1.05	0.08	0.03	31.78	0.65	0.35	0.76	0.05	0.03
31.84	0.61	0.39	0.65	0.06	0.04	31.93	0.60	0.40	0.62	0.09	0.06
31.98	0.61	0.39	0.64	0.05	0.03	32.02	0.64	0.36	0.71	0.05	0.03
32.09	0.67	0.33	0.80	0.07	0.03	32.16	0.69	0.31	0.87	0.07	0.03
32.22	0.70	0.30	0.90	0.05	0.03	32.27	0.70	0.30	0.90	0.05	0.02
32.34	0.69	0.31	0.89	0.07	0.03	32.42	0.69	0.31	0.88	0.08	0.04

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
32.46	0.68	0.32	0.86	0.04	0.02	32.54	0.68	0.32	0.84	0.09	0.04
32.60	0.66	0.34	0.79	0.06	0.03	32.67	0.66	0.34	0.77	0.07	0.03
32.75	0.66	0.34	0.78	0.08	0.04	32.81	0.68	0.32	0.86	0.06	0.03
32.89	0.71	0.29	0.96	0.08	0.04	32.94	0.69	0.31	0.89	0.05	0.02
32.95	0.71	0.29	0.95	0.01	0.00	33.00	0.72	0.28	1.04	0.05	0.02
33.06	0.79	0.21	1.49	0.06	0.02	33.11	0.80	0.20	1.68	0.05	0.01
33.20	0.80	0.20	1.65	0.09	0.03	33.25	0.79	0.21	1.56	0.05	0.02
33.34	0.78	0.22	1.47	0.09	0.03	33.38	0.79	0.21	1.49	0.04	0.01
33.48	0.80	0.20	1.65	0.10	0.03	33.58	0.83	0.17	2.07	0.10	0.03
33.63	0.87	0.13	3.40	0.04	0.01	33.73	0.92	0.08	9.37	0.10	0.01
33.82	0.98	0.02	7362.55	0.09	0.00	33.87	1.05	0.00	0.00	0.05	0.00
33.96	1.13	0.00	0.00	0.09	0.00	34.02	1.23	0.00	0.00	0.06	0.00
34.11	1.37	0.00	0.00	0.09	0.00	34.18	1.54	0.00	0.00	0.07	0.00
34.26	1.72	0.00	0.00	0.08	0.00	34.35	1.91	0.00	0.00	0.09	0.00
34.44	2.00	0.00	0.00	0.09	0.00	34.49	2.00	0.00	0.00	0.05	0.00
34.59	2.00	0.00	0.00	0.10	0.00	34.69	2.00	0.00	0.00	0.09	0.00
34.76	2.00	0.00	0.00	0.07	0.00	34.83	2.00	0.00	0.00	0.08	0.00
34.93	2.00	0.00	0.00	0.10	0.00	35.02	2.00	0.00	0.00	0.09	0.00
35.12	2.00	0.00	0.00	0.10	0.00	35.22	1.94	0.00	0.00	0.10	0.00
35.30	1.83	0.00	0.00	0.08	0.00	35.38	1.60	0.00	0.00	0.08	0.00
35.43	1.44	0.00	0.00	0.04	0.00	35.46	1.32	0.00	0.00	0.04	0.00
35.51	2.00	0.00	0.00	0.05	0.00	35.56	2.00	0.00	0.00	0.04	0.00
35.66	2.00	0.00	0.00	0.10	0.00	35.70	2.00	0.00	0.00	0.05	0.00
35.80	2.00	0.00	0.00	0.10	0.00	35.89	2.00	0.00	0.00	0.09	0.00
35.96	2.00	0.00	0.00	0.07	0.00	36.04	2.00	0.00	0.00	0.08	0.00
36.14	2.00	0.00	0.00	0.10	0.00	36.19	2.00	0.00	0.00	0.05	0.00
36.28	2.00	0.00	0.00	0.09	0.00	36.33	2.00	0.00	0.00	0.04	0.00
36.42	2.00	0.00	0.00	0.09	0.00	36.48	2.00	0.00	0.00	0.05	0.00
36.52	2.00	0.00	0.00	0.05	0.00	36.62	2.00	0.00	0.00	0.10	0.00
36.68	2.00	0.00	0.00	0.06	0.00	36.77	2.00	0.00	0.00	0.09	0.00
36.86	2.00	0.00	0.00	0.09	0.00	36.90	2.00	0.00	0.00	0.05	0.00
37.00	2.00	0.00	0.00	0.10	0.00	37.10	2.00	0.00	0.00	0.10	0.00
37.20	2.00	0.00	0.00	0.10	0.00	37.29	2.00	0.00	0.00	0.09	0.00
37.39	2.00	0.00	0.00	0.10	0.00	37.49	1.28	0.00	0.00	0.10	0.00
37.53	1.39	0.00	0.00	0.05	0.00	37.58	1.51	0.00	0.00	0.04	0.00
37.62	1.60	0.00	0.00	0.05	0.00	37.69	1.74	0.00	0.00	0.07	0.00
37.77	1.86	0.00	0.00	0.08	0.00	37.82	1.96	0.00	0.00	0.05	0.00
37.87	2.00	0.00	0.00	0.05	0.00	37.91	2.00	0.00	0.00	0.05	0.00
37.97	1.95	0.00	0.00	0.06	0.00	38.06	1.85	0.00	0.00	0.09	0.00
38.10	1.75	0.00	0.00	0.04	0.00	38.17	1.67	0.00	0.00	0.07	0.00
38.25	1.60	0.00	0.00	0.08	0.00	38.35	1.54	0.00	0.00	0.09	0.00
38.40	1.48	0.00	0.00	0.05	0.00	38.46	1.45	0.00	0.00	0.06	0.00
38.54	1.43	0.00	0.00	0.08	0.00	38.60	1.41	0.00	0.00	0.06	0.00
38.69	1.41	0.00	0.00	0.08	0.00	38.74	1.43	0.00	0.00	0.05	0.00
38.83	1.46	0.00	0.00	0.09	0.00	38.88	1.45	0.00	0.00	0.05	0.00
38.97	1.43	0.00	0.00	0.09	0.00	39.02	1.38	0.00	0.00	0.05	0.00
39.11	1.34	0.00	0.00	0.09	0.00	39.16	1.27	0.00	0.00	0.06	0.00
39.23	1.14	0.00	0.00	0.06	0.00	39.24	1.08	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
39.28	1.05	0.00	0.00	0.04	0.00	39.32	1.07	0.00	0.00	0.05	0.00
39.39	2.00	0.00	0.00	0.06	0.00	39.47	2.00	0.00	0.00	0.08	0.00
39.54	2.00	0.00	0.00	0.07	0.00	39.62	2.00	0.00	0.00	0.08	0.00
39.71	2.00	0.00	0.00	0.09	0.00	39.76	2.00	0.00	0.00	0.05	0.00
39.85	2.00	0.00	0.00	0.09	0.00	39.90	2.00	0.00	0.00	0.06	0.00
40.00	2.00	0.00	0.00	0.10	0.00	40.06	2.00	0.00	0.00	0.06	0.00
40.15	2.00	0.00	0.00	0.09	0.00	40.21	2.00	0.00	0.00	0.06	0.00
40.29	2.00	0.00	0.00	0.08	0.00	40.35	2.00	0.00	0.00	0.06	0.00
40.43	2.00	0.00	0.00	0.08	0.00	40.52	2.00	0.00	0.00	0.09	0.00
40.58	2.00	0.00	0.00	0.05	0.00	40.67	2.00	0.00	0.00	0.10	0.00
40.77	2.00	0.00	0.00	0.09	0.00	40.84	2.00	0.00	0.00	0.07	0.00
40.89	2.00	0.00	0.00	0.05	0.00	40.94	2.00	0.00	0.00	0.05	0.00
41.03	2.00	0.00	0.00	0.10	0.00	41.08	2.00	0.00	0.00	0.05	0.00
41.14	2.00	0.00	0.00	0.06	0.00	41.22	2.00	0.00	0.00	0.08	0.00
41.28	0.45	0.55	0.42	0.06	0.03	41.33	0.46	0.54	0.44	0.05	0.03
41.42	0.49	0.51	0.46	0.09	0.05	41.47	0.52	0.48	0.50	0.05	0.03
41.52	0.55	0.45	0.54	0.06	0.03	41.62	0.58	0.42	0.60	0.09	0.04
41.67	0.63	0.37	0.70	0.05	0.02	41.76	0.69	0.31	0.88	0.09	0.03
41.82	0.76	0.24	1.23	0.06	0.02	41.90	0.81	0.19	1.83	0.08	0.02
41.99	0.85	0.15	2.80	0.09	0.01	42.05	0.88	0.12	3.80	0.06	0.01
42.15	0.88	0.12	3.96	0.10	0.01	42.23	0.87	0.13	3.38	0.09	0.01
42.30	0.85	0.15	2.55	0.07	0.01	42.38	0.81	0.19	1.79	0.08	0.02
42.48	0.75	0.25	1.21	0.10	0.03	42.57	0.70	0.30	0.92	0.09	0.03
42.64	0.66	0.34	0.76	0.07	0.02	42.72	0.62	0.38	0.67	0.08	0.03
42.82	0.58	0.42	0.60	0.10	0.04	42.90	0.56	0.44	0.55	0.08	0.04
42.97	0.55	0.45	0.54	0.07	0.03	43.06	0.55	0.45	0.54	0.09	0.04
43.15	0.53	0.47	0.52	0.09	0.05	43.20	0.51	0.49	0.49	0.05	0.03
43.30	0.48	0.52	0.45	0.10	0.05	43.40	0.49	0.51	0.46	0.10	0.05
43.48	0.52	0.48	0.50	0.08	0.04	43.51	0.54	0.46	0.53	0.03	0.02
43.52	0.57	0.43	0.58	0.01	0.00	43.56	0.64	0.36	0.73	0.04	0.01
43.61	0.77	0.23	1.32	0.05	0.01	43.67	0.88	0.12	4.39	0.06	0.01
43.72	1.00	0.00	797274697	0.05	0.00	43.80	1.09	0.00	0.00	0.08	0.00
43.85	1.16	0.00	0.00	0.05	0.00	43.90	1.21	0.00	0.00	0.05	0.00
43.94	1.24	0.00	0.00	0.05	0.00	43.99	1.26	0.00	0.00	0.05	0.00
44.08	1.27	0.00	0.00	0.09	0.00	44.14	1.28	0.00	0.00	0.06	0.00
44.22	1.30	0.00	0.00	0.08	0.00	44.28	1.30	0.00	0.00	0.05	0.00
44.33	1.29	0.00	0.00	0.05	0.00	44.40	1.27	0.00	0.00	0.07	0.00
44.48	1.27	0.00	0.00	0.08	0.00	44.52	1.26	0.00	0.00	0.05	0.00
44.61	1.27	0.00	0.00	0.09	0.00	44.72	1.29	0.00	0.00	0.11	0.00
44.77	1.34	0.00	0.00	0.05	0.00	44.91	1.36	0.00	0.00	0.14	0.00
44.95	1.29	0.00	0.00	0.05	0.00	45.02	1.24	0.00	0.00	0.07	0.00
45.04	0.96	0.04	168.59	0.02	0.00	45.06	1.00	0.00	814329101	0.02	0.00
45.11	1.04	0.00	0.00	0.05	0.00	45.15	1.37	0.00	0.00	0.05	0.00
45.21	1.44	0.00	0.00	0.05	0.00	45.25	1.50	0.00	0.00	0.04	0.00
45.30	1.54	0.00	0.00	0.05	0.00	45.35	1.57	0.00	0.00	0.05	0.00
45.41	1.57	0.00	0.00	0.06	0.00	45.49	1.55	0.00	0.00	0.08	0.00
45.55	1.52	0.00	0.00	0.05	0.00	45.63	1.46	0.00	0.00	0.09	0.00
45.69	1.38	0.00	0.00	0.05	0.00	45.78	1.29	0.00	0.00	0.09	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
45.84	1.19	0.00	0.00	0.06	0.00	45.93	1.07	0.00	0.00	0.09	0.00
46.02	2.00	0.00	0.00	0.09	0.00	46.08	2.00	0.00	0.00	0.05	0.00
46.16	2.00	0.00	0.00	0.09	0.00	46.24	2.00	0.00	0.00	0.07	0.00
46.31	2.00	0.00	0.00	0.07	0.00	46.41	2.00	0.00	0.00	0.10	0.00
46.48	2.00	0.00	0.00	0.06	0.00	46.56	2.00	0.00	0.00	0.09	0.00
46.65	2.00	0.00	0.00	0.09	0.00	46.75	2.00	0.00	0.00	0.10	0.00
46.84	2.00	0.00	0.00	0.09	0.00	46.94	2.00	0.00	0.00	0.09	0.00
47.02	2.00	0.00	0.00	0.08	0.00	47.08	2.00	0.00	0.00	0.06	0.00
47.12	2.00	0.00	0.00	0.04	0.00	47.16	2.00	0.00	0.00	0.04	0.00
47.21	2.00	0.00	0.00	0.05	0.00	47.27	2.00	0.00	0.00	0.06	0.00
47.35	2.00	0.00	0.00	0.08	0.00	47.40	2.00	0.00	0.00	0.05	0.00
47.50	2.00	0.00	0.00	0.10	0.00	47.55	2.00	0.00	0.00	0.05	0.00
47.61	2.00	0.00	0.00	0.06	0.00	47.69	2.00	0.00	0.00	0.08	0.00
47.76	2.00	0.00	0.00	0.08	0.00	47.83	2.00	0.00	0.00	0.07	0.00
47.93	2.00	0.00	0.00	0.10	0.00	48.02	2.00	0.00	0.00	0.09	0.00
48.09	2.00	0.00	0.00	0.07	0.00	48.18	2.00	0.00	0.00	0.09	0.00
48.27	2.00	0.00	0.00	0.09	0.00	48.37	2.00	0.00	0.00	0.10	0.00
48.46	2.00	0.00	0.00	0.09	0.00	48.52	2.00	0.00	0.00	0.07	0.00
48.60	2.00	0.00	0.00	0.08	0.00	48.70	2.00	0.00	0.00	0.10	0.00
48.79	2.00	0.00	0.00	0.09	0.00	48.85	2.00	0.00	0.00	0.06	0.00
48.94	2.00	0.00	0.00	0.09	0.00	49.04	2.00	0.00	0.00	0.09	0.00
49.13	2.00	0.00	0.00	0.09	0.00	49.23	2.00	0.00	0.00	0.10	0.00
49.33	2.00	0.00	0.00	0.09	0.00	49.38	2.00	0.00	0.00	0.05	0.00
49.42	2.00	0.00	0.00	0.04	0.00	49.48	2.00	0.00	0.00	0.06	0.00
49.53	2.00	0.00	0.00	0.04	0.00	49.58	2.00	0.00	0.00	0.05	0.00
49.63	2.00	0.00	0.00	0.05	0.00	49.72	2.00	0.00	0.00	0.10	0.00
49.77	2.00	0.00	0.00	0.05	0.00	49.83	2.00	0.00	0.00	0.05	0.00
49.92	2.00	0.00	0.00	0.09	0.00	49.97	2.00	0.00	0.00	0.05	0.00
50.04	2.00	0.00	0.00	0.07	0.00	50.11	2.00	0.00	0.00	0.07	0.00
50.20	2.00	0.00	0.00	0.09	0.00	50.27	2.00	0.00	0.00	0.07	0.00
50.34	2.00	0.00	0.00	0.07	0.00	50.45	2.00	0.00	0.00	0.10	0.00
50.54	2.00	0.00	0.00	0.09	0.00	50.59	2.00	0.00	0.00	0.05	0.00
50.68	2.00	0.00	0.00	0.09	0.00	50.79	2.00	0.00	0.00	0.10	0.00
50.88	2.00	0.00	0.00	0.09	0.00	50.98	2.00	0.00	0.00	0.10	0.00
51.07	2.00	0.00	0.00	0.09	0.00	51.17	2.00	0.00	0.00	0.10	0.00
51.24	2.00	0.00	0.00	0.07	0.00	51.33	2.00	0.00	0.00	0.09	0.00
51.46	2.00	0.00	0.00	0.13	0.00	51.46	2.00	0.00	0.00	0.00	0.00
51.51	2.00	0.00	0.00	0.05	0.00	51.56	2.00	0.00	0.00	0.05	0.00
51.65	2.00	0.00	0.00	0.09	0.00	51.71	2.00	0.00	0.00	0.06	0.00
51.79	2.00	0.00	0.00	0.09	0.00	51.85	2.00	0.00	0.00	0.05	0.00
51.94	2.00	0.00	0.00	0.09	0.00	51.99	2.00	0.00	0.00	0.05	0.00
52.09	2.00	0.00	0.00	0.10	0.00	52.19	2.00	0.00	0.00	0.10	0.00
52.28	2.00	0.00	0.00	0.09	0.00	52.35	2.00	0.00	0.00	0.07	0.00
52.43	2.00	0.00	0.00	0.08	0.00	52.52	2.00	0.00	0.00	0.09	0.00
52.62	2.00	0.00	0.00	0.11	0.00	52.72	2.00	0.00	0.00	0.09	0.00
52.81	2.00	0.00	0.00	0.09	0.00	52.91	2.00	0.00	0.00	0.10	0.00
53.00	2.00	0.00	0.00	0.09	0.00	53.10	2.00	0.00	0.00	0.10	0.00
53.20	2.00	0.00	0.00	0.09	0.00	53.29	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
53.38	2.00	0.00	0.00	0.09	0.00	53.46	2.00	0.00	0.00	0.08	0.00
53.53	2.00	0.00	0.00	0.07	0.00	53.63	2.00	0.00	0.00	0.10	0.00
53.73	2.00	0.00	0.00	0.10	0.00	53.82	2.00	0.00	0.00	0.09	0.00
53.92	2.00	0.00	0.00	0.10	0.00	53.94	0.98	0.02	70981.95	0.02	0.00
53.96	0.88	0.12	3.79	0.02	0.00	53.97	0.92	0.08	10.21	0.01	0.00
54.05	1.03	0.00	0.00	0.08	0.00	54.08	1.19	0.00	0.00	0.02	0.00
54.13	1.28	0.00	0.00	0.05	0.00	54.19	1.38	0.00	0.00	0.06	0.00
54.25	1.46	0.00	0.00	0.06	0.00	54.28	1.54	0.00	0.00	0.03	0.00
54.29	1.49	0.00	0.00	0.02	0.00	54.34	1.49	0.00	0.00	0.05	0.00
54.35	1.50	0.00	0.00	0.01	0.00	54.40	1.52	0.00	0.00	0.05	0.00
54.44	1.54	0.00	0.00	0.04	0.00	54.49	1.53	0.00	0.00	0.05	0.00
54.53	1.56	0.00	0.00	0.04	0.00	54.57	1.65	0.00	0.00	0.03	0.00
54.58	1.72	0.00	0.00	0.02	0.00	54.63	1.72	0.00	0.00	0.04	0.00
54.68	1.80	0.00	0.00	0.05	0.00	54.73	1.75	0.00	0.00	0.05	0.00
54.78	1.71	0.00	0.00	0.05	0.00	54.83	1.70	0.00	0.00	0.05	0.00
54.88	1.75	0.00	0.00	0.05	0.00	54.92	1.84	0.00	0.00	0.05	0.00
54.97	1.91	0.00	0.00	0.05	0.00	55.02	1.93	0.00	0.00	0.05	0.00
55.12	1.83	0.00	0.00	0.09	0.00	55.17	1.64	0.00	0.00	0.05	0.00
55.25	1.41	0.00	0.00	0.08	0.00	55.31	1.28	0.00	0.00	0.06	0.00
55.36	1.17	0.00	0.00	0.05	0.00	55.45	1.08	0.00	0.00	0.09	0.00
55.50	0.98	0.02	192664.19	0.05	0.00	55.60	0.92	0.08	11.38	0.10	0.00
55.65	0.84	0.16	2.35	0.05	0.00	55.71	0.79	0.21	1.51	0.06	0.01
55.75	0.75	0.25	1.17	0.04	0.00	55.79	0.76	0.24	1.23	0.04	0.00
55.84	0.78	0.22	1.43	0.05	0.01	55.89	0.80	0.20	1.68	0.05	0.00
55.90	0.81	0.19	1.83	0.01	0.00	55.94	0.80	0.20	1.61	0.03	0.00
55.99	0.77	0.23	1.33	0.05	0.01	56.03	0.74	0.26	1.11	0.05	0.01
56.08	0.72	0.28	0.99	0.05	0.01	56.14	0.69	0.31	0.90	0.06	0.01
56.22	0.67	0.33	0.81	0.08	0.01	56.28	0.65	0.35	0.75	0.05	0.01
56.33	0.65	0.35	0.74	0.05	0.01	56.38	0.65	0.35	0.74	0.05	0.01
56.45	0.67	0.33	0.80	0.07	0.01	56.52	0.70	0.30	0.91	0.07	0.01
56.62	0.74	0.26	1.11	0.10	0.01	56.66	0.77	0.23	1.37	0.05	0.00
56.73	0.82	0.18	1.99	0.07	0.01	56.81	0.86	0.14	3.17	0.08	0.00
56.95	0.91	0.09	7.48	0.14	0.01	57.00	0.96	0.04	95.74	0.04	0.00
57.09	0.97	0.03	549.52	0.10	0.00	57.19	0.96	0.04	115.26	0.10	0.00
57.27	0.89	0.11	5.10	0.08	0.00	57.35	0.87	0.13	3.70	0.07	0.00
57.44	0.83	0.17	2.25	0.09	0.01	57.50	0.83	0.17	2.17	0.07	0.00
57.52	0.90	0.10	5.94	0.02	0.00	57.58	1.06	0.00	0.00	0.05	0.00
57.63	1.19	0.00	0.00	0.05	0.00	57.72	1.23	0.00	0.00	0.09	0.00
57.77	1.18	0.00	0.00	0.04	0.00	57.82	1.09	0.00	0.00	0.05	0.00
57.91	0.98	0.02	45128.57	0.09	0.00	57.96	0.88	0.12	4.13	0.05	0.00
58.02	0.95	0.05	55.89	0.05	0.00	58.09	1.00	0.00	176603202	0.08	0.00
58.16	1.08	0.00	0.00	0.06	0.00	58.25	1.11	0.00	0.00	0.10	0.00
58.30	1.09	0.00	0.00	0.05	0.00	58.40	1.04	0.00	0.00	0.10	0.00
58.50	1.03	0.00	0.00	0.10	0.00	58.56	1.01	0.00	0.00	0.06	0.00
58.64	1.04	0.00	0.00	0.08	0.00	58.73	1.12	0.00	0.00	0.09	0.00
58.78	1.14	0.00	0.00	0.05	0.00	58.88	1.18	0.00	0.00	0.09	0.00
58.97	1.20	0.00	0.00	0.09	0.00	59.07	1.17	0.00	0.00	0.10	0.00
59.13	1.10	0.00	0.00	0.05	0.00	59.23	1.05	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
59.31	0.95	0.05	67.96	0.09	0.00	59.38	0.89	0.11	4.90	0.07	0.00
59.41	0.84	0.16	2.46	0.03	0.00	59.46	0.86	0.14	3.03	0.05	0.00
59.51	0.86	0.14	3.00	0.05	0.00	59.57	0.89	0.11	5.27	0.05	0.00
59.66	0.98	0.02	7667.36	0.09	0.00	59.75	1.08	0.00	0.00	0.09	0.00
59.80	1.18	0.00	0.00	0.05	0.00	59.85	1.36	0.00	0.00	0.05	0.00
59.91	1.39	0.00	0.00	0.06	0.00	59.99	1.42	0.00	0.00	0.08	0.00
60.05	1.47	0.00	0.00	0.05	0.00	60.09	1.44	0.00	0.00	0.04	0.00
60.14	1.35	0.00	0.00	0.05	0.00	60.19	1.29	0.00	0.00	0.05	0.00
60.22	1.25	0.00	0.00	0.03	0.00	60.28	1.15	0.00	0.00	0.06	0.00
60.33	1.00	0.00	370871701	0.05	0.00	60.38	0.84	0.16	2.34	0.05	0.00
60.42	0.74	0.26	1.15	0.04	0.00	60.48	0.64	0.36	0.73	0.06	0.01
60.57	0.55	0.45	0.55	0.09	0.01	60.66	0.47	0.53	0.45	0.09	0.01
60.68	0.43	0.57	0.41	0.03	0.00	60.69	0.41	0.59	0.40	0.01	0.00
60.74	0.40	0.60	0.38	0.05	0.01	60.79	0.38	0.62	0.37	0.05	0.01
60.84	0.36	0.64	0.36	0.05	0.01	60.89	0.34	0.66	0.35	0.05	0.01
60.98	0.33	0.67	0.34	0.09	0.01	61.03	0.35	0.65	0.35	0.04	0.01
61.08	0.40	0.60	0.38	0.06	0.01	61.18	0.46	0.54	0.44	0.09	0.01
61.23	0.54	0.46	0.53	0.06	0.01	61.31	0.49	0.51	0.47	0.08	0.01
61.42	0.49	0.51	0.47	0.10	0.01	61.47	0.55	0.45	0.54	0.05	0.00
61.51	0.61	0.39	0.65	0.05	0.00	61.54	0.62	0.38	0.68	0.02	0.00
61.57	0.66	0.34	0.78	0.03	0.00	61.58	0.74	0.26	1.10	0.02	0.00
61.61	0.65	0.35	0.76	0.03	0.00	61.63	0.61	0.39	0.64	0.01	0.00
61.63	0.47	0.53	0.45	0.01	0.00	61.66	0.39	0.61	0.38	0.02	0.00
61.67	0.43	0.57	0.41	0.01	0.00	61.70	0.42	0.58	0.40	0.03	0.00
61.71	0.43	0.57	0.41	0.01	0.00	61.76	0.44	0.56	0.42	0.04	0.00
61.80	0.47	0.53	0.45	0.05	0.00	61.84	0.49	0.51	0.47	0.04	0.00
61.86	0.53	0.47	0.52	0.02	0.00	61.93	0.57	0.43	0.58	0.07	0.01
61.98	0.55	0.45	0.54	0.05	0.00	62.04	0.69	0.31	0.87	0.06	0.00
62.09	0.86	0.14	2.85	0.05	0.00	62.14	0.98	0.02	303039.98	0.05	0.00
62.19	1.07	0.00	0.00	0.05	0.00	62.24	1.11	0.00	0.00	0.05	0.00
62.26	1.17	0.00	0.00	0.02	0.00	62.29	1.17	0.00	0.00	0.03	0.00
62.38	1.15	0.00	0.00	0.09	0.00	62.44	1.02	0.00	0.00	0.06	0.00
62.46	0.92	0.08	11.18	0.02	0.00	62.47	0.84	0.16	2.27	0.01	0.00
62.51	0.86	0.14	2.91	0.04	0.00	62.56	0.90	0.10	5.86	0.05	0.00
62.60	0.96	0.04	92.83	0.04	0.00	62.65	0.97	0.03	2178.99	0.05	0.00
62.70	0.98	0.02	4021.39	0.05	0.00	62.75	0.98	0.02	10362.26	0.05	0.00
62.80	1.03	0.00	0.00	0.05	0.00	62.85	1.19	0.00	0.00	0.05	0.00
62.89	1.44	0.00	0.00	0.05	0.00	62.97	1.79	0.00	0.00	0.07	0.00
63.04	2.00	0.00	0.00	0.07	0.00	63.09	2.00	0.00	0.00	0.05	0.00
63.13	2.00	0.00	0.00	0.05	0.00	63.19	2.00	0.00	0.00	0.05	0.00
63.23	2.00	0.00	0.00	0.04	0.00	63.28	2.00	0.00	0.00	0.05	0.00
63.32	2.00	0.00	0.00	0.04	0.00	63.38	2.00	0.00	0.00	0.06	0.00
63.44	2.00	0.00	0.00	0.06	0.00	63.52	2.00	0.00	0.00	0.08	0.00
63.57	2.00	0.00	0.00	0.05	0.00	63.66	2.00	0.00	0.00	0.09	0.00
63.73	1.22	0.00	0.00	0.06	0.00	63.76	0.90	0.10	6.71	0.03	0.00
63.76	0.86	0.14	3.13	0.01	0.00	63.78	0.91	0.09	8.14	0.02	0.00
63.81	1.10	0.00	0.00	0.03	0.00	63.85	1.17	0.00	0.00	0.04	0.00
63.86	1.15	0.00	0.00	0.01	0.00	63.91	1.21	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
63.94	1.25	0.00	0.00	0.03	0.00	63.95	1.27	0.00	0.00	0.02	0.00
64.00	1.26	0.00	0.00	0.05	0.00	64.02	1.23	0.00	0.00	0.01	0.00
64.05	1.20	0.00	0.00	0.03	0.00	64.09	1.18	0.00	0.00	0.04	0.00
64.11	1.14	0.00	0.00	0.02	0.00	64.15	1.10	0.00	0.00	0.04	0.00
64.20	1.08	0.00	0.00	0.05	0.00	64.25	1.09	0.00	0.00	0.05	0.00
64.29	1.21	0.00	0.00	0.04	0.00	64.34	1.40	0.00	0.00	0.05	0.00
64.43	1.63	0.00	0.00	0.08	0.00	64.48	1.81	0.00	0.00	0.05	0.00
64.53	1.90	0.00	0.00	0.05	0.00	64.58	1.99	0.00	0.00	0.05	0.00
64.63	2.00	0.00	0.00	0.05	0.00	64.68	2.00	0.00	0.00	0.05	0.00
64.73	2.00	0.00	0.00	0.05	0.00	64.77	2.00	0.00	0.00	0.05	0.00
64.82	2.00	0.00	0.00	0.04	0.00	64.87	2.00	0.00	0.00	0.05	0.00
64.89	2.00	0.00	0.00	0.02	0.00	64.93	2.00	0.00	0.00	0.04	0.00
64.94	2.00	0.00	0.00	0.01	0.00	64.98	2.00	0.00	0.00	0.04	0.00
64.99	2.00	0.00	0.00	0.01	0.00	65.03	2.00	0.00	0.00	0.05	0.00
65.08	2.00	0.00	0.00	0.05	0.00	65.13	2.00	0.00	0.00	0.05	0.00
65.17	2.00	0.00	0.00	0.04	0.00	65.22	2.00	0.00	0.00	0.05	0.00
65.23	2.00	0.00	0.00	0.01	0.00	65.28	2.00	0.00	0.00	0.05	0.00
65.32	2.00	0.00	0.00	0.04	0.00	65.37	2.00	0.00	0.00	0.05	0.00
65.42	2.00	0.00	0.00	0.05	0.00	65.47	2.00	0.00	0.00	0.05	0.00
65.48	1.97	0.00	0.00	0.01	0.00	65.49	1.83	0.00	0.00	0.01	0.00
65.52	1.81	0.00	0.00	0.03	0.00	65.57	1.88	0.00	0.00	0.05	0.00
65.62	1.99	0.00	0.00	0.05	0.00	65.67	2.00	0.00	0.00	0.05	0.00
65.69	2.00	0.00	0.00	0.01	0.00	65.72	2.00	0.00	0.00	0.03	0.00
65.77	2.00	0.00	0.00	0.05	0.00	65.82	2.00	0.00	0.00	0.05	0.00
65.86	2.00	0.00	0.00	0.04	0.00	65.86	2.00	0.00	0.00	0.01	0.00
65.91	2.00	0.00	0.00	0.05	0.00	65.96	2.00	0.00	0.00	0.04	0.00

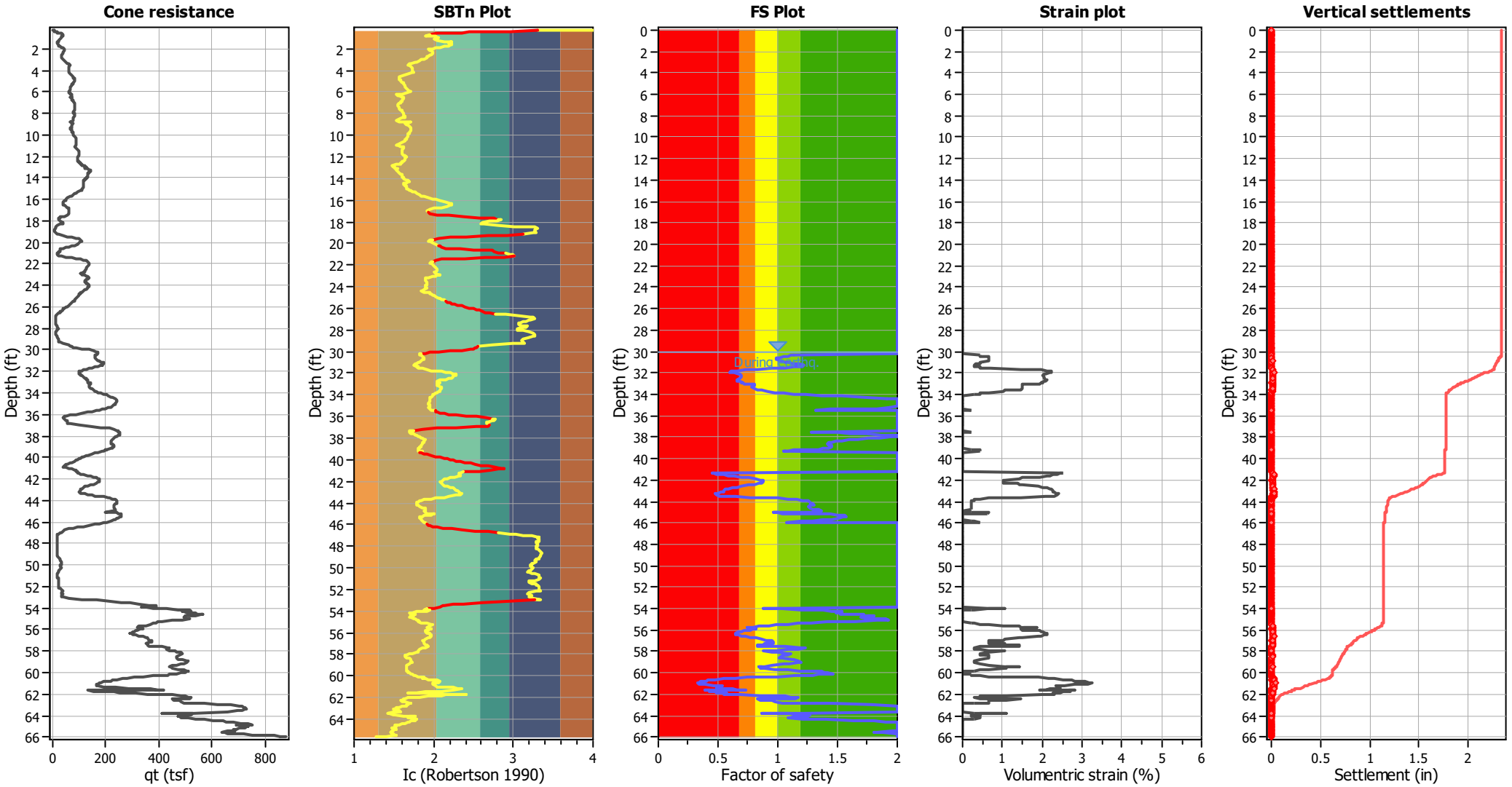
Overall liquefaction potential: 2.18

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.05	136.43	2.00	0.00	1.00	0.00	30.14	140.95	2.00	0.00	1.00	0.00
30.19	142.08	2.00	0.00	1.00	0.00	30.24	142.19	2.00	0.00	1.00	0.00
30.29	142.38	1.14	0.44	1.00	0.00	30.38	141.39	1.12	0.44	1.00	0.00
30.43	139.76	1.09	0.44	1.00	0.00	30.48	137.67	1.05	0.66	1.00	0.00
30.54	135.86	1.02	0.66	1.00	0.00	30.62	134.98	1.00	0.67	1.00	0.01
30.67	134.34	0.99	0.67	1.00	0.00	30.72	134.61	0.99	0.67	1.00	0.00
30.76	134.89	1.00	0.67	1.00	0.00	30.86	135.92	1.01	0.66	1.00	0.01
30.91	137.26	1.03	0.66	1.00	0.00	30.95	138.94	1.06	0.45	1.00	0.00
31.03	140.71	1.09	0.44	1.00	0.00	31.10	142.33	1.12	0.44	1.00	0.00
31.15	144.07	1.15	0.31	1.00	0.00	31.20	146.05	1.19	0.31	1.00	0.00
31.26	147.81	1.22	0.31	1.00	0.00	31.34	147.23	1.21	0.31	1.00	0.00
31.37	146.99	1.20	0.31	1.00	0.00	31.38	145.70	1.18	0.31	1.00	0.00
31.43	146.17	1.19	0.31	1.00	0.00	31.47	143.44	1.13	0.44	1.00	0.00
31.55	139.35	1.06	0.44	1.00	0.00	31.59	132.93	0.95	0.68	1.00	0.00
31.66	124.83	0.83	1.47	1.00	0.01	31.73	116.80	0.73	1.97	1.00	0.02
31.78	110.36	0.65	2.14	1.00	0.01	31.84	106.34	0.61	2.22	1.00	0.02
31.93	104.84	0.60	2.25	1.00	0.02	31.98	106.04	0.61	2.23	1.00	0.01
32.02	108.88	0.64	2.18	1.00	0.01	32.09	111.87	0.67	2.10	1.00	0.02
32.16	113.86	0.69	2.04	1.00	0.02	32.22	114.52	0.70	2.03	1.00	0.01
32.27	114.53	0.70	2.03	1.00	0.01	32.34	114.38	0.69	2.03	1.00	0.02
32.42	114.11	0.69	2.04	1.00	0.02	32.46	113.62	0.68	2.05	1.00	0.01
32.54	113.25	0.68	2.06	1.00	0.02	32.60	112.00	0.66	2.09	1.00	0.02
32.67	111.53	0.66	2.11	1.00	0.02	32.75	111.85	0.66	2.10	1.00	0.02
32.81	113.95	0.68	2.04	1.00	0.01	32.89	116.21	0.71	1.99	1.00	0.02
32.94	114.84	0.69	2.02	1.00	0.01	32.95	116.07	0.71	1.99	1.00	0.00
33.00	117.56	0.72	1.95	1.00	0.01	33.06	122.40	0.79	1.51	1.00	0.01
33.11	123.66	0.80	1.49	1.00	0.01	33.20	123.53	0.80	1.49	1.00	0.02
33.25	123.06	0.79	1.50	1.00	0.01	33.34	122.48	0.78	1.51	1.00	0.02
33.38	122.68	0.79	1.51	1.00	0.01	33.48	123.78	0.80	1.49	1.00	0.02
33.58	125.79	0.83	1.45	1.00	0.02	33.63	128.81	0.87	1.08	1.00	0.01
33.73	132.15	0.92	1.04	1.00	0.01	33.82	136.16	0.98	0.66	1.00	0.01
33.87	140.58	1.05	0.44	1.00	0.00	33.96	145.13	1.13	0.43	1.00	0.00
34.02	150.66	1.23	0.30	1.00	0.00	34.11	157.32	1.37	0.00	1.00	0.00
34.18	164.99	1.54	0.00	1.00	0.00	34.26	172.52	1.72	0.00	1.00	0.00
34.35	179.50	1.91	0.00	1.00	0.00	34.44	185.53	2.00	0.00	1.00	0.00
34.49	190.23	2.00	0.00	1.00	0.00	34.59	192.83	2.00	0.00	1.00	0.00
34.69	194.12	2.00	0.00	1.00	0.00	34.76	194.53	2.00	0.00	1.00	0.00
34.83	194.02	2.00	0.00	1.00	0.00	34.93	191.54	2.00	0.00	1.00	0.00
35.02	188.08	2.00	0.00	1.00	0.00	35.12	184.23	2.00	0.00	1.00	0.00
35.22	181.13	1.94	0.00	1.00	0.00	35.30	177.46	1.83	0.00	1.00	0.00
35.38	168.21	1.60	0.00	1.00	0.00	35.43	161.35	1.44	0.00	1.00	0.00
35.46	155.80	1.32	0.21	1.00	0.00	35.51	153.78	2.00	0.00	1.00	0.00
35.56	146.76	2.00	0.00	1.00	0.00	35.66	138.53	2.00	0.00	1.00	0.00
35.70	130.03	2.00	0.00	1.00	0.00	35.80	123.66	2.00	0.00	1.00	0.00
35.89	119.95	2.00	0.00	1.00	0.00	35.96	120.81	2.00	0.00	1.00	0.00
36.04	120.37	2.00	0.00	1.00	0.00	36.14	117.01	2.00	0.00	1.00	0.00
36.19	110.69	2.00	0.00	1.00	0.00	36.28	110.05	2.00	0.00	1.00	0.00
36.33	108.32	2.00	0.00	1.00	0.00	36.42	108.08	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
36.48	107.27	2.00	0.00	1.00	0.00	36.52	112.95	2.00	0.00	1.00	0.00
36.62	119.67	2.00	0.00	1.00	0.00	36.68	126.59	2.00	0.00	1.00	0.00
36.77	128.11	2.00	0.00	1.00	0.00	36.86	126.60	2.00	0.00	1.00	0.00
36.90	115.19	2.00	0.00	1.00	0.00	37.00	103.13	2.00	0.00	1.00	0.00
37.10	112.56	2.00	0.00	1.00	0.00	37.20	136.84	2.00	0.00	1.00	0.00
37.29	147.30	2.00	0.00	1.00	0.00	37.39	149.01	2.00	0.00	1.00	0.00
37.49	155.00	1.28	0.21	1.00	0.00	37.53	160.20	1.39	0.00	1.00	0.00
37.58	165.44	1.51	0.00	1.00	0.00	37.62	169.66	1.60	0.00	1.00	0.00
37.69	175.10	1.74	0.00	1.00	0.00	37.77	179.78	1.86	0.00	1.00	0.00
37.82	183.39	1.96	0.00	1.00	0.00	37.87	184.85	2.00	0.00	1.00	0.00
37.91	184.82	2.00	0.00	1.00	0.00	37.97	183.06	1.95	0.00	1.00	0.00
38.06	179.59	1.85	0.00	1.00	0.00	38.10	175.74	1.75	0.00	1.00	0.00
38.17	172.34	1.67	0.00	1.00	0.00	38.25	169.66	1.60	0.00	1.00	0.00
38.35	167.11	1.54	0.00	1.00	0.00	38.40	164.83	1.48	0.00	1.00	0.00
38.46	163.21	1.45	0.00	1.00	0.00	38.54	162.26	1.43	0.00	1.00	0.00
38.60	161.69	1.41	0.00	1.00	0.00	38.69	161.77	1.41	0.00	1.00	0.00
38.74	162.53	1.43	0.00	1.00	0.00	38.83	163.73	1.46	0.00	1.00	0.00
38.88	163.54	1.45	0.00	1.00	0.00	38.97	162.47	1.43	0.00	1.00	0.00
39.02	160.45	1.38	0.00	1.00	0.00	39.11	158.54	1.34	0.21	1.00	0.00
39.16	154.99	1.27	0.21	1.00	0.00	39.23	148.10	1.14	0.43	1.00	0.00
39.24	145.08	1.08	0.43	1.00	0.00	39.28	143.39	1.05	0.44	1.00	0.00
39.32	144.08	1.07	0.43	1.00	0.00	39.39	139.67	2.00	0.00	1.00	0.00
39.47	133.48	2.00	0.00	1.00	0.00	39.54	125.99	2.00	0.00	1.00	0.00
39.62	117.99	2.00	0.00	1.00	0.00	39.71	110.70	2.00	0.00	1.00	0.00
39.76	105.08	2.00	0.00	1.00	0.00	39.85	101.34	2.00	0.00	1.00	0.00
39.90	98.95	2.00	0.00	1.00	0.00	40.00	97.53	2.00	0.00	1.00	0.00
40.06	96.96	2.00	0.00	1.00	0.00	40.15	97.18	2.00	0.00	1.00	0.00
40.21	98.86	2.00	0.00	1.00	0.00	40.29	102.19	2.00	0.00	1.00	0.00
40.35	108.27	2.00	0.00	1.00	0.00	40.43	111.81	2.00	0.00	1.00	0.00
40.52	114.58	2.00	0.00	1.00	0.00	40.58	115.00	2.00	0.00	1.00	0.00
40.67	116.83	2.00	0.00	1.00	0.00	40.77	117.65	2.00	0.00	1.00	0.00
40.84	117.99	2.00	0.00	1.00	0.00	40.89	116.25	2.00	0.00	1.00	0.00
40.94	111.31	2.00	0.00	1.00	0.00	41.03	103.18	2.00	0.00	1.00	0.00
41.08	96.47	2.00	0.00	1.00	0.00	41.14	92.51	2.00	0.00	1.00	0.00
41.22	90.97	2.00	0.00	1.00	0.00	41.28	91.29	0.45	2.52	1.00	0.02
41.33	93.52	0.46	2.47	1.00	0.01	41.42	97.02	0.49	2.40	1.00	0.03
41.47	100.81	0.52	2.32	1.00	0.01	41.52	104.48	0.55	2.25	1.00	0.02
41.62	107.92	0.58	2.20	1.00	0.02	41.67	112.91	0.63	2.12	1.00	0.01
41.76	118.23	0.69	1.94	1.00	0.02	41.82	123.75	0.76	1.49	1.00	0.01
41.90	128.02	0.81	1.42	1.00	0.01	41.99	131.05	0.85	1.05	1.00	0.01
42.05	132.58	0.88	1.03	1.00	0.01	42.15	132.77	0.88	1.03	1.00	0.01
42.23	132.06	0.87	1.04	1.00	0.01	42.30	130.51	0.85	1.38	1.00	0.01
42.38	127.88	0.81	1.42	1.00	0.01	42.48	123.60	0.75	1.49	1.00	0.02
42.57	119.15	0.70	1.92	1.00	0.02	42.64	115.28	0.66	2.01	1.00	0.02
42.72	111.72	0.62	2.13	1.00	0.02	42.82	108.24	0.58	2.19	1.00	0.03
42.90	105.42	0.56	2.24	1.00	0.02	42.97	104.32	0.55	2.26	1.00	0.02
43.06	104.69	0.55	2.25	1.00	0.02	43.15	102.43	0.53	2.29	1.00	0.03
43.20	99.54	0.51	2.35	1.00	0.01	43.30	95.67	0.48	2.42	1.00	0.03

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
43.40	97.12	0.49	2.39	1.00	0.03	43.48	100.97	0.52	2.32	1.00	0.02
43.51	103.89	0.54	2.26	1.00	0.01	43.52	107.23	0.57	2.21	1.00	0.00
43.56	114.20	0.64	2.10	1.00	0.01	43.61	124.81	0.77	1.47	1.00	0.01
43.67	133.29	0.88	1.02	1.00	0.01	43.72	140.56	1.00	0.64	1.00	0.00
43.80	145.95	1.09	0.43	1.00	0.00	43.85	149.84	1.16	0.31	1.00	0.00
43.90	152.56	1.21	0.30	1.00	0.00	43.94	154.37	1.24	0.30	1.00	0.00
43.99	155.28	1.26	0.21	1.00	0.00	44.08	155.65	1.27	0.21	1.00	0.00
44.14	156.49	1.28	0.21	1.00	0.00	44.22	157.19	1.30	0.21	1.00	0.00
44.28	157.37	1.30	0.21	1.00	0.00	44.33	156.78	1.29	0.21	1.00	0.00
44.40	155.80	1.27	0.21	1.00	0.00	44.48	155.90	1.27	0.21	1.00	0.00
44.52	155.24	1.26	0.21	1.00	0.00	44.61	155.88	1.27	0.21	1.00	0.00
44.72	156.70	1.29	0.21	1.00	0.00	44.77	159.04	1.34	0.21	1.00	0.00
44.91	160.27	1.36	0.00	1.00	0.00	44.95	156.88	1.29	0.21	1.00	0.00
45.02	154.33	1.24	0.30	1.00	0.00	45.04	138.44	0.96	0.65	1.00	0.00
45.06	140.63	1.00	0.64	1.00	0.00	45.11	143.03	1.04	0.63	1.00	0.00
45.15	160.49	1.37	0.00	1.00	0.00	45.21	163.81	1.44	0.00	1.00	0.00
45.25	166.43	1.50	0.00	1.00	0.00	45.30	168.34	1.54	0.00	1.00	0.00
45.35	169.35	1.57	0.00	1.00	0.00	45.41	169.64	1.57	0.00	1.00	0.00
45.49	168.87	1.55	0.00	1.00	0.00	45.55	167.24	1.52	0.00	1.00	0.00
45.63	164.52	1.46	0.00	1.00	0.00	45.69	161.09	1.38	0.00	1.00	0.00
45.78	156.88	1.29	0.21	1.00	0.00	45.84	151.68	1.19	0.30	1.00	0.00
45.93	145.18	1.07	0.43	1.00	0.00	46.02	137.24	2.00	0.00	1.00	0.00
46.08	128.00	2.00	0.00	1.00	0.00	46.16	118.20	2.00	0.00	1.00	0.00
46.24	108.31	2.00	0.00	1.00	0.00	46.31	99.54	2.00	0.00	1.00	0.00
46.41	94.32	2.00	0.00	1.00	0.00	46.48	95.41	2.00	0.00	1.00	0.00
46.56	101.49	2.00	0.00	1.00	0.00	46.65	106.39	2.00	0.00	1.00	0.00
46.75	104.92	2.00	0.00	1.00	0.00	46.84	96.75	2.00	0.00	1.00	0.00
46.94	92.20	2.00	0.00	1.00	0.00	47.02	89.65	2.00	0.00	1.00	0.00
47.08	87.68	2.00	0.00	1.00	0.00	47.12	86.24	2.00	0.00	1.00	0.00
47.16	84.67	2.00	0.00	1.00	0.00	47.21	82.35	2.00	0.00	1.00	0.00
47.27	79.44	2.00	0.00	1.00	0.00	47.35	76.72	2.00	0.00	1.00	0.00
47.40	72.71	2.00	0.00	1.00	0.00	47.50	68.97	2.00	0.00	1.00	0.00
47.55	65.28	2.00	0.00	1.00	0.00	47.61	63.67	2.00	0.00	1.00	0.00
47.69	62.57	2.00	0.00	1.00	0.00	47.76	61.71	2.00	0.00	1.00	0.00
47.83	60.22	2.00	0.00	1.00	0.00	47.93	58.40	2.00	0.00	1.00	0.00
48.02	57.34	2.00	0.00	1.00	0.00	48.09	56.35	2.00	0.00	1.00	0.00
48.18	57.05	2.00	0.00	1.00	0.00	48.27	58.44	2.00	0.00	1.00	0.00
48.37	61.09	2.00	0.00	1.00	0.00	48.46	62.98	2.00	0.00	1.00	0.00
48.52	64.25	2.00	0.00	1.00	0.00	48.60	65.23	2.00	0.00	1.00	0.00
48.70	65.99	2.00	0.00	1.00	0.00	48.79	66.70	2.00	0.00	1.00	0.00
48.85	68.42	2.00	0.00	1.00	0.00	48.94	71.44	2.00	0.00	1.00	0.00
49.04	73.34	2.00	0.00	1.00	0.00	49.13	82.09	2.00	0.00	1.00	0.00
49.23	92.00	2.00	0.00	1.00	0.00	49.33	102.80	2.00	0.00	1.00	0.00
49.38	109.60	2.00	0.00	1.00	0.00	49.42	114.80	2.00	0.00	1.00	0.00
49.48	118.93	2.00	0.00	1.00	0.00	49.53	121.43	2.00	0.00	1.00	0.00
49.58	123.62	2.00	0.00	1.00	0.00	49.63	125.52	2.00	0.00	1.00	0.00
49.72	126.23	2.00	0.00	1.00	0.00	49.77	125.98	2.00	0.00	1.00	0.00
49.83	125.40	2.00	0.00	1.00	0.00	49.92	124.67	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
49.97	123.55	2.00	0.00	1.00	0.00	50.04	122.65	2.00	0.00	1.00	0.00
50.11	122.33	2.00	0.00	1.00	0.00	50.20	120.55	2.00	0.00	1.00	0.00
50.27	116.01	2.00	0.00	1.00	0.00	50.34	107.79	2.00	0.00	1.00	0.00
50.45	99.22	2.00	0.00	1.00	0.00	50.54	92.39	2.00	0.00	1.00	0.00
50.59	87.71	2.00	0.00	1.00	0.00	50.68	83.78	2.00	0.00	1.00	0.00
50.79	80.17	2.00	0.00	1.00	0.00	50.88	78.18	2.00	0.00	1.00	0.00
50.98	77.89	2.00	0.00	1.00	0.00	51.07	76.09	2.00	0.00	1.00	0.00
51.17	71.67	2.00	0.00	1.00	0.00	51.24	68.77	2.00	0.00	1.00	0.00
51.33	70.43	2.00	0.00	1.00	0.00	51.46	74.75	2.00	0.00	1.00	0.00
51.46	78.20	2.00	0.00	1.00	0.00	51.51	79.60	2.00	0.00	1.00	0.00
51.56	82.02	2.00	0.00	1.00	0.00	51.65	84.26	2.00	0.00	1.00	0.00
51.71	86.89	2.00	0.00	1.00	0.00	51.79	88.80	2.00	0.00	1.00	0.00
51.85	92.19	2.00	0.00	1.00	0.00	51.94	96.33	2.00	0.00	1.00	0.00
51.99	102.62	2.00	0.00	1.00	0.00	52.09	109.52	2.00	0.00	1.00	0.00
52.19	116.81	2.00	0.00	1.00	0.00	52.28	122.63	2.00	0.00	1.00	0.00
52.35	128.41	2.00	0.00	1.00	0.00	52.43	132.82	2.00	0.00	1.00	0.00
52.52	136.28	2.00	0.00	1.00	0.00	52.62	135.93	2.00	0.00	1.00	0.00
52.72	133.92	2.00	0.00	1.00	0.00	52.81	135.53	2.00	0.00	1.00	0.00
52.91	146.31	2.00	0.00	1.00	0.00	53.00	154.70	2.00	0.00	1.00	0.00
53.10	148.13	2.00	0.00	1.00	0.00	53.20	129.79	2.00	0.00	1.00	0.00
53.29	114.61	2.00	0.00	1.00	0.00	53.38	114.09	2.00	0.00	1.00	0.00
53.46	119.81	2.00	0.00	1.00	0.00	53.53	130.93	2.00	0.00	1.00	0.00
53.63	139.93	2.00	0.00	1.00	0.00	53.73	146.92	2.00	0.00	1.00	0.00
53.82	150.03	2.00	0.00	1.00	0.00	53.92	146.54	2.00	0.00	1.00	0.00
53.94	138.23	0.98	0.65	1.00	0.00	53.96	131.20	0.88	1.05	1.00	0.00
53.97	134.16	0.92	1.01	1.00	0.00	54.05	141.00	1.03	0.64	1.00	0.01
54.08	150.15	1.19	0.31	1.00	0.00	54.13	154.41	1.28	0.21	1.00	0.00
54.19	159.56	1.38	0.00	1.00	0.00	54.25	162.94	1.46	0.00	1.00	0.00
54.28	166.66	1.54	0.00	1.00	0.00	54.29	164.40	1.49	0.00	1.00	0.00
54.34	164.35	1.49	0.00	1.00	0.00	54.35	164.72	1.50	0.00	1.00	0.00
54.40	165.62	1.52	0.00	1.00	0.00	54.44	166.45	1.54	0.00	1.00	0.00
54.49	165.88	1.53	0.00	1.00	0.00	54.53	167.39	1.56	0.00	1.00	0.00
54.57	171.02	1.65	0.00	1.00	0.00	54.58	173.92	1.72	0.00	1.00	0.00
54.63	173.90	1.72	0.00	1.00	0.00	54.68	176.93	1.80	0.00	1.00	0.00
54.73	175.12	1.75	0.00	1.00	0.00	54.78	173.29	1.71	0.00	1.00	0.00
54.83	172.82	1.70	0.00	1.00	0.00	54.88	175.08	1.75	0.00	1.00	0.00
54.92	178.37	1.84	0.00	1.00	0.00	54.97	180.73	1.91	0.00	1.00	0.00
55.02	181.62	1.93	0.00	1.00	0.00	55.12	178.01	1.83	0.00	1.00	0.00
55.17	170.63	1.64	0.00	1.00	0.00	55.25	160.49	1.41	0.00	1.00	0.00
55.31	154.46	1.28	0.21	1.00	0.00	55.36	148.87	1.17	0.31	1.00	0.00
55.45	143.68	1.08	0.44	1.00	0.00	55.50	137.89	0.98	0.66	1.00	0.00
55.60	133.93	0.92	1.02	1.00	0.01	55.65	128.15	0.84	1.41	1.00	0.01
55.71	124.39	0.79	1.48	1.00	0.01	55.75	121.19	0.75	1.87	1.00	0.01
55.79	121.90	0.76	1.52	1.00	0.01	55.84	123.76	0.78	1.49	1.00	0.01
55.89	125.39	0.80	1.46	1.00	0.01	55.90	126.17	0.81	1.45	1.00	0.00
55.94	124.98	0.80	1.47	1.00	0.01	55.99	122.89	0.77	1.50	1.00	0.01
56.03	120.41	0.74	1.89	1.00	0.01	56.08	118.54	0.72	1.93	1.00	0.01
56.14	116.74	0.69	1.97	1.00	0.01	56.22	114.65	0.67	2.02	1.00	0.02

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
56.28	112.90	0.65	2.07	1.00	0.01	56.33	112.38	0.65	2.12	1.00	0.01
56.38	112.46	0.65	2.12	1.00	0.01	56.45	114.23	0.67	2.04	1.00	0.02
56.52	117.01	0.70	1.97	1.00	0.02	56.62	120.21	0.74	1.89	1.00	0.02
56.66	123.02	0.77	1.50	1.00	0.01	56.73	126.65	0.82	1.44	1.00	0.01
56.81	129.59	0.86	1.07	1.00	0.01	56.95	132.64	0.91	1.03	1.00	0.02
57.00	135.80	0.96	0.66	1.00	0.00	57.09	136.52	0.97	0.66	1.00	0.01
57.19	135.85	0.96	0.66	1.00	0.01	57.27	131.44	0.89	1.05	1.00	0.01
57.35	130.16	0.87	1.06	1.00	0.01	57.44	127.36	0.83	1.43	1.00	0.02
57.50	127.07	0.83	1.43	1.00	0.01	57.52	131.85	0.90	1.04	1.00	0.00
57.58	141.73	1.06	0.44	1.00	0.00	57.63	149.17	1.19	0.31	1.00	0.00
57.72	151.31	1.23	0.30	1.00	0.00	57.77	148.26	1.18	0.31	1.00	0.00
57.82	143.29	1.09	0.44	1.00	0.00	57.91	137.09	0.98	0.66	1.00	0.01
57.96	130.46	0.88	1.06	1.00	0.01	58.02	135.16	0.95	0.67	1.00	0.00
58.09	138.12	1.00	0.65	1.00	0.01	58.16	142.65	1.08	0.44	1.00	0.00
58.25	144.36	1.11	0.43	1.00	0.01	58.30	143.26	1.09	0.44	1.00	0.00
58.40	140.74	1.04	0.64	1.00	0.01	58.50	139.77	1.03	0.65	1.00	0.01
58.56	138.70	1.01	0.65	1.00	0.00	58.64	140.28	1.04	0.64	1.00	0.01
58.73	145.16	1.12	0.43	1.00	0.00	58.78	145.87	1.14	0.43	1.00	0.00
58.88	147.98	1.18	0.31	1.00	0.00	58.97	149.10	1.20	0.31	1.00	0.00
59.07	147.53	1.17	0.31	1.00	0.00	59.13	143.73	1.10	0.44	1.00	0.00
59.23	140.99	1.05	0.44	1.00	0.01	59.31	134.94	0.95	0.67	1.00	0.01
59.38	130.71	0.89	1.05	1.00	0.01	59.41	127.40	0.84	1.43	1.00	0.01
59.46	128.62	0.86	1.08	1.00	0.01	59.51	128.55	0.86	1.08	1.00	0.01
59.57	130.91	0.89	1.05	1.00	0.01	59.66	136.37	0.98	0.66	1.00	0.01
59.75	142.44	1.08	0.44	1.00	0.00	59.80	147.84	1.18	0.31	1.00	0.00
59.85	156.99	1.36	0.00	1.00	0.00	59.91	158.02	1.39	0.00	1.00	0.00
59.99	159.53	1.42	0.00	1.00	0.00	60.05	161.59	1.47	0.00	1.00	0.00
60.09	160.52	1.44	0.00	1.00	0.00	60.14	156.08	1.35	0.21	1.00	0.00
60.19	153.23	1.29	0.21	1.00	0.00	60.22	151.55	1.25	0.22	1.00	0.00
60.28	145.94	1.15	0.43	1.00	0.00	60.33	137.48	1.00	0.66	1.00	0.00
60.38	126.83	0.84	1.44	1.00	0.01	60.42	119.65	0.74	1.91	1.00	0.01
60.48	111.02	0.64	2.14	1.00	0.02	60.57	101.50	0.55	2.31	1.00	0.02
60.66	91.67	0.47	2.51	1.00	0.03	60.68	85.85	0.43	2.65	1.00	0.01
60.69	82.84	0.41	2.73	1.00	0.00	60.74	80.07	0.40	2.80	1.00	0.02
60.79	76.18	0.38	2.92	1.00	0.02	60.84	71.82	0.36	3.07	1.00	0.02
60.89	68.64	0.34	3.18	1.00	0.02	60.98	66.57	0.33	3.26	1.00	0.04
61.03	69.19	0.35	3.16	1.00	0.02	61.08	79.69	0.40	2.81	1.00	0.02
61.18	90.12	0.46	2.54	1.00	0.03	61.23	100.04	0.54	2.34	1.00	0.02
61.31	94.03	0.49	2.46	1.00	0.02	61.42	94.11	0.49	2.46	1.00	0.03
61.47	100.64	0.55	2.32	1.00	0.01	61.51	107.25	0.61	2.21	1.00	0.01
61.54	108.54	0.62	2.18	1.00	0.01	61.57	112.23	0.66	2.09	1.00	0.01
61.58	118.74	0.74	1.93	1.00	0.00	61.61	111.49	0.65	2.11	1.00	0.01
61.63	107.07	0.61	2.21	1.00	0.00	61.63	91.77	0.47	2.51	1.00	0.00
61.66	79.27	0.39	2.83	1.00	0.01	61.67	85.35	0.43	2.66	1.00	0.00
61.70	83.80	0.42	2.70	1.00	0.01	61.71	84.55	0.43	2.68	1.00	0.00
61.76	87.45	0.44	2.61	1.00	0.01	61.80	91.10	0.47	2.52	1.00	0.01
61.84	94.04	0.49	2.46	1.00	0.01	61.86	98.87	0.53	2.36	1.00	0.01
61.93	103.69	0.57	2.27	1.00	0.02	61.98	100.92	0.55	2.32	1.00	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
62.04	114.48	0.69	2.03	1.00	0.01	62.09	127.59	0.86	1.09	1.00	0.01
62.14	136.10	0.98	0.66	1.00	0.00	62.19	140.93	1.07	0.44	1.00	0.00
62.24	143.65	1.11	0.44	1.00	0.00	62.26	146.58	1.17	0.31	1.00	0.00
62.29	146.46	1.17	0.31	1.00	0.00	62.38	145.37	1.15	0.43	1.00	0.00
62.44	138.07	1.02	0.65	1.00	0.00	62.46	132.02	0.92	1.04	1.00	0.00
62.47	126.07	0.84	1.45	1.00	0.00	62.51	127.59	0.86	1.09	1.00	0.01
62.56	130.45	0.90	1.06	1.00	0.01	62.60	134.26	0.96	0.67	1.00	0.00
62.65	135.35	0.97	0.67	1.00	0.00	62.70	135.46	0.98	0.67	1.00	0.00
62.75	135.59	0.98	0.67	1.00	0.00	62.80	138.85	1.03	0.65	1.00	0.00
62.85	147.40	1.19	0.31	1.00	0.00	62.89	159.73	1.44	0.00	1.00	0.00
62.97	173.86	1.79	0.00	1.00	0.00	63.04	187.32	2.00	0.00	1.00	0.00
63.09	197.18	2.00	0.00	1.00	0.00	63.13	200.57	2.00	0.00	1.00	0.00
63.19	200.74	2.00	0.00	1.00	0.00	63.23	201.69	2.00	0.00	1.00	0.00
63.28	203.42	2.00	0.00	1.00	0.00	63.32	204.02	2.00	0.00	1.00	0.00
63.38	202.89	2.00	0.00	1.00	0.00	63.44	203.06	2.00	0.00	1.00	0.00
63.52	199.75	2.00	0.00	1.00	0.00	63.57	194.57	2.00	0.00	1.00	0.00
63.66	183.79	2.00	0.00	1.00	0.00	63.73	148.76	1.22	0.31	1.00	0.00
63.76	130.54	0.90	1.06	1.00	0.00	63.76	127.66	0.86	1.09	1.00	0.00
63.78	131.02	0.91	1.05	1.00	0.00	63.81	142.46	1.10	0.44	1.00	0.00
63.85	146.19	1.17	0.31	1.00	0.00	63.86	145.10	1.15	0.43	1.00	0.00
63.91	148.35	1.21	0.31	1.00	0.00	63.94	150.35	1.25	0.31	1.00	0.00
63.95	151.38	1.27	0.22	1.00	0.00	64.00	150.67	1.26	0.22	1.00	0.00
64.02	149.37	1.23	0.31	1.00	0.00	64.05	148.02	1.20	0.31	1.00	0.00
64.09	146.64	1.18	0.31	1.00	0.00	64.11	144.77	1.14	0.43	1.00	0.00
64.15	142.44	1.10	0.44	1.00	0.00	64.20	141.24	1.08	0.44	1.00	0.00
64.25	141.74	1.09	0.44	1.00	0.00	64.29	148.11	1.21	0.31	1.00	0.00
64.34	157.68	1.40	0.00	1.00	0.00	64.43	167.40	1.63	0.00	1.00	0.00
64.48	174.30	1.81	0.00	1.00	0.00	64.53	177.47	1.90	0.00	1.00	0.00
64.58	180.82	1.99	0.00	1.00	0.00	64.63	187.83	2.00	0.00	1.00	0.00
64.68	195.77	2.00	0.00	1.00	0.00	64.73	198.20	2.00	0.00	1.00	0.00
64.77	202.79	2.00	0.00	1.00	0.00	64.82	207.01	2.00	0.00	1.00	0.00
64.87	201.76	2.00	0.00	1.00	0.00	64.89	196.56	2.00	0.00	1.00	0.00
64.93	189.73	2.00	0.00	1.00	0.00	64.94	196.96	2.00	0.00	1.00	0.00
64.98	199.62	2.00	0.00	1.00	0.00	64.99	201.90	2.00	0.00	1.00	0.00
65.03	201.35	2.00	0.00	1.00	0.00	65.08	199.79	2.00	0.00	1.00	0.00
65.13	196.50	2.00	0.00	1.00	0.00	65.17	193.13	2.00	0.00	1.00	0.00
65.22	189.08	2.00	0.00	1.00	0.00	65.23	186.93	2.00	0.00	1.00	0.00
65.28	186.22	2.00	0.00	1.00	0.00	65.32	186.24	2.00	0.00	1.00	0.00
65.37	186.30	2.00	0.00	1.00	0.00	65.42	187.42	2.00	0.00	1.00	0.00
65.47	183.76	2.00	0.00	1.00	0.00	65.48	179.77	1.97	0.00	1.00	0.00
65.49	174.70	1.83	0.00	1.00	0.00	65.52	174.01	1.81	0.00	1.00	0.00
65.57	176.43	1.88	0.00	1.00	0.00	65.62	180.61	1.99	0.00	1.00	0.00
65.67	-1.00	2.00	0.00	1.00	0.00	65.69	-1.00	2.00	0.00	1.00	0.00
65.72	-1.00	2.00	0.00	1.00	0.00	65.77	-1.00	2.00	0.00	1.00	0.00
65.82	-1.00	2.00	0.00	1.00	0.00	65.86	-1.00	2.00	0.00	1.00	0.00
65.86	-1.00	2.00	0.00	1.00	0.00	65.91	-1.00	2.00	0.00	1.00	0.00
65.96	-1.00	2.00	0.00	1.00	0.00						

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)

Total estimated settlement: 2.34

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.01	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.04	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.08	-0.07	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.10	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.13	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.18	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.22	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.27	0.81	1.28	50.14	63.98	4.01	4.89	3.60
0.33	2.77	4.42	15.47	68.30	3.31	5.08	10.70
0.36	5.16	8.26	7.99	66.07	2.95	0.18	0.67
0.37	7.12	11.41	5.40	61.61	2.76	0.13	0.66
0.38	8.20	13.14	4.58	60.15	2.69	0.11	0.66
0.42	9.38	15.03	3.98	59.88	2.63	0.11	0.66
0.44	10.59	16.98	3.58	60.79	2.58	0.12	0.66
0.47	12.18	19.53	3.09	60.26	2.52	0.12	0.66
0.47	14.24	22.83	2.61	59.51	2.44	0.11	0.66
0.52	17.00	27.27	2.14	58.39	2.35	0.10	0.65
0.56	20.48	32.85	1.78	58.60	2.26	0.10	0.65
0.58	24.93	40.00	1.52	60.77	2.16	0.12	0.66
0.61	30.70	49.27	1.35	66.61	2.05	0.19	0.67
0.66	36.94	59.30	1.27	75.22	1.95	0.39	0.70
0.76	40.79	65.47	1.23	80.72	1.89	0.62	0.71
0.80	38.66	62.05	1.25	77.85	1.93	0.49	0.70
0.81	35.49	56.95	1.29	73.41	1.98	0.34	0.69
0.85	32.42	52.02	1.33	69.37	2.03	0.24	0.68
0.86	32.79	52.62	1.33	69.99	2.03	0.25	0.68
0.90	32.22	51.69	1.35	70.01	2.05	0.25	0.68
0.95	31.82	51.04	1.38	70.34	2.07	0.26	0.68
1.00	30.53	48.97	1.37	67.09	2.06	0.20	0.68
1.05	28.88	46.31	1.34	62.22	2.04	0.14	0.66
1.14	26.55	42.56	1.00	42.56	2.01	0.03	0.62
1.24	24.29	38.92	1.00	38.92	2.04	0.03	0.62
1.31	20.51	32.85	1.00	32.85	2.14	0.02	0.62
1.36	17.93	28.70	1.67	48.03	2.22	0.05	0.62
1.37	17.77	28.44	1.71	48.50	2.23	0.05	0.62
1.39	18.54	29.68	1.64	48.64	2.21	0.05	0.62
1.43	19.03	30.46	1.60	48.73	2.19	0.05	0.62
1.44	18.05	28.88	1.68	48.54	2.23	0.05	0.62
1.49	18.35	29.36	1.67	49.05	2.22	0.05	0.62
1.53	18.89	30.23	1.66	50.30	2.22	0.05	0.63
1.58	19.67	31.47	1.66	52.29	2.22	0.06	0.63
1.63	20.62	32.99	1.66	54.77	2.22	0.08	0.64
1.68	21.70	34.72	1.65	57.36	2.21	0.09	0.65
1.72	23.31	37.31	1.61	60.04	2.20	0.11	0.66
1.77	25.48	40.78	1.54	62.93	2.17	0.14	0.66
1.82	28.31	45.33	1.46	66.36	2.13	0.19	0.67
1.86	31.52	50.48	1.40	70.45	2.08	0.26	0.68
1.92	35.09	56.22	1.34	75.14	2.03	0.39	0.70

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
1.97	38.67	61.96	1.29	80.21	1.98	0.59	0.71
2.01	41.61	66.68	1.27	84.88	1.95	0.72	0.72
2.09	43.22	69.27	1.26	87.55	1.94	0.72	0.72
2.16	43.05	68.99	1.27	87.53	1.95	0.72	0.72
2.20	41.47	66.43	1.28	85.02	1.96	0.72	0.72
2.25	39.85	63.83	1.29	82.39	1.98	0.71	0.71
2.31	38.60	61.82	1.30	80.09	1.99	0.59	0.71
2.37	37.79	60.52	1.29	78.32	1.98	0.51	0.70
2.40	36.88	59.05	1.30	76.51	1.99	0.44	0.70
2.46	35.97	57.57	1.29	74.55	1.98	0.37	0.69
2.54	35.36	56.59	1.29	72.87	1.97	0.32	0.69
2.59	34.69	55.51	1.00	55.51	1.96	0.08	0.64
2.69	34.25	54.80	1.00	54.80	1.94	0.08	0.64
2.74	33.95	54.31	1.00	54.31	1.92	0.07	0.64
2.83	33.88	54.19	1.00	54.19	1.92	0.07	0.64
2.88	34.35	54.94	1.00	54.94	1.91	0.08	0.64
2.98	35.70	57.10	1.00	57.10	1.89	0.09	0.65
3.03	38.57	61.71	1.00	61.71	1.85	0.13	0.66
3.12	42.31	67.72	1.00	67.72	1.82	0.21	0.68
3.21	46.83	74.97	1.00	74.97	1.79	0.38	0.70
3.27	51.66	82.72	1.00	82.72	1.76	0.71	0.71
3.34	57.05	91.38	1.00	91.38	1.72	0.73	0.73
3.41	61.91	99.18	1.00	99.18	1.69	0.75	0.75
3.51	64.20	102.85	1.00	102.85	1.68	0.75	0.75
3.55	63.63	101.93	1.00	101.93	1.70	0.75	0.75
3.65	62.42	99.97	1.00	99.97	1.72	0.75	0.75
3.75	61.71	98.83	1.00	98.83	1.73	0.75	0.75
3.83	61.44	98.39	1.00	98.39	1.73	0.75	0.75
3.94	61.11	97.84	1.00	97.84	1.73	0.74	0.74
4.04	60.30	96.53	1.00	96.53	1.73	0.74	0.74
4.13	60.63	97.06	1.08	104.72	1.75	0.76	0.76
4.24	61.68	98.73	1.00	98.73	1.74	0.75	0.75
4.38	65.15	104.30	1.00	104.30	1.68	0.76	0.76
4.50	68.93	110.36	1.00	110.36	1.62	0.77	0.77
4.62	74.13	118.70	1.00	118.70	1.57	0.78	0.78
4.71	77.89	124.73	1.00	124.73	1.57	0.79	0.79
4.75	80.93	129.61	1.00	129.61	1.57	0.80	0.80
4.84	82.11	131.50	1.00	131.50	1.58	0.80	0.80
4.89	82.93	132.82	1.00	132.82	1.58	0.80	0.80
4.94	82.93	132.82	1.00	132.82	1.58	0.80	0.80
4.98	81.72	130.87	1.00	130.87	1.59	0.80	0.80
5.07	80.10	128.25	1.00	128.25	1.60	0.80	0.80
5.13	78.48	125.65	1.00	125.65	1.61	0.79	0.79
5.17	76.79	122.93	1.00	122.93	1.61	0.79	0.79
5.27	74.77	119.67	1.00	119.67	1.62	0.78	0.78
5.32	72.75	116.42	1.00	116.42	1.63	0.78	0.78
5.42	70.86	113.37	1.00	113.37	1.64	0.77	0.77
5.46	69.34	110.93	1.00	110.93	1.64	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.56	68.02	108.80	1.00	108.80	1.65	0.76	0.76
5.61	66.87	106.96	1.00	106.96	1.66	0.76	0.76
5.71	65.86	105.32	1.00	105.32	1.66	0.76	0.76
5.78	64.92	103.80	1.00	103.80	1.67	0.76	0.76
5.85	63.84	102.06	1.00	102.06	1.68	0.75	0.75
5.95	62.83	100.42	1.00	100.42	1.69	0.75	0.75
6.00	62.32	99.61	1.00	99.61	1.71	0.75	0.75
6.09	62.93	100.57	1.00	100.57	1.66	0.75	0.75
6.14	64.75	103.50	1.00	103.50	1.60	0.75	0.75
6.24	67.52	107.94	1.00	107.94	1.53	0.76	0.76
6.30	70.42	112.60	1.00	112.60	1.54	0.77	0.77
6.38	71.40	114.16	1.00	114.16	1.56	0.77	0.77
6.46	69.58	111.22	1.00	111.22	1.60	0.77	0.77
6.50	68.43	109.38	1.00	109.38	1.62	0.77	0.77
6.56	68.84	110.02	1.00	110.02	1.63	0.77	0.77
6.63	71.30	113.98	1.00	113.98	1.61	0.77	0.77
6.68	72.51	115.92	1.00	115.92	1.61	0.78	0.78
6.76	73.49	117.34	1.00	117.34	1.61	0.78	0.78
6.82	74.54	118.51	1.00	118.51	1.60	0.78	0.78
6.88	76.19	120.59	1.00	120.59	1.59	0.78	0.78
6.96	78.38	123.33	1.00	123.33	1.58	0.79	0.79
7.03	80.54	126.09	1.00	126.09	1.56	0.79	0.79
7.11	82.06	127.75	1.00	127.75	1.55	0.80	0.80
7.16	83.04	128.83	1.00	128.83	1.55	0.80	0.80
7.26	83.82	129.11	1.00	129.11	1.55	0.80	0.80
7.31	84.43	129.55	1.00	129.55	1.56	0.80	0.80
7.40	84.63	129.06	1.00	129.06	1.56	0.80	0.80
7.45	84.52	128.43	1.00	128.43	1.56	0.80	0.80
7.54	83.95	126.75	1.00	126.75	1.57	0.79	0.79
7.60	82.84	124.58	1.00	124.58	1.58	0.79	0.79
7.68	81.22	121.42	1.00	121.42	1.59	0.79	0.79
7.74	79.70	118.70	1.00	118.70	1.60	0.78	0.78
7.83	78.55	116.27	1.00	116.27	1.61	0.78	0.78
7.90	78.35	115.47	1.00	115.47	1.61	0.78	0.78
7.98	79.10	115.95	1.00	115.95	1.62	0.78	0.78
8.05	80.62	117.66	1.00	117.66	1.62	0.78	0.78
8.12	81.69	118.66	1.00	118.66	1.62	0.78	0.78
8.19	81.66	118.08	1.00	118.08	1.62	0.78	0.78
8.27	80.48	115.81	1.00	115.81	1.64	0.78	0.78
8.36	79.13	113.39	1.00	113.39	1.65	0.77	0.77
8.41	78.35	111.75	1.00	111.75	1.61	0.77	0.77
8.50	78.42	111.21	1.00	111.21	1.57	0.77	0.77
8.60	78.79	111.10	1.00	111.10	1.54	0.77	0.77
8.70	78.76	110.43	1.00	110.43	1.56	0.77	0.77
8.74	70.97	99.16	1.00	99.16	1.64	0.75	0.75
8.78	65.57	92.36	1.00	92.36	1.68	0.73	0.73
8.81	63.58	89.84	1.00	89.84	1.71	0.73	0.73
8.86	69.75	97.38	1.00	97.38	1.66	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.91	73.77	102.14	1.00	102.14	1.64	0.75	0.75
8.94	74.34	102.81	1.00	102.81	1.64	0.75	0.75
9.02	73.80	101.95	1.00	101.95	1.66	0.75	0.75
9.10	72.52	100.12	1.00	100.12	1.68	0.75	0.75
9.17	71.17	98.18	1.00	98.18	1.69	0.74	0.74
9.22	69.95	96.47	1.00	96.47	1.70	0.74	0.74
9.31	69.01	94.84	1.00	94.84	1.71	0.74	0.74
9.37	68.50	93.92	1.00	93.92	1.72	0.74	0.74
9.42	68.60	93.81	1.00	93.81	1.72	0.74	0.74
9.52	69.18	94.01	1.00	94.01	1.72	0.74	0.74
9.60	70.19	94.84	1.00	94.84	1.71	0.74	0.74
9.66	71.54	96.20	1.00	96.20	1.70	0.74	0.74
9.74	73.13	97.75	1.00	97.75	1.69	0.74	0.74
9.81	74.58	99.20	1.00	99.20	1.69	0.75	0.75
9.89	75.79	100.34	1.00	100.34	1.68	0.75	0.75
9.98	77.04	101.50	1.00	101.50	1.68	0.75	0.75
10.03	78.79	103.47	1.00	103.47	1.68	0.75	0.75
10.13	81.26	106.04	1.00	106.04	1.67	0.76	0.76
10.23	84.06	108.97	1.00	108.97	1.66	0.76	0.76
10.32	86.45	111.33	1.00	111.33	1.65	0.77	0.77
10.38	88.11	112.97	1.00	112.97	1.65	0.77	0.77
10.47	88.68	113.17	1.00	113.17	1.65	0.77	0.77
10.57	88.44	112.36	1.00	112.36	1.65	0.77	0.77
10.66	87.94	111.05	1.00	111.05	1.61	0.77	0.77
10.76	87.67	110.18	1.00	110.18	1.57	0.77	0.77
10.85	88.00	110.11	1.00	110.11	1.53	0.77	0.77
10.92	88.54	110.44	1.00	110.44	1.55	0.77	0.77
11.00	85.17	105.80	1.00	105.80	1.58	0.76	0.76
11.07	82.17	101.74	1.00	101.74	1.61	0.75	0.75
11.10	80.21	99.18	1.00	99.18	1.63	0.75	0.75
11.15	82.81	102.16	1.00	102.16	1.62	0.75	0.75
11.19	85.41	105.18	1.00	105.18	1.61	0.76	0.76
11.24	87.43	107.45	1.00	107.45	1.61	0.76	0.76
11.29	89.66	109.95	1.00	109.95	1.61	0.77	0.77
11.34	92.29	112.96	1.00	112.96	1.60	0.77	0.77
11.40	94.89	115.81	1.00	115.81	1.60	0.78	0.78
11.47	96.81	117.83	1.00	117.83	1.60	0.78	0.78
11.53	97.72	118.60	1.00	118.60	1.60	0.78	0.78
11.58	98.23	118.97	1.00	118.97	1.60	0.78	0.78
11.65	98.70	119.16	1.00	119.16	1.61	0.78	0.78
11.72	99.17	119.34	1.00	119.34	1.61	0.78	0.78
11.77	99.00	118.88	1.00	118.88	1.61	0.78	0.78
11.82	98.36	117.83	1.00	117.83	1.62	0.78	0.78
11.88	97.25	116.19	1.00	116.19	1.64	0.78	0.78
11.97	96.10	114.49	1.00	114.49	1.65	0.77	0.77
12.02	94.75	112.75	1.00	112.75	1.65	0.77	0.77
12.06	93.54	110.95	1.00	110.95	1.65	0.77	0.77
12.11	93.03	110.11	1.00	110.11	1.65	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.21	92.63	109.15	1.00	109.15	1.65	0.76	0.76
12.25	92.93	109.21	1.00	109.21	1.64	0.76	0.76
12.30	93.00	109.05	1.00	109.05	1.64	0.76	0.76
12.31	93.44	109.51	1.00	109.51	1.63	0.77	0.77
12.32	93.64	109.72	1.00	109.72	1.63	0.77	0.77
12.35	94.21	110.25	1.00	110.25	1.62	0.77	0.77
12.40	95.26	111.26	1.00	111.26	1.61	0.77	0.77
12.45	96.78	112.82	1.00	112.82	1.60	0.77	0.77
12.52	98.43	114.40	1.00	114.40	1.60	0.77	0.77
12.56	100.32	116.43	1.00	116.43	1.59	0.78	0.78
12.62	102.04	118.16	1.00	118.16	1.59	0.78	0.78
12.65	103.69	119.90	1.00	119.90	1.56	0.78	0.78
12.71	105.14	121.32	1.00	121.32	1.53	0.78	0.78
12.76	107.34	123.61	1.00	123.61	1.48	0.79	0.79
12.83	110.34	126.74	1.00	126.74	1.48	0.79	0.79
12.88	114.29	131.03	1.00	131.03	1.50	0.80	0.80
12.93	118.94	136.14	1.00	136.14	1.50	0.81	0.81
12.98	121.44	138.73	1.00	138.73	1.52	0.81	0.81
13.03	123.77	141.10	1.00	141.10	1.52	0.81	0.81
13.04	120.16	136.93	1.00	136.93	1.54	0.81	0.81
13.07	122.72	139.66	1.00	139.66	1.54	0.81	0.81
13.13	125.66	142.70	1.00	142.70	1.55	0.82	0.82
13.17	134.36	152.37	1.00	152.37	1.53	0.83	0.83
13.22	137.87	156.08	1.00	156.08	1.53	0.84	0.84
13.27	140.13	158.31	1.00	158.31	1.54	0.84	0.84
13.32	141.11	159.12	1.00	159.12	1.54	0.84	0.84
13.37	141.28	159.00	1.00	159.00	1.55	0.84	0.84
13.41	140.67	158.02	1.00	158.02	1.55	0.84	0.84
13.46	139.05	155.85	1.00	155.85	1.56	0.83	0.83
13.51	137.63	153.98	1.00	153.98	1.57	0.83	0.83
13.56	135.98	151.81	1.00	151.81	1.58	0.83	0.83
13.60	134.29	149.65	1.00	149.65	1.59	0.83	0.83
13.66	132.81	147.65	1.00	147.65	1.60	0.82	0.82
13.75	131.80	145.98	1.00	145.98	1.60	0.82	0.82
13.80	131.19	145.02	1.00	145.02	1.60	0.82	0.82
13.89	130.75	144.01	1.00	144.01	1.61	0.82	0.82
13.94	129.81	142.69	1.00	142.69	1.61	0.82	0.82
13.99	128.19	140.62	1.00	140.62	1.63	0.81	0.81
14.09	125.39	137.21	1.00	137.21	1.65	0.81	0.81
14.14	122.28	133.79	1.00	133.79	1.68	0.80	0.80
14.23	119.38	130.35	1.00	130.35	1.70	0.80	0.80
14.28	117.19	127.54	1.00	127.54	1.68	0.79	0.79
14.38	116.43	125.95	1.00	125.95	1.66	0.79	0.79
14.42	115.35	124.40	1.00	124.40	1.63	0.79	0.79
14.52	115.79	124.40	1.00	124.40	1.63	0.79	0.79
14.57	116.75	125.23	1.00	125.23	1.64	0.79	0.79
14.67	117.53	125.60	1.00	125.60	1.64	0.79	0.79
14.68	117.83	125.93	1.00	125.93	1.64	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.70	116.41	124.39	1.00	124.39	1.65	0.79	0.79
14.75	116.58	124.38	1.00	124.38	1.66	0.79	0.79
14.80	116.18	123.80	1.00	123.80	1.66	0.79	0.79
14.89	116.21	123.45	1.00	123.45	1.67	0.79	0.79
14.94	114.76	121.75	1.00	121.75	1.68	0.79	0.79
15.04	111.83	118.29	1.00	118.29	1.69	0.78	0.78
15.13	107.24	113.18	1.01	114.51	1.71	0.77	0.77
15.21	101.74	107.19	1.06	113.68	1.74	0.77	0.77
15.28	95.87	100.87	1.10	111.36	1.76	0.77	0.77
15.38	90.00	94.46	1.14	107.63	1.79	0.76	0.76
15.47	83.86	87.79	1.17	102.77	1.82	0.75	0.75
15.57	77.55	80.97	1.20	97.12	1.85	0.74	0.74
15.67	70.76	73.71	1.23	90.52	1.89	0.73	0.73
15.77	63.91	66.40	1.26	83.47	1.93	0.71	0.71
15.86	57.27	59.33	1.29	76.63	1.98	0.44	0.70
15.96	51.73	53.45	1.34	71.45	2.03	0.29	0.69
16.05	47.31	48.75	1.40	68.25	2.09	0.22	0.68
16.15	43.60	44.83	1.51	67.79	2.15	0.21	0.68
16.25	41.11	42.13	1.63	68.47	2.20	0.22	0.68
16.31	39.86	40.76	1.71	69.57	2.23	0.25	0.68
16.39	39.72	40.48	1.70	68.78	2.23	0.23	0.68
16.48	40.50	41.08	1.65	67.59	2.21	0.21	0.68
16.59	43.06	43.47	1.53	66.70	2.17	0.19	0.67
16.68	47.95	48.20	1.40	67.68	2.09	0.21	0.68
16.76	53.89	53.96	1.31	70.90	2.01	0.27	0.69
16.86	58.72	58.53	1.27	74.31	1.95	0.36	0.69
16.92	61.25	60.90	1.25	76.25	1.92	0.43	0.70
17.02	61.65	61.10	1.25	76.36	1.92	0.43	0.70
17.11	61.14	60.41	1.26	76.12	1.94	0.42	0.70
17.22	60.40	59.48	1.28	75.94	1.96	0.42	0.70
17.35	58.51	57.44	1.34	77.19	2.04	0.46	0.70
17.45	53.15	52.07	1.57	81.76	2.18	0.68	0.71
17.55	43.40	42.36	2.26	95.58	2.38	0.74	0.74
17.61	33.92	32.93	3.48	114.42	2.57	0.77	0.77
17.64	27.41	26.45	4.70	124.38	2.70	0.79	0.79
17.70	24.84	23.84	5.27	125.58	2.75	0.79	0.79
17.75	23.12	22.09	5.71	126.01	2.79	0.79	0.79
17.80	22.04	20.96	6.07	127.17	2.82	0.79	0.79
17.85	21.57	20.45	6.49	132.79	2.85	0.80	0.80
17.94	24.37	23.10	5.83	134.72	2.80	0.81	0.81
17.99	29.74	28.29	4.75	134.51	2.70	0.81	0.81
18.09	36.42	34.65	3.76	130.35	2.60	0.80	0.80
18.15	38.34	36.42	3.61	131.44	2.58	0.80	0.80
18.23	36.08	34.09	3.99	135.89	2.63	0.81	0.81
18.33	27.03	25.22	5.88	148.20	2.80	0.82	0.82
18.43	18.43	16.85	8.99	151.54	3.01	1.12	1.20
18.52	11.28	9.87	14.46	142.66	3.27	0.79	0.70
18.59	9.25	7.88	15.23	120.07	3.30	0.54	0.56

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
18.72	8.44	7.05	14.48	102.14	3.27	0.33	0.50
18.81	7.87	6.47	14.17	91.69	3.26	0.29	0.46
18.87	7.73	6.32	14.34	90.62	3.27	0.28	0.45
18.95	7.94	6.48	14.76	95.67	3.28	0.31	0.46
19.05	8.95	7.39	13.77	101.75	3.24	0.40	0.53
19.14	11.32	9.56	10.96	104.74	3.12	0.45	0.68
19.22	15.43	13.37	7.56	101.14	2.92	0.75	0.75
19.29	23.29	20.64	4.44	91.70	2.67	0.73	0.73
19.38	36.79	33.12	2.43	80.52	2.41	0.61	0.71
19.44	54.77	49.78	1.63	81.04	2.21	0.64	0.71
19.53	73.63	67.13	1.37	92.11	2.06	0.73	0.73
19.62	89.35	81.50	1.30	105.61	1.99	0.76	0.76
19.69	100.62	91.73	1.27	116.28	1.95	0.78	0.78
19.79	106.79	97.11	1.26	122.62	1.94	0.79	0.79
19.86	108.17	98.11	1.28	125.15	1.96	0.79	0.79
19.97	105.91	95.65	1.30	124.06	1.99	0.79	0.79
20.07	101.09	90.89	1.33	120.48	2.02	0.78	0.78
20.16	94.14	84.23	1.37	115.28	2.06	0.78	0.78
20.26	84.49	75.23	1.38	103.79	2.07	0.76	0.76
20.34	72.68	64.34	1.43	91.71	2.10	0.73	0.73
20.43	59.83	52.55	1.52	80.02	2.16	0.58	0.71
20.50	47.95	41.63	2.03	84.51	2.33	0.72	0.72
20.60	37.70	32.23	3.01	96.91	2.50	0.74	0.74
20.62	30.48	25.73	4.28	110.02	2.66	0.77	0.77
20.63	28.08	23.58	4.89	115.31	2.72	0.78	0.78
20.68	27.74	23.22	5.10	118.43	2.74	0.78	0.78
20.73	27.64	23.06	5.32	122.67	2.76	0.79	0.79
20.82	25.48	21.06	6.08	128.12	2.82	0.80	0.80
20.87	23.45	19.23	6.78	130.45	2.87	0.80	0.80
20.91	21.57	17.54	7.32	128.42	2.91	0.80	0.80
20.96	19.58	15.59	7.98	124.40	2.95	0.79	0.79
21.05	17.59	13.84	8.82	122.12	3.00	0.63	0.99
21.11	16.98	13.29	9.07	120.49	3.02	0.63	0.95
21.17	17.11	13.36	9.02	120.44	3.01	0.63	0.95
21.25	21.23	17.01	6.86	116.62	2.88	0.78	0.78
21.30	31.25	25.68	4.13	106.03	2.64	0.76	0.76
21.37	48.56	40.77	2.31	94.37	2.39	0.74	0.74
21.45	68.84	58.49	1.62	94.86	2.20	0.74	0.74
21.49	87.80	75.10	1.41	105.59	2.09	0.76	0.76
21.58	103.45	88.68	1.33	117.80	2.02	0.78	0.78
21.64	115.70	99.28	1.29	128.46	1.98	0.80	0.80
21.69	124.50	106.86	1.28	136.49	1.96	0.81	0.81
21.78	130.41	111.69	1.27	142.03	1.95	0.82	0.82
21.83	133.78	114.42	1.27	145.79	1.96	0.82	0.82
21.89	135.43	115.57	1.28	148.03	1.97	0.82	0.82
21.98	136.01	115.67	1.29	149.32	1.98	0.83	0.83
22.03	135.90	115.31	1.30	150.06	1.99	0.83	0.83
22.12	134.89	114.06	1.31	149.60	2.01	0.83	0.83

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.22	133.20	112.20	1.32	148.31	2.02	0.82	0.82
22.26	130.88	110.01	1.33	146.45	2.03	0.82	0.82
22.36	128.38	107.52	1.34	144.21	2.04	0.82	0.82
22.41	125.79	105.07	1.36	142.38	2.05	0.82	0.82
22.51	123.53	102.88	1.35	138.65	2.04	0.81	0.81
22.60	121.33	100.82	1.34	134.71	2.03	0.81	0.81
22.70	119.34	98.95	1.32	130.43	2.01	0.80	0.80
22.75	116.88	96.72	1.32	127.90	2.02	0.80	0.80
22.84	109.32	89.92	1.36	122.31	2.05	0.79	0.79
22.89	107.14	87.93	1.37	120.57	2.06	0.78	0.78
22.90	104.88	85.98	1.38	118.82	2.07	0.78	0.78
22.94	110.11	90.42	1.34	121.26	2.04	0.78	0.78
23.00	112.36	92.21	1.32	122.07	2.02	0.79	0.79
23.08	118.94	97.70	1.29	126.15	1.98	0.79	0.79
23.13	127.04	104.57	1.26	131.91	1.94	0.80	0.80
23.20	134.05	110.43	1.24	136.83	1.90	0.81	0.81
23.27	137.05	112.81	1.23	138.66	1.89	0.81	0.81
23.33	135.57	111.40	1.23	136.90	1.89	0.81	0.81
23.42	131.55	107.76	1.23	132.83	1.89	0.80	0.80
23.48	126.94	103.73	1.24	128.30	1.90	0.80	0.80
23.57	123.16	100.30	1.24	124.68	1.91	0.79	0.79
23.61	121.20	98.52	1.25	122.97	1.92	0.79	0.79
23.66	121.50	98.62	1.25	123.25	1.92	0.79	0.79
23.73	124.04	100.52	1.25	125.44	1.92	0.79	0.79
23.80	127.95	103.59	1.24	128.73	1.91	0.80	0.80
23.85	131.96	106.79	1.24	132.25	1.90	0.80	0.80
23.94	134.80	108.87	1.24	134.50	1.90	0.81	0.81
24.00	135.88	109.59	1.24	135.41	1.90	0.81	0.81
24.09	135.37	108.86	1.24	134.81	1.90	0.81	0.81
24.16	133.34	106.93	1.24	133.09	1.91	0.80	0.80
24.24	130.04	104.25	1.23	128.02	1.89	0.80	0.80
24.33	125.79	100.75	1.21	122.05	1.86	0.79	0.79
24.43	121.10	96.90	1.19	115.53	1.84	0.78	0.78
24.52	114.28	90.85	1.23	111.31	1.88	0.77	0.77
24.58	108.90	86.13	1.25	107.54	1.92	0.76	0.76
24.59	104.52	82.40	1.27	104.41	1.95	0.76	0.76
24.63	104.21	82.05	1.27	104.24	1.95	0.76	0.76
24.68	103.45	81.24	1.28	103.96	1.96	0.76	0.76
24.77	102.47	80.14	1.29	103.52	1.98	0.75	0.75
24.82	100.31	78.15	1.31	102.59	2.01	0.75	0.75
24.92	97.85	75.83	1.34	101.32	2.03	0.75	0.75
25.01	95.22	73.42	1.36	100.09	2.06	0.75	0.75
25.06	92.38	70.94	1.39	98.75	2.08	0.75	0.75
25.16	89.48	68.36	1.42	97.29	2.10	0.74	0.74
25.25	86.51	65.75	1.46	95.92	2.13	0.74	0.74
25.30	83.55	63.24	1.50	94.77	2.15	0.74	0.74
25.41	80.44	60.52	1.55	93.81	2.17	0.74	0.74
25.49	77.27	57.80	1.61	93.24	2.20	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.55	73.97	55.02	1.70	93.42	2.23	0.74	0.74
25.64	70.59	52.13	1.81	94.24	2.27	0.74	0.74
25.70	67.02	49.15	1.95	95.94	2.31	0.74	0.74
25.79	63.24	46.00	2.13	97.75	2.35	0.74	0.74
25.89	58.92	42.45	2.35	99.94	2.40	0.75	0.75
25.94	54.26	38.75	2.63	101.97	2.45	0.75	0.75
26.02	49.37	34.89	2.95	102.81	2.50	0.75	0.75
26.12	45.05	31.51	3.23	101.92	2.54	0.75	0.75
26.17	40.83	28.31	3.52	99.58	2.57	0.75	0.75
26.28	37.02	25.37	3.84	97.30	2.61	0.74	0.74
26.36	33.31	22.57	4.17	94.10	2.65	0.74	0.74
26.45	29.43	19.65	4.69	92.22	2.70	0.73	0.73
26.50	24.94	16.31	5.63	91.86	2.78	0.73	0.73
26.61	20.15	12.75	7.37	93.95	2.91	0.74	0.74
26.70	15.97	9.43	10.10	95.23	3.07	0.35	0.67
26.77	12.97	7.45	12.95	96.46	3.21	0.35	0.53
26.85	11.85	6.70	14.12	94.58	3.26	0.34	0.48
26.94	11.45	6.41	14.29	91.60	3.27	0.29	0.46
27.04	11.95	6.71	13.15	88.25	3.22	0.28	0.48
27.14	12.22	6.86	12.68	86.95	3.20	0.27	0.49
27.23	12.90	7.27	11.66	84.75	3.15	0.26	0.52
27.28	13.22	7.46	11.13	83.02	3.13	0.24	0.53
27.29	13.29	7.50	10.38	77.81	3.09	0.24	0.54
27.38	13.29	7.47	9.96	74.44	3.07	0.16	0.53
27.48	13.27	7.43	9.89	73.48	3.06	0.18	0.53
27.57	13.27	7.41	10.67	79.00	3.10	0.22	0.53
27.64	13.30	7.41	11.31	83.76	3.13	0.26	0.53
27.65	13.44	7.49	12.08	90.43	3.17	0.27	0.53
27.74	14.52	8.14	11.82	96.17	3.16	0.36	0.58
27.80	16.91	9.63	10.69	102.90	3.10	0.41	0.69
27.90	19.17	11.00	9.59	105.58	3.05	0.48	0.79
27.99	19.34	11.07	9.67	106.99	3.05	0.48	0.79
28.07	17.12	9.65	10.91	105.31	3.11	0.45	0.69
28.16	14.45	7.96	12.63	100.58	3.20	0.39	0.57
28.25	12.53	6.75	13.86	93.48	3.25	0.31	0.48
28.34	11.52	6.10	14.13	86.20	3.26	0.25	0.44
28.44	11.01	5.76	14.19	81.77	3.26	0.21	0.41
28.53	10.84	5.64	14.27	80.51	3.26	0.21	0.40
28.62	11.75	6.17	14.04	86.70	3.26	0.23	0.44
28.76	14.21	7.64	12.54	95.81	3.19	0.35	0.55
28.86	17.65	9.69	11.11	107.72	3.12	0.45	0.69
28.96	20.32	11.26	10.51	118.36	3.09	0.58	0.80
29.08	21.30	11.80	11.10	130.98	3.12	0.70	0.84
29.19	22.07	12.21	11.60	141.58	3.15	0.86	0.87
29.29	27.50	15.40	8.64	133.06	2.99	0.80	0.80
29.39	40.70	25.08	5.15	129.21	2.74	0.80	0.80
29.50	57.67	36.81	3.37	124.06	2.55	0.79	0.79
29.63	66.88	42.86	3.19	136.79	2.53	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
29.65	70.22	45.09	3.13	141.18	2.52	0.81	0.81
29.66	71.00	45.61	3.10	141.50	2.52	0.82	0.82
29.72	73.53	47.34	2.95	139.57	2.50	0.81	0.81
29.80	77.81	50.31	2.70	135.94	2.46	0.81	0.81
29.85	89.49	58.79	2.17	127.49	2.36	0.79	0.79
29.94	111.58	75.08	1.62	121.89	2.20	0.79	0.79
30.00	135.50	93.20	1.37	127.60	2.06	0.79	0.79
30.05	152.98	106.83	1.28	136.43	1.96	0.81	0.81
30.14	162.60	114.57	1.23	140.95	1.89	0.81	0.81
30.19	167.56	118.78	1.20	142.08	1.84	0.82	0.82
30.24	169.61	120.45	1.18	142.19	1.83	0.82	0.82
30.29	169.68	120.31	1.18	142.38	1.83	0.82	0.82
30.38	167.72	118.51	1.19	141.39	1.84	0.82	0.82
30.43	164.79	116.05	1.20	139.76	1.85	0.81	0.81
30.48	161.62	113.47	1.21	137.67	1.87	0.81	0.81
30.54	159.16	111.46	1.22	135.86	1.87	0.81	0.81
30.62	158.35	110.69	1.22	134.98	1.87	0.81	0.81
30.67	157.77	110.16	1.22	134.34	1.87	0.80	0.80
30.72	158.55	110.67	1.22	134.61	1.87	0.81	0.81
30.76	159.46	111.32	1.21	134.89	1.86	0.81	0.81
30.86	162.06	113.16	1.20	135.92	1.85	0.81	0.81
30.91	165.09	115.46	1.19	137.26	1.84	0.81	0.81
30.95	168.94	118.37	1.17	138.94	1.82	0.81	0.81
31.03	173.83	122.03	1.15	140.71	1.80	0.81	0.81
31.10	179.36	126.19	1.13	142.33	1.78	0.82	0.82
31.15	185.03	130.44	1.10	144.07	1.76	0.82	0.82
31.20	189.66	133.76	1.09	146.05	1.75	0.82	0.82
31.26	192.52	135.69	1.09	147.81	1.75	0.82	0.82
31.34	186.22	130.42	1.13	147.23	1.78	0.82	0.82
31.37	184.63	129.08	1.14	146.99	1.79	0.82	0.82
31.38	181.39	126.56	1.15	145.70	1.80	0.82	0.82
31.43	184.63	129.02	1.13	146.17	1.78	0.82	0.82
31.47	179.33	124.92	1.15	143.44	1.80	0.82	0.82
31.55	171.64	118.91	1.17	139.35	1.82	0.81	0.81
31.59	160.34	110.19	1.21	132.93	1.86	0.80	0.80
31.66	147.76	100.47	1.24	124.83	1.91	0.79	0.79
31.73	135.75	91.20	1.28	116.80	1.97	0.78	0.78
31.78	125.08	83.04	1.33	110.36	2.02	0.77	0.77
31.84	115.64	75.76	1.40	106.34	2.09	0.76	0.76
31.93	107.23	69.27	1.51	104.84	2.16	0.76	0.76
31.98	100.42	64.06	1.66	106.04	2.22	0.76	0.76
32.02	98.18	62.19	1.75	108.88	2.25	0.76	0.76
32.09	97.00	61.07	1.83	111.87	2.27	0.77	0.77
32.16	98.89	62.18	1.83	113.86	2.27	0.77	0.77
32.22	100.29	63.04	1.82	114.52	2.27	0.77	0.77
32.27	103.49	65.22	1.76	114.53	2.25	0.77	0.77
32.34	106.02	66.91	1.71	114.38	2.24	0.77	0.77
32.42	108.89	68.85	1.66	114.11	2.22	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
32.46	113.04	71.82	1.58	113.62	2.19	0.77	0.77
32.54	117.73	75.15	1.51	113.25	2.15	0.77	0.77
32.60	121.74	78.23	1.43	112.00	2.11	0.77	0.77
32.67	124.81	80.60	1.38	111.53	2.07	0.77	0.77
32.75	127.51	82.59	1.35	111.85	2.05	0.77	0.77
32.81	130.38	84.43	1.35	113.95	2.05	0.77	0.77
32.89	133.38	86.29	1.35	116.21	2.04	0.78	0.78
32.94	129.47	83.21	1.38	114.84	2.07	0.77	0.77
32.95	131.02	84.23	1.38	116.07	2.07	0.78	0.78
33.00	132.88	85.36	1.38	117.56	2.07	0.78	0.78
33.06	141.08	91.06	1.34	122.40	2.04	0.79	0.79
33.11	142.26	91.66	1.35	123.66	2.04	0.79	0.79
33.20	141.21	90.60	1.36	123.53	2.06	0.79	0.79
33.25	139.02	88.78	1.39	123.06	2.08	0.79	0.79
33.34	137.03	87.07	1.41	122.48	2.09	0.79	0.79
33.38	136.69	86.68	1.42	122.68	2.10	0.79	0.79
33.48	138.41	87.63	1.41	123.78	2.10	0.79	0.79
33.58	141.92	89.83	1.40	125.79	2.09	0.79	0.79
33.63	146.74	93.05	1.38	128.81	2.07	0.80	0.80
33.73	152.41	96.75	1.37	132.15	2.06	0.80	0.80
33.82	158.96	101.09	1.35	136.16	2.04	0.81	0.81
33.87	165.74	105.66	1.33	140.58	2.03	0.81	0.81
33.96	172.72	110.29	1.32	145.13	2.01	0.82	0.82
34.02	180.58	115.54	1.30	150.66	2.00	0.83	0.83
34.11	190.03	121.77	1.29	157.32	1.98	0.84	0.84
34.18	200.49	128.68	1.28	164.99	1.97	0.85	0.85
34.26	210.44	135.11	1.28	172.52	1.96	0.86	0.86
34.35	219.45	140.77	1.28	179.50	1.96	0.86	0.86
34.44	227.51	145.83	1.27	185.53	1.95	0.87	0.87
34.49	233.96	150.02	1.27	190.23	1.95	0.88	0.88
34.59	237.94	152.42	1.27	192.83	1.94	0.88	0.88
34.69	240.00	153.47	1.26	194.12	1.94	0.88	0.88
34.76	240.94	153.92	1.26	194.53	1.94	0.88	0.88
34.83	240.60	153.43	1.26	194.02	1.94	0.88	0.88
34.93	237.97	151.43	1.26	191.54	1.94	0.88	0.88
35.02	233.82	148.39	1.27	188.08	1.95	0.87	0.87
35.12	229.78	145.60	1.27	184.23	1.94	0.87	0.87
35.22	226.47	143.26	1.26	181.13	1.94	0.87	0.87
35.30	222.22	140.29	1.26	177.46	1.94	0.86	0.86
35.38	208.55	130.48	1.29	168.21	1.98	0.85	0.85
35.43	198.10	123.09	1.31	161.35	2.00	0.84	0.84
35.46	189.40	116.99	1.33	155.80	2.03	0.83	0.83
35.51	187.20	115.53	1.33	153.78	2.03	0.83	0.83
35.56	176.78	108.45	1.35	146.76	2.05	0.82	0.82
35.66	163.52	99.31	1.39	138.53	2.08	0.81	0.81
35.70	148.20	89.01	1.46	130.03	2.13	0.80	0.80
35.80	131.87	77.90	1.59	123.66	2.19	0.79	0.79
35.89	111.32	64.17	1.87	119.95	2.28	0.78	0.78

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
35.96	89.09	49.72	2.43	120.81	2.41	0.78	0.78
36.04	68.24	36.73	3.28	120.37	2.54	0.78	0.78
36.14	52.15	27.04	4.33	117.01	2.66	0.78	0.78
36.19	43.48	22.01	5.03	110.69	2.73	0.77	0.77
36.28	40.51	20.23	5.44	110.05	2.77	0.77	0.77
36.33	40.51	20.24	5.35	108.32	2.76	0.76	0.76
36.42	42.30	21.24	5.09	108.08	2.74	0.76	0.76
36.48	45.97	23.38	4.59	107.27	2.69	0.76	0.76
36.52	51.03	26.20	4.31	112.95	2.66	0.77	0.77
36.62	54.10	27.78	4.31	119.67	2.66	0.78	0.78
36.68	54.07	27.55	4.59	126.59	2.69	0.79	0.79
36.77	52.82	26.73	4.79	128.11	2.71	0.80	0.80
36.86	54.64	27.76	4.56	126.60	2.69	0.79	0.79
36.90	67.67	35.75	3.22	115.19	2.53	0.77	0.77
37.00	98.14	55.13	1.87	103.13	2.29	0.75	0.75
37.10	140.34	83.45	1.35	112.56	2.04	0.77	0.77
37.20	182.54	113.15	1.21	136.84	1.86	0.81	0.81
37.29	213.04	135.23	1.09	147.30	1.75	0.82	0.82
37.39	232.34	149.01	1.00	149.01	1.70	0.83	0.83
37.49	241.91	155.00	1.00	155.00	1.70	0.83	0.83
37.53	245.57	156.74	1.02	160.20	1.72	0.84	0.84
37.58	246.07	156.33	1.06	165.44	1.73	0.85	0.85
37.62	247.84	156.88	1.08	169.66	1.75	0.85	0.85
37.69	250.56	157.82	1.11	175.10	1.77	0.86	0.86
37.77	253.53	158.95	1.13	179.78	1.78	0.86	0.86
37.82	254.98	159.10	1.15	183.39	1.80	0.87	0.87
37.87	254.84	158.42	1.17	184.85	1.81	0.87	0.87
37.91	252.72	156.44	1.18	184.82	1.83	0.87	0.87
37.97	248.23	152.87	1.20	183.06	1.85	0.87	0.87
38.06	241.92	148.07	1.21	179.59	1.87	0.86	0.86
38.10	235.58	143.53	1.22	175.74	1.88	0.86	0.86
38.17	230.89	140.30	1.23	172.34	1.89	0.86	0.86
38.25	228.09	138.57	1.22	169.66	1.88	0.85	0.85
38.35	225.79	137.24	1.22	167.11	1.87	0.85	0.85
38.40	223.43	135.86	1.21	164.83	1.87	0.85	0.85
38.46	221.65	134.68	1.21	163.21	1.86	0.84	0.84
38.54	220.87	134.09	1.21	162.26	1.86	0.84	0.84
38.60	220.87	134.14	1.21	161.69	1.86	0.84	0.84
38.69	222.22	135.09	1.20	161.77	1.85	0.84	0.84
38.74	224.92	137.05	1.19	162.53	1.83	0.84	0.84
38.83	227.85	138.91	1.18	163.73	1.82	0.84	0.84
38.88	229.20	139.97	1.17	163.54	1.81	0.84	0.84
38.97	228.76	139.65	1.16	162.47	1.81	0.84	0.84
39.02	227.25	138.83	1.16	160.45	1.80	0.84	0.84
39.11	224.44	136.82	1.16	158.54	1.81	0.84	0.84
39.16	218.51	132.80	1.17	154.99	1.81	0.83	0.83
39.23	205.48	123.73	1.20	148.10	1.85	0.82	0.82
39.24	200.81	120.69	1.20	145.08	1.85	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.28	198.62	119.29	1.20	143.39	1.85	0.82	0.82
39.32	201.93	121.86	1.18	144.08	1.83	0.82	0.82
39.39	194.55	116.84	1.20	139.67	1.84	0.81	0.81
39.47	183.96	109.44	1.22	133.48	1.88	0.80	0.80
39.54	171.48	100.68	1.25	125.99	1.92	0.79	0.79
39.62	158.42	91.63	1.29	117.99	1.98	0.78	0.78
39.71	145.73	82.95	1.33	110.70	2.03	0.77	0.77
39.76	134.50	75.46	1.39	105.08	2.08	0.76	0.76
39.85	125.32	69.36	1.46	101.34	2.13	0.75	0.75
39.90	117.87	64.48	1.53	98.95	2.17	0.75	0.75
40.00	111.05	60.00	1.63	97.53	2.20	0.74	0.74
40.06	104.71	55.91	1.73	96.96	2.24	0.74	0.74
40.15	98.67	52.00	1.87	97.18	2.28	0.74	0.74
40.21	92.83	48.24	2.05	98.86	2.33	0.75	0.75
40.29	86.59	44.24	2.31	102.19	2.39	0.75	0.75
40.35	79.68	39.85	2.72	108.27	2.46	0.76	0.76
40.43	72.22	35.37	3.16	111.81	2.53	0.77	0.77
40.52	63.85	30.51	3.76	114.58	2.60	0.77	0.77
40.58	55.21	25.70	4.47	115.00	2.68	0.77	0.77
40.67	46.88	21.09	5.54	116.83	2.77	0.78	0.78
40.77	41.63	18.24	6.45	117.65	2.85	0.78	0.78
40.84	39.14	16.87	6.99	117.99	2.89	0.78	0.78
40.89	42.28	18.55	6.27	116.25	2.83	0.78	0.78
40.94	49.75	22.62	4.92	111.31	2.72	0.77	0.77
41.03	61.46	29.20	3.53	103.18	2.57	0.75	0.75
41.08	73.03	35.94	2.68	96.47	2.45	0.74	0.74
41.14	82.03	41.30	2.24	92.51	2.37	0.73	0.73
41.22	87.70	44.68	2.04	90.97	2.33	0.73	0.73
41.28	90.43	46.24	1.97	91.29	2.31	0.73	0.73
41.33	91.99	46.96	1.99	93.52	2.32	0.74	0.74
41.42	93.64	47.61	2.04	97.02	2.33	0.74	0.74
41.47	97.01	49.31	2.04	100.81	2.33	0.75	0.75
41.52	104.03	53.17	1.96	104.48	2.31	0.76	0.76
41.62	115.47	59.72	1.81	107.92	2.27	0.76	0.76
41.67	130.01	68.21	1.66	112.91	2.22	0.77	0.77
41.76	144.45	76.74	1.54	118.23	2.17	0.78	0.78
41.82	156.39	83.80	1.48	123.75	2.14	0.79	0.79
41.90	165.43	89.14	1.44	128.02	2.11	0.80	0.80
41.99	171.57	92.73	1.41	131.05	2.10	0.80	0.80
42.05	174.81	94.61	1.40	132.58	2.09	0.80	0.80
42.15	175.22	94.64	1.40	132.77	2.09	0.80	0.80
42.23	173.33	93.24	1.42	132.06	2.10	0.80	0.80
42.30	169.55	90.73	1.44	130.51	2.11	0.80	0.80
42.38	163.64	86.97	1.47	127.88	2.13	0.80	0.80
42.48	153.79	80.87	1.53	123.60	2.16	0.79	0.79
42.57	141.98	73.69	1.62	119.15	2.20	0.78	0.78
42.64	129.97	66.53	1.73	115.28	2.24	0.78	0.78
42.72	121.20	61.42	1.82	111.72	2.27	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.82	114.72	57.72	1.88	108.24	2.29	0.76	0.76
42.90	110.03	55.08	1.91	105.42	2.30	0.76	0.76
42.97	106.05	52.74	1.98	104.32	2.31	0.76	0.76
43.06	102.31	50.43	2.08	104.69	2.34	0.76	0.76
43.15	98.76	48.44	2.11	102.43	2.35	0.75	0.75
43.20	97.75	48.00	2.07	99.54	2.34	0.75	0.75
43.30	104.19	51.99	1.84	95.67	2.28	0.74	0.74
43.40	119.88	61.38	1.58	97.12	2.19	0.74	0.74
43.48	132.43	68.91	1.47	100.97	2.13	0.75	0.75
43.51	139.11	72.90	1.43	103.89	2.10	0.76	0.76
43.52	146.23	77.22	1.39	107.23	2.08	0.76	0.76
43.56	160.13	85.83	1.33	114.20	2.03	0.77	0.77
43.61	178.86	97.60	1.28	124.81	1.96	0.79	0.79
43.67	193.23	106.74	1.25	133.29	1.92	0.80	0.80
43.72	206.01	115.04	1.22	140.56	1.88	0.81	0.81
43.80	216.51	121.88	1.20	145.95	1.85	0.82	0.82
43.85	224.74	127.26	1.18	149.84	1.82	0.83	0.83
43.90	231.25	131.51	1.16	152.56	1.81	0.83	0.83
43.94	236.38	134.87	1.14	154.37	1.79	0.83	0.83
43.99	239.82	137.13	1.13	155.28	1.78	0.83	0.83
44.08	241.54	138.11	1.13	155.65	1.78	0.83	0.83
44.14	241.51	137.71	1.14	156.49	1.79	0.84	0.84
44.22	240.40	136.41	1.15	157.19	1.80	0.84	0.84
44.28	238.31	134.50	1.17	157.37	1.82	0.84	0.84
44.33	235.67	132.35	1.18	156.78	1.83	0.84	0.84
44.40	232.27	129.52	1.20	155.80	1.85	0.83	0.83
44.48	231.30	128.25	1.22	155.90	1.87	0.83	0.83
44.52	228.57	125.64	1.24	155.24	1.90	0.83	0.83
44.61	230.02	126.41	1.23	155.88	1.89	0.83	0.83
44.72	231.52	127.03	1.23	156.70	1.90	0.84	0.84
44.77	236.14	130.05	1.22	159.04	1.88	0.84	0.84
44.91	237.86	130.46	1.23	160.27	1.89	0.84	0.84
44.95	231.69	126.16	1.24	156.88	1.91	0.84	0.84
45.02	227.41	123.19	1.25	154.33	1.92	0.83	0.83
45.04	198.97	104.88	1.32	138.44	2.01	0.81	0.81
45.06	203.49	107.81	1.30	140.63	2.00	0.81	0.81
45.11	208.45	111.04	1.29	143.03	1.98	0.82	0.82
45.15	239.96	131.64	1.22	160.49	1.87	0.84	0.84
45.21	246.91	136.23	1.20	163.81	1.85	0.84	0.84
45.25	252.44	139.80	1.19	166.43	1.84	0.85	0.85
45.30	256.29	142.11	1.18	168.34	1.83	0.85	0.85
45.35	258.04	143.02	1.18	169.35	1.83	0.85	0.85
45.41	258.42	143.02	1.19	169.64	1.83	0.85	0.85
45.49	257.00	141.89	1.19	168.87	1.84	0.85	0.85
45.55	254.13	139.97	1.19	167.24	1.84	0.85	0.85
45.63	249.51	136.90	1.20	164.52	1.85	0.85	0.85
45.69	243.67	133.19	1.21	161.09	1.86	0.84	0.84
45.78	236.62	128.61	1.22	156.88	1.88	0.84	0.84

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
45.84	228.05	123.25	1.23	151.68	1.89	0.83	0.83
45.93	217.69	116.85	1.24	145.18	1.91	0.82	0.82
46.02	205.11	109.16	1.26	137.24	1.93	0.81	0.81
46.08	190.40	100.37	1.28	128.00	1.96	0.80	0.80
46.16	174.41	90.73	1.30	118.20	1.99	0.78	0.78
46.24	157.13	80.39	1.35	108.31	2.04	0.76	0.76
46.31	138.07	68.91	1.44	99.54	2.12	0.75	0.75
46.41	117.36	56.54	1.67	94.32	2.22	0.74	0.74
46.48	95.77	44.06	2.17	95.41	2.36	0.74	0.74
46.56	75.72	32.98	3.08	101.49	2.51	0.75	0.75
46.65	58.08	23.81	4.47	106.39	2.68	0.76	0.76
46.75	45.43	17.64	5.95	104.92	2.81	0.76	0.76
46.84	36.62	12.08	8.01	96.75	2.95	0.74	0.74
46.94	30.75	9.96	9.25	92.20	3.03	0.42	0.71
47.02	25.79	8.18	10.96	89.65	3.12	0.36	0.58
47.08	21.37	6.60	13.29	87.68	3.22	0.33	0.47
47.12	18.76	5.66	15.23	86.24	3.30	0.32	0.40
47.16	17.85	5.33	15.88	84.67	3.33	0.30	0.38
47.21	17.81	5.32	15.49	82.35	3.31	0.28	0.38
47.27	17.46	5.18	15.33	79.44	3.31	0.26	0.37
47.35	16.42	4.80	15.97	76.72	3.33	0.23	0.34
47.40	15.74	4.56	15.95	72.71	3.33	0.22	0.33
47.50	15.37	4.42	15.62	68.97	3.32	0.17	0.32
47.55	15.16	4.34	15.04	65.28	3.29	0.16	0.31
47.61	15.00	4.27	14.89	63.67	3.29	0.14	0.31
47.69	14.73	4.17	15.00	62.57	3.29	0.14	0.30
47.76	14.39	4.05	15.25	61.71	3.30	0.13	0.29
47.83	14.02	3.91	15.40	60.22	3.31	0.13	0.28
47.93	13.85	3.84	15.20	58.40	3.30	0.11	0.27
48.02	13.82	3.82	15.00	57.34	3.29	0.10	0.27
48.09	13.88	3.84	14.67	56.35	3.28	0.11	0.27
48.18	13.85	3.82	14.94	57.05	3.29	0.10	0.27
48.27	13.88	3.82	15.29	58.44	3.30	0.12	0.27
48.37	13.98	3.85	15.87	61.09	3.33	0.13	0.27
48.46	14.12	3.89	16.20	62.98	3.34	0.14	0.28
48.52	14.18	3.90	16.46	64.25	3.35	0.15	0.28
48.60	14.25	3.92	16.64	65.23	3.35	0.16	0.28
48.70	14.38	3.96	16.68	65.99	3.35	0.16	0.28
48.79	14.65	4.04	16.50	66.70	3.35	0.16	0.29
48.85	15.06	4.18	16.39	68.42	3.34	0.17	0.30
48.94	15.74	4.40	16.24	71.44	3.34	0.20	0.31
49.04	16.68	4.71	15.57	73.34	3.31	0.23	0.34
49.13	18.30	5.25	15.62	82.09	3.32	0.22	0.38
49.23	21.13	6.21	14.82	92.00	3.29	0.41	0.44
49.33	24.04	7.18	14.31	102.80	3.27	0.51	0.51
49.38	24.88	7.46	14.69	109.60	3.28	0.57	0.53
49.42	25.93	7.81	14.70	114.80	3.28	0.64	0.56
49.48	26.70	8.06	14.75	118.93	3.28	0.70	0.58

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
49.53	28.79	8.76	13.86	121.43	3.25	0.73	0.63
49.58	29.43	8.97	13.78	123.62	3.24	0.76	0.64
49.63	30.10	9.19	13.66	125.52	3.24	0.79	0.66
49.72	30.91	9.44	13.37	126.23	3.23	0.81	0.67
49.77	31.42	9.60	13.13	125.98	3.22	0.80	0.69
49.83	31.42	9.59	13.08	125.40	3.22	0.79	0.68
49.92	30.71	9.33	13.37	124.67	3.23	0.79	0.67
49.97	30.39	9.21	13.41	123.55	3.23	0.76	0.66
50.04	29.48	8.89	13.80	122.65	3.25	0.74	0.64
50.11	29.82	8.99	13.61	122.33	3.24	0.74	0.64
50.20	30.21	9.10	13.25	120.55	3.22	0.76	0.65
50.27	30.78	9.28	12.51	116.01	3.19	0.68	0.66
50.34	29.50	8.83	12.20	107.79	3.18	0.58	0.63
50.45	26.76	7.90	12.55	99.22	3.19	0.45	0.56
50.54	23.73	6.88	13.43	92.39	3.23	0.38	0.49
50.59	21.13	6.01	14.59	87.71	3.28	0.35	0.43
50.68	19.24	5.37	15.59	83.78	3.32	0.30	0.38
50.79	18.13	4.99	16.06	80.17	3.33	0.26	0.36
50.88	17.81	4.88	16.03	78.18	3.33	0.25	0.35
50.98	17.64	4.81	16.19	77.89	3.34	0.25	0.34
51.07	17.81	4.86	15.67	76.09	3.32	0.25	0.35
51.17	18.43	5.05	14.19	71.67	3.26	0.21	0.36
51.24	19.51	5.40	12.74	68.77	3.20	0.16	0.39
51.33	20.19	5.61	12.56	70.43	3.19	0.20	0.40
51.46	20.09	5.56	13.45	74.75	3.23	0.25	0.40
51.46	19.80	5.46	14.31	78.20	3.27	0.25	0.39
51.51	19.77	5.45	14.62	79.60	3.28	0.28	0.39
51.56	19.87	5.47	14.98	82.02	3.29	0.28	0.39
51.65	19.95	5.49	15.35	84.26	3.31	0.31	0.39
51.71	20.09	5.53	15.72	86.89	3.32	0.33	0.39
51.79	20.49	5.65	15.73	88.80	3.32	0.35	0.40
51.85	21.23	5.88	15.68	92.19	3.32	0.37	0.42
51.94	22.11	6.15	15.66	96.33	3.32	0.43	0.44
51.99	23.22	6.51	15.77	102.62	3.32	0.48	0.46
52.09	24.17	6.80	16.12	109.52	3.33	0.57	0.49
52.19	27.74	7.93	14.73	116.81	3.28	0.67	0.57
52.28	33.34	9.72	12.62	122.63	3.20	0.78	0.69
52.35	36.42	10.69	12.02	128.41	3.17	0.87	0.76
52.43	37.06	10.87	12.22	132.82	3.18	0.95	0.78
52.52	35.17	10.25	13.30	136.28	3.22	0.97	0.73
52.62	35.61	10.37	13.11	135.93	3.22	0.98	0.74
52.72	35.98	10.46	12.80	133.92	3.20	0.94	0.75
52.81	34.26	9.89	13.70	135.53	3.24	0.89	0.71
52.91	31.32	8.94	16.37	146.31	3.34	1.03	0.64
53.00	37.23	10.79	14.34	154.70	3.27	1.38	0.77
53.10	62.36	18.71	7.92	148.13	2.95	0.82	0.82
53.20	108.21	33.14	3.92	129.79	2.62	0.80	0.80
53.29	163.78	50.57	2.27	114.61	2.38	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.38	213.88	66.21	1.72	114.09	2.24	0.77	0.77
53.46	260.07	80.59	1.49	119.81	2.14	0.78	0.78
53.53	292.05	90.48	1.45	130.93	2.12	0.80	0.80
53.63	323.19	100.02	1.40	139.93	2.09	0.81	0.81
53.73	361.79	111.85	1.31	146.92	2.01	0.82	0.82
53.82	388.35	119.89	1.25	150.03	1.92	0.83	0.83
53.92	387.71	119.45	1.23	146.54	1.89	0.82	0.82
53.94	360.18	110.85	1.25	138.23	1.92	0.81	0.81
53.96	336.26	103.38	1.27	131.20	1.95	0.80	0.80
53.97	349.08	107.34	1.25	134.16	1.92	0.80	0.80
54.05	377.59	116.04	1.22	141.00	1.87	0.81	0.81
54.08	426.28	131.09	1.15	150.15	1.79	0.83	0.83
54.13	473.21	145.55	1.06	154.41	1.74	0.83	0.83
54.19	518.79	159.56	1.00	159.56	1.70	0.84	0.84
54.25	524.22	161.12	1.01	162.94	1.71	0.84	0.84
54.28	510.87	156.95	1.06	166.66	1.74	0.85	0.85
54.29	486.82	149.48	1.10	164.40	1.76	0.85	0.85
54.34	486.89	149.42	1.10	164.35	1.76	0.85	0.85
54.35	492.20	151.05	1.09	164.72	1.75	0.85	0.85
54.40	504.89	154.89	1.07	165.62	1.74	0.85	0.85
54.44	522.30	160.18	1.04	166.45	1.72	0.85	0.85
54.49	535.62	164.19	1.01	165.88	1.71	0.85	0.85
54.53	546.25	167.39	1.00	167.39	1.70	0.85	0.85
54.57	558.27	171.02	1.00	171.02	1.69	0.85	0.85
54.58	567.78	173.92	1.00	173.92	1.70	0.86	0.86
54.63	560.90	171.71	1.01	173.90	1.71	0.86	0.86
54.68	536.31	164.04	1.08	176.93	1.75	0.86	0.86
54.73	510.50	156.00	1.12	175.12	1.78	0.86	0.86
54.78	499.67	152.59	1.14	173.29	1.79	0.86	0.86
54.83	493.63	150.64	1.15	172.82	1.80	0.86	0.86
54.88	497.14	151.64	1.15	175.08	1.80	0.86	0.86
54.92	500.68	152.65	1.17	178.37	1.81	0.86	0.86
54.97	510.81	155.66	1.16	180.73	1.81	0.87	0.87
55.02	513.44	156.38	1.16	181.62	1.81	0.87	0.87
55.12	487.90	148.39	1.20	178.01	1.85	0.86	0.86
55.17	449.17	136.44	1.25	170.63	1.92	0.85	0.85
55.25	410.54	124.51	1.29	160.49	1.98	0.84	0.84
55.31	394.21	119.43	1.29	154.46	1.98	0.83	0.83
55.36	388.18	117.52	1.27	148.87	1.95	0.83	0.83
55.45	381.09	115.23	1.25	143.68	1.91	0.82	0.82
55.50	365.91	110.54	1.25	137.89	1.92	0.81	0.81
55.60	351.24	105.95	1.26	133.93	1.94	0.80	0.80
55.65	332.24	100.11	1.28	128.15	1.96	0.80	0.80
55.71	324.14	97.58	1.27	124.39	1.96	0.79	0.79
55.75	320.40	96.40	1.26	121.19	1.93	0.78	0.78
55.79	325.12	97.79	1.25	121.90	1.91	0.79	0.79
55.84	332.47	99.97	1.24	123.76	1.90	0.79	0.79
55.89	338.01	101.60	1.23	125.39	1.90	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.90	341.15	102.54	1.23	126.17	1.89	0.79	0.79
55.94	336.26	101.02	1.24	124.98	1.90	0.79	0.79
55.99	327.63	98.34	1.25	122.89	1.92	0.79	0.79
56.03	317.88	95.34	1.26	120.41	1.94	0.78	0.78
56.08	311.67	93.40	1.27	118.54	1.95	0.78	0.78
56.14	306.37	91.74	1.27	116.74	1.95	0.78	0.78
56.22	299.89	89.70	1.28	114.65	1.96	0.77	0.77
56.28	294.29	87.95	1.28	112.90	1.97	0.77	0.77
56.33	292.57	87.39	1.29	112.38	1.97	0.77	0.77
56.38	294.06	87.79	1.28	112.46	1.97	0.77	0.77
56.45	301.34	89.92	1.27	114.23	1.95	0.77	0.77
56.52	312.58	93.24	1.25	117.01	1.93	0.78	0.78
56.62	325.19	96.94	1.24	120.21	1.90	0.78	0.78
56.66	338.42	100.88	1.22	123.02	1.87	0.79	0.79
56.73	350.06	104.30	1.21	126.65	1.87	0.79	0.79
56.81	357.11	106.33	1.22	129.59	1.87	0.80	0.80
56.95	363.42	108.06	1.23	132.64	1.89	0.80	0.80
57.00	372.46	110.72	1.23	135.80	1.88	0.81	0.81
57.09	373.11	110.80	1.23	136.52	1.89	0.81	0.81
57.19	368.58	109.32	1.24	135.85	1.91	0.81	0.81
57.27	354.04	104.88	1.25	131.44	1.92	0.80	0.80
57.35	357.65	105.87	1.23	130.16	1.89	0.80	0.80
57.44	356.17	105.33	1.21	127.36	1.86	0.79	0.79
57.50	364.37	107.70	1.18	127.07	1.83	0.79	0.79
57.52	378.10	111.77	1.18	131.85	1.83	0.80	0.80
57.58	409.37	121.03	1.17	141.73	1.82	0.82	0.82
57.63	432.08	127.73	1.17	149.17	1.81	0.83	0.83
57.72	439.00	129.66	1.17	151.31	1.81	0.83	0.83
57.77	433.73	128.03	1.16	148.26	1.80	0.82	0.82
57.82	429.55	126.71	1.13	143.29	1.78	0.82	0.82
57.91	436.73	128.72	1.06	137.09	1.74	0.81	0.81
57.96	442.84	130.46	1.00	130.46	1.69	0.80	0.80
58.02	458.90	135.16	1.00	135.16	1.66	0.81	0.81
58.09	469.26	138.12	1.00	138.12	1.65	0.81	0.81
58.16	484.88	142.65	1.00	142.65	1.63	0.82	0.82
58.25	491.12	144.36	1.00	144.36	1.64	0.82	0.82
58.30	487.65	143.26	1.00	143.26	1.66	0.82	0.82
58.40	479.62	140.74	1.00	140.74	1.69	0.81	0.81
58.50	468.52	137.31	1.02	139.77	1.71	0.81	0.81
58.56	467.50	136.92	1.01	138.70	1.71	0.81	0.81
58.64	464.81	136.01	1.03	140.28	1.72	0.81	0.81
58.73	474.79	138.81	1.05	145.16	1.73	0.82	0.82
58.78	488.15	142.67	1.02	145.87	1.72	0.82	0.82
58.88	506.71	147.98	1.00	147.98	1.69	0.82	0.82
58.97	511.03	149.10	1.00	149.10	1.66	0.83	0.83
59.07	506.24	147.53	1.00	147.53	1.66	0.82	0.82
59.13	493.59	143.73	1.00	143.73	1.65	0.82	0.82
59.23	484.71	140.99	1.00	140.99	1.65	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.31	464.47	134.94	1.00	134.94	1.65	0.81	0.81
59.38	450.35	130.71	1.00	130.71	1.65	0.80	0.80
59.41	439.19	127.40	1.00	127.40	1.66	0.79	0.79
59.46	443.57	128.62	1.00	128.62	1.65	0.80	0.80
59.51	443.56	128.55	1.00	128.55	1.65	0.80	0.80
59.57	451.89	130.91	1.00	130.91	1.67	0.80	0.80
59.66	471.05	136.37	1.00	136.37	1.67	0.81	0.81
59.75	492.31	142.44	1.00	142.44	1.70	0.82	0.82
59.80	506.48	146.48	1.01	147.84	1.71	0.82	0.82
59.85	508.64	147.04	1.07	156.99	1.74	0.84	0.84
59.91	504.22	145.65	1.08	158.02	1.75	0.84	0.84
59.99	498.85	143.96	1.11	159.53	1.77	0.84	0.84
60.05	480.97	138.68	1.17	161.59	1.81	0.84	0.84
60.09	464.78	133.92	1.20	160.52	1.85	0.84	0.84
60.14	444.43	127.94	1.22	156.08	1.88	0.84	0.84
60.19	437.86	125.96	1.22	153.23	1.87	0.83	0.83
60.22	434.25	124.88	1.21	151.55	1.87	0.83	0.83
60.28	412.99	118.63	1.23	145.94	1.89	0.82	0.82
60.33	381.24	109.36	1.26	137.48	1.93	0.81	0.81
60.38	338.97	97.07	1.31	126.83	2.00	0.79	0.79
60.42	309.75	88.57	1.35	119.65	2.05	0.78	0.78
60.48	282.02	80.50	1.38	111.02	2.07	0.77	0.77
60.57	262.48	74.78	1.36	101.50	2.05	0.75	0.75
60.66	243.89	69.35	1.32	91.67	2.02	0.73	0.73
60.68	232.16	65.95	1.30	85.85	1.99	0.72	0.72
60.69	225.51	64.02	1.29	82.84	1.98	0.71	0.71
60.74	217.75	61.75	1.30	80.07	1.99	0.59	0.71
60.79	206.27	58.41	1.30	76.18	2.00	0.42	0.70
60.84	192.16	54.32	1.32	71.82	2.02	0.30	0.69
60.89	182.35	51.47	1.33	68.64	2.03	0.23	0.68
60.98	174.35	49.12	1.36	66.57	2.05	0.19	0.67
61.03	168.07	47.30	1.46	69.19	2.13	0.24	0.68
61.08	164.86	46.35	1.72	79.69	2.24	0.57	0.71
61.18	164.63	46.24	1.95	90.12	2.31	0.73	0.73
61.23	168.20	47.23	2.12	100.04	2.35	0.75	0.75
61.31	194.08	54.62	1.72	94.03	2.24	0.74	0.74
61.42	236.42	66.70	1.41	94.11	2.09	0.74	0.74
61.47	287.17	81.21	1.24	100.64	1.90	0.75	0.75
61.51	331.30	93.81	1.14	107.25	1.79	0.76	0.76
61.54	366.14	103.76	1.05	108.54	1.73	0.76	0.76
61.57	395.83	112.23	1.00	112.23	1.70	0.77	0.77
61.58	418.64	118.74	1.00	118.74	1.67	0.78	0.78
61.61	393.43	111.49	1.00	111.49	1.70	0.77	0.77
61.63	367.65	104.10	1.03	107.07	1.72	0.76	0.76
61.63	257.89	72.70	1.26	91.77	1.94	0.73	0.73
61.66	191.36	53.66	1.48	79.27	2.14	0.55	0.71
61.67	129.55	35.97	2.37	85.35	2.40	0.72	0.72
61.70	152.96	42.66	1.96	83.80	2.31	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
61.71	180.90	50.64	1.67	84.55	2.22	0.72	0.72
61.76	206.41	57.90	1.51	87.45	2.15	0.72	0.72
61.80	228.84	64.28	1.42	91.10	2.10	0.73	0.73
61.84	250.40	70.41	1.34	94.04	2.03	0.74	0.74
61.86	279.75	78.77	1.26	98.87	1.93	0.75	0.75
61.93	312.34	88.02	1.18	103.69	1.82	0.75	0.75
61.98	357.76	100.92	1.00	100.92	1.73	0.75	0.75
62.04	405.56	114.48	1.00	114.48	1.68	0.77	0.77
62.09	451.78	127.59	1.00	127.59	1.64	0.79	0.79
62.14	481.91	136.10	1.00	136.10	1.62	0.81	0.81
62.19	499.12	140.93	1.00	140.93	1.60	0.81	0.81
62.24	508.93	143.65	1.00	143.65	1.59	0.82	0.82
62.26	519.32	146.58	1.00	146.58	1.58	0.82	0.82
62.29	519.05	146.46	1.00	146.46	1.58	0.82	0.82
62.38	515.71	145.37	1.00	145.37	1.60	0.82	0.82
62.44	490.28	138.07	1.00	138.07	1.65	0.81	0.81
62.46	469.07	132.02	1.00	132.02	1.69	0.80	0.80
62.47	448.15	126.07	1.00	126.07	1.70	0.79	0.79
62.51	453.68	127.59	1.00	127.59	1.69	0.79	0.79
62.56	463.98	130.45	1.00	130.45	1.69	0.80	0.80
62.60	477.62	134.26	1.00	134.26	1.68	0.80	0.80
62.65	481.73	135.35	1.00	135.35	1.68	0.81	0.81
62.70	482.34	135.46	1.00	135.46	1.66	0.81	0.81
62.75	483.05	135.59	1.00	135.59	1.65	0.81	0.81
62.80	494.83	138.85	1.00	138.85	1.64	0.81	0.81
62.85	525.29	147.40	1.00	147.40	1.60	0.82	0.82
62.89	569.18	159.73	1.00	159.73	1.56	0.84	0.84
62.97	619.66	173.86	1.00	173.86	1.54	0.86	0.86
63.04	667.84	187.32	1.00	187.32	1.52	0.87	0.87
63.09	703.12	197.18	1.00	197.18	1.50	0.88	0.88
63.13	715.51	200.57	1.00	200.57	1.51	0.89	0.89
63.19	716.52	200.74	1.00	200.74	1.54	0.89	0.89
63.23	720.23	201.69	1.00	201.69	1.57	0.89	0.89
63.28	726.78	203.42	1.00	203.42	1.59	0.89	0.89
63.32	729.18	204.02	1.00	204.02	1.57	0.89	0.89
63.38	725.67	202.89	1.00	202.89	1.49	0.89	0.89
63.44	726.68	203.06	1.00	203.06	1.43	0.89	0.89
63.52	715.48	199.75	1.00	199.75	1.43	0.89	0.89
63.57	697.37	194.57	1.00	194.57	1.49	0.88	0.88
63.66	659.58	183.79	1.00	183.79	1.52	0.87	0.87
63.73	534.95	148.76	1.00	148.76	1.63	0.83	0.83
63.76	455.61	126.50	1.03	130.54	1.72	0.80	0.80
63.76	411.85	114.24	1.12	127.66	1.77	0.79	0.79
63.78	471.87	131.02	1.00	131.02	1.70	0.80	0.80
63.81	512.86	142.46	1.00	142.46	1.67	0.82	0.82
63.85	526.43	146.19	1.00	146.19	1.68	0.82	0.82
63.86	522.58	145.10	1.00	145.10	1.70	0.82	0.82
63.91	497.92	138.14	1.07	148.35	1.74	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.94	483.78	134.14	1.12	150.35	1.77	0.83	0.83
63.95	480.34	133.15	1.14	151.38	1.79	0.83	0.83
64.00	476.26	131.94	1.14	150.67	1.79	0.83	0.83
64.02	473.22	131.08	1.14	149.37	1.79	0.83	0.83
64.05	475.78	131.75	1.12	148.02	1.78	0.82	0.82
64.09	478.18	132.36	1.11	146.64	1.77	0.82	0.82
64.11	480.07	132.86	1.09	144.77	1.75	0.82	0.82
64.15	482.26	133.43	1.07	142.44	1.74	0.82	0.82
64.20	494.31	136.71	1.03	141.24	1.72	0.81	0.81
64.25	512.59	141.74	1.00	141.74	1.70	0.82	0.82
64.29	535.70	148.11	1.00	148.11	1.68	0.82	0.82
64.34	570.38	157.68	1.00	157.68	1.64	0.84	0.84
64.43	605.81	167.40	1.00	167.40	1.60	0.85	0.85
64.48	630.95	174.30	1.00	174.30	1.56	0.86	0.86
64.53	642.69	177.47	1.00	177.47	1.53	0.86	0.86
64.58	655.07	180.82	1.00	180.82	1.52	0.87	0.87
64.63	680.65	187.83	1.00	187.83	1.51	0.87	0.87
64.68	709.63	195.77	1.00	195.77	1.52	0.88	0.88
64.73	718.74	198.20	1.00	198.20	1.53	0.88	0.88
64.77	735.60	202.79	1.00	202.79	1.51	0.89	0.89
64.82	751.19	207.01	1.00	207.01	1.48	0.89	0.89
64.87	732.64	201.76	1.00	201.76	1.49	0.89	0.89
64.89	713.98	196.56	1.00	196.56	1.50	0.88	0.88
64.93	689.59	189.73	1.00	189.73	1.53	0.88	0.88
64.94	715.81	196.96	1.00	196.96	1.51	0.88	0.88
64.98	725.69	199.62	1.00	199.62	1.50	0.89	0.89
64.99	734.03	201.90	1.00	201.90	1.50	0.89	0.89
65.03	732.37	201.35	1.00	201.35	1.50	0.89	0.89
65.08	727.04	199.79	1.00	199.79	1.49	0.89	0.89
65.13	715.51	196.50	1.00	196.50	1.48	0.88	0.88
65.17	703.60	193.13	1.00	193.13	1.46	0.88	0.88
65.22	689.29	189.08	1.00	189.08	1.45	0.87	0.87
65.23	681.55	186.93	1.00	186.93	1.45	0.87	0.87
65.28	679.28	186.22	1.00	186.22	1.46	0.87	0.87
65.32	679.65	186.24	1.00	186.24	1.47	0.87	0.87
65.37	680.17	186.30	1.00	186.30	1.49	0.87	0.87
65.42	684.61	187.42	1.00	187.42	1.50	0.87	0.87
65.47	671.65	183.76	1.00	183.76	1.50	0.87	0.87
65.48	657.21	179.77	1.00	179.77	1.52	0.86	0.86
65.49	638.86	174.70	1.00	174.70	1.52	0.86	0.86
65.52	636.56	174.01	1.00	174.01	1.52	0.86	0.86
65.57	645.67	176.43	1.00	176.43	1.41	0.86	0.86
65.62	661.16	180.61	1.00	180.61	1.28	0.87	0.87
65.67	682.44	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.69	697.23	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.72	719.02	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.77	752.26	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.82	790.78	-1.00	1.00	-1.00	-1.00	0.00	0.00

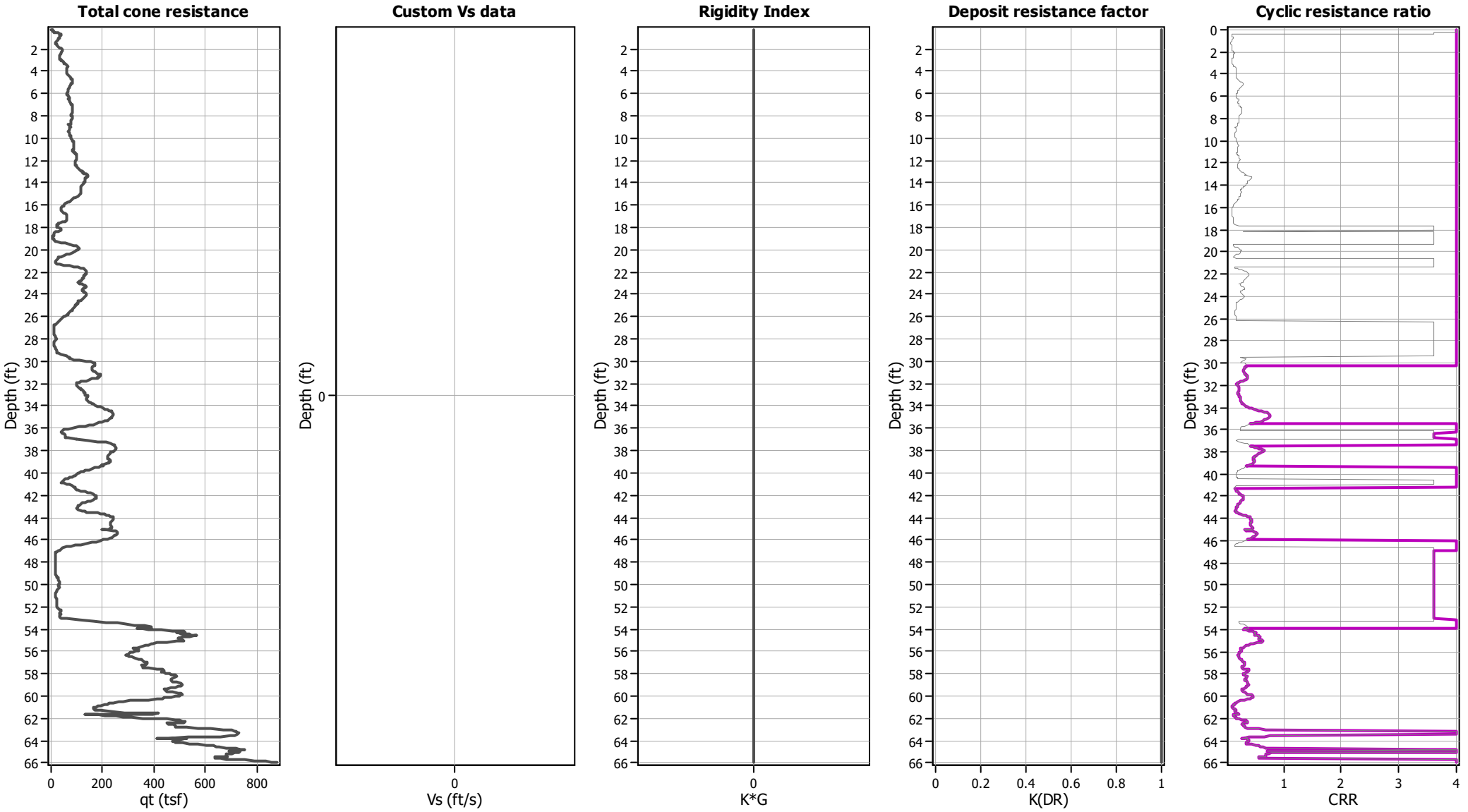
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
65.86	811.97	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.86	833.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.91	854.04	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.96	878.41	-1.00	1.00	-1.00	-1.00	0.00	0.00

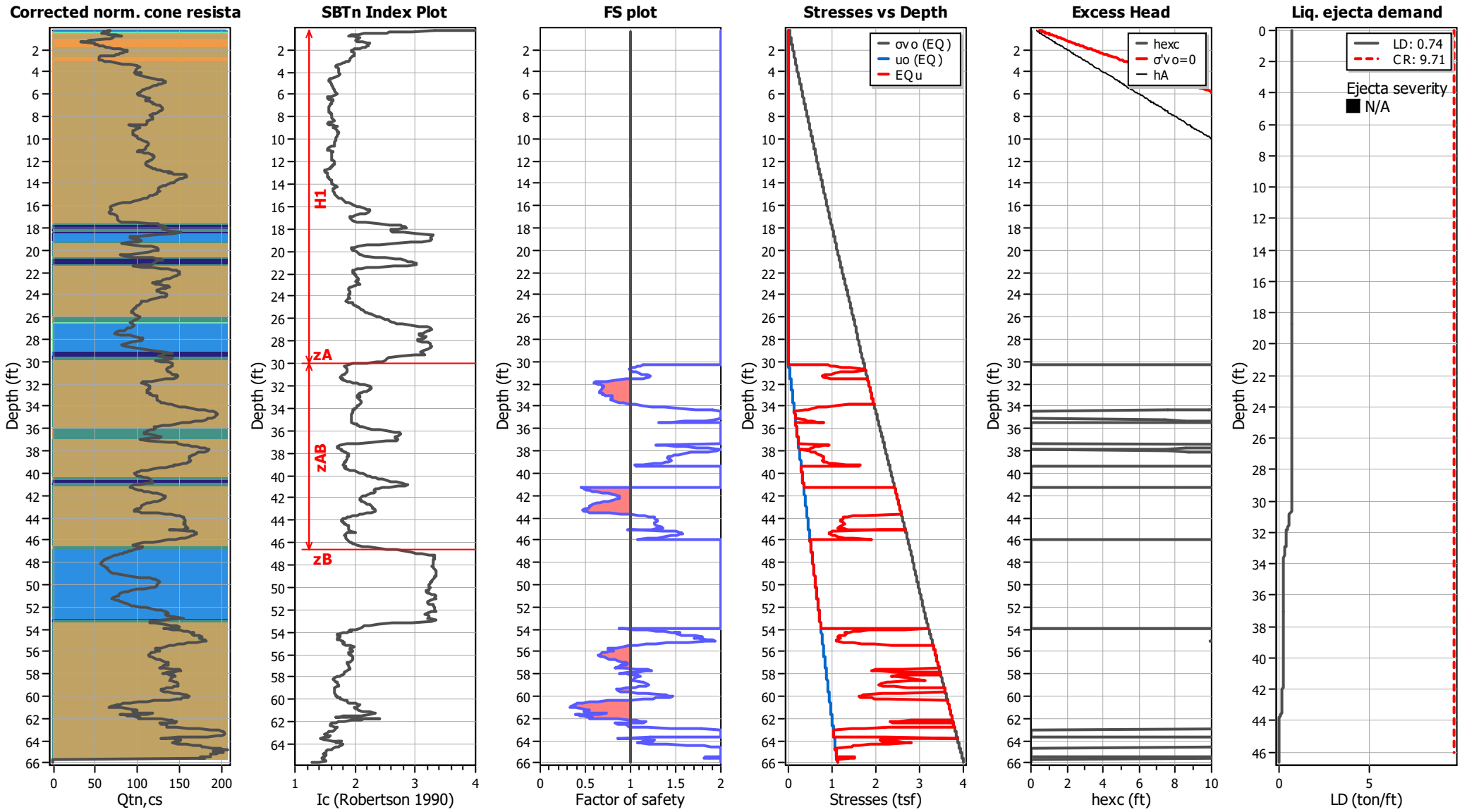
Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Aging Calculation Estimation



Ejecta Severity Estimation



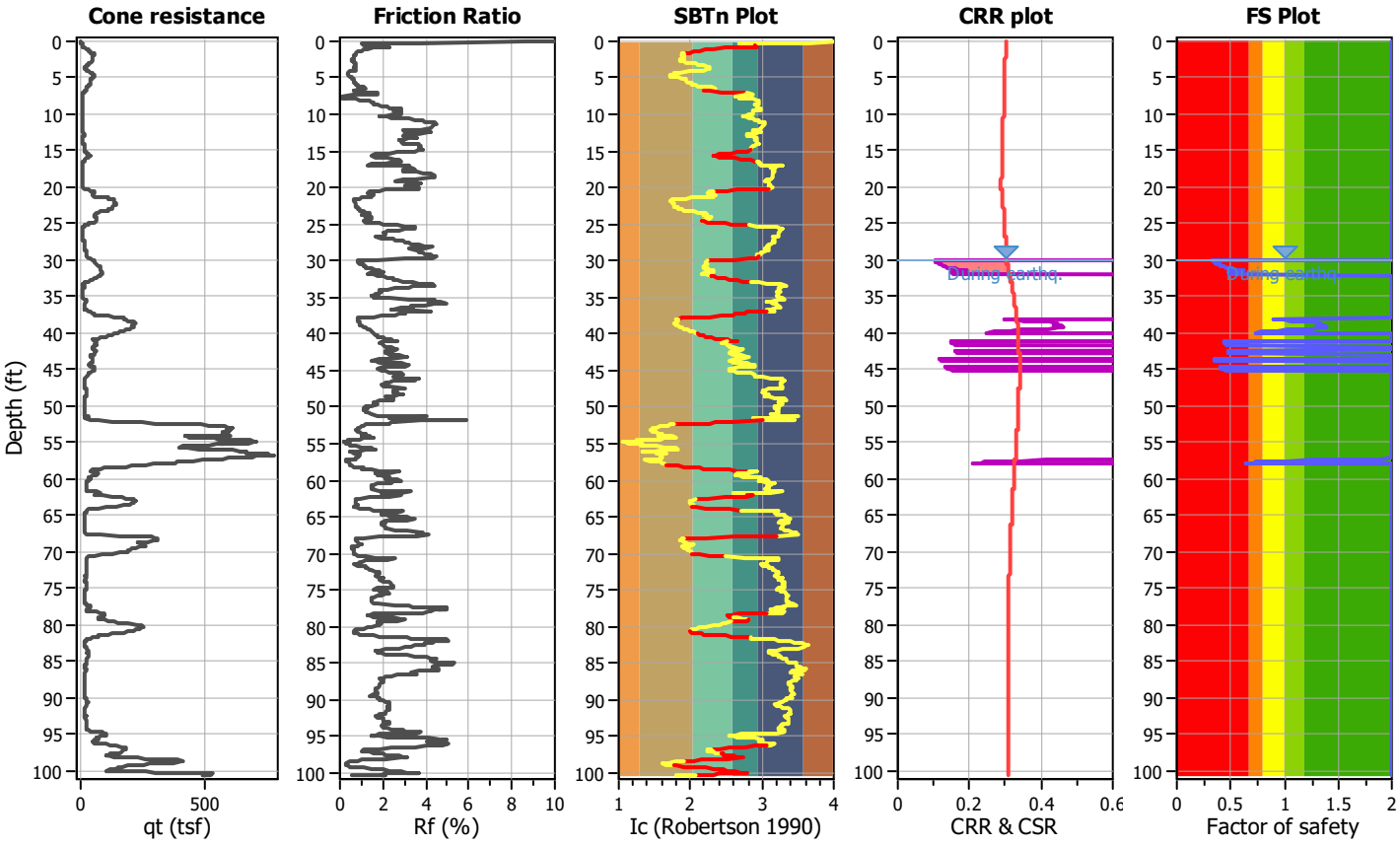
LIQUEFACTION ANALYSIS REPORT

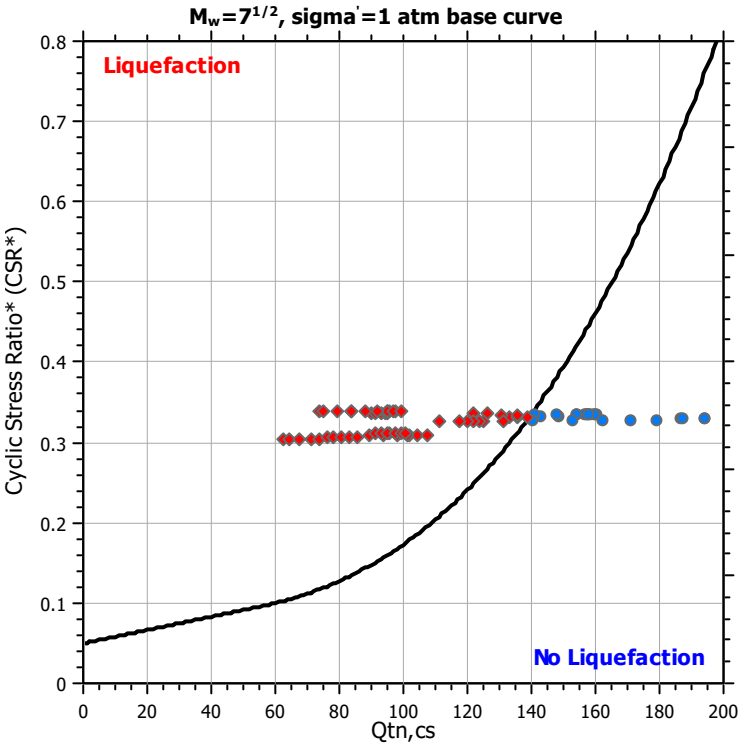
Project title : W1857-88-01 **Location : 331 The City Drive S**

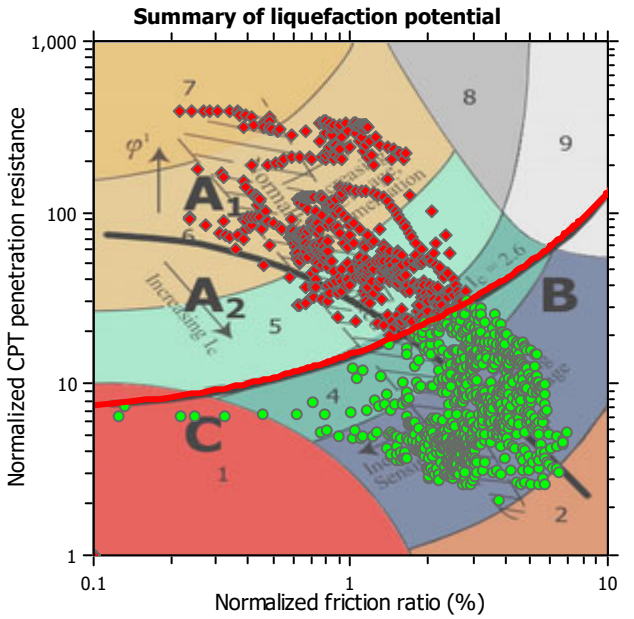
CPT file : CPT-3

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	62.00 ft
Earthquake magnitude M_w:	6.65	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

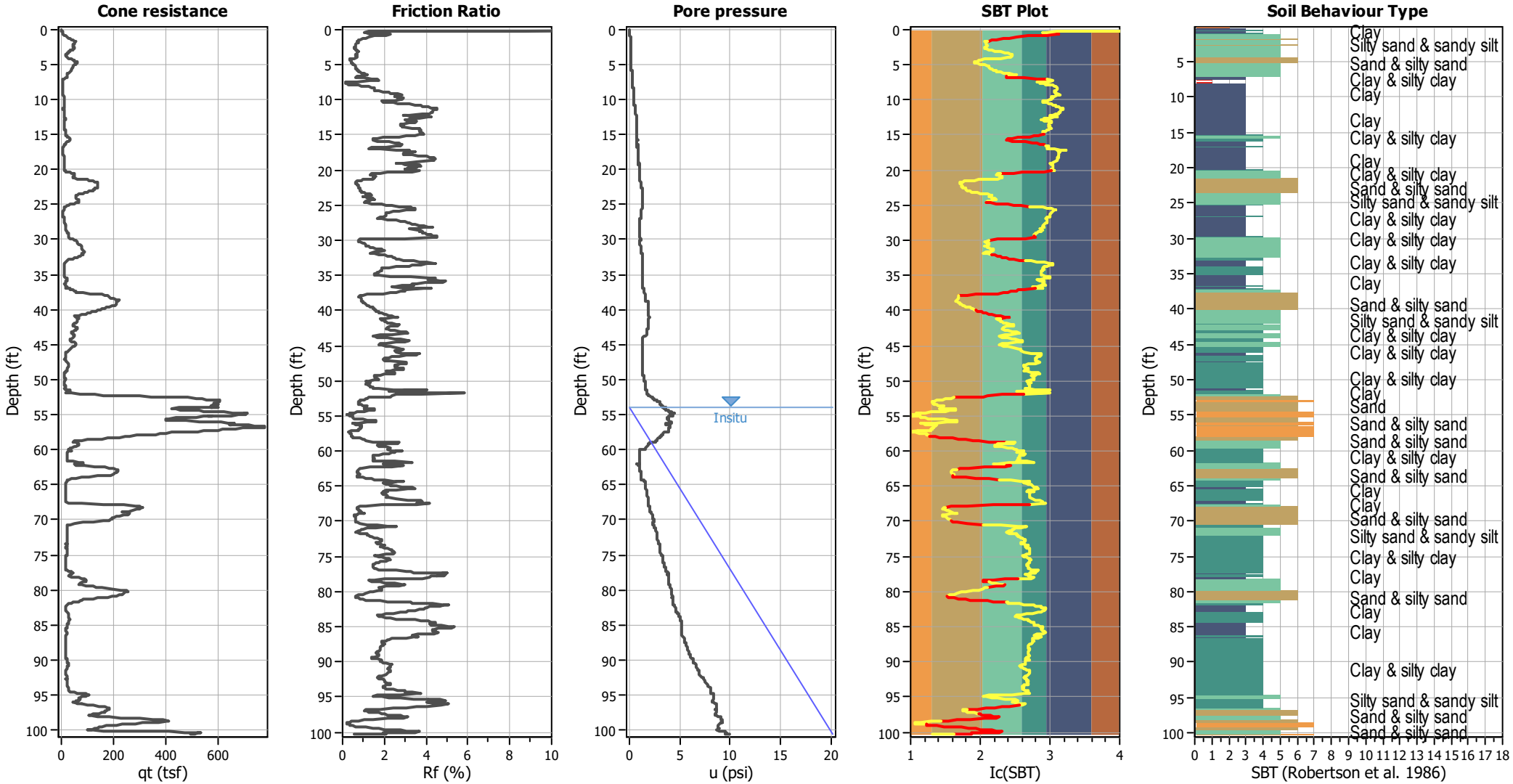






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



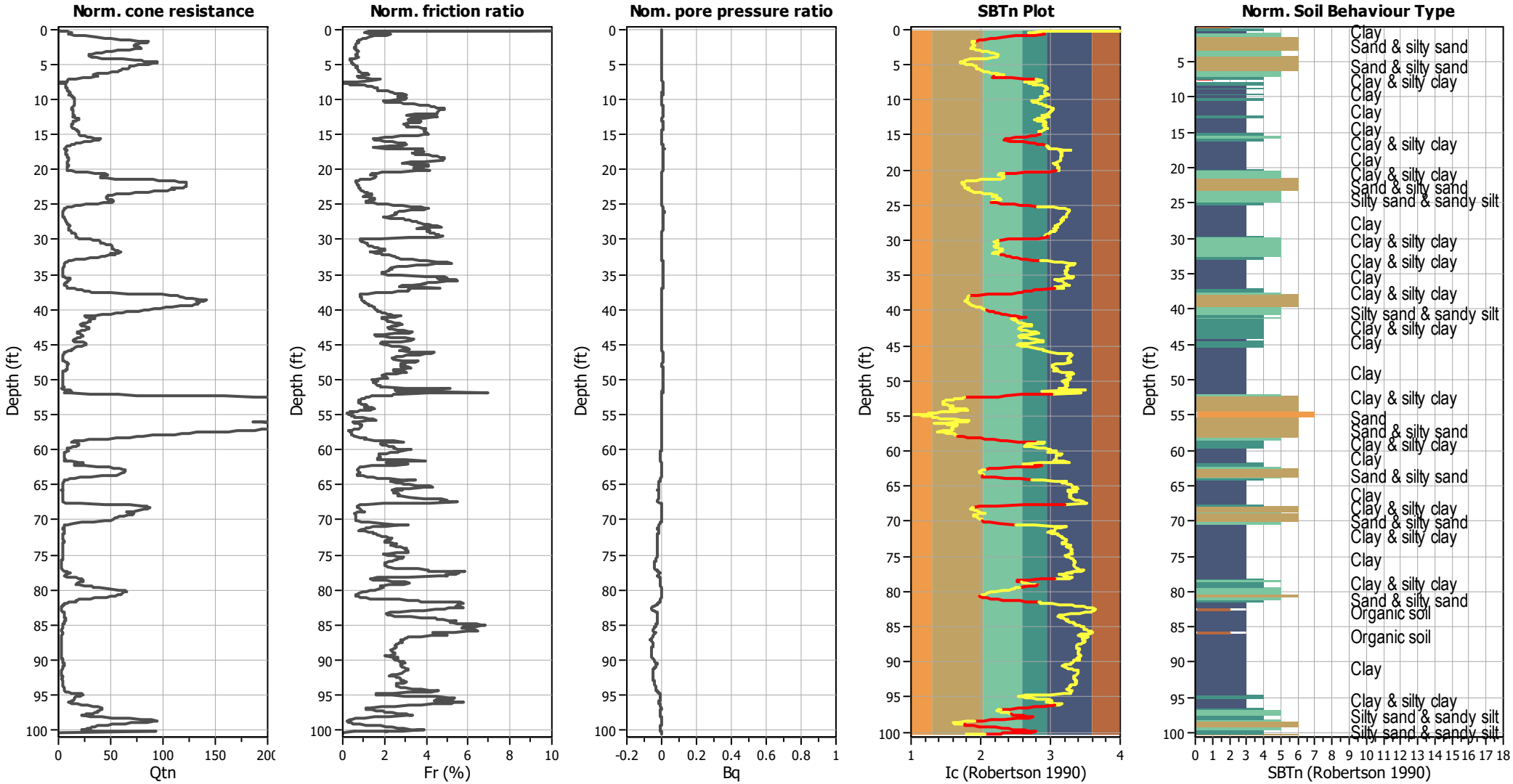
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



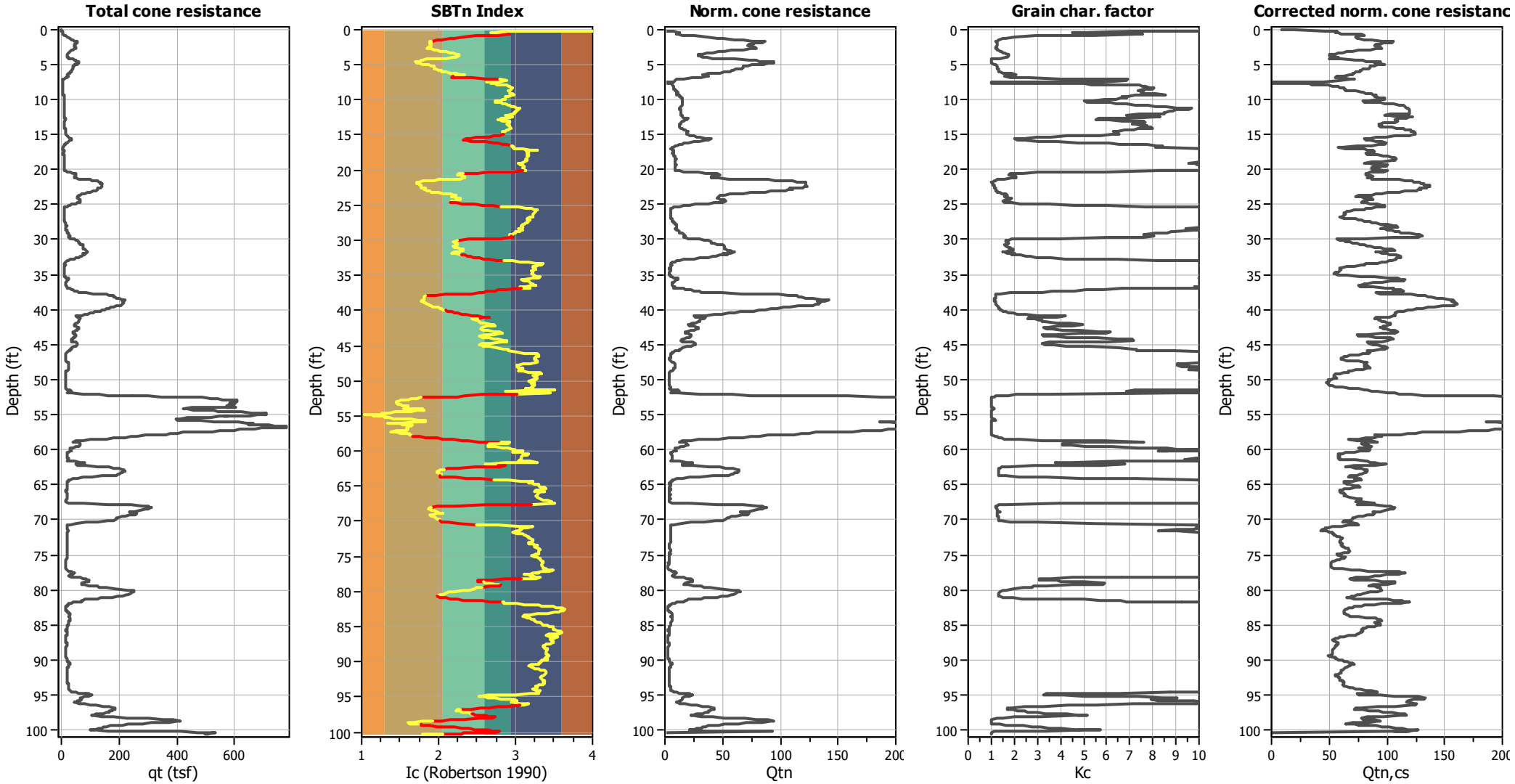
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

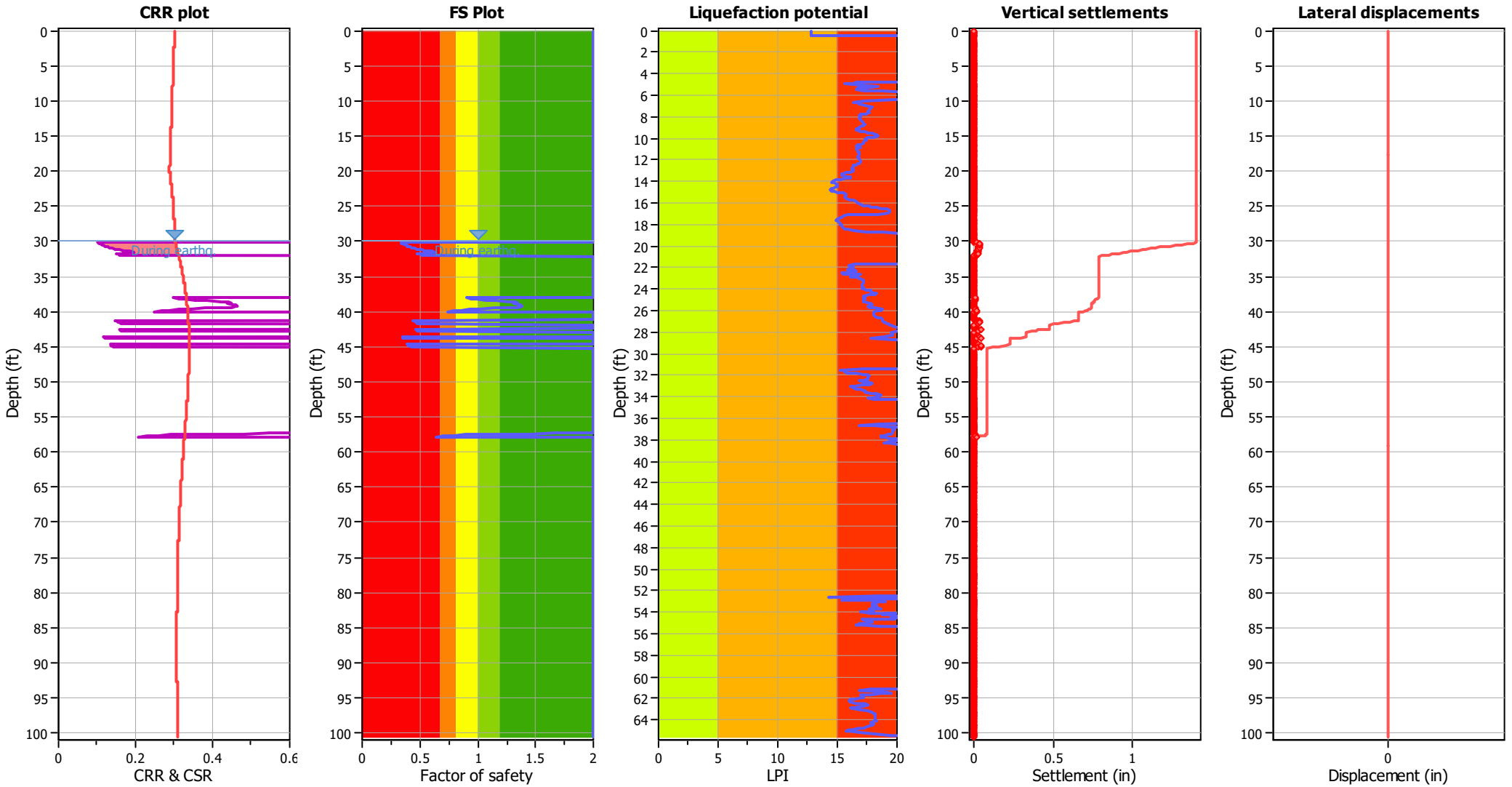
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

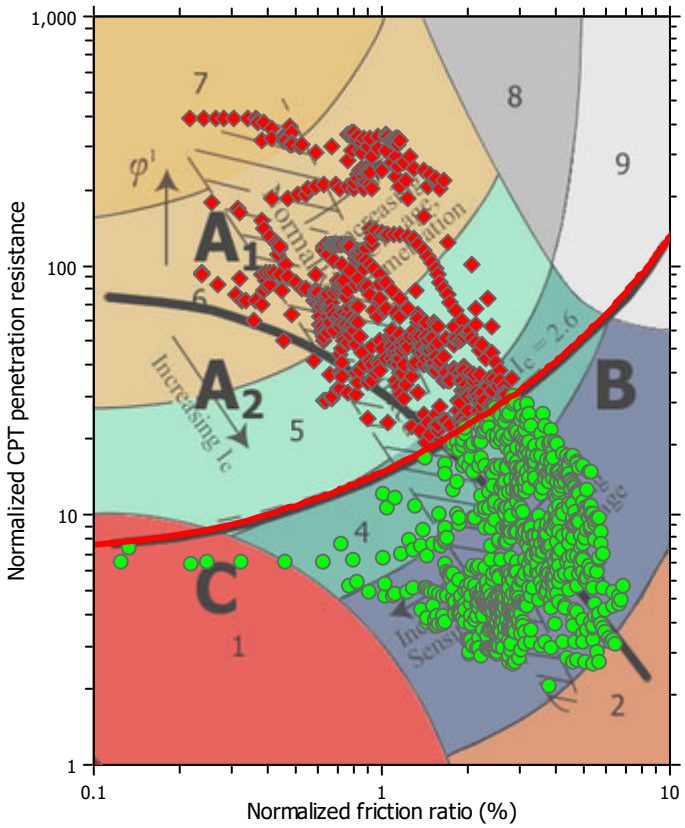
F.S. color scheme

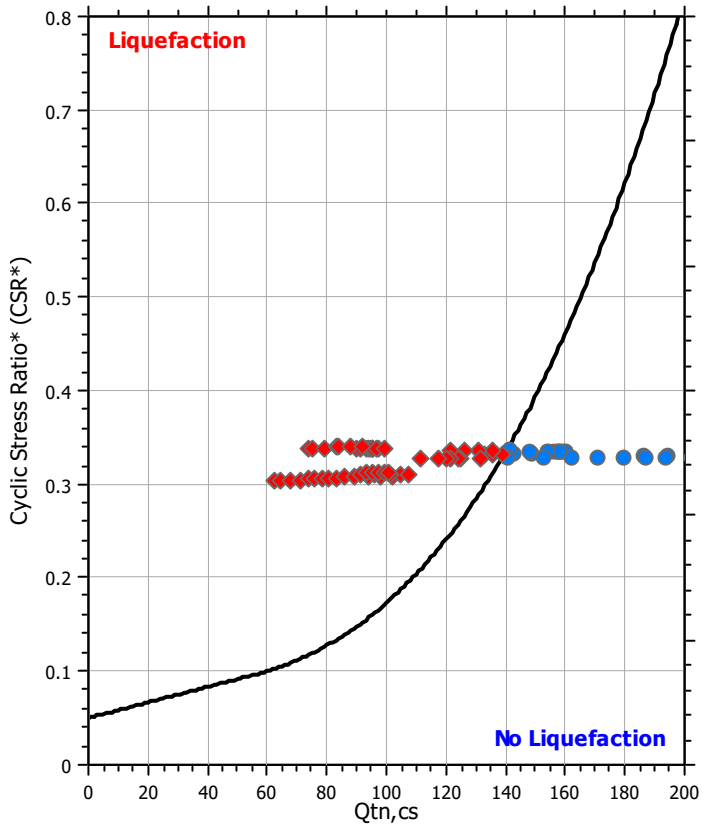
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

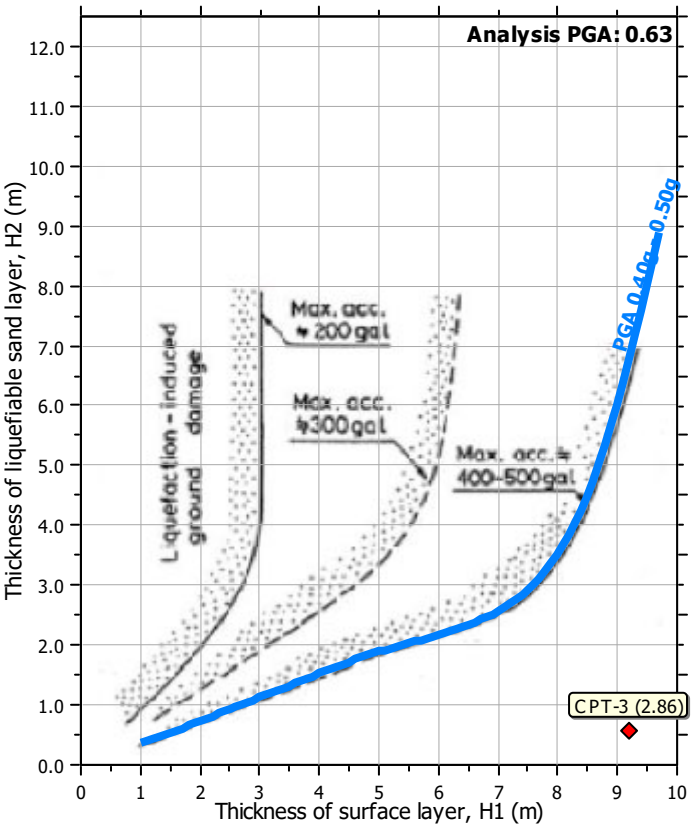
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



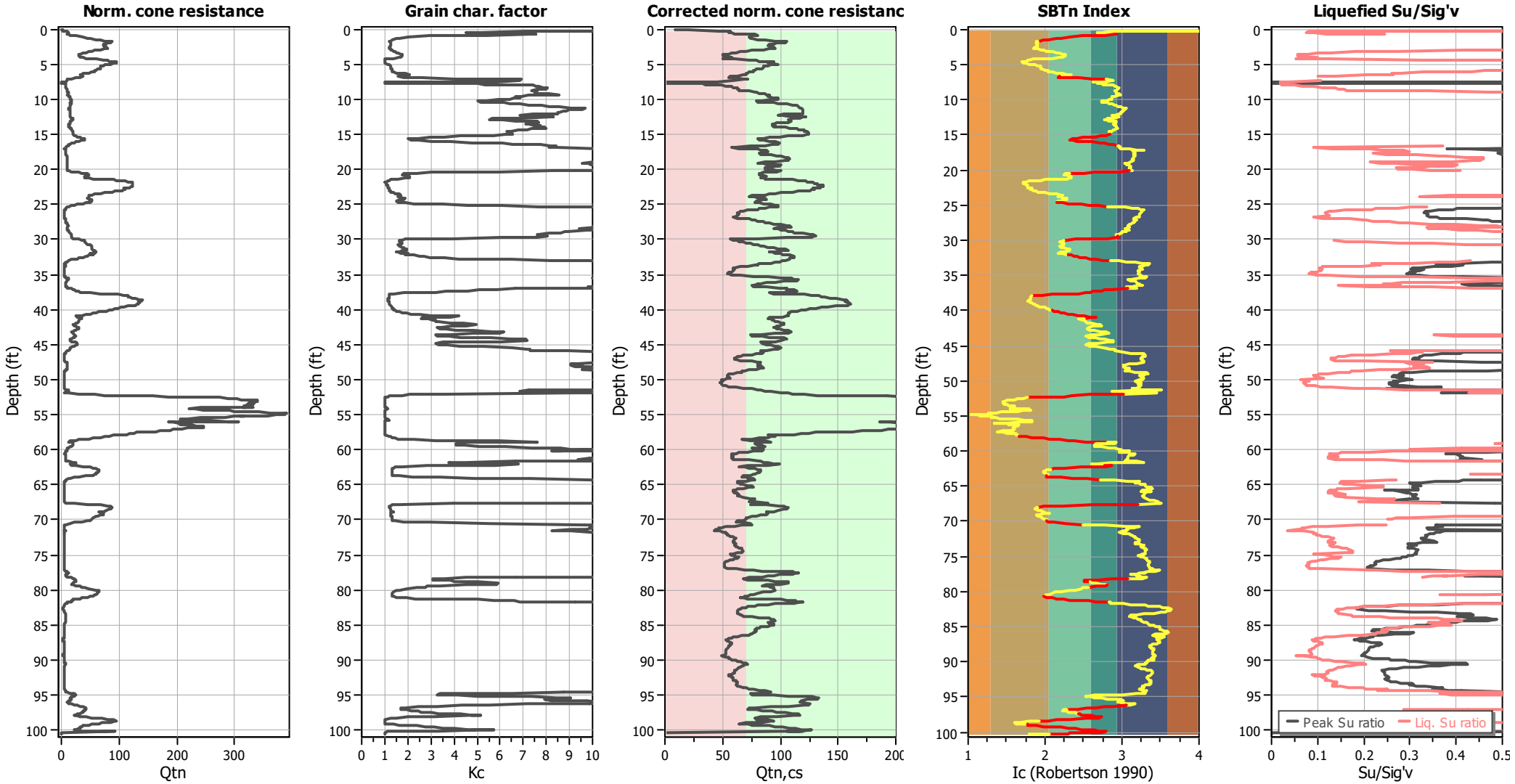




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

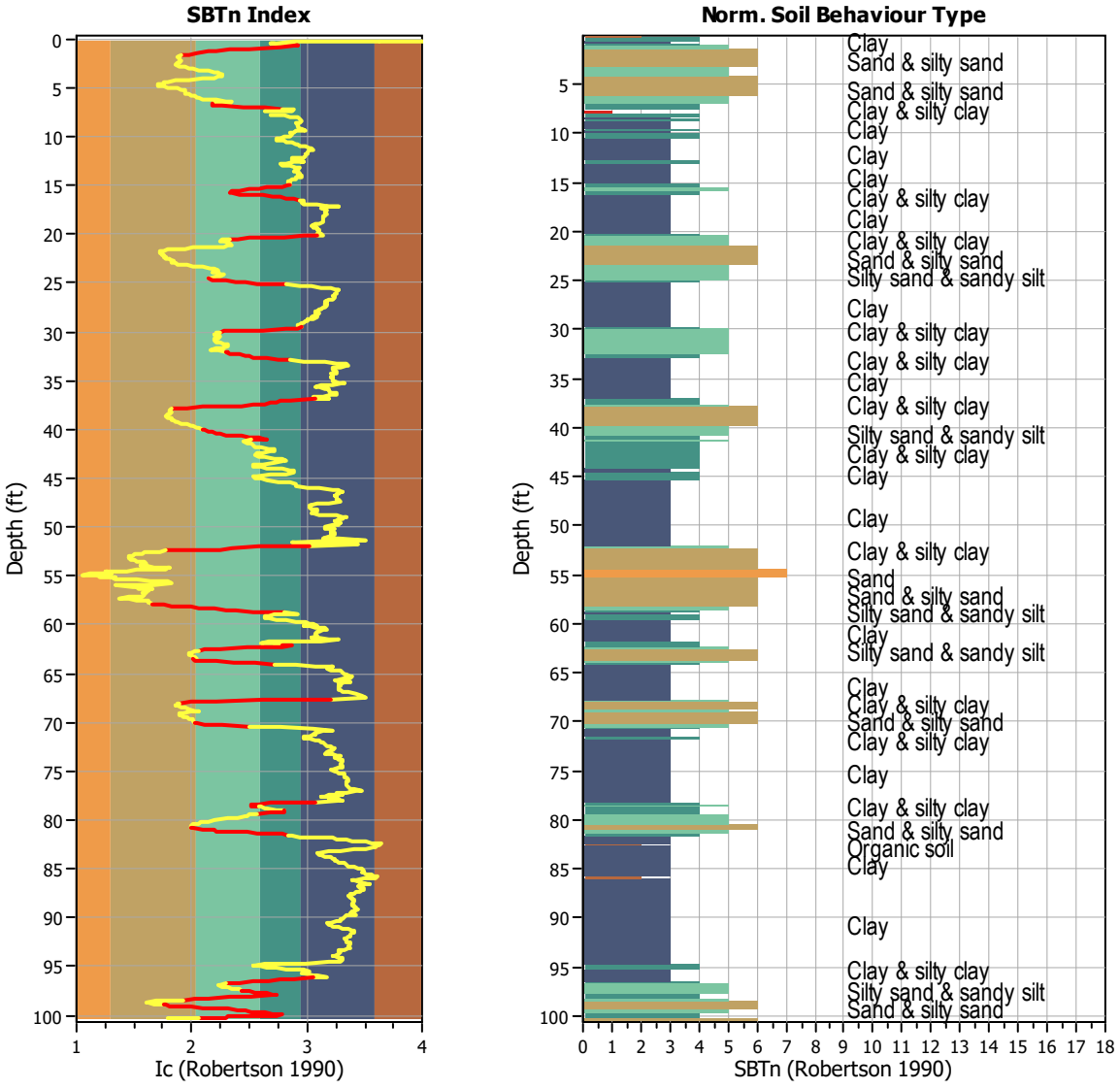
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between 1.80 < I_c < 3.0) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0250
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1376
Total points excluded:	224
Exclusion percentage:	16.28%
Number of layers detected:	26

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	12	Start depth: 0.72 (ft)	3	Clay
		End depth: 1.74 (ft)	6	Sand & silty sand
Transition layer 2	6	Start depth: 6.76 (ft)	5	Silty sand & sandy silt
		End depth: 7.19 (ft)	4	Clay & silty clay
Transition layer 3	9	Start depth: 14.99 (ft)	3	Clay
		End depth: 15.67 (ft)	5	Silty sand & sandy silt
Transition layer 4	11	Start depth: 15.76 (ft)	5	Silty sand & sandy silt
		End depth: 16.58 (ft)	3	Clay
Transition layer 5	7	Start depth: 20.21 (ft)	3	Clay
		End depth: 20.60 (ft)	5	Silty sand & sandy silt
Transition layer 6	9	Start depth: 24.64 (ft)	5	Silty sand & sandy silt
		End depth: 25.27 (ft)	3	Clay
Transition layer 7	8	Start depth: 29.55 (ft)	3	Clay
		End depth: 30.13 (ft)	5	Silty sand & sandy silt
Transition layer 8	12	Start depth: 32.12 (ft)	5	Silty sand & sandy silt
		End depth: 32.98 (ft)	3	Clay
Transition layer 9	15	Start depth: 36.97 (ft)	3	Clay
		End depth: 37.97 (ft)	6	Sand & silty sand
Transition layer 10	12	Start depth: 40.09 (ft)	5	Silty sand & sandy silt
		End depth: 40.97 (ft)	4	Clay & silty clay
Transition layer 11	4	Start depth: 40.97 (ft)	4	Clay & silty clay
		End depth: 41.15 (ft)	5	Silty sand & sandy silt
Transition layer 12	8	Start depth: 52.01 (ft)	4	Clay & silty clay
		End depth: 52.45 (ft)	6	Sand & silty sand
Transition layer 13	14	Start depth: 57.92 (ft)	6	Sand & silty sand
		End depth: 58.84 (ft)	3	Clay
Transition layer 14	7	Start depth: 62.10 (ft)	3	Clay
		End depth: 62.74 (ft)	6	Sand & silty sand
Transition layer 15	7	Start depth: 63.61 (ft)	6	Sand & silty sand
		End depth: 64.15 (ft)	3	Clay
Transition layer 16	5	Start depth: 67.68 (ft)	4	Clay & silty clay
		End depth: 68.07 (ft)	6	Sand & silty sand
Transition layer 17	5	Start depth: 70.08 (ft)	6	Sand & silty sand
		End depth: 70.54 (ft)	4	Clay & silty clay
Transition layer 18	4	Start depth: 78.24 (ft)	4	Clay & silty clay
		End depth: 78.47 (ft)	5	Silty sand & sandy silt
Transition layer 19	4	Start depth: 78.53 (ft)	5	Silty sand & sandy silt
		End depth: 78.69 (ft)	4	Clay & silty clay
Transition layer 20	4	Start depth: 79.16 (ft)	4	Clay & silty clay
		End depth: 79.45 (ft)	5	Silty sand & sandy silt
Transition layer 21	15	Start depth: 80.83 (ft)	6	Sand & silty sand
		End depth: 81.56 (ft)	3	Clay
Transition layer 22	7	Start depth: 96.30 (ft)	3	Clay
		End depth: 96.87 (ft)	5	Silty sand & sandy silt
Transition layer 23	8	Start depth: 97.45 (ft)	5	Silty sand & sandy silt
		End depth: 97.88 (ft)	4	Clay & silty clay

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 24	8	Start depth: 97.88 (ft)	4	Clay & silty clay
		End depth: 98.47 (ft)	6	Sand & silty sand
Transition layer 25	14	Start depth: 98.98 (ft)	6	Sand & silty sand
		End depth: 99.95 (ft)	3	Clay
Transition layer 26	9	Start depth: 99.95 (ft)	3	Clay
		End depth: 100.28 (ft)	6	Sand & silty sand

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.04	0.10	0.03	0.00	100.00	87.36
2	0.10	0.10	0.04	0.00	100.00	87.36
3	0.11	0.20	0.05	0.00	100.00	87.36
4	0.16	0.40	0.05	0.00	100.00	87.36
5	0.19	1.01	0.05	0.00	100.00	88.74
6	0.24	2.43	0.05	0.00	71.90	91.34
7	0.31	5.06	0.06	0.00	51.48	93.80
8	0.38	7.29	0.07	0.00	42.56	95.48
9	0.43	7.69	0.08	0.00	39.63	96.43
10	0.49	7.69	0.08	0.00	41.35	96.84
11	0.58	6.58	0.09	0.00	44.64	97.26
12	0.63	6.17	0.10	0.00	49.07	97.85
13	0.67	5.97	0.11	0.00	51.93	98.72
14	0.72	6.02	0.13	0.00	53.54	99.42
15	0.72	6.07	0.13	0.00	52.47	101.17
16	0.84	8.00	0.20	0.00	44.02	103.62
17	0.96	13.76	0.25	0.00	30.61	106.61
18	1.06	25.71	0.28	0.10	23.44	108.76
19	1.24	28.44	0.33	0.10	19.50	109.81
20	1.30	29.76	0.31	0.10	17.10	110.05
21	1.48	36.23	0.28	0.10	14.00	110.41
22	1.59	45.85	0.33	0.10	12.36	111.13
23	1.69	44.33	0.37	0.10	11.12	112.10
24	1.69	52.02	0.37	0.10	10.74	112.65
25	1.74	53.04	0.39	0.10	9.92	112.99
26	1.79	54.66	0.40	0.10	9.87	113.14
27	1.84	53.64	0.39	0.10	10.04	113.01
28	1.88	50.40	0.38	0.10	10.26	112.64
29	1.93	49.70	0.35	0.10	10.40	112.09
30	1.99	48.28	0.32	0.10	10.27	111.60
31	2.03	48.08	0.31	0.10	10.19	111.23
32	2.08	47.87	0.31	0.10	10.14	110.98
33	2.13	47.06	0.29	0.10	10.28	110.80
34	2.22	45.65	0.30	0.10	10.49	110.61
35	2.27	44.84	0.29	0.10	10.68	110.44
36	2.33	44.43	0.28	0.10	10.61	110.26
37	2.42	45.04	0.28	0.10	10.34	110.23
38	2.48	46.86	0.28	0.10	9.95	110.30
39	2.56	48.28	0.28	0.10	9.56	110.53
40	2.65	50.10	0.29	0.10	9.36	110.70
41	2.72	49.90	0.29	0.10	9.62	110.74
42	2.80	46.15	0.29	0.10	10.31	110.44
43	2.89	42.00	0.28	0.10	11.29	109.97
44	2.94	39.17	0.26	0.10	12.40	109.53
45	3.04	35.93	0.26	0.10	13.48	109.00
46	3.14	32.59	0.24	0.10	14.78	108.19
47	3.23	28.44	0.21	0.10	15.91	107.05
48	3.31	26.01	0.18	0.10	17.31	105.88

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	3.37	22.77	0.17	0.10	18.64	104.75
50	3.48	20.34	0.15	0.10	20.16	103.47
51	3.57	18.02	0.12	0.10	20.83	102.23
52	3.65	18.02	0.11	0.10	20.99	101.38
53	3.71	18.02	0.11	0.10	20.91	101.29
54	3.82	18.02	0.11	0.10	20.93	102.11
55	3.91	19.84	0.15	0.10	20.16	103.21
56	4.00	22.67	0.16	0.10	18.85	104.71
57	4.10	25.91	0.19	0.10	15.53	104.42
58	4.19	30.57	0.11	0.10	5.00	104.40
59	4.26	37.15	0.13	0.10	5.00	104.51
60	4.35	46.05	0.17	0.10	5.00	106.46
61	4.44	53.64	0.20	0.19	5.00	107.75
62	4.52	49.70	0.21	0.19	5.00	108.36
63	4.53	50.81	0.21	0.19	5.00	108.59
64	4.58	56.27	0.21	0.19	5.00	108.81
65	4.63	58.00	0.22	0.19	5.00	109.16
66	4.68	59.01	0.23	0.19	5.00	109.49
67	4.72	59.51	0.24	0.19	5.00	109.83
68	4.77	59.31	0.25	0.19	5.00	110.07
69	4.82	58.40	0.26	0.19	5.00	110.22
70	4.88	56.48	0.26	0.19	5.00	110.30
71	4.96	53.74	0.27	0.19	7.94	110.33
72	5.01	50.61	0.27	0.19	8.80	110.33
73	5.08	47.27	0.28	0.19	9.75	110.30
74	5.16	44.43	0.28	0.19	10.61	110.22
75	5.21	42.71	0.28	0.19	11.15	110.15
76	5.30	42.66	0.28	0.19	11.35	110.11
77	5.37	42.66	0.28	0.19	11.37	110.11
78	5.45	42.61	0.28	0.19	11.35	110.10
79	5.52	42.81	0.28	0.19	11.43	110.08
80	5.59	41.90	0.28	0.19	11.67	109.99
81	5.65	40.38	0.27	0.19	12.17	109.79
82	5.74	38.16	0.27	0.19	12.78	109.59
83	5.83	36.84	0.27	0.19	13.36	109.47
84	5.89	36.23	0.27	0.29	13.78	109.49
85	5.97	35.83	0.27	0.29	14.10	109.46
86	6.07	34.92	0.27	0.29	14.65	109.36
87	6.12	32.79	0.27	0.29	15.67	109.20
88	6.22	29.96	0.27	0.29	17.39	109.00
89	6.28	26.52	0.27	0.29	19.71	108.75
90	6.36	23.18	0.27	0.29	22.24	108.30
91	6.46	20.65	0.26	0.29	24.09	107.75
92	6.52	20.04	0.24	0.29	23.83	106.97
93	6.60	21.46	0.20	0.29	21.15	106.06
94	6.70	24.70	0.16	0.29	18.41	104.86
95	6.76	24.49	0.14	0.29	18.15	104.05
96	6.84	19.84	0.15	0.29	21.31	103.55

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	6.94	14.57	0.15	0.29	28.13	103.13
98	7.03	10.32	0.15	0.29	36.85	102.17
99	7.13	7.69	0.14	0.29	45.33	101.02
100	7.19	6.68	0.13	0.29	50.80	99.02
101	7.32	5.47	0.08	0.29	50.53	95.58
102	7.42	5.16	0.02	0.29	46.05	89.63
103	7.49	4.86	0.01	0.29	36.85	87.36
104	7.57	4.76	-0.01	0.29	N/A	87.36
105	7.66	4.55	0.00	0.29	N/A	87.36
106	7.76	4.35	0.01	0.29	39.30	87.36
107	7.77	4.40	0.01	0.29	41.66	87.36
108	7.78	4.40	0.01	0.29	42.16	87.36
109	7.82	4.45	0.01	0.29	43.69	87.36
110	7.87	4.45	0.02	0.29	46.05	87.36
111	7.92	4.45	0.03	0.29	48.69	87.36
112	7.97	4.45	0.03	0.29	50.96	88.91
113	8.01	4.55	0.04	0.29	52.87	90.83
114	8.06	4.76	0.05	0.29	53.56	92.24
115	8.11	4.96	0.06	0.29	53.89	93.35
116	8.20	5.06	0.06	0.29	54.02	94.10
117	8.26	5.16	0.07	0.29	54.67	94.95
118	8.35	5.26	0.08	0.29	55.25	95.57
119	8.40	5.26	0.08	0.38	55.42	95.96
120	8.49	5.36	0.08	0.38	55.15	96.13
121	8.54	5.47	0.08	0.38	54.56	96.42
122	8.64	5.67	0.09	0.38	53.58	96.77
123	8.69	5.97	0.09	0.38	52.70	97.12
124	8.79	6.07	0.09	0.38	53.07	98.37
125	8.84	6.48	0.14	0.38	53.64	99.77
126	8.93	6.88	0.15	0.38	53.23	100.93
127	9.03	7.29	0.15	0.38	53.10	101.61
128	9.08	7.19	0.17	0.38	53.34	101.99
129	9.11	7.14	0.18	0.38	54.44	102.35
130	9.12	7.14	0.18	0.38	54.87	102.44
131	9.17	7.08	0.18	0.38	55.46	102.54
132	9.22	6.98	0.19	0.38	55.68	102.79
133	9.31	7.29	0.19	0.38	57.60	103.02
134	9.36	6.48	0.20	0.38	56.84	103.40
135	9.40	7.69	0.21	0.38	55.49	103.68
136	9.46	8.20	0.21	0.38	52.20	104.01
137	9.51	8.50	0.21	0.38	50.78	104.20
138	9.55	8.70	0.22	0.48	49.80	104.47
139	9.61	9.11	0.23	0.48	49.60	104.86
140	9.69	9.11	0.24	0.48	49.93	105.32
141	9.74	9.11	0.26	0.38	50.53	105.75
142	9.81	9.31	0.27	0.48	50.47	106.17
143	9.89	9.72	0.28	0.38	49.47	106.49
144	9.94	10.22	0.29	0.48	48.57	106.69

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	10.03	10.22	0.28	0.48	47.95	106.73
146	10.08	10.22	0.28	0.48	46.27	105.91
147	10.18	10.22	0.19	0.48	43.86	104.66
148	10.23	10.22	0.16	0.48	42.16	103.72
149	10.33	10.22	0.21	0.48	42.78	104.06
150	10.40	10.22	0.22	0.48	44.53	104.99
151	10.47	10.22	0.24	0.48	46.24	105.54
152	10.51	9.77	0.26	0.48	47.48	106.12
153	10.56	10.17	0.28	0.48	48.53	106.55
154	10.61	10.12	0.29	0.48	48.96	107.12
155	10.67	10.32	0.32	0.48	50.59	107.76
156	10.75	10.02	0.37	0.48	52.01	108.32
157	10.80	10.02	0.37	0.48	53.26	108.59
158	10.85	9.92	0.37	0.48	53.79	108.61
159	10.90	9.72	0.37	0.57	54.58	108.60
160	11.00	9.51	0.38	0.57	55.86	108.56
161	11.05	9.11	0.37	0.57	57.54	108.36
162	11.14	8.50	0.36	0.57	59.49	108.14
163	11.21	8.20	0.36	0.57	61.41	108.08
164	11.29	8.10	0.38	0.57	61.90	108.18
165	11.38	8.40	0.37	0.57	61.40	108.38
166	11.46	8.70	0.39	0.57	60.04	108.48
167	11.52	8.91	0.38	0.57	59.20	108.60
168	11.60	9.01	0.38	0.57	58.74	108.64
169	11.67	9.01	0.39	0.57	58.51	108.69
170	11.72	9.11	0.39	0.57	58.33	108.76
171	11.81	9.21	0.39	0.57	57.50	108.86
172	11.86	9.62	0.39	0.57	57.42	108.90
173	11.96	9.21	0.39	0.57	57.28	108.93
174	12.01	9.41	0.40	0.57	57.36	108.99
175	12.10	9.72	0.40	0.57	56.33	108.48
176	12.16	9.92	0.30	0.57	52.86	107.67
177	12.24	10.53	0.27	0.67	50.46	107.26
178	12.32	10.93	0.34	0.67	50.49	108.00
179	12.39	11.13	0.39	0.67	51.82	109.13
180	12.48	11.44	0.42	0.67	55.21	109.56
181	12.50	9.31	0.43	0.67	56.54	109.82
182	12.54	9.92	0.45	0.67	56.14	110.10
183	12.64	12.95	0.45	0.67	51.14	110.63
184	12.68	14.17	0.46	0.67	46.74	111.06
185	12.77	14.98	0.47	0.67	45.02	111.08
186	12.82	14.98	0.44	0.67	44.58	110.87
187	12.89	14.27	0.42	0.67	45.32	110.45
188	12.97	13.36	0.41	0.67	47.27	110.13
189	13.03	12.45	0.41	0.67	49.63	109.86
190	13.12	11.64	0.40	0.67	52.08	109.64
191	13.16	11.03	0.40	0.67	53.60	109.40
192	13.26	10.93	0.39	0.67	54.00	108.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	13.34	10.73	0.34	0.67	53.03	108.33
194	13.41	10.83	0.31	0.67	51.87	107.54
195	13.50	10.63	0.28	0.67	51.53	107.03
196	13.60	10.32	0.28	0.67	52.24	106.75
197	13.65	10.02	0.28	0.67	53.22	106.76
198	13.75	10.02	0.29	0.67	54.12	106.90
199	13.80	10.02	0.30	0.67	53.54	106.72
200	13.89	10.22	0.26	0.67	53.46	106.90
201	13.94	10.42	0.31	0.76	53.08	107.50
202	14.03	11.23	0.37	0.76	54.97	108.63
203	14.11	10.73	0.41	0.76	55.24	109.48
204	14.13	11.69	0.42	0.76	55.28	110.03
205	14.18	12.15	0.45	0.76	53.47	110.47
206	14.22	12.95	0.46	0.76	52.62	110.95
207	14.28	13.36	0.49	0.76	51.87	111.50
208	14.37	13.97	0.53	0.76	51.36	112.04
209	14.44	14.68	0.56	0.76	50.25	112.56
210	14.51	15.69	0.58	0.76	48.93	112.99
211	14.60	16.50	0.60	0.76	48.02	113.34
212	14.65	16.70	0.62	0.76	47.94	113.59
213	14.75	16.50	0.63	0.76	48.44	113.74
214	14.85	16.45	0.64	0.76	48.93	113.80
215	14.91	16.45	0.63	0.76	49.08	113.80
216	14.99	16.40	0.63	0.76	47.80	113.81
217	15.09	18.12	0.62	0.76	45.25	113.98
218	15.18	20.34	0.63	0.76	41.64	114.15
219	15.25	22.37	0.61	0.76	38.13	114.10
220	15.33	24.09	0.55	0.76	34.47	113.87
221	15.43	27.02	0.52	0.76	30.57	113.72
222	15.51	31.38	0.52	0.76	26.98	113.86
223	15.59	35.53	0.52	0.76	24.54	114.07
224	15.67	36.94	0.52	0.76	23.56	114.17
225	15.76	36.03	0.51	0.86	24.48	114.23
226	15.86	32.39	0.54	0.76	26.98	114.13
227	15.95	27.63	0.54	0.76	31.02	113.82
228	16.05	22.87	0.53	0.76	35.88	113.11
229	16.14	18.72	0.48	0.76	40.89	112.24
230	16.20	16.30	0.45	0.76	44.59	111.36
231	16.28	15.49	0.42	0.76	47.26	110.71
232	16.34	14.17	0.41	0.76	49.02	109.97
233	16.44	12.95	0.36	0.76	51.62	109.16
234	16.50	11.64	0.33	0.86	54.21	108.05
235	16.58	10.22	0.29	0.76	56.10	106.16
236	16.73	8.60	0.17	0.86	57.07	103.07
237	16.82	7.39	0.09	0.76	55.90	98.94
238	16.92	6.78	0.07	0.86	56.73	97.37
239	17.01	6.98	0.12	0.86	64.41	99.23
240	17.11	5.87	0.17	0.86	72.33	101.23

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	17.12	5.72	0.19	0.86	79.64	102.14
242	17.14	5.57	0.19	0.86	75.40	102.95
243	17.19	7.69	0.22	0.86	70.99	103.97
244	17.28	8.10	0.25	0.86	67.48	104.99
245	17.33	8.00	0.26	0.86	68.61	105.59
246	17.43	7.89	0.28	0.86	70.20	105.75
247	17.47	7.69	0.27	0.86	70.55	105.46
248	17.57	7.59	0.24	0.86	70.29	104.78
249	17.65	7.39	0.21	0.86	69.39	104.05
250	17.72	7.39	0.21	0.86	69.90	104.00
251	17.81	7.39	0.23	0.86	69.98	104.48
252	17.86	7.89	0.25	0.86	70.40	105.52
253	17.95	8.30	0.30	0.86	70.27	106.61
254	18.05	8.70	0.35	0.86	69.77	107.59
255	18.10	9.31	0.36	0.86	69.28	108.43
256	18.20	9.62	0.41	0.86	68.75	109.17
257	18.30	10.02	0.44	0.86	69.06	109.74
258	18.39	10.02	0.45	0.86	68.69	110.03
259	18.48	10.32	0.45	0.86	68.26	110.09
260	18.58	10.42	0.45	0.86	68.26	110.10
261	18.66	10.12	0.45	0.86	68.67	110.00
262	18.74	10.02	0.43	0.86	68.65	109.66
263	18.87	10.02	0.39	0.86	65.89	108.15
264	18.97	9.62	0.22	0.86	63.51	106.58
265	19.06	9.31	0.24	0.96	61.57	105.45
266	19.16	9.72	0.27	0.86	62.59	106.45
267	19.25	10.42	0.32	0.96	62.93	107.21
268	19.27	10.22	0.32	0.86	63.88	107.82
269	19.30	10.02	0.35	0.96	64.63	108.39
270	19.34	10.83	0.39	0.96	65.30	109.05
271	19.39	10.83	0.41	0.96	65.04	109.46
272	19.49	10.83	0.41	0.96	65.33	109.38
273	19.55	10.63	0.38	0.96	65.79	108.98
274	19.63	10.02	0.36	0.96	66.38	108.45
275	19.68	9.82	0.34	0.96	66.57	107.82
276	19.74	9.72	0.30	0.96	65.75	107.23
277	19.83	9.72	0.28	0.96	65.45	106.97
278	19.87	9.72	0.31	0.96	65.22	106.85
279	19.94	9.72	0.29	0.96	66.15	107.18
280	20.02	9.72	0.33	0.96	67.03	107.64
281	20.07	9.92	0.36	0.96	67.92	108.78
282	20.17	10.83	0.44	0.96	64.62	109.94
283	20.21	13.46	0.47	0.96	56.54	111.19
284	20.28	18.22	0.50	0.96	46.28	112.30
285	20.36	24.49	0.52	1.05	37.36	113.43
286	20.41	31.88	0.56	1.05	30.98	114.57
287	20.48	38.76	0.62	1.05	26.57	115.62
288	20.55	45.24	0.66	1.05	23.46	116.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	20.60	50.91	0.67	1.05	21.46	116.95
290	20.70	53.44	0.69	1.05	20.55	117.24
291	20.74	53.24	0.71	1.05	20.71	117.40
292	20.79	51.32	0.72	1.05	21.66	117.54
293	20.89	48.89	0.76	1.05	23.50	117.89
294	20.96	45.85	0.85	0.96	23.80	117.32
295	21.04	45.80	0.57	0.96	24.10	117.07
296	21.13	45.80	0.70	0.96	23.70	116.74
297	21.22	45.75	0.76	0.96	23.00	117.62
298	21.29	56.07	0.78	1.05	21.86	118.10
299	21.35	56.27	0.79	1.05	18.50	118.64
300	21.37	73.99	0.80	1.05	15.90	119.09
301	21.42	83.80	0.82	1.05	13.13	119.55
302	21.47	93.32	0.82	1.05	11.52	119.85
303	21.48	101.01	0.82	1.05	10.27	120.06
304	21.52	107.59	0.82	1.05	9.34	120.20
305	21.57	113.46	0.81	1.05	8.57	120.29
306	21.62	118.62	0.80	1.05	7.91	120.35
307	21.66	124.29	0.80	1.05	7.35	120.43
308	21.71	129.05	0.81	1.15	6.92	120.56
309	21.76	132.99	0.82	1.15	6.65	120.75
310	21.81	135.83	0.84	1.15	6.55	120.99
311	21.85	137.14	0.87	1.15	6.57	121.25
312	21.91	137.95	0.90	1.15	6.66	121.49
313	21.95	138.26	0.92	1.15	6.78	121.69
314	22.00	138.06	0.94	1.15	6.89	121.84
315	22.05	138.36	0.96	1.15	6.99	121.96
316	22.10	138.06	0.97	1.15	7.07	122.06
317	22.15	138.26	0.98	1.15	7.14	122.15
318	22.19	138.56	0.99	1.15	7.18	122.24
319	22.24	139.17	1.00	1.15	7.38	122.59
320	22.29	139.98	1.12	1.15	7.48	122.79
321	22.34	140.38	1.07	1.15	7.53	122.89
322	22.39	140.18	1.04	1.15	7.42	122.71
323	22.43	139.57	1.04	1.15	7.44	122.63
324	22.48	138.46	1.05	1.15	7.57	122.64
325	22.55	136.94	1.06	1.15	7.77	122.66
326	22.62	134.92	1.06	1.15	8.48	122.57
327	22.63	118.32	1.06	1.24	8.67	122.48
328	22.72	130.57	1.04	1.24	8.87	122.34
329	22.77	127.73	1.02	1.24	8.53	122.30
330	22.83	125.91	1.02	1.24	8.81	122.33
331	22.91	124.70	1.06	1.24	9.13	122.40
332	22.96	121.96	1.07	1.24	9.51	122.45
333	23.02	118.52	1.06	1.24	9.95	122.36
334	23.10	114.07	1.06	1.24	10.51	122.24
335	23.16	108.91	1.05	1.24	11.23	122.08
336	23.20	102.23	1.04	1.24	12.12	121.86

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	23.26	95.44	1.03	1.24	13.14	121.54
338	23.35	88.66	0.99	1.24	14.37	121.28
339	23.39	81.88	1.01	1.24	15.74	120.92
340	23.48	74.39	0.96	1.24	17.51	120.69
341	23.54	67.71	0.98	1.24	19.01	120.18
342	23.63	62.85	0.89	1.24	19.95	119.45
343	23.69	59.72	0.76	1.24	19.23	117.77
344	23.78	57.59	0.48	1.24	18.61	116.63
345	23.87	57.74	0.60	1.24	18.21	116.01
346	23.88	57.74	0.61	1.24	19.03	116.77
347	23.93	57.89	0.67	1.34	19.95	117.38
348	24.02	56.58	0.77	1.34	20.80	117.95
349	24.04	57.13	0.78	1.34	21.46	118.37
350	24.05	57.13	0.80	1.34	21.78	118.73
351	24.15	57.69	0.89	1.34	21.95	119.14
352	24.20	59.92	0.91	1.34	21.72	119.56
353	24.30	62.65	0.93	1.34	20.63	119.52
354	24.40	65.28	0.83	1.34	19.19	119.11
355	24.46	67.21	0.74	1.34	17.84	118.42
356	24.54	67.21	0.69	1.34	17.34	117.92
357	24.64	64.78	0.69	1.34	18.05	117.78
358	24.73	60.22	0.72	1.34	19.84	117.90
359	24.78	54.76	0.77	1.34	22.46	118.05
360	24.88	48.89	0.80	1.34	25.68	117.95
361	24.94	42.00	0.78	1.24	29.51	117.49
362	25.02	34.82	0.73	1.24	34.04	116.54
363	25.12	28.14	0.65	1.24	39.88	115.47
364	25.17	22.27	0.62	1.24	46.77	114.38
365	25.27	18.12	0.59	1.24	54.06	113.10
366	25.36	14.78	0.46	1.24	61.30	111.68
367	25.43	12.45	0.42	1.24	67.46	110.12
368	25.50	10.53	0.38	1.24	73.11	108.95
369	25.60	9.62	0.33	1.24	77.33	107.97
370	25.64	9.11	0.32	1.24	78.94	107.28
371	25.67	9.01	0.30	1.15	79.14	106.81
372	25.71	9.01	0.28	1.15	78.50	105.99
373	25.79	8.50	0.23	1.15	78.06	104.81
374	25.93	8.00	0.19	1.15	77.81	103.60
375	26.03	8.00	0.18	1.15	77.15	102.74
376	26.13	8.00	0.16	1.15	76.38	102.36
377	26.24	8.00	0.16	1.15	75.73	102.24
378	26.37	8.20	0.17	1.15	75.53	102.41
379	26.47	8.30	0.17	1.15	75.71	102.64
380	26.60	8.20	0.18	1.15	74.72	102.14
381	26.71	8.20	0.14	1.15	72.50	101.53
382	26.85	8.70	0.13	1.15	69.69	101.34
383	26.95	9.31	0.16	1.15	71.29	102.63
384	27.04	8.81	0.22	1.15	71.21	104.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	27.09	10.63	0.25	1.05	71.61	105.86
386	27.19	10.93	0.29	1.05	69.63	106.85
387	27.23	11.23	0.30	1.05	70.05	107.52
388	27.33	11.34	0.32	1.05	70.38	108.10
389	27.40	11.64	0.36	1.05	70.26	108.70
390	27.47	12.25	0.38	1.05	69.48	109.39
391	27.57	12.95	0.41	1.05	68.12	110.02
392	27.66	13.66	0.44	1.05	66.86	110.95
393	27.77	14.88	0.52	1.05	65.56	112.10
394	27.86	16.30	0.60	1.05	64.27	113.38
395	27.96	17.61	0.69	1.05	63.40	114.40
396	28.06	18.22	0.74	1.05	64.03	115.00
397	28.15	17.31	0.77	1.05	65.56	115.03
398	28.25	16.30	0.72	1.05	64.37	114.22
399	28.34	17.46	0.52	1.05	63.64	113.20
400	28.44	15.69	0.53	1.05	61.14	112.70
401	28.54	17.61	0.59	1.05	64.86	113.09
402	28.62	14.98	0.63	1.05	62.81	113.97
403	28.71	19.74	0.70	1.05	62.14	114.69
404	28.77	20.24	0.75	1.05	59.04	115.50
405	28.86	20.75	0.80	1.05	59.06	115.95
406	28.91	21.15	0.82	1.05	58.48	116.29
407	28.97	22.06	0.84	1.05	57.87	116.68
408	29.04	22.87	0.91	1.05	57.17	117.16
409	29.10	23.78	0.96	1.05	56.38	117.71
410	29.15	25.20	1.01	1.05	55.66	118.36
411	29.25	26.42	1.13	1.05	54.03	119.02
412	29.34	27.53	1.19	1.05	53.66	119.56
413	29.38	28.14	1.22	1.05	53.77	119.85
414	29.48	27.53	1.26	1.05	55.21	119.97
415	29.55	27.43	1.26	1.05	55.61	119.94
416	29.63	27.43	1.21	1.05	53.71	119.51
417	29.72	27.33	1.04	1.05	46.70	117.24
418	29.82	30.47	0.29	1.15	36.62	114.29
419	29.88	36.84	0.31	1.15	26.07	110.63
420	29.96	43.12	0.35	1.15	21.97	111.98
421	30.06	55.67	0.40	1.15	20.66	113.06
422	30.13	50.91	0.44	1.05	19.28	113.85
423	30.18	57.39	0.44	1.05	19.21	114.32
424	30.28	59.72	0.48	1.05	18.92	115.08
425	30.37	59.01	0.56	1.05	19.74	116.07
426	30.47	59.82	0.65	1.05	20.55	117.07
427	30.57	62.65	0.72	1.05	20.45	117.89
428	30.66	67.31	0.76	1.05	19.78	118.59
429	30.74	71.76	0.82	1.05	19.08	119.20
430	30.82	74.90	0.87	1.05	18.72	119.77
431	30.90	76.82	0.92	1.15	18.90	120.37
432	31.01	77.12	1.02	1.15	19.54	121.00

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	31.10	76.72	1.12	1.15	20.53	121.75
434	31.19	77.18	1.25	1.15	21.62	122.52
435	31.28	77.23	1.39	1.15	22.44	123.19
436	31.35	78.24	1.47	1.15	22.96	123.75
437	31.43	80.06	1.56	1.15	23.03	124.24
438	31.53	83.20	1.66	1.15	22.94	124.75
439	31.60	86.03	1.75	1.15	21.03	124.07
440	31.67	88.46	1.07	1.15	19.28	123.27
441	31.77	89.68	1.16	1.15	17.72	122.34
442	31.84	90.18	1.26	1.15	18.27	122.84
443	31.91	89.68	1.32	1.15	19.80	123.18
444	31.98	78.64	1.39	1.15	22.19	123.23
445	31.98	68.93	1.40	1.15	23.12	123.39
446	32.04	84.01	1.44	1.24	23.03	123.69
447	32.12	83.20	1.54	1.24	22.36	124.14
448	32.16	80.77	1.60	1.24	23.73	124.42
449	32.27	76.11	1.67	1.24	25.51	124.47
450	32.33	70.04	1.66	1.24	27.40	124.34
451	32.41	66.09	1.63	1.24	28.95	124.00
452	32.50	62.75	1.55	1.24	30.35	123.44
453	32.58	56.48	1.41	1.24	31.97	122.68
454	32.66	50.71	1.29	1.24	34.45	121.67
455	32.74	43.42	1.16	1.24	37.91	120.54
456	32.84	35.73	1.02	1.24	42.91	119.34
457	32.90	29.15	0.95	1.24	48.72	118.12
458	32.98	24.70	0.85	1.24	56.09	116.92
459	33.08	20.85	0.75	1.24	62.41	115.68
460	33.14	16.70	0.69	1.24	70.22	114.44
461	33.22	13.56	0.63	1.24	78.27	113.16
462	33.32	12.04	0.53	1.24	84.25	111.85
463	33.37	10.93	0.46	1.24	85.46	110.42
464	33.47	10.83	0.38	1.24	84.74	109.62
465	33.56	11.34	0.39	1.24	80.65	109.42
466	33.63	12.75	0.41	1.24	77.37	109.72
467	33.71	13.16	0.40	1.24	75.48	109.42
468	33.81	12.04	0.34	1.24	74.83	107.78
469	33.90	10.73	0.19	1.24	75.10	105.75
470	33.95	10.32	0.19	1.24	75.13	103.88
471	34.04	9.82	0.19	1.24	76.22	103.67
472	34.14	10.02	0.18	1.34	77.27	103.52
473	34.17	9.72	0.19	1.24	77.76	103.53
474	34.20	9.62	0.19	1.24	76.51	103.73
475	34.26	10.83	0.19	1.24	75.12	103.91
476	34.35	10.63	0.19	1.24	73.88	103.93
477	34.43	10.32	0.19	1.24	74.71	103.73
478	34.49	10.22	0.18	1.24	74.86	103.40
479	34.59	10.22	0.17	1.24	74.51	102.92
480	34.69	10.02	0.15	1.24	74.15	102.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	34.73	9.92	0.15	1.24	74.31	102.00
482	34.83	9.72	0.15	1.24	74.57	101.78
483	34.90	9.72	0.14	1.24	75.16	101.82
484	34.98	9.72	0.15	1.24	75.52	102.24
485	35.07	10.02	0.17	1.24	76.19	103.35
486	35.16	10.63	0.21	1.24	78.83	105.56
487	35.26	11.03	0.33	1.24	83.16	108.85
488	35.33	12.15	0.55	1.24	81.79	112.16
489	35.40	16.50	0.76	1.34	74.84	114.98
490	35.50	21.56	0.92	1.34	67.00	116.75
491	35.57	24.39	0.97	1.34	63.27	117.70
492	35.65	24.09	1.01	1.34	63.57	118.14
493	35.71	22.77	1.08	1.34	66.27	118.34
494	35.79	21.66	1.09	1.34	69.18	118.25
495	35.85	20.45	1.03	1.34	71.21	117.70
496	35.94	18.93	0.91	1.34	72.32	116.92
497	35.99	18.42	0.83	1.34	72.47	115.84
498	36.08	17.51	0.69	1.34	72.38	114.36
499	36.17	15.49	0.51	1.34	73.86	112.64
500	36.24	13.56	0.46	1.34	75.60	111.22
501	36.33	13.56	0.44	1.34	77.26	110.71
502	36.42	13.56	0.44	1.34	77.95	110.94
503	36.52	13.56	0.50	1.34	73.49	110.01
504	36.61	14.98	0.26	1.34	67.87	109.88
505	36.70	17.61	0.38	1.34	62.71	110.97
506	36.78	20.55	0.63	1.34	62.56	113.90
507	36.85	22.47	0.80	1.34	71.90	115.26
508	36.87	11.64	0.83	1.34	69.07	116.41
509	36.91	26.42	0.92	1.34	63.50	117.24
510	36.97	31.58	0.97	1.43	49.63	118.44
511	37.06	36.13	1.01	1.43	46.01	119.19
512	37.12	37.96	1.11	1.43	43.96	120.10
513	37.20	41.70	1.28	1.43	42.39	121.21
514	37.27	47.47	1.45	1.43	39.71	122.19
515	37.35	53.44	1.50	1.43	36.91	122.63
516	37.44	55.67	1.40	1.43	34.70	122.58
517	37.49	56.48	1.34	1.43	32.26	122.38
518	37.59	63.06	1.30	1.43	27.80	122.53
519	37.64	81.98	1.30	1.43	21.40	123.10
520	37.70	111.84	1.32	1.53	15.68	123.77
521	37.78	139.98	1.32	1.53	11.92	124.31
522	37.83	157.89	1.32	1.53	9.84	124.68
523	37.92	169.13	1.35	1.53	8.83	124.96
524	37.97	175.50	1.38	1.53	8.44	125.29
525	38.07	179.05	1.45	1.53	8.35	125.63
526	38.14	181.78	1.51	1.53	8.44	126.04
527	38.22	184.61	1.60	1.53	8.51	126.51
528	38.31	190.69	1.72	1.53	8.57	127.15

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	38.41	199.80	1.90	1.62	8.22	127.66
530	38.52	213.56	1.89	1.62	7.81	128.17
531	38.64	224.49	2.02	1.62	7.45	128.44
532	38.74	225.00	2.04	1.62	7.89	128.67
533	38.80	204.05	2.10	1.62	8.30	128.80
534	38.89	213.46	2.16	1.82	8.75	128.95
535	38.94	213.66	2.21	1.82	8.74	129.21
536	39.03	213.76	2.31	1.82	9.04	129.51
537	39.13	213.26	2.44	1.82	9.44	129.87
538	39.23	212.65	2.56	1.91	9.96	130.20
539	39.35	208.10	2.67	1.91	10.48	130.39
540	39.42	202.73	2.68	1.91	11.13	130.39
541	39.51	192.20	2.66	1.91	11.86	130.23
542	39.60	181.27	2.62	1.91	12.73	129.97
543	39.70	170.95	2.55	1.91	13.46	129.70
544	39.78	166.19	2.50	1.91	14.13	129.38
545	39.90	156.68	2.40	1.91	14.77	129.07
546	39.99	149.09	2.35	1.91	15.57	128.71
547	40.09	141.29	2.28	1.91	16.39	128.37
548	40.18	133.80	2.21	1.91	17.30	128.04
549	40.23	126.21	2.16	1.91	18.29	127.67
550	40.33	118.02	2.08	1.91	19.50	127.30
551	40.43	109.72	2.03	1.91	20.84	126.92
552	40.52	102.53	1.98	1.91	22.74	126.70
553	40.61	93.22	2.06	1.91	24.63	126.07
554	40.69	81.48	1.71	1.91	27.65	125.27
555	40.80	67.00	1.63	1.91	31.04	124.10
556	40.87	57.39	1.51	1.91	34.44	123.25
557	40.95	55.26	1.38	1.91	37.39	122.50
558	40.97	47.67	1.35	1.91	38.04	122.03
559	41.01	51.11	1.30	2.01	35.69	121.95
560	41.07	64.07	1.26	2.01	31.09	122.03
561	41.15	70.14	1.23	2.01	28.20	122.06
562	41.26	67.91	1.21	1.91	28.17	121.94
563	41.35	63.26	1.21	1.91	29.96	121.73
564	41.47	57.89	1.20	1.91	31.46	121.66
565	41.59	59.61	1.23	1.91	31.96	121.71
566	41.69	61.44	1.24	1.91	31.98	121.95
567	41.78	60.12	1.30	1.91	33.05	122.10
568	41.88	55.87	1.33	1.82	35.75	121.95
569	41.98	48.18	1.27	1.82	39.01	121.52
570	42.08	44.23	1.21	1.82	41.72	120.96
571	42.16	42.91	1.16	1.82	41.89	120.65
572	42.24	45.75	1.14	1.82	39.57	120.77
573	42.31	52.63	1.19	1.91	36.25	121.19
574	42.45	58.30	1.23	1.82	33.81	121.60
575	42.55	59.82	1.24	1.82	32.69	121.82
576	42.60	59.92	1.25	1.82	32.61	121.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	42.70	59.51	1.27	1.82	33.18	122.03
578	42.81	58.50	1.32	1.72	34.70	122.15
579	42.89	54.05	1.36	1.72	37.37	122.12
580	42.98	48.08	1.34	1.72	41.13	121.83
581	43.08	42.61	1.30	1.72	45.23	121.41
582	43.17	38.66	1.28	1.72	47.51	121.07
583	43.27	39.98	1.25	1.72	46.42	120.88
584	43.37	44.43	1.19	1.72	41.14	119.79
585	43.50	46.96	0.69	1.72	35.96	118.51
586	43.61	48.99	0.69	1.72	32.32	117.19
587	43.74	49.59	0.74	1.62	32.41	117.56
588	43.79	49.29	0.79	1.62	33.54	118.20
589	43.86	48.99	0.89	1.43	35.58	118.96
590	43.94	47.06	1.02	1.34	38.25	119.71
591	44.00	45.04	1.11	1.34	41.55	120.34
592	44.08	42.51	1.22	1.34	44.91	120.67
593	44.17	39.37	1.23	1.34	48.70	120.54
594	44.27	34.61	1.15	1.34	51.70	119.87
595	44.42	32.29	1.00	1.34	51.75	119.10
596	44.52	35.53	0.93	1.34	46.94	118.74
597	44.61	43.42	0.93	1.34	39.36	118.80
598	44.71	53.44	0.86	1.34	33.96	119.33
599	44.85	58.80	0.98	1.34	32.04	120.04
600	44.95	57.69	1.13	1.34	32.93	120.75
601	45.09	55.36	1.15	1.34	35.03	121.01
602	45.19	51.82	1.14	1.34	38.27	120.75
603	45.33	43.02	1.11	1.34	43.45	120.27
604	45.42	35.42	1.09	1.34	49.18	119.55
605	45.57	33.00	0.99	1.34	51.89	118.90
606	45.68	34.11	0.92	1.34	52.37	118.05
607	45.81	30.57	0.81	1.34	52.39	116.56
608	45.92	26.62	0.54	1.34	59.16	115.42
609	46.05	22.37	0.69	1.34	66.42	114.50
610	46.16	17.81	0.67	1.24	75.25	114.63
611	46.17	17.71	0.67	1.24	79.56	114.21
612	46.23	17.61	0.63	1.24	79.66	113.87
613	46.29	17.00	0.59	1.24	80.53	113.32
614	46.34	15.89	0.55	1.24	81.48	112.46
615	46.42	15.18	0.46	1.24	81.87	111.41
616	46.48	14.78	0.40	1.24	80.78	110.31
617	46.52	14.68	0.36	1.24	79.61	109.48
618	46.60	14.57	0.33	1.24	78.79	108.88
619	46.67	14.37	0.32	1.24	78.01	108.41
620	46.74	14.47	0.30	1.24	77.35	108.06
621	46.82	14.47	0.29	1.24	76.73	107.71
622	46.88	14.27	0.28	1.34	77.13	107.41
623	46.96	13.76	0.27	1.34	77.21	107.25
624	47.06	14.22	0.27	1.34	77.78	107.20

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	47.15	13.87	0.27	1.34	77.74	107.41
626	47.24	14.17	0.29	1.34	79.57	108.74
627	47.35	15.18	0.43	1.34	80.06	111.84
628	47.49	19.13	0.74	1.34	72.80	113.76
629	47.58	24.70	0.62	1.34	64.43	115.05
630	47.73	28.44	0.64	1.34	60.58	115.11
631	47.83	24.90	0.71	1.34	59.52	115.49
632	47.87	27.78	0.69	1.34	61.47	115.59
633	47.89	25.81	0.69	1.34	59.88	115.52
634	47.94	27.13	0.67	1.34	60.12	115.37
635	48.02	26.92	0.66	1.34	59.63	115.28
636	48.07	26.32	0.66	1.34	60.36	115.24
637	48.12	25.91	0.67	1.34	61.69	115.43
638	48.18	25.61	0.72	1.34	63.36	115.65
639	48.26	24.70	0.74	1.34	64.74	115.83
640	48.31	24.65	0.73	1.34	65.22	115.64
641	48.38	24.39	0.68	1.34	64.33	115.21
642	48.46	24.59	0.62	1.34	62.61	114.59
643	48.52	25.10	0.57	1.34	61.59	113.83
644	48.60	23.48	0.50	1.34	62.06	112.77
645	48.68	20.85	0.41	1.34	65.40	111.58
646	48.74	17.91	0.39	1.34	70.58	110.53
647	48.82	15.79	0.38	1.34	77.29	109.90
648	48.89	14.07	0.36	1.34	82.02	109.37
649	48.99	13.76	0.34	1.34	84.26	108.81
650	49.05	13.56	0.31	1.34	83.16	108.02
651	49.12	13.56	0.26	1.34	81.66	107.12
652	49.18	13.36	0.24	1.34	79.51	106.27
653	49.27	13.66	0.22	1.34	77.50	105.79
654	49.32	14.17	0.21	1.34	75.79	105.36
655	49.42	13.87	0.20	1.43	76.97	105.08
656	49.48	12.55	0.20	1.43	78.75	104.88
657	49.56	12.85	0.21	1.43	79.72	105.05
658	49.66	13.56	0.21	1.43	79.61	105.56
659	49.76	13.36	0.25	1.43	78.83	106.06
660	49.85	14.07	0.25	1.43	75.45	105.30
661	49.99	14.68	0.14	1.43	70.32	104.44
662	50.09	15.79	0.17	1.43	70.12	103.40
663	50.21	12.75	0.18	1.43	73.69	103.83
664	50.24	12.85	0.18	1.53	76.33	103.72
665	50.29	13.97	0.17	1.53	74.08	103.47
666	50.38	13.87	0.15	1.53	73.00	103.13
667	50.47	13.16	0.15	1.53	73.91	102.86
668	50.52	13.06	0.15	1.62	75.96	102.88
669	50.62	12.65	0.16	1.62	76.35	103.11
670	50.66	13.26	0.17	1.62	76.26	103.37
671	50.76	13.46	0.17	1.62	76.25	103.65
672	50.83	13.06	0.18	1.62	73.88	104.35

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	50.91	15.79	0.21	1.62	75.06	105.23
674	51.00	13.97	0.24	1.62	71.94	106.28
675	51.06	17.00	0.25	1.62	67.88	107.32
676	51.15	21.05	0.29	1.62	69.95	108.74
677	51.24	14.88	0.40	1.62	78.64	110.36
678	51.31	13.06	0.52	1.62	100.00	111.65
679	51.39	10.63	0.63	1.62	79.74	113.89
680	51.48	31.88	0.71	1.72	52.10	116.37
681	51.58	53.85	0.83	1.72	50.39	117.73
682	51.68	20.34	1.00	1.72	65.78	117.82
683	51.77	9.21	0.95	1.72	93.85	117.60
684	51.90	23.89	1.17	1.72	59.97	121.42
685	52.01	77.23	2.02	1.72	34.57	125.62
686	52.11	122.06	2.62	1.82	24.20	130.24
687	52.26	186.13	4.47	1.91	20.87	132.32
688	52.30	177.33	4.12	1.91	16.50	133.89
689	52.33	263.97	4.17	2.01	12.89	134.16
690	52.35	303.94	4.21	2.01	9.58	134.71
691	52.40	340.79	4.23	2.10	7.60	135.11
692	52.45	397.77	4.28	2.10	6.58	135.59
693	52.50	405.87	4.66	2.10	5.88	136.22
694	52.55	443.01	5.01	2.20	5.51	137.00
695	52.60	493.01	5.46	2.29	4.93	137.28
696	52.65	523.48	5.64	2.29	4.29	137.28
697	52.71	531.47	4.88	2.29	3.82	137.28
698	52.77	538.36	4.91	2.39	3.33	137.17
699	52.82	555.56	4.74	2.48	2.92	137.04
700	52.88	581.47	4.49	2.48	2.56	137.02
701	52.93	597.26	4.71	2.48	2.35	137.05
702	52.98	597.36	4.69	2.68	2.26	137.26
703	53.03	622.36	4.79	2.77	2.29	137.28
704	53.08	606.07	4.93	2.77	2.33	137.28
705	53.12	596.25	4.80	2.87	2.35	137.28
706	53.17	600.60	4.53	2.96	2.30	137.12
707	53.23	597.67	4.62	2.96	2.17	136.97
708	53.28	603.74	4.51	2.96	2.36	137.15
709	53.37	587.14	4.91	2.96	2.61	137.28
710	53.42	574.49	5.08	2.96	2.84	137.28
711	53.46	590.58	5.02	3.06	3.06	137.28
712	53.53	595.24	5.73	3.06	3.30	137.28
713	53.61	611.13	6.49	3.15	3.78	137.28
714	53.62	585.52	6.56	3.15	4.29	137.28
715	53.65	550.00	6.65	3.15	4.43	137.28
716	53.67	586.48	6.45	3.15	4.49	137.28
717	53.70	577.42	6.61	3.15	4.24	137.28
718	53.74	587.44	6.53	3.25	4.32	137.28
719	53.76	583.50	6.67	3.25	4.30	137.28
720	53.80	580.36	6.60	3.35	4.27	137.28

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	53.84	579.25	6.26	3.35	4.16	137.28
722	53.90	573.68	6.10	3.54	4.02	137.28
723	53.91	581.62	6.13	3.54	4.14	137.28
724	53.95	555.16	6.20	3.35	4.11	137.28
725	53.96	584.00	6.20	3.54	4.03	137.28
726	53.98	600.50	6.20	3.35	3.69	137.28
727	53.99	618.52	6.20	3.54	3.66	137.28
728	54.01	589.67	6.20	3.54	3.83	137.28
729	54.02	568.11	6.20	3.54	4.04	137.28
730	54.03	580.06	6.20	3.44	4.51	137.28
731	54.04	511.13	6.23	3.44	5.55	137.28
732	54.05	423.17	6.26	3.44	7.02	137.28
733	54.09	422.06	6.38	3.44	8.01	137.28
734	54.10	422.52	6.39	3.44	8.11	137.28
735	54.13	420.04	6.40	3.44	8.10	137.28
736	54.14	422.97	6.38	3.54	8.17	137.28
737	54.19	419.73	6.47	3.54	8.19	137.28
738	54.19	425.60	6.59	3.54	8.13	137.28
739	54.24	440.89	6.74	3.54	7.58	137.28
740	54.29	451.01	5.95	3.63	6.38	137.28
741	54.33	478.84	4.90	3.63	4.97	137.18
742	54.38	492.30	4.37	3.73	3.90	136.44
743	54.39	513.56	4.28	3.73	3.34	136.18
744	54.43	532.08	4.28	3.82	3.17	136.44
745	54.48	541.59	4.69	3.92	2.05	135.02
746	54.52	555.46	1.86	4.01	1.07	133.52
747	54.58	572.77	2.20	4.01	0.00	131.47
748	54.62	593.21	2.48	4.01	0.17	132.34
749	54.65	595.24	2.63	4.11	0.34	133.29
750	54.67	624.69	3.14	4.21	0.41	134.02
751	54.71	649.89	3.25	4.30	0.23	134.52
752	54.77	699.69	3.10	4.30	0.00	132.94
753	54.81	688.25	1.22	4.40	0.00	131.29
754	54.85	720.84	1.65	4.49	0.00	129.34
755	54.86	702.93	1.70	4.49	0.00	130.17
756	54.87	703.44	1.76	4.01	0.00	130.82
757	54.91	703.44	2.13	4.01	0.00	131.80
758	54.96	703.94	2.50	4.11	0.00	132.67
759	55.00	713.86	2.56	4.21	0.00	133.08
760	55.01	691.59	2.56	4.30	0.00	133.14
761	55.05	681.88	2.60	4.30	0.00	133.23
762	55.10	663.66	2.72	4.30	0.00	133.31
763	55.12	607.48	2.75	4.30	0.35	133.29
764	55.13	539.98	2.77	3.82	0.72	133.17
765	55.14	565.28	2.75	3.82	0.76	133.02
766	55.19	583.90	2.62	3.92	0.54	132.92
767	55.20	581.37	2.60	3.92	0.51	132.84
768	55.25	563.36	2.67	3.92	0.76	132.97

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	55.29	541.49	2.82	3.92	1.13	133.28
770	55.33	533.19	3.02	3.82	1.75	133.67
771	55.38	484.21	3.29	3.82	3.14	134.78
772	55.48	425.91	4.60	3.73	4.92	135.85
773	55.57	407.69	5.12	3.82	6.63	136.68
774	55.63	400.40	5.18	3.73	8.12	137.28
775	55.72	386.03	6.83	3.82	8.85	137.28
776	55.80	419.53	7.09	3.92	8.57	137.28
777	55.86	487.55	7.03	3.92	5.58	137.28
778	55.97	534.41	2.93	4.01	2.94	135.99
779	56.01	561.43	2.52	4.11	0.84	133.07
780	56.06	585.62	2.75	4.11	2.80	133.29
781	56.11	616.29	3.05	4.21	2.89	134.29
782	56.15	637.24	3.61	4.21	2.94	135.21
783	56.20	668.42	3.85	4.21	3.11	136.08
784	56.27	676.92	4.26	4.21	3.34	136.55
785	56.27	643.97	4.36	3.54	3.72	137.19
786	56.30	671.45	5.00	3.63	4.59	137.28
787	56.33	611.03	5.86	3.63	4.98	137.28
788	56.35	665.99	5.93	3.73	5.33	137.28
789	56.40	665.78	6.04	3.73	5.05	137.28
790	56.41	671.65	6.02	3.73	5.04	137.28
791	56.44	670.44	5.96	3.73	4.83	137.28
792	56.49	702.32	5.96	4.01	4.63	137.28
793	56.54	712.65	6.04	4.01	4.51	137.28
794	56.58	737.34	6.69	4.01	4.47	137.28
795	56.59	761.53	6.82	4.01	4.50	137.28
796	56.64	751.51	6.82	4.11	4.44	137.28
797	56.69	758.80	6.82	4.11	4.36	137.28
798	56.73	783.90	6.89	4.11	4.18	137.28
799	56.78	791.59	6.79	4.01	4.03	137.28
800	56.83	760.01	6.22	3.92	4.01	137.28
801	56.88	726.82	5.89	3.92	4.11	137.28
802	56.89	708.40	5.80	3.92	4.29	137.28
803	56.95	691.29	5.71	3.92	4.27	137.28
804	57.01	677.73	5.02	3.92	4.25	137.28
805	57.07	634.81	4.55	3.92	4.06	137.16
806	57.11	625.10	4.12	3.92	3.10	134.76
807	57.17	598.27	1.33	3.92	2.28	132.45
808	57.26	572.36	1.93	3.92	1.15	128.54
809	57.31	551.41	1.12	3.82	1.89	129.56
810	57.37	517.20	2.07	3.92	2.19	129.21
811	57.45	491.70	1.77	3.82	3.04	129.89
812	57.51	461.74	1.72	3.92	3.56	129.21
813	57.53	400.30	1.71	3.44	4.16	128.95
814	57.59	402.43	1.70	3.35	4.63	128.80
815	57.63	401.31	1.70	3.35	4.68	128.76
816	57.68	393.01	1.70	3.35	4.88	128.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	57.73	380.06	1.70	3.35	5.00	128.66
818	57.78	386.23	1.69	3.25	5.00	128.45
819	57.86	370.64	1.59	3.25	5.00	127.83
820	57.92	322.87	1.37	3.25	5.00	127.38
821	57.98	285.32	1.55	3.15	5.00	126.34
822	58.06	264.17	1.14	3.15	8.62	126.17
823	58.12	240.38	1.42	3.06	10.36	126.82
824	58.21	224.09	2.06	3.06	12.69	127.74
825	58.26	202.63	1.92	2.96	14.68	128.10
826	58.35	186.44	1.85	2.87	16.91	127.69
827	58.41	151.92	1.98	2.77	18.65	126.15
828	58.50	126.31	1.07	2.77	22.32	124.42
829	58.56	90.18	1.13	2.68	25.70	122.30
830	58.64	77.93	1.17	2.68	32.24	121.95
831	58.73	65.49	1.17	2.58	38.56	121.50
832	58.80	47.47	1.15	2.58	46.17	120.90
833	58.84	40.28	1.14	2.58	53.64	120.39
834	58.85	38.87	1.15	2.10	52.29	120.54
835	58.93	52.12	1.18	2.10	46.67	120.88
836	58.98	60.42	1.13	2.10	41.28	121.05
837	59.02	61.74	1.07	2.01	38.75	120.92
838	59.12	63.06	1.05	2.01	37.78	120.90
839	59.17	65.28	1.10	1.91	37.23	121.24
840	59.27	67.81	1.19	1.91	37.05	121.75
841	59.31	68.83	1.26	1.82	37.57	122.15
842	59.41	66.19	1.29	1.82	39.18	122.16
843	59.46	59.41	1.25	1.72	42.47	121.59
844	59.55	48.28	1.11	1.72	47.58	120.51
845	59.65	38.56	0.98	1.62	52.69	118.45
846	59.70	32.08	0.61	1.62	56.48	116.90
847	59.80	32.03	0.70	1.62	57.81	115.98
848	59.89	32.03	0.75	1.62	59.47	116.71
849	59.94	31.98	0.83	1.53	62.29	117.23
850	60.01	29.05	0.89	1.53	64.42	117.61
851	60.02	29.96	0.90	1.05	61.57	118.05
852	60.08	38.87	0.92	1.05	57.81	118.31
853	60.12	37.75	0.91	1.05	56.24	118.23
854	60.17	33.00	0.85	1.05	59.45	117.26
855	60.27	27.83	0.68	0.96	63.29	115.67
856	60.31	24.80	0.53	0.96	66.90	113.84
857	60.37	21.76	0.47	0.96	69.47	112.16
858	60.46	20.04	0.38	0.96	70.56	111.08
859	60.51	20.95	0.36	0.96	68.92	110.12
860	60.61	21.25	0.32	0.96	66.37	109.76
861	60.65	22.06	0.32	0.96	64.85	109.53
862	60.75	22.17	0.33	0.96	64.20	109.61
863	60.81	22.27	0.33	0.96	64.08	109.63
864	60.89	22.27	0.33	0.96	63.94	109.50

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	60.94	22.06	0.31	0.96	63.62	109.62
866	61.03	22.98	0.34	0.96	63.91	109.95
867	61.09	22.77	0.37	0.96	64.04	110.05
868	61.19	22.17	0.32	0.96	64.33	109.85
869	61.24	22.17	0.32	0.96	62.81	109.78
870	61.33	24.49	0.35	0.96	60.69	110.44
871	61.38	26.82	0.39	0.96	65.07	112.24
872	61.47	21.25	0.62	0.96	71.67	113.99
873	61.53	21.36	0.74	0.96	79.17	115.51
874	61.62	22.98	0.84	0.96	67.75	116.60
875	61.70	38.46	0.78	0.96	49.71	119.32
876	61.77	71.96	1.30	0.96	39.07	122.50
877	61.86	89.98	1.86	1.05	35.53	124.72
878	61.95	83.91	1.82	0.96	37.04	125.34
879	61.97	69.13	1.75	0.96	40.15	124.80
880	62.01	64.78	1.66	0.76	44.89	124.10
881	62.10	53.14	1.59	0.96	50.12	122.90
882	62.24	38.56	1.26	0.86	45.56	121.95
883	62.34	74.49	1.03	0.96	29.67	122.37
884	62.49	150.00	1.24	1.05	20.54	123.30
885	62.54	158.20	1.26	1.05	16.26	124.73
886	62.66	185.32	1.44	1.05	14.83	125.34
887	62.74	200.61	1.45	1.05	13.53	125.96
888	62.87	213.05	1.49	1.05	12.71	126.26
889	62.92	221.25	1.54	1.05	12.47	126.53
890	63.03	217.20	1.57	1.05	12.52	126.76
891	63.15	219.03	1.63	1.15	12.78	126.94
892	63.26	217.91	1.66	1.15	13.29	127.02
893	63.37	202.33	1.66	1.15	13.86	126.99
894	63.45	199.80	1.66	1.15	13.98	126.43
895	63.54	198.28	1.34	1.15	13.43	125.53
896	63.61	194.63	1.14	1.15	13.55	124.83
897	63.69	177.93	1.33	1.15	15.16	124.41
898	63.79	143.52	1.25	1.15	19.52	124.50
899	63.89	103.64	1.44	1.15	24.98	122.85
900	63.98	71.25	0.85	1.15	33.14	121.18
901	64.07	50.71	0.88	1.15	41.48	118.58
902	64.15	37.45	0.76	1.15	52.38	117.41
903	64.23	29.15	0.71	1.15	63.17	116.21
904	64.26	23.28	0.70	1.15	71.64	115.56
905	64.29	22.98	0.70	1.43	74.94	115.28
906	64.33	24.39	0.67	1.43	73.52	114.50
907	64.43	22.67	0.50	1.43	71.96	113.44
908	64.47	21.86	0.45	1.53	70.64	112.07
909	64.53	22.27	0.41	1.53	70.50	111.44
910	64.62	21.25	0.40	1.53	73.02	110.99
911	64.72	18.22	0.40	1.53	77.07	110.67
912	64.78	17.81	0.39	1.53	81.00	110.63

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	64.86	17.91	0.41	1.53	81.31	111.04
914	64.96	18.83	0.47	1.62	81.88	112.08
915	65.06	19.53	0.57	1.62	82.82	113.03
916	65.11	19.23	0.60	1.62	84.86	113.77
917	65.21	18.83	0.64	1.62	87.03	114.04
918	65.31	18.42	0.64	1.62	88.72	114.06
919	65.40	18.02	0.62	1.62	86.96	113.18
920	65.50	18.32	0.43	1.62	82.58	111.98
921	65.58	19.33	0.38	1.62	77.73	110.66
922	65.68	19.33	0.38	1.72	76.23	110.07
923	65.78	18.42	0.34	1.72	80.14	109.58
924	65.84	15.18	0.33	1.72	84.20	109.11
925	65.86	15.54	0.33	1.72	87.64	108.93
926	65.87	15.89	0.33	1.72	83.53	109.02
927	65.98	18.02	0.33	1.72	80.56	109.07
928	66.10	17.81	0.33	1.72	79.47	109.53
929	66.21	17.61	0.38	1.72	79.99	110.29
930	66.34	19.13	0.43	1.72	79.70	110.56
931	66.48	18.62	0.36	1.72	78.52	110.82
932	66.62	19.18	0.42	1.72	79.48	110.40
933	66.68	17.51	0.38	1.72	80.06	110.93
934	66.87	19.23	0.44	1.82	82.16	112.09
935	66.96	19.94	0.62	1.82	85.60	113.68
936	67.11	18.22	0.72	1.82	91.78	114.55
937	67.21	16.50	0.70	1.82	96.41	113.97
938	67.35	15.69	0.52	1.82	96.63	113.04
939	67.45	16.40	0.51	1.82	100.00	114.17
940	67.59	16.30	0.99	1.82	74.11	118.15
941	67.68	49.49	1.42	1.82	36.45	123.51
942	67.83	166.29	1.89	1.91	19.64	126.78
943	67.92	263.46	1.98	1.91	12.65	128.48
944	68.02	293.92	1.94	1.91	10.42	129.17
945	68.07	292.10	2.13	2.01	9.92	129.67
946	68.16	310.93	2.28	2.01	9.66	129.78
947	68.26	313.97	1.99	2.01	9.50	129.92
948	68.35	307.79	2.22	2.01	9.90	130.20
949	68.45	301.41	2.56	2.01	10.63	130.56
950	68.55	290.58	2.39	2.01	11.31	130.75
951	68.65	282.39	2.48	2.01	12.31	130.45
952	68.78	242.10	2.43	2.01	13.49	130.30
953	68.78	236.18	2.41	2.01	14.48	130.04
954	68.79	236.18	2.38	2.01	14.61	129.83
955	68.83	230.26	2.26	2.10	13.84	129.35
956	68.93	246.56	1.93	2.20	12.61	128.54
957	68.98	254.15	1.63	2.20	11.06	127.54
958	69.04	259.82	1.45	2.20	10.24	126.83
959	69.12	259.31	1.45	2.20	10.05	126.69
960	69.22	258.60	1.54	2.29	10.33	126.73

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	69.28	248.07	1.50	2.29	10.73	126.58
962	69.36	236.43	1.40	2.29	11.11	126.14
963	69.45	227.63	1.34	2.29	11.72	125.57
964	69.60	206.58	1.26	2.29	12.39	125.02
965	69.70	196.05	1.19	2.29	13.09	124.55
966	69.80	191.80	1.17	2.29	13.36	124.31
967	69.89	192.31	1.17	2.29	13.46	124.27
968	69.98	192.00	1.18	2.39	13.63	124.23
969	70.08	186.03	1.17	2.39	14.12	123.79
970	70.18	167.51	1.02	2.39	16.36	123.38
971	70.32	125.81	1.13	2.39	21.31	122.57
972	70.42	79.55	1.08	2.29	30.56	121.25
973	70.54	47.47	0.86	2.29	44.49	118.96
974	70.66	28.34	0.70	2.29	62.02	116.28
975	70.75	19.64	0.59	2.29	75.05	114.30
976	70.80	22.47	0.52	2.48	75.37	112.45
977	70.89	23.18	0.33	2.48	68.76	110.56
978	70.99	22.17	0.25	2.48	64.60	108.11
979	71.08	21.56	0.21	2.48	63.51	106.54
980	71.17	21.05	0.19	2.58	62.68	105.76
981	71.23	21.56	0.19	2.58	63.23	105.32
982	71.33	20.04	0.18	2.58	62.20	104.96
983	71.42	21.56	0.16	2.58	59.64	104.34
984	71.52	23.48	0.14	2.58	56.37	103.78
985	71.58	23.28	0.14	2.58	56.41	104.37
986	71.67	22.77	0.19	2.58	59.63	105.94
987	71.81	22.47	0.26	2.68	62.96	107.28
988	71.82	22.06	0.26	2.68	64.77	107.94
989	71.86	22.06	0.26	2.68	65.57	107.99
990	71.91	21.66	0.26	2.68	65.98	108.01
991	71.97	21.66	0.26	2.68	66.78	108.09
992	72.05	21.36	0.27	2.68	67.69	108.22
993	72.10	20.95	0.28	2.68	68.75	108.41
994	72.20	20.95	0.29	2.68	69.45	108.55
995	72.25	20.95	0.29	2.77	70.00	108.81
996	72.34	20.95	0.31	2.77	70.88	109.34
997	72.44	21.25	0.35	2.77	72.30	109.98
998	72.53	20.95	0.38	2.77	74.03	110.47
999	72.63	20.34	0.39	2.77	74.87	110.69
1000	72.69	20.95	0.39	2.77	75.74	110.64
1001	72.82	20.04	0.38	2.77	75.05	110.60
1002	72.92	20.95	0.38	2.77	73.32	110.41
1003	73.06	22.27	0.35	2.87	70.40	110.34
1004	73.16	22.98	0.35	2.87	70.10	110.49
1005	73.30	21.66	0.39	2.87	74.63	110.57
1006	73.35	17.81	0.39	2.87	78.07	110.69
1007	73.38	20.04	0.39	2.87	79.92	110.48
1008	73.47	19.64	0.37	2.87	77.08	110.44

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	73.53	20.24	0.37	2.96	76.55	110.30
1010	73.62	20.24	0.36	2.96	76.12	110.24
1011	73.71	19.94	0.36	2.96	77.10	110.31
1012	73.77	19.53	0.38	2.96	79.03	110.64
1013	73.86	19.23	0.42	3.06	81.15	111.10
1014	73.96	19.13	0.45	3.06	82.23	111.57
1015	74.06	19.64	0.47	3.06	82.36	111.89
1016	74.13	19.84	0.48	3.06	81.49	112.15
1017	74.24	20.45	0.48	3.06	80.85	112.33
1018	74.34	20.65	0.50	3.06	80.73	112.54
1019	74.44	20.45	0.51	3.06	81.57	112.67
1020	74.58	20.04	0.51	3.06	81.41	112.52
1021	74.68	20.50	0.47	3.06	78.40	111.21
1022	74.80	20.24	0.27	3.15	74.93	109.94
1023	74.92	20.55	0.31	3.15	73.80	109.11
1024	75.07	19.84	0.36	3.15	75.92	109.75
1025	75.08	19.64	0.36	3.15	77.59	110.03
1026	75.11	19.64	0.36	3.25	78.16	110.07
1027	75.16	19.43	0.37	3.25	78.98	110.30
1028	75.25	19.43	0.39	3.25	80.91	110.74
1029	75.32	18.93	0.43	3.35	82.63	111.17
1030	75.40	18.93	0.44	3.35	83.61	111.30
1031	75.50	18.93	0.42	3.35	83.49	110.99
1032	75.59	18.42	0.38	3.35	83.68	110.27
1033	75.69	17.41	0.34	3.35	84.66	109.43
1034	75.78	16.70	0.31	3.35	85.61	108.57
1035	75.88	16.30	0.28	3.35	85.84	107.84
1036	75.96	16.09	0.26	3.35	85.52	107.10
1037	76.05	15.79	0.24	3.35	84.67	106.59
1038	76.14	16.09	0.23	3.44	84.37	106.31
1039	76.26	15.89	0.23	3.44	84.09	106.37
1040	76.36	16.09	0.24	3.44	84.42	106.50
1041	76.41	16.09	0.24	3.44	84.56	106.55
1042	76.51	15.89	0.23	3.44	85.32	106.38
1043	76.65	15.38	0.23	3.44	86.78	106.27
1044	76.72	15.08	0.24	3.44	88.00	106.27
1045	76.79	15.18	0.24	3.54	88.79	106.37
1046	76.89	15.08	0.24	3.54	90.66	107.25
1047	76.98	15.28	0.33	3.54	97.45	110.24
1048	77.08	15.89	0.64	3.54	92.62	112.89
1049	77.18	22.67	0.68	3.54	84.18	115.44
1050	77.28	27.83	0.85	3.54	77.43	117.59
1051	77.37	29.55	1.20	3.63	80.05	119.52
1052	77.42	26.11	1.45	3.63	81.77	120.82
1053	77.42	30.47	1.49	3.73	80.76	121.59
1054	77.44	33.91	1.59	3.73	75.56	122.42
1055	77.48	37.45	1.79	3.73	72.09	123.26
1056	77.52	40.69	1.91	3.82	69.21	123.98

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1057	77.54	43.52	1.97	3.82	67.19	124.41
1058	77.57	44.43	2.03	3.82	67.13	124.60
1059	77.62	42.00	2.05	3.82	68.46	124.53
1060	77.65	40.18	1.97	3.82	70.82	124.28
1061	77.67	37.96	1.92	3.82	71.65	123.83
1062	77.71	37.85	1.76	3.82	71.90	123.46
1063	77.71	37.75	1.73	3.73	71.69	122.88
1064	77.76	35.32	1.55	3.82	73.39	122.11
1065	77.81	31.07	1.35	3.73	75.70	120.92
1066	77.90	28.74	1.16	3.82	78.54	119.86
1067	77.95	27.13	1.11	3.82	80.91	119.27
1068	78.01	25.91	1.14	3.82	82.45	118.93
1069	78.10	25.81	1.05	3.82	78.83	118.74
1070	78.16	30.87	0.98	3.82	63.10	119.02
1071	78.24	52.02	0.97	3.92	49.66	119.64
1072	78.29	63.76	1.00	3.92	39.63	120.51
1073	78.39	78.54	1.05	3.92	34.27	121.15
1074	78.47	89.78	1.06	3.92	31.50	121.96
1075	78.53	93.42	1.23	3.92	31.16	123.05
1076	78.62	94.84	1.51	3.92	32.43	124.23
1077	78.68	94.33	1.70	3.92	34.74	124.97
1078	78.69	84.31	1.76	3.92	35.67	125.92
1079	78.78	100.10	2.16	3.92	36.75	126.73
1080	78.81	97.27	2.34	3.92	38.10	127.66
1081	78.92	87.04	2.58	3.92	41.97	127.53
1082	79.03	71.36	2.29	3.92	46.36	126.48
1083	79.16	59.92	1.72	3.92	46.07	125.04
1084	79.26	73.78	1.52	4.01	39.53	124.49
1085	79.35	101.31	1.66	4.01	33.43	125.47
1086	79.45	116.80	2.02	4.01	30.53	126.98
1087	79.54	125.00	2.38	4.01	29.73	128.12
1088	79.64	130.77	2.50	4.01	29.16	128.84
1089	79.74	137.75	2.60	4.11	26.56	130.21
1090	79.88	191.60	3.45	4.21	23.02	131.59
1091	79.98	231.27	3.61	4.21	19.11	132.52
1092	80.12	263.76	3.19	4.21	17.02	132.38
1093	80.22	251.11	2.99	4.21	15.38	131.25
1094	80.36	244.53	2.16	4.21	14.66	129.87
1095	80.46	238.56	1.83	4.21	13.44	128.07
1096	80.60	233.20	1.51	4.21	12.69	126.55
1097	80.70	223.58	1.18	4.21	12.64	125.70
1098	80.83	214.78	1.39	4.30	13.47	125.59
1099	80.94	200.81	1.51	4.30	15.55	125.88
1100	81.01	167.71	1.47	4.21	17.35	125.78
1101	81.04	165.18	1.46	4.40	18.79	125.42
1102	81.09	159.61	1.41	4.40	19.43	125.22
1103	81.13	150.30	1.41	4.40	20.68	125.10
1104	81.18	138.66	1.47	4.40	23.02	125.16

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1105	81.23	121.46	1.58	4.40	26.12	125.34
1106	81.28	109.61	1.68	4.40	29.84	125.42
1107	81.33	96.96	1.71	4.40	33.69	125.60
1108	81.37	87.75	1.89	4.40	38.07	125.99
1109	81.42	80.57	2.17	4.40	42.18	126.42
1110	81.47	75.20	2.23	4.40	45.53	126.65
1111	81.52	71.36	2.25	4.40	47.80	126.68
1112	81.56	69.23	2.31	4.40	48.75	126.82
1113	81.61	72.17	2.40	4.40	49.37	126.98
1114	81.64	70.14	2.41	4.40	50.62	127.02
1115	81.70	63.87	2.40	4.40	54.71	126.72
1116	81.75	52.33	2.36	4.40	60.30	126.26
1117	81.79	46.76	2.28	4.40	66.56	125.58
1118	81.82	41.40	2.11	4.40	70.87	124.78
1119	81.86	37.35	1.89	4.40	74.63	123.79
1120	81.91	33.91	1.69	4.40	77.94	122.73
1121	81.95	30.57	1.50	4.40	81.32	121.53
1122	82.00	27.23	1.28	4.40	84.85	120.08
1123	82.09	23.99	1.02	4.40	88.86	118.54
1124	82.15	21.36	0.91	4.40	93.55	117.24
1125	82.19	19.43	0.86	4.49	97.46	116.22
1126	82.26	18.52	0.73	4.49	100.00	115.23
1127	82.34	17.00	0.65	4.49	100.00	114.22
1128	82.39	15.28	0.62	4.49	100.00	113.42
1129	82.48	14.47	0.58	4.59	100.00	112.80
1130	82.58	14.37	0.53	4.59	100.00	112.31
1131	82.62	14.88	0.51	4.59	100.00	111.87
1132	82.70	14.78	0.48	4.59	100.00	111.60
1133	82.77	14.78	0.47	4.59	100.00	111.26
1134	82.87	14.68	0.45	4.59	100.00	111.18
1135	82.96	15.59	0.46	4.68	100.00	111.16
1136	83.06	18.22	0.44	4.68	90.71	111.46
1137	83.16	20.65	0.45	4.68	79.92	111.87
1138	83.25	25.10	0.46	4.78	72.16	112.31
1139	83.34	27.43	0.46	4.78	66.55	112.65
1140	83.44	28.85	0.46	4.87	65.23	113.13
1141	83.54	28.54	0.53	4.87	65.41	113.57
1142	83.64	28.64	0.54	4.87	66.63	114.00
1143	83.73	28.44	0.56	4.87	69.35	114.34
1144	83.83	25.81	0.63	4.87	71.50	114.84
1145	83.85	27.33	0.67	5.07	74.13	115.50
1146	83.89	27.13	0.74	5.07	74.39	116.20
1147	83.94	27.73	0.82	5.07	76.21	117.47
1148	84.04	29.25	1.08	5.07	76.59	118.57
1149	84.09	30.57	1.13	5.07	76.69	119.51
1150	84.13	31.17	1.19	5.07	76.09	119.96
1151	84.18	31.88	1.26	5.07	76.24	120.30
1152	84.25	31.78	1.29	5.07	77.16	120.50

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1153	84.33	30.67	1.30	5.07	79.11	120.53
1154	84.37	29.25	1.31	5.07	81.52	120.45
1155	84.46	28.24	1.30	5.16	83.35	120.16
1156	84.52	27.33	1.20	5.16	84.37	119.78
1157	84.57	26.72	1.15	5.16	84.59	119.32
1158	84.67	26.42	1.10	5.16	84.79	119.04
1159	84.71	26.21	1.08	5.16	85.52	118.94
1160	84.81	25.61	1.12	5.16	87.61	119.09
1161	84.86	24.70	1.19	5.16	90.53	119.33
1162	84.91	23.99	1.23	5.16	93.50	119.49
1163	85.00	23.28	1.24	5.16	95.77	119.52
1164	85.05	22.77	1.24	5.16	97.25	119.32
1165	85.15	22.17	1.16	5.16	97.82	118.97
1166	85.19	21.86	1.09	5.16	97.66	118.30
1167	85.29	21.15	0.96	5.16	97.29	117.62
1168	85.35	20.75	0.90	5.16	97.56	116.95
1169	85.42	20.04	0.86	5.16	98.84	116.52
1170	85.48	19.23	0.83	5.16	100.00	116.19
1171	85.55	18.72	0.81	5.26	100.00	115.89
1172	85.63	18.12	0.79	5.26	100.00	115.64
1173	85.68	17.51	0.78	5.26	100.00	115.45
1174	85.77	17.00	0.77	5.26	100.00	115.34
1175	85.82	16.80	0.77	5.26	100.00	115.39
1176	85.89	17.10	0.80	5.26	100.00	115.55
1177	85.96	18.12	0.81	5.26	100.00	115.74
1178	86.03	19.53	0.79	5.26	98.42	115.81
1179	86.11	21.25	0.76	5.26	92.88	115.75
1180	86.16	22.17	0.74	5.26	88.74	115.62
1181	86.25	22.67	0.72	5.26	89.87	115.47
1182	86.36	19.94	0.73	5.26	94.60	114.88
1183	86.50	17.10	0.62	5.26	100.00	114.26
1184	86.51	17.21	0.61	5.26	100.00	113.63
1185	86.52	17.21	0.60	5.26	100.00	113.28
1186	86.57	17.31	0.54	5.26	100.00	112.52
1187	86.65	17.31	0.44	5.35	96.58	111.56
1188	86.71	17.31	0.41	5.35	94.30	110.68
1189	86.80	17.21	0.38	5.35	94.07	110.11
1190	86.90	16.50	0.35	5.45	95.37	109.44
1191	86.99	15.49	0.32	5.45	97.33	108.73
1192	87.04	15.08	0.30	5.45	98.63	108.13
1193	87.14	14.98	0.28	5.45	98.41	107.81
1194	87.19	15.18	0.28	5.45	97.17	107.78
1195	87.28	15.69	0.29	5.54	95.63	108.26
1196	87.38	16.50	0.33	5.54	93.79	108.83
1197	87.43	17.10	0.34	5.54	91.88	109.36
1198	87.52	17.71	0.35	5.54	89.95	109.63
1199	87.61	18.22	0.36	5.64	88.28	109.78
1200	87.66	18.52	0.36	5.64	87.04	109.79

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1201	87.76	18.62	0.35	5.64	86.65	109.67
1202	87.84	18.32	0.34	5.64	86.71	109.46
1203	87.91	18.12	0.33	5.64	87.47	109.24
1204	88.00	17.71	0.32	5.64	88.37	109.00
1205	88.11	17.31	0.31	5.73	89.54	108.84
1206	88.19	17.10	0.31	5.73	90.39	108.72
1207	88.25	17.00	0.31	5.73	90.81	108.62
1208	88.34	16.90	0.30	5.73	90.64	108.42
1209	88.44	16.90	0.29	5.83	90.17	108.15
1210	88.54	16.90	0.28	5.83	89.58	107.90
1211	88.64	16.90	0.27	5.83	89.37	107.73
1212	88.72	16.80	0.27	5.93	89.61	107.69
1213	88.82	16.70	0.28	5.93	90.07	107.73
1214	88.91	16.70	0.28	5.93	90.83	107.82
1215	89.01	16.50	0.28	5.93	91.58	107.90
1216	89.10	16.40	0.29	5.93	92.45	107.97
1217	89.19	16.30	0.29	6.02	93.00	107.82
1218	89.30	15.99	0.27	6.02	91.00	106.79
1219	89.39	16.09	0.18	6.12	89.02	106.17
1220	89.49	16.60	0.23	6.12	88.22	106.44
1221	89.59	16.90	0.29	6.12	90.32	107.86
1222	89.69	16.95	0.32	6.12	91.89	108.72
1223	89.73	17.00	0.33	6.21	90.02	109.17
1224	89.78	18.83	0.34	6.31	87.19	109.42
1225	89.83	19.33	0.34	6.31	84.28	109.67
1226	89.88	19.64	0.35	6.31	83.80	109.89
1227	89.93	19.64	0.36	6.31	83.63	110.18
1228	90.00	20.04	0.38	6.40	83.30	110.59
1229	90.07	20.75	0.41	6.40	82.14	111.03
1230	90.12	21.56	0.42	6.40	81.06	111.60
1231	90.22	22.27	0.46	6.40	80.51	112.20
1232	90.27	22.67	0.50	6.40	80.53	113.17
1233	90.36	23.89	0.60	6.40	77.53	114.19
1234	90.46	28.14	0.65	6.50	73.54	115.05
1235	90.50	30.06	0.66	6.50	70.62	115.50
1236	90.61	29.35	0.68	6.59	70.53	115.62
1237	90.66	28.74	0.68	6.59	71.78	115.45
1238	90.75	27.73	0.63	6.59	73.00	114.95
1239	90.84	26.11	0.57	6.59	74.84	114.27
1240	90.89	24.39	0.54	6.59	76.93	113.58
1241	90.99	23.38	0.50	6.59	79.28	113.09
1242	91.04	22.37	0.49	6.69	81.25	112.68
1243	91.14	21.46	0.48	6.69	83.54	112.40
1244	91.22	20.65	0.47	6.79	85.84	112.13
1245	91.28	19.84	0.46	6.79	88.45	111.80
1246	91.37	18.72	0.44	6.79	89.92	111.48
1247	91.47	18.93	0.42	6.88	90.14	111.12
1248	91.61	19.03	0.40	6.88	88.70	110.98

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1249	91.71	19.53	0.41	6.88	88.08	110.93
1250	91.81	19.33	0.41	6.88	87.81	110.97
1251	91.87	19.33	0.41	6.98	88.02	110.84
1252	92.00	19.13	0.39	6.98	86.12	110.10
1253	92.10	19.38	0.29	6.98	84.52	109.49
1254	92.20	19.43	0.32	7.07	83.14	109.22
1255	92.33	19.74	0.35	7.07	83.97	109.76
1256	92.38	19.79	0.37	7.07	84.45	110.16
1257	92.43	19.84	0.37	7.26	84.47	110.37
1258	92.48	20.14	0.38	7.26	85.19	110.58
1259	92.56	19.64	0.40	7.36	86.02	110.74
1260	92.63	19.53	0.40	7.36	87.16	110.82
1261	92.67	19.43	0.40	7.36	87.45	110.81
1262	92.72	19.43	0.40	7.36	87.55	110.79
1263	92.77	19.43	0.40	7.36	87.20	110.81
1264	92.86	19.74	0.40	7.46	86.63	110.88
1265	92.92	20.04	0.41	7.46	86.16	111.05
1266	92.97	20.14	0.42	7.55	86.69	111.44
1267	93.05	20.14	0.46	7.55	87.17	111.82
1268	93.10	20.45	0.47	7.55	87.05	112.15
1269	93.16	20.95	0.48	7.55	85.70	112.28
1270	93.25	21.56	0.48	7.65	83.79	112.35
1271	93.35	22.27	0.47	7.65	80.44	112.40
1272	93.40	24.19	0.47	7.65	78.94	112.28
1273	93.49	22.77	0.45	7.74	78.47	112.15
1274	93.56	22.47	0.45	7.74	79.73	111.99
1275	93.64	22.57	0.45	7.74	79.38	112.05
1276	93.73	23.28	0.46	7.74	78.34	112.52
1277	93.83	24.70	0.52	7.84	76.63	113.28
1278	93.88	26.42	0.57	8.03	75.40	114.39
1279	93.97	27.83	0.67	8.03	75.84	115.13
1280	94.07	26.42	0.70	8.03	78.80	115.71
1281	94.17	24.70	0.75	8.03	82.08	116.26
1282	94.26	25.81	0.86	8.03	80.59	116.63
1283	94.36	29.25	0.79	8.03	81.16	117.93
1284	94.45	28.24	1.17	8.03	80.92	119.20
1285	94.55	30.57	1.33	8.12	72.58	120.82
1286	94.64	48.48	1.34	8.12	58.20	121.86
1287	94.72	65.99	1.33	8.03	49.16	122.39
1288	94.74	64.98	1.34	8.03	41.37	122.92
1289	94.77	90.28	1.36	8.31	37.18	123.45
1290	94.85	97.87	1.44	8.31	33.27	124.10
1291	94.90	103.54	1.52	8.31	32.34	124.67
1292	94.95	106.48	1.62	8.31	32.54	125.32
1293	95.01	105.57	1.83	8.31	34.52	126.41
1294	95.09	101.62	2.33	8.31	37.59	127.40
1295	95.14	94.94	2.54	8.31	42.18	128.49
1296	95.23	86.54	3.07	8.31	47.11	129.05

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1297	95.29	77.43	3.22	8.31	52.64	129.44
1298	95.38	69.84	3.34	8.31	57.15	129.42
1299	95.43	65.69	3.35	8.31	59.57	129.33
1300	95.52	66.70	3.28	8.31	59.18	129.26
1301	95.57	70.75	3.23	8.31	56.95	129.08
1302	95.67	72.87	2.99	8.31	55.03	128.58
1303	95.77	69.74	2.61	8.22	56.22	127.67
1304	95.86	56.58	2.39	8.22	62.27	126.89
1305	95.95	44.23	2.56	8.22	64.67	126.27
1306	96.03	57.64	2.16	8.22	71.02	125.95
1307	96.11	37.96	2.38	8.31	66.58	126.41
1308	96.20	58.70	2.78	8.51	62.59	127.77
1309	96.30	80.57	3.26	8.60	51.74	129.50
1310	96.39	100.81	3.60	8.60	44.40	130.84
1311	96.50	122.37	3.84	8.70	38.62	131.75
1312	96.59	145.34	3.92	8.60	32.42	131.58
1313	96.69	166.80	2.74	8.60	26.91	130.69
1314	96.78	182.08	2.25	8.60	22.17	129.05
1315	96.87	191.29	1.93	8.60	20.37	128.23
1316	96.98	184.11	1.94	8.60	20.02	127.84
1317	97.02	180.06	1.94	8.51	21.02	127.82
1318	97.06	168.82	2.00	8.70	21.61	128.14
1319	97.12	179.96	2.21	8.70	22.39	128.67
1320	97.16	177.63	2.41	8.70	23.05	129.34
1321	97.21	172.97	2.61	8.70	24.45	129.98
1322	97.27	170.04	2.93	8.60	25.91	130.63
1323	97.33	168.12	3.21	8.60	27.09	131.15
1324	97.40	166.09	3.29	8.60	27.88	131.39
1325	97.45	163.36	3.29	8.60	28.36	131.45
1326	97.50	161.94	3.32	8.60	29.21	131.67
1327	97.58	158.50	3.65	8.60	30.75	131.92
1328	97.65	146.66	3.76	8.51	32.97	132.07
1329	97.69	135.32	3.76	8.51	35.59	131.79
1330	97.74	120.95	3.57	8.51	38.21	131.25
1331	97.81	108.60	3.32	8.51	40.74	130.65
1332	97.88	101.62	3.24	8.51	42.61	130.19
1333	97.93	98.68	3.18	8.60	40.27	130.07
1334	98.03	125.30	2.99	8.79	31.75	130.21
1335	98.15	191.80	2.67	9.08	23.53	130.24
1336	98.21	230.36	2.44	9.08	17.43	129.79
1337	98.32	262.75	1.96	9.08	13.84	129.24
1338	98.42	299.09	1.85	9.08	10.93	128.66
1339	98.47	343.32	1.71	9.08	5.00	127.75
1340	98.57	405.97	1.08	9.18	5.00	126.30
1341	98.70	416.60	0.89	9.18	4.53	124.66
1342	98.78	412.55	0.91	9.27	4.67	124.49
1343	98.85	382.49	1.03	9.27	5.00	124.66
1344	98.86	321.86	1.03	9.08	5.00	124.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1345	98.92	308.60	1.04	9.08	5.00	124.62
1346	98.98	337.35	1.04	9.18	5.00	124.75
1347	99.03	309.11	1.10	9.08	5.00	125.36
1348	99.11	281.37	1.35	8.98	5.00	126.14
1349	99.18	254.05	1.55	8.98	12.62	127.01
1350	99.23	230.16	1.76	8.89	15.59	128.18
1351	99.32	209.41	2.34	8.79	19.03	129.37
1352	99.37	189.57	2.77	8.79	22.90	130.41
1353	99.45	168.82	3.08	8.79	26.41	130.81
1354	99.56	152.93	3.11	8.79	29.20	131.00
1355	99.64	149.59	3.27	8.79	31.66	131.22
1356	99.71	139.27	3.58	8.79	34.06	131.59
1357	99.75	130.87	3.81	8.89	36.97	131.47
1358	99.90	114.27	3.39	8.79	40.25	131.23
1359	99.95	103.44	3.58	8.70	45.52	131.15
1360	100.04	87.25	4.17	8.70	42.09	132.11
1361	100.14	157.89	4.41	8.98	32.87	133.35
1362	100.14	232.39	4.40	8.98	26.10	134.08
1363	100.15	224.29	4.36	9.08	23.29	134.83
1364	100.19	250.30	5.18	9.18	22.57	136.06
1365	100.21	301.41	6.43	9.27	21.06	137.28
1366	100.24	342.10	7.12	9.27	14.70	135.60
1367	100.28	411.74	0.00	9.46	8.11	131.27
1368	100.31	477.42	0.00	9.56	N/A	87.36
1369	100.33	523.38	0.00	9.56	N/A	87.36
1370	100.38	524.49	0.00	9.56	N/A	87.36
1371	100.39	525.60	0.00	9.56	N/A	87.36
1372	100.43	529.15	0.00	9.65	N/A	87.36
1373	100.48	540.18	0.00	9.65	N/A	87.36
1374	100.53	496.96	0.00	9.56	N/A	87.36
1375	100.57	490.58	0.00	9.65	N/A	87.36
1376	100.60	500.40	0.00	9.94	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.04	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
2	0.10	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
3	0.11	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
4	0.16	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
5	0.19	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
6	0.24	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
7	0.31	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
8	0.38	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
9	0.43	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
10	0.49	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
11	0.58	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
12	0.63	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
13	0.67	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
14	0.72	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
15	0.72	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
16	0.84	0.04	0.00	0.04	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
17	0.96	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
18	1.06	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
19	1.24	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
20	1.30	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
21	1.48	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
22	1.59	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
23	1.69	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	Yes
24	1.69	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	Yes
25	1.74	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	Yes
26	1.79	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
27	1.84	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
28	1.88	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
29	1.93	0.10	0.00	0.10	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
30	1.99	0.10	0.00	0.10	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
31	2.03	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
32	2.08	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
33	2.13	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
34	2.22	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
35	2.27	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
36	2.33	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
37	2.42	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
38	2.48	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
39	2.56	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
40	2.65	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
41	2.72	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
42	2.80	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
43	2.89	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
44	2.94	0.16	0.00	0.16	1.00	0.407	1.36	0.300	1.00	1.00	2.000	No
45	3.04	0.16	0.00	0.16	0.99	0.407	1.36	0.300	1.00	1.00	2.000	No
46	3.14	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
47	3.23	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
48	3.31	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	3.37	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
50	3.48	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
51	3.57	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
52	3.65	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
53	3.71	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
54	3.82	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
55	3.91	0.21	0.00	0.21	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
56	4.00	0.21	0.00	0.21	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
57	4.10	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
58	4.19	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
59	4.26	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
60	4.35	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
61	4.44	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
62	4.52	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
63	4.53	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
64	4.58	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
65	4.63	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
66	4.68	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
67	4.72	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
68	4.77	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
69	4.82	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
70	4.88	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
71	4.96	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
72	5.01	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
73	5.08	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
74	5.16	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
75	5.21	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
76	5.30	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
77	5.37	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
78	5.45	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
79	5.52	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
80	5.59	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
81	5.65	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
82	5.74	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
83	5.83	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
84	5.89	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
85	5.97	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
86	6.07	0.32	0.00	0.32	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
87	6.12	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
88	6.22	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
89	6.28	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
90	6.36	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
91	6.46	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
92	6.52	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
93	6.60	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
94	6.70	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
95	6.76	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
96	6.84	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	6.94	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
98	7.03	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
99	7.13	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
100	7.19	0.38	0.00	0.38	0.99	0.403	1.36	0.297	1.00	1.00	2.000	Yes
101	7.32	0.39	0.00	0.39	0.98	0.403	1.36	0.297	1.00	1.00	2.000	No
102	7.42	0.39	0.00	0.39	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
103	7.49	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
104	7.57	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
105	7.66	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
106	7.76	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
107	7.77	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
108	7.78	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
109	7.82	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
110	7.87	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
111	7.92	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
112	7.97	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
113	8.01	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
114	8.06	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
115	8.11	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
116	8.20	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
117	8.26	0.43	0.00	0.43	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
118	8.35	0.44	0.00	0.44	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
119	8.40	0.44	0.00	0.44	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
120	8.49	0.44	0.00	0.44	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
121	8.54	0.44	0.00	0.44	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
122	8.64	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
123	8.69	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
124	8.79	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
125	8.84	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
126	8.93	0.46	0.00	0.46	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
127	9.03	0.47	0.00	0.47	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
128	9.08	0.47	0.00	0.47	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
129	9.11	0.47	0.00	0.47	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
130	9.12	0.47	0.00	0.47	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
131	9.17	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
132	9.22	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
133	9.31	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
134	9.36	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
135	9.40	0.49	0.00	0.49	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
136	9.46	0.49	0.00	0.49	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
137	9.51	0.49	0.00	0.49	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
138	9.55	0.50	0.00	0.50	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
139	9.61	0.50	0.00	0.50	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
140	9.69	0.50	0.00	0.50	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
141	9.74	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
142	9.81	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
143	9.89	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
144	9.94	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	10.03	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
146	10.08	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
147	10.18	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
148	10.23	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
149	10.33	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
150	10.40	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
151	10.47	0.54	0.00	0.54	0.98	0.401	1.36	0.294	1.00	1.00	2.000	No
152	10.51	0.55	0.00	0.55	0.98	0.401	1.36	0.294	1.00	1.00	2.000	No
153	10.56	0.55	0.00	0.55	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
154	10.61	0.55	0.00	0.55	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
155	10.67	0.55	0.00	0.55	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
156	10.75	0.56	0.00	0.56	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
157	10.80	0.56	0.00	0.56	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
158	10.85	0.56	0.00	0.56	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
159	10.90	0.57	0.00	0.57	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
160	11.00	0.57	0.00	0.57	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
161	11.05	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
162	11.14	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
163	11.21	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
164	11.29	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
165	11.38	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
166	11.46	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
167	11.52	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
168	11.60	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
169	11.67	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
170	11.72	0.61	0.00	0.61	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
171	11.81	0.62	0.00	0.62	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
172	11.86	0.62	0.00	0.62	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
173	11.96	0.63	0.00	0.63	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
174	12.01	0.63	0.00	0.63	0.97	0.399	1.36	0.294	1.00	1.00	2.000	No
175	12.10	0.63	0.00	0.63	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
176	12.16	0.64	0.00	0.64	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
177	12.24	0.64	0.00	0.64	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
178	12.32	0.64	0.00	0.64	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
179	12.39	0.65	0.00	0.65	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
180	12.48	0.65	0.00	0.65	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
181	12.50	0.65	0.00	0.65	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
182	12.54	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
183	12.64	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
184	12.68	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
185	12.77	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
186	12.82	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
187	12.89	0.68	0.00	0.68	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
188	12.97	0.68	0.00	0.68	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
189	13.03	0.68	0.00	0.68	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
190	13.12	0.69	0.00	0.69	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
191	13.16	0.69	0.00	0.69	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
192	13.26	0.70	0.00	0.70	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	13.34	0.70	0.00	0.70	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
194	13.41	0.70	0.00	0.70	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
195	13.50	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
196	13.60	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
197	13.65	0.72	0.00	0.72	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
198	13.75	0.72	0.00	0.72	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
199	13.80	0.73	0.00	0.73	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
200	13.89	0.73	0.00	0.73	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
201	13.94	0.73	0.00	0.73	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
202	14.03	0.74	0.00	0.74	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
203	14.11	0.74	0.00	0.74	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
204	14.13	0.74	0.00	0.74	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
205	14.18	0.75	0.00	0.75	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
206	14.22	0.75	0.00	0.75	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
207	14.28	0.75	0.00	0.75	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
208	14.37	0.76	0.00	0.76	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
209	14.44	0.76	0.00	0.76	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
210	14.51	0.76	0.00	0.76	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
211	14.60	0.77	0.00	0.77	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
212	14.65	0.77	0.00	0.77	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
213	14.75	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
214	14.85	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
215	14.91	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
216	14.99	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	Yes
217	15.09	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	Yes
218	15.18	0.80	0.00	0.80	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
219	15.25	0.81	0.00	0.81	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
220	15.33	0.81	0.00	0.81	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
221	15.43	0.82	0.00	0.82	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
222	15.51	0.82	0.00	0.82	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
223	15.59	0.83	0.00	0.83	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
224	15.67	0.83	0.00	0.83	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
225	15.76	0.84	0.00	0.84	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
226	15.86	0.84	0.00	0.84	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
227	15.95	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
228	16.05	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
229	16.14	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
230	16.20	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
231	16.28	0.87	0.00	0.87	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
232	16.34	0.87	0.00	0.87	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
233	16.44	0.87	0.00	0.87	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
234	16.50	0.88	0.00	0.88	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
235	16.58	0.88	0.00	0.88	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
236	16.73	0.89	0.00	0.89	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
237	16.82	0.89	0.00	0.89	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
238	16.92	0.90	0.00	0.90	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
239	17.01	0.90	0.00	0.90	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
240	17.11	0.91	0.00	0.91	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	17.12	0.91	0.00	0.91	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
242	17.14	0.91	0.00	0.91	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
243	17.19	0.91	0.00	0.91	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
244	17.28	0.92	0.00	0.92	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
245	17.33	0.92	0.00	0.92	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
246	17.43	0.92	0.00	0.92	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
247	17.47	0.93	0.00	0.93	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
248	17.57	0.93	0.00	0.93	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
249	17.65	0.94	0.00	0.94	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
250	17.72	0.94	0.00	0.94	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
251	17.81	0.94	0.00	0.94	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
252	17.86	0.95	0.00	0.95	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
253	17.95	0.95	0.00	0.95	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
254	18.05	0.96	0.00	0.96	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
255	18.10	0.96	0.00	0.96	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
256	18.20	0.97	0.00	0.97	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
257	18.30	0.97	0.00	0.97	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
258	18.39	0.98	0.00	0.98	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
259	18.48	0.98	0.00	0.98	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
260	18.58	0.99	0.00	0.99	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
261	18.66	0.99	0.00	0.99	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
262	18.74	1.00	0.00	1.00	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
263	18.87	1.00	0.00	1.00	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
264	18.97	1.01	0.00	1.01	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
265	19.06	1.01	0.00	1.01	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
266	19.16	1.02	0.00	1.02	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
267	19.25	1.02	0.00	1.02	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
268	19.27	1.02	0.00	1.02	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
269	19.30	1.02	0.00	1.02	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
270	19.34	1.03	0.00	1.03	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
271	19.39	1.03	0.00	1.03	0.96	0.392	1.36	0.289	1.00	1.00	2.000	No
272	19.49	1.04	0.00	1.04	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
273	19.55	1.04	0.00	1.04	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
274	19.63	1.04	0.00	1.04	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
275	19.68	1.05	0.00	1.05	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
276	19.74	1.05	0.00	1.05	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
277	19.83	1.05	0.00	1.05	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
278	19.87	1.06	0.00	1.06	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
279	19.94	1.06	0.00	1.06	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
280	20.02	1.06	0.00	1.06	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
281	20.07	1.07	0.00	1.07	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
282	20.17	1.07	0.00	1.07	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
283	20.21	1.07	0.00	1.07	0.96	0.392	1.36	0.288	1.00	1.00	2.000	Yes
284	20.28	1.08	0.00	1.08	0.96	0.392	1.36	0.288	1.00	1.00	2.000	Yes
285	20.36	1.08	0.00	1.08	0.96	0.391	1.36	0.288	1.00	1.00	2.000	Yes
286	20.41	1.09	0.00	1.09	0.96	0.391	1.36	0.288	0.99	1.00	2.000	Yes
287	20.48	1.09	0.00	1.09	0.96	0.391	1.36	0.288	0.99	1.00	2.000	Yes
288	20.55	1.09	0.00	1.09	0.96	0.391	1.36	0.288	0.99	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	20.60	1.10	0.00	1.10	0.96	0.391	1.36	0.288	0.99	1.00	2.000	Yes
290	20.70	1.10	0.00	1.10	0.96	0.391	1.36	0.288	0.99	1.00	2.000	No
291	20.74	1.11	0.00	1.11	0.95	0.391	1.36	0.288	0.99	1.00	2.000	No
292	20.79	1.11	0.00	1.11	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
293	20.89	1.11	0.00	1.11	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
294	20.96	1.12	0.00	1.12	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
295	21.04	1.12	0.00	1.12	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
296	21.13	1.13	0.00	1.13	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
297	21.22	1.13	0.00	1.13	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
298	21.29	1.14	0.00	1.14	0.95	0.390	1.36	0.287	0.99	1.00	2.000	No
299	21.35	1.14	0.00	1.14	0.95	0.390	1.36	0.287	0.99	1.00	2.000	No
300	21.37	1.14	0.00	1.14	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
301	21.42	1.14	0.00	1.14	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
302	21.47	1.15	0.00	1.15	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
303	21.48	1.15	0.00	1.15	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
304	21.52	1.15	0.00	1.15	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
305	21.57	1.15	0.00	1.15	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
306	21.62	1.16	0.00	1.16	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
307	21.66	1.16	0.00	1.16	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
308	21.71	1.16	0.00	1.16	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
309	21.76	1.17	0.00	1.17	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
310	21.81	1.17	0.00	1.17	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
311	21.85	1.17	0.00	1.17	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
312	21.91	1.17	0.00	1.17	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
313	21.95	1.18	0.00	1.18	0.95	0.390	1.36	0.286	0.98	1.00	2.000	No
314	22.00	1.18	0.00	1.18	0.95	0.390	1.36	0.286	0.98	1.00	2.000	No
315	22.05	1.18	0.00	1.18	0.95	0.390	1.36	0.286	0.98	1.00	2.000	No
316	22.10	1.19	0.00	1.19	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
317	22.15	1.19	0.00	1.19	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
318	22.19	1.19	0.00	1.19	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
319	22.24	1.19	0.00	1.19	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
320	22.29	1.20	0.00	1.20	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
321	22.34	1.20	0.00	1.20	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
322	22.39	1.20	0.00	1.20	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
323	22.43	1.21	0.00	1.21	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
324	22.48	1.21	0.00	1.21	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
325	22.55	1.21	0.00	1.21	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
326	22.62	1.22	0.00	1.22	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
327	22.63	1.22	0.00	1.22	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
328	22.72	1.22	0.00	1.22	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
329	22.77	1.23	0.00	1.23	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
330	22.83	1.23	0.00	1.23	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
331	22.91	1.24	0.00	1.24	0.95	0.388	1.36	0.286	0.97	1.00	2.000	No
332	22.96	1.24	0.00	1.24	0.95	0.388	1.36	0.286	0.97	1.00	2.000	No
333	23.02	1.24	0.00	1.24	0.95	0.388	1.36	0.286	0.97	1.00	2.000	No
334	23.10	1.25	0.00	1.25	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No
335	23.16	1.25	0.00	1.25	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No
336	23.20	1.25	0.00	1.25	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	23.26	1.26	0.00	1.26	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No
338	23.35	1.26	0.00	1.26	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No
339	23.39	1.27	0.00	1.27	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
340	23.48	1.27	0.00	1.27	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
341	23.54	1.27	0.00	1.27	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
342	23.63	1.28	0.00	1.28	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
343	23.69	1.28	0.00	1.28	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
344	23.78	1.29	0.00	1.29	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
345	23.87	1.29	0.00	1.29	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
346	23.88	1.29	0.00	1.29	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
347	23.93	1.30	0.00	1.30	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
348	24.02	1.30	0.00	1.30	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
349	24.04	1.30	0.00	1.30	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
350	24.05	1.30	0.00	1.30	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
351	24.15	1.31	0.00	1.31	0.94	0.387	1.36	0.284	0.96	1.00	2.000	No
352	24.20	1.31	0.00	1.31	0.94	0.387	1.36	0.284	0.96	1.00	2.000	No
353	24.30	1.32	0.00	1.32	0.94	0.387	1.36	0.284	0.96	1.00	2.000	No
354	24.40	1.32	0.00	1.32	0.94	0.387	1.36	0.284	0.96	1.00	2.000	No
355	24.46	1.33	0.00	1.33	0.94	0.386	1.36	0.284	0.96	1.00	2.000	No
356	24.54	1.33	0.00	1.33	0.94	0.386	1.36	0.284	0.95	1.00	2.000	No
357	24.64	1.34	0.00	1.34	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
358	24.73	1.34	0.00	1.34	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
359	24.78	1.35	0.00	1.35	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
360	24.88	1.35	0.00	1.35	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
361	24.94	1.36	0.00	1.36	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
362	25.02	1.36	0.00	1.36	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
363	25.12	1.37	0.00	1.37	0.94	0.386	1.36	0.283	0.95	1.00	2.000	Yes
364	25.17	1.37	0.00	1.37	0.94	0.385	1.36	0.283	0.95	1.00	2.000	Yes
365	25.27	1.38	0.00	1.38	0.94	0.385	1.36	0.283	0.95	1.00	2.000	Yes
366	25.36	1.38	0.00	1.38	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
367	25.43	1.38	0.00	1.38	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
368	25.50	1.39	0.00	1.39	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
369	25.60	1.39	0.00	1.39	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
370	25.64	1.40	0.00	1.40	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
371	25.67	1.40	0.00	1.40	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
372	25.71	1.40	0.00	1.40	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
373	25.79	1.40	0.00	1.40	0.94	0.384	1.36	0.283	0.95	1.00	2.000	No
374	25.93	1.41	0.00	1.41	0.94	0.384	1.36	0.283	0.94	1.00	2.000	No
375	26.03	1.42	0.00	1.42	0.94	0.384	1.36	0.282	0.94	1.00	2.000	No
376	26.13	1.42	0.00	1.42	0.94	0.384	1.36	0.282	0.94	1.00	2.000	No
377	26.24	1.43	0.00	1.43	0.94	0.384	1.36	0.282	0.94	1.00	2.000	No
378	26.37	1.43	0.00	1.43	0.94	0.384	1.36	0.282	0.94	1.00	2.000	No
379	26.47	1.44	0.00	1.44	0.94	0.383	1.36	0.282	0.94	1.00	2.000	No
380	26.60	1.45	0.00	1.45	0.94	0.383	1.36	0.282	0.94	1.00	2.000	No
381	26.71	1.45	0.00	1.45	0.94	0.383	1.36	0.282	0.94	1.00	2.000	No
382	26.85	1.46	0.00	1.46	0.93	0.383	1.36	0.281	0.94	1.00	2.000	No
383	26.95	1.46	0.00	1.46	0.93	0.383	1.36	0.281	0.94	1.00	2.000	No
384	27.04	1.47	0.00	1.47	0.93	0.382	1.36	0.281	0.94	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	27.09	1.47	0.00	1.47	0.93	0.382	1.36	0.281	0.94	1.00	2.000	No
386	27.19	1.48	0.00	1.48	0.93	0.382	1.36	0.281	0.94	1.00	2.000	No
387	27.23	1.48	0.00	1.48	0.93	0.382	1.36	0.281	0.94	1.00	2.000	No
388	27.33	1.48	0.00	1.48	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
389	27.40	1.49	0.00	1.49	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
390	27.47	1.49	0.00	1.49	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
391	27.57	1.50	0.00	1.50	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
392	27.66	1.50	0.00	1.50	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
393	27.77	1.51	0.00	1.51	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
394	27.86	1.51	0.00	1.51	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
395	27.96	1.52	0.00	1.52	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
396	28.06	1.52	0.00	1.52	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
397	28.15	1.53	0.00	1.53	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
398	28.25	1.54	0.00	1.54	0.93	0.380	1.36	0.280	0.93	1.00	2.000	No
399	28.34	1.54	0.00	1.54	0.93	0.380	1.36	0.280	0.93	1.00	2.000	No
400	28.44	1.55	0.00	1.55	0.93	0.380	1.36	0.279	0.93	1.00	2.000	No
401	28.54	1.55	0.00	1.55	0.93	0.380	1.36	0.279	0.93	1.00	2.000	No
402	28.62	1.56	0.00	1.56	0.93	0.380	1.36	0.279	0.93	1.00	2.000	No
403	28.71	1.56	0.00	1.56	0.93	0.380	1.36	0.279	0.93	1.00	2.000	No
404	28.77	1.56	0.00	1.56	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
405	28.86	1.57	0.00	1.57	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
406	28.91	1.57	0.00	1.57	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
407	28.97	1.58	0.00	1.58	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
408	29.04	1.58	0.00	1.58	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
409	29.10	1.58	0.00	1.58	0.92	0.379	1.36	0.278	0.92	1.00	2.000	No
410	29.15	1.59	0.00	1.59	0.92	0.379	1.36	0.278	0.92	1.00	2.000	No
411	29.25	1.59	0.00	1.59	0.92	0.378	1.36	0.278	0.92	1.00	2.000	No
412	29.34	1.60	0.00	1.60	0.92	0.378	1.36	0.278	0.92	1.00	2.000	No
413	29.38	1.60	0.00	1.60	0.92	0.378	1.36	0.278	0.92	1.00	2.000	No
414	29.48	1.61	0.00	1.61	0.92	0.378	1.36	0.278	0.92	1.00	2.000	No
415	29.55	1.61	0.00	1.61	0.92	0.378	1.36	0.278	0.92	1.00	2.000	Yes
416	29.63	1.62	0.00	1.62	0.92	0.378	1.36	0.278	0.92	1.00	2.000	Yes
417	29.72	1.62	0.00	1.62	0.92	0.378	1.36	0.278	0.92	1.00	2.000	Yes
418	29.82	1.63	0.00	1.63	0.92	0.377	1.36	0.277	0.92	1.00	2.000	Yes
419	29.88	1.63	0.00	1.63	0.92	0.377	1.36	0.277	0.92	1.00	2.000	Yes
420	29.96	1.63	0.00	1.63	0.92	0.377	1.36	0.277	0.92	1.00	2.000	Yes
421	30.06	1.64	0.00	1.64	0.92	0.377	1.36	0.277	0.92	1.00	2.000	Yes
422	30.13	1.64	0.00	1.64	0.92	0.378	1.36	0.278	0.92	1.00	2.000	Yes
423	30.18	1.65	0.01	1.64	0.92	0.378	1.36	0.278	0.92	1.00	0.303	No
424	30.28	1.65	0.01	1.64	0.92	0.378	1.36	0.278	0.92	1.00	0.304	No
425	30.37	1.66	0.01	1.65	0.92	0.379	1.36	0.279	0.92	1.00	0.304	No
426	30.47	1.66	0.01	1.65	0.92	0.379	1.36	0.279	0.92	1.00	0.305	No
427	30.57	1.67	0.02	1.65	0.92	0.380	1.36	0.279	0.91	1.00	0.305	No
428	30.66	1.68	0.02	1.65	0.92	0.380	1.36	0.280	0.91	1.00	0.306	No
429	30.74	1.68	0.02	1.66	0.92	0.381	1.36	0.280	0.91	1.00	0.306	No
430	30.82	1.68	0.03	1.66	0.92	0.381	1.36	0.280	0.91	1.00	0.306	No
431	30.90	1.69	0.03	1.66	0.92	0.381	1.36	0.280	0.91	1.00	0.307	No
432	31.01	1.70	0.03	1.66	0.92	0.382	1.36	0.281	0.91	1.00	0.307	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	31.10	1.70	0.03	1.67	0.91	0.382	1.36	0.281	0.91	1.00	0.308	No
434	31.19	1.71	0.04	1.67	0.91	0.383	1.36	0.281	0.91	1.00	0.308	No
435	31.28	1.71	0.04	1.67	0.91	0.383	1.36	0.282	0.91	1.00	0.309	No
436	31.35	1.72	0.04	1.67	0.91	0.383	1.36	0.282	0.91	1.00	0.309	No
437	31.43	1.72	0.04	1.68	0.91	0.384	1.36	0.282	0.91	1.00	0.309	No
438	31.53	1.73	0.05	1.68	0.91	0.384	1.36	0.283	0.91	1.00	0.310	No
439	31.60	1.73	0.05	1.68	0.91	0.385	1.36	0.283	0.91	1.00	0.310	No
440	31.67	1.74	0.05	1.68	0.91	0.385	1.36	0.283	0.91	1.00	0.311	No
441	31.77	1.74	0.06	1.69	0.91	0.385	1.36	0.283	0.91	1.00	0.311	No
442	31.84	1.75	0.06	1.69	0.91	0.386	1.36	0.283	0.91	1.00	0.311	No
443	31.91	1.75	0.06	1.69	0.91	0.386	1.36	0.284	0.91	1.00	0.312	No
444	31.98	1.76	0.06	1.69	0.91	0.386	1.36	0.284	0.91	1.00	0.312	No
445	31.98	1.76	0.06	1.69	0.91	0.386	1.36	0.284	0.91	1.00	0.312	No
446	32.04	1.76	0.06	1.70	0.91	0.386	1.36	0.284	0.91	1.00	0.312	No
447	32.12	1.76	0.07	1.70	0.91	0.387	1.36	0.284	0.91	1.00	2.000	Yes
448	32.16	1.77	0.07	1.70	0.91	0.387	1.36	0.284	0.91	1.00	2.000	Yes
449	32.27	1.77	0.07	1.70	0.91	0.387	1.36	0.285	0.91	1.00	2.000	Yes
450	32.33	1.78	0.07	1.70	0.91	0.388	1.36	0.285	0.91	1.00	2.000	Yes
451	32.41	1.78	0.08	1.71	0.91	0.388	1.36	0.285	0.91	1.00	2.000	Yes
452	32.50	1.79	0.08	1.71	0.91	0.388	1.36	0.285	0.91	1.00	2.000	Yes
453	32.58	1.79	0.08	1.71	0.91	0.389	1.36	0.286	0.91	1.00	2.000	Yes
454	32.66	1.80	0.08	1.71	0.91	0.389	1.36	0.286	0.91	1.00	2.000	Yes
455	32.74	1.80	0.09	1.72	0.91	0.389	1.36	0.286	0.91	1.00	2.000	Yes
456	32.84	1.81	0.09	1.72	0.90	0.390	1.36	0.286	0.91	1.00	2.000	Yes
457	32.90	1.81	0.09	1.72	0.90	0.390	1.36	0.287	0.91	1.00	2.000	Yes
458	32.98	1.82	0.09	1.72	0.90	0.390	1.36	0.287	0.91	1.00	2.000	Yes
459	33.08	1.82	0.10	1.73	0.90	0.390	1.36	0.287	0.91	1.00	0.317	No
460	33.14	1.83	0.10	1.73	0.90	0.391	1.36	0.287	0.91	1.00	0.317	No
461	33.22	1.83	0.10	1.73	0.90	0.391	1.36	0.287	0.91	1.00	0.317	No
462	33.32	1.84	0.10	1.73	0.90	0.391	1.36	0.288	0.91	1.00	0.318	No
463	33.37	1.84	0.11	1.73	0.90	0.392	1.36	0.288	0.91	1.00	0.318	No
464	33.47	1.84	0.11	1.74	0.90	0.392	1.36	0.288	0.91	1.00	0.318	No
465	33.56	1.85	0.11	1.74	0.90	0.392	1.36	0.288	0.91	1.00	0.318	No
466	33.63	1.85	0.11	1.74	0.90	0.392	1.36	0.289	0.91	1.00	0.319	No
467	33.71	1.86	0.12	1.74	0.90	0.393	1.36	0.289	0.91	1.00	0.319	No
468	33.81	1.86	0.12	1.74	0.90	0.393	1.36	0.289	0.90	1.00	0.319	No
469	33.90	1.87	0.12	1.75	0.90	0.393	1.36	0.289	0.90	1.00	0.320	No
470	33.95	1.87	0.12	1.75	0.90	0.394	1.36	0.289	0.90	1.00	0.320	No
471	34.04	1.88	0.13	1.75	0.90	0.394	1.36	0.290	0.90	1.00	0.320	No
472	34.14	1.88	0.13	1.75	0.90	0.394	1.36	0.290	0.90	1.00	0.321	No
473	34.17	1.88	0.13	1.75	0.90	0.394	1.36	0.290	0.90	1.00	0.321	No
474	34.20	1.88	0.13	1.75	0.90	0.394	1.36	0.290	0.90	1.00	0.321	No
475	34.26	1.89	0.13	1.75	0.90	0.395	1.36	0.290	0.90	1.00	0.321	No
476	34.35	1.89	0.14	1.76	0.90	0.395	1.36	0.290	0.90	1.00	0.321	No
477	34.43	1.90	0.14	1.76	0.89	0.395	1.36	0.291	0.90	1.00	0.322	No
478	34.49	1.90	0.14	1.76	0.89	0.395	1.36	0.291	0.90	1.00	0.322	No
479	34.59	1.90	0.14	1.76	0.89	0.396	1.36	0.291	0.90	1.00	0.322	No
480	34.69	1.91	0.15	1.76	0.89	0.396	1.36	0.291	0.90	1.00	0.322	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	34.73	1.91	0.15	1.76	0.89	0.396	1.36	0.291	0.90	1.00	0.323	No
482	34.83	1.92	0.15	1.76	0.89	0.396	1.36	0.291	0.90	1.00	0.323	No
483	34.90	1.92	0.15	1.77	0.89	0.397	1.36	0.292	0.90	1.00	0.323	No
484	34.98	1.92	0.16	1.77	0.89	0.397	1.36	0.292	0.90	1.00	0.323	No
485	35.07	1.93	0.16	1.77	0.89	0.397	1.36	0.292	0.90	1.00	0.324	No
486	35.16	1.93	0.16	1.77	0.89	0.397	1.36	0.292	0.90	1.00	0.324	No
487	35.26	1.94	0.16	1.77	0.89	0.398	1.36	0.292	0.90	1.00	0.324	No
488	35.33	1.94	0.17	1.78	0.89	0.398	1.36	0.292	0.90	1.00	0.324	No
489	35.40	1.95	0.17	1.78	0.89	0.398	1.36	0.293	0.90	1.00	0.325	No
490	35.50	1.95	0.17	1.78	0.89	0.398	1.36	0.293	0.90	1.00	0.325	No
491	35.57	1.96	0.17	1.78	0.89	0.398	1.36	0.293	0.90	1.00	0.325	No
492	35.65	1.96	0.18	1.78	0.89	0.399	1.36	0.293	0.90	1.00	0.325	No
493	35.71	1.96	0.18	1.79	0.89	0.399	1.36	0.293	0.90	1.00	0.326	No
494	35.79	1.97	0.18	1.79	0.88	0.399	1.36	0.293	0.90	1.00	0.326	No
495	35.85	1.97	0.18	1.79	0.88	0.399	1.36	0.293	0.90	1.00	0.326	No
496	35.94	1.98	0.19	1.79	0.88	0.399	1.36	0.294	0.90	1.00	0.326	No
497	35.99	1.98	0.19	1.79	0.88	0.400	1.36	0.294	0.90	1.00	0.326	No
498	36.08	1.99	0.19	1.80	0.88	0.400	1.36	0.294	0.90	1.00	0.327	No
499	36.17	1.99	0.19	1.80	0.88	0.400	1.36	0.294	0.90	1.00	0.327	No
500	36.24	1.99	0.19	1.80	0.88	0.400	1.36	0.294	0.90	1.00	0.327	No
501	36.33	2.00	0.20	1.80	0.88	0.400	1.36	0.294	0.90	1.00	0.327	No
502	36.42	2.00	0.20	1.80	0.88	0.401	1.36	0.294	0.90	1.00	0.328	No
503	36.52	2.01	0.20	1.81	0.88	0.401	1.36	0.295	0.90	1.00	0.328	No
504	36.61	2.02	0.21	1.81	0.88	0.401	1.36	0.295	0.90	1.00	0.328	No
505	36.70	2.02	0.21	1.81	0.88	0.401	1.36	0.295	0.90	1.00	0.328	No
506	36.78	2.02	0.21	1.81	0.88	0.401	1.36	0.295	0.90	1.00	0.329	No
507	36.85	2.03	0.21	1.82	0.88	0.401	1.36	0.295	0.90	1.00	0.329	No
508	36.87	2.03	0.21	1.82	0.88	0.401	1.36	0.295	0.90	1.00	0.329	No
509	36.91	2.03	0.22	1.82	0.88	0.402	1.36	0.295	0.90	1.00	0.329	No
510	36.97	2.04	0.22	1.82	0.88	0.402	1.36	0.295	0.90	1.00	2.000	Yes
511	37.06	2.04	0.22	1.82	0.88	0.402	1.36	0.295	0.90	1.00	2.000	Yes
512	37.12	2.04	0.22	1.82	0.87	0.402	1.36	0.296	0.90	1.00	2.000	Yes
513	37.20	2.05	0.22	1.82	0.87	0.402	1.36	0.296	0.90	1.00	2.000	Yes
514	37.27	2.05	0.23	1.83	0.87	0.402	1.36	0.296	0.90	1.00	2.000	Yes
515	37.35	2.06	0.23	1.83	0.87	0.402	1.36	0.296	0.90	1.00	2.000	Yes
516	37.44	2.06	0.23	1.83	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
517	37.49	2.07	0.23	1.83	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
518	37.59	2.07	0.24	1.84	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
519	37.64	2.08	0.24	1.84	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
520	37.70	2.08	0.24	1.84	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
521	37.78	2.09	0.24	1.84	0.87	0.403	1.36	0.296	0.89	1.00	2.000	Yes
522	37.83	2.09	0.24	1.84	0.87	0.403	1.36	0.296	0.89	1.00	2.000	Yes
523	37.92	2.09	0.25	1.85	0.87	0.403	1.36	0.297	0.89	1.00	2.000	Yes
524	37.97	2.10	0.25	1.85	0.87	0.403	1.36	0.297	0.89	1.00	2.000	Yes
525	38.07	2.10	0.25	1.85	0.87	0.403	1.36	0.297	0.89	1.00	0.332	No
526	38.14	2.11	0.25	1.85	0.87	0.404	1.36	0.297	0.89	1.00	0.332	No
527	38.22	2.11	0.26	1.86	0.87	0.404	1.36	0.297	0.89	1.00	0.332	No
528	38.31	2.12	0.26	1.86	0.87	0.404	1.36	0.297	0.89	1.00	0.332	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	38.41	2.12	0.26	1.86	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
530	38.52	2.13	0.27	1.87	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
531	38.64	2.14	0.27	1.87	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
532	38.74	2.15	0.27	1.87	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
533	38.80	2.15	0.27	1.88	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
534	38.89	2.16	0.28	1.88	0.86	0.404	1.36	0.297	0.89	1.00	0.334	No
535	38.94	2.16	0.28	1.88	0.86	0.405	1.36	0.297	0.89	1.00	0.334	No
536	39.03	2.17	0.28	1.88	0.86	0.405	1.36	0.297	0.89	1.00	0.334	No
537	39.13	2.17	0.28	1.89	0.86	0.405	1.36	0.298	0.89	1.00	0.334	No
538	39.23	2.18	0.29	1.89	0.86	0.405	1.36	0.298	0.89	1.00	0.334	No
539	39.35	2.19	0.29	1.89	0.86	0.405	1.36	0.298	0.89	1.00	0.334	No
540	39.42	2.19	0.29	1.90	0.86	0.405	1.36	0.298	0.89	1.00	0.335	No
541	39.51	2.20	0.30	1.90	0.86	0.405	1.36	0.298	0.89	1.00	0.335	No
542	39.60	2.20	0.30	1.90	0.85	0.405	1.36	0.298	0.89	1.00	0.335	No
543	39.70	2.21	0.30	1.91	0.85	0.405	1.36	0.298	0.89	1.00	0.335	No
544	39.78	2.21	0.31	1.91	0.85	0.405	1.36	0.298	0.89	1.00	0.335	No
545	39.90	2.22	0.31	1.91	0.85	0.405	1.36	0.298	0.89	1.00	0.335	No
546	39.99	2.23	0.31	1.92	0.85	0.405	1.36	0.298	0.89	1.00	0.336	No
547	40.09	2.23	0.31	1.92	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
548	40.18	2.24	0.32	1.92	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
549	40.23	2.24	0.32	1.92	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
550	40.33	2.25	0.32	1.93	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
551	40.43	2.26	0.33	1.93	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
552	40.52	2.26	0.33	1.93	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
553	40.61	2.27	0.33	1.94	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
554	40.69	2.27	0.33	1.94	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
555	40.80	2.28	0.34	1.94	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
556	40.87	2.28	0.34	1.94	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
557	40.95	2.29	0.34	1.95	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
558	40.97	2.29	0.34	1.95	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
559	41.01	2.29	0.34	1.95	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
560	41.07	2.30	0.35	1.95	0.84	0.406	1.36	0.298	0.88	1.00	2.000	Yes
561	41.15	2.30	0.35	1.95	0.84	0.406	1.36	0.298	0.88	1.00	2.000	Yes
562	41.26	2.31	0.35	1.96	0.84	0.406	1.36	0.298	0.88	1.00	0.337	No
563	41.35	2.31	0.35	1.96	0.84	0.406	1.36	0.298	0.88	1.00	0.337	No
564	41.47	2.32	0.36	1.96	0.84	0.406	1.36	0.298	0.88	1.00	0.337	No
565	41.59	2.33	0.36	1.97	0.84	0.406	1.36	0.298	0.88	1.00	0.338	No
566	41.69	2.33	0.36	1.97	0.84	0.406	1.36	0.298	0.88	1.00	0.338	No
567	41.78	2.34	0.37	1.97	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
568	41.88	2.34	0.37	1.97	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
569	41.98	2.35	0.37	1.98	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
570	42.08	2.36	0.38	1.98	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
571	42.16	2.36	0.38	1.98	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
572	42.24	2.37	0.38	1.98	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
573	42.31	2.37	0.38	1.99	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
574	42.45	2.38	0.39	1.99	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
575	42.55	2.38	0.39	1.99	0.83	0.405	1.36	0.298	0.88	1.00	0.338	No
576	42.60	2.39	0.39	1.99	0.83	0.405	1.36	0.298	0.88	1.00	0.338	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	42.70	2.39	0.40	2.00	0.83	0.405	1.36	0.298	0.88	1.00	0.338	No
578	42.81	2.40	0.40	2.00	0.83	0.405	1.36	0.298	0.88	1.00	0.339	No
579	42.89	2.41	0.40	2.00	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
580	42.98	2.41	0.41	2.01	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
581	43.08	2.42	0.41	2.01	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
582	43.17	2.42	0.41	2.01	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
583	43.27	2.43	0.41	2.01	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
584	43.37	2.43	0.42	2.02	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
585	43.50	2.44	0.42	2.02	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
586	43.61	2.45	0.42	2.02	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
587	43.74	2.46	0.43	2.03	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
588	43.79	2.46	0.43	2.03	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
589	43.86	2.46	0.43	2.03	0.81	0.405	1.36	0.298	0.88	1.00	0.339	No
590	43.94	2.47	0.43	2.03	0.81	0.405	1.36	0.298	0.88	1.00	0.339	No
591	44.00	2.47	0.44	2.04	0.81	0.405	1.36	0.298	0.88	1.00	0.339	No
592	44.08	2.48	0.44	2.04	0.81	0.405	1.36	0.297	0.88	1.00	0.339	No
593	44.17	2.48	0.44	2.04	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
594	44.27	2.49	0.45	2.04	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
595	44.42	2.50	0.45	2.05	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
596	44.52	2.50	0.45	2.05	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
597	44.61	2.51	0.46	2.05	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
598	44.71	2.51	0.46	2.06	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
599	44.85	2.52	0.46	2.06	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
600	44.95	2.53	0.47	2.06	0.80	0.404	1.36	0.297	0.88	1.00	0.339	No
601	45.09	2.54	0.47	2.07	0.80	0.404	1.36	0.297	0.87	1.00	0.339	No
602	45.19	2.54	0.47	2.07	0.80	0.403	1.36	0.297	0.87	1.00	0.339	No
603	45.33	2.55	0.48	2.07	0.80	0.403	1.36	0.297	0.87	1.00	0.339	No
604	45.42	2.56	0.48	2.08	0.80	0.403	1.36	0.296	0.87	1.00	0.339	No
605	45.57	2.57	0.49	2.08	0.80	0.403	1.36	0.296	0.87	1.00	0.339	No
606	45.68	2.57	0.49	2.08	0.80	0.403	1.36	0.296	0.87	1.00	0.339	No
607	45.81	2.58	0.49	2.09	0.80	0.403	1.36	0.296	0.87	1.00	0.339	No
608	45.92	2.59	0.50	2.09	0.79	0.403	1.36	0.296	0.87	1.00	0.339	No
609	46.05	2.59	0.50	2.09	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
610	46.16	2.60	0.50	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
611	46.17	2.60	0.50	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
612	46.23	2.60	0.51	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
613	46.29	2.61	0.51	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
614	46.34	2.61	0.51	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
615	46.42	2.62	0.51	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
616	46.48	2.62	0.51	2.10	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
617	46.52	2.62	0.52	2.11	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
618	46.60	2.63	0.52	2.11	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
619	46.67	2.63	0.52	2.11	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
620	46.74	2.63	0.52	2.11	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
621	46.82	2.64	0.52	2.11	0.79	0.401	1.36	0.295	0.87	1.00	0.339	No
622	46.88	2.64	0.53	2.11	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
623	46.96	2.64	0.53	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
624	47.06	2.65	0.53	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	47.15	2.65	0.54	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
626	47.24	2.66	0.54	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
627	47.35	2.67	0.54	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
628	47.49	2.67	0.55	2.13	0.78	0.400	1.36	0.294	0.87	1.00	0.339	No
629	47.58	2.68	0.55	2.13	0.78	0.400	1.36	0.294	0.87	1.00	0.339	No
630	47.73	2.69	0.55	2.13	0.78	0.400	1.36	0.294	0.87	1.00	0.338	No
631	47.83	2.69	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
632	47.87	2.70	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
633	47.89	2.70	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
634	47.94	2.70	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
635	48.02	2.70	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
636	48.07	2.71	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
637	48.12	2.71	0.57	2.14	0.77	0.399	1.36	0.294	0.87	1.00	0.338	No
638	48.18	2.71	0.57	2.15	0.77	0.399	1.36	0.294	0.87	1.00	0.338	No
639	48.26	2.72	0.57	2.15	0.77	0.399	1.36	0.294	0.87	1.00	0.338	No
640	48.31	2.72	0.57	2.15	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
641	48.38	2.72	0.57	2.15	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
642	48.46	2.73	0.58	2.15	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
643	48.52	2.73	0.58	2.16	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
644	48.60	2.74	0.58	2.16	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
645	48.68	2.74	0.58	2.16	0.77	0.398	1.36	0.293	0.87	1.00	0.338	No
646	48.74	2.75	0.58	2.16	0.77	0.398	1.36	0.293	0.87	1.00	0.338	No
647	48.82	2.75	0.59	2.16	0.76	0.398	1.36	0.293	0.87	1.00	0.338	No
648	48.89	2.75	0.59	2.16	0.76	0.398	1.36	0.293	0.87	1.00	0.338	No
649	48.99	2.76	0.59	2.17	0.76	0.398	1.36	0.293	0.87	1.00	0.338	No
650	49.05	2.76	0.59	2.17	0.76	0.398	1.36	0.292	0.87	1.00	0.338	No
651	49.12	2.77	0.60	2.17	0.76	0.398	1.36	0.292	0.87	1.00	0.338	No
652	49.18	2.77	0.60	2.17	0.76	0.398	1.36	0.292	0.87	1.00	0.337	No
653	49.27	2.77	0.60	2.17	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
654	49.32	2.78	0.60	2.17	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
655	49.42	2.78	0.61	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
656	49.48	2.78	0.61	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
657	49.56	2.79	0.61	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
658	49.66	2.79	0.61	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
659	49.76	2.80	0.62	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
660	49.85	2.80	0.62	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
661	49.99	2.81	0.62	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
662	50.09	2.82	0.63	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
663	50.21	2.82	0.63	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
664	50.24	2.82	0.63	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
665	50.29	2.83	0.63	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
666	50.38	2.83	0.64	2.20	0.75	0.395	1.36	0.291	0.86	1.00	0.336	No
667	50.47	2.84	0.64	2.20	0.75	0.395	1.36	0.291	0.86	1.00	0.336	No
668	50.52	2.84	0.64	2.20	0.75	0.395	1.36	0.291	0.86	1.00	0.336	No
669	50.62	2.84	0.64	2.20	0.75	0.395	1.36	0.290	0.86	1.00	0.336	No
670	50.66	2.85	0.64	2.20	0.75	0.395	1.36	0.290	0.86	1.00	0.336	No
671	50.76	2.85	0.65	2.20	0.74	0.395	1.36	0.290	0.86	1.00	0.336	No
672	50.83	2.85	0.65	2.21	0.74	0.395	1.36	0.290	0.86	1.00	0.336	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	50.91	2.86	0.65	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
674	51.00	2.86	0.66	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
675	51.06	2.87	0.66	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
676	51.15	2.87	0.66	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
677	51.24	2.88	0.66	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
678	51.31	2.88	0.67	2.22	0.74	0.394	1.36	0.289	0.86	1.00	0.336	No
679	51.39	2.89	0.67	2.22	0.74	0.393	1.36	0.289	0.86	1.00	0.335	No
680	51.48	2.89	0.67	2.22	0.74	0.393	1.36	0.289	0.86	1.00	0.335	No
681	51.58	2.90	0.67	2.22	0.74	0.393	1.36	0.289	0.86	1.00	0.335	No
682	51.68	2.90	0.68	2.23	0.74	0.393	1.36	0.289	0.86	1.00	0.335	No
683	51.77	2.91	0.68	2.23	0.73	0.393	1.36	0.289	0.86	1.00	0.335	No
684	51.90	2.92	0.68	2.23	0.73	0.392	1.36	0.288	0.86	1.00	0.335	No
685	52.01	2.92	0.69	2.24	0.73	0.392	1.36	0.288	0.86	1.00	2.000	Yes
686	52.11	2.93	0.69	2.24	0.73	0.392	1.36	0.288	0.86	1.00	2.000	Yes
687	52.26	2.94	0.69	2.24	0.73	0.391	1.36	0.288	0.86	1.00	2.000	Yes
688	52.30	2.94	0.70	2.25	0.73	0.391	1.36	0.288	0.86	1.00	2.000	Yes
689	52.33	2.94	0.70	2.25	0.73	0.391	1.36	0.288	0.86	1.00	2.000	Yes
690	52.35	2.95	0.70	2.25	0.73	0.391	1.36	0.288	0.86	1.00	2.000	Yes
691	52.40	2.95	0.70	2.25	0.73	0.391	1.36	0.287	0.86	1.00	2.000	Yes
692	52.45	2.95	0.70	2.25	0.73	0.391	1.36	0.287	0.86	1.00	2.000	Yes
693	52.50	2.96	0.70	2.25	0.73	0.391	1.36	0.287	0.86	1.00	0.334	No
694	52.55	2.96	0.70	2.26	0.73	0.391	1.36	0.287	0.86	1.00	0.334	No
695	52.60	2.96	0.71	2.26	0.73	0.390	1.36	0.287	0.86	1.00	0.334	No
696	52.65	2.97	0.71	2.26	0.73	0.390	1.36	0.287	0.86	1.00	0.334	No
697	52.71	2.97	0.71	2.26	0.73	0.390	1.36	0.287	0.86	1.00	0.334	No
698	52.77	2.97	0.71	2.26	0.72	0.390	1.36	0.287	0.86	1.00	0.334	No
699	52.82	2.98	0.71	2.27	0.72	0.390	1.36	0.287	0.86	1.00	0.334	No
700	52.88	2.98	0.71	2.27	0.72	0.390	1.36	0.287	0.86	1.00	0.334	No
701	52.93	2.99	0.72	2.27	0.72	0.390	1.36	0.286	0.86	1.00	0.334	No
702	52.98	2.99	0.72	2.27	0.72	0.389	1.36	0.286	0.86	1.00	0.334	No
703	53.03	2.99	0.72	2.27	0.72	0.389	1.36	0.286	0.86	1.00	0.334	No
704	53.08	2.99	0.72	2.27	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
705	53.12	3.00	0.72	2.28	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
706	53.17	3.00	0.72	2.28	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
707	53.23	3.01	0.72	2.28	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
708	53.28	3.01	0.73	2.28	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
709	53.37	3.01	0.73	2.29	0.72	0.388	1.36	0.286	0.86	1.00	0.333	No
710	53.42	3.02	0.73	2.29	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
711	53.46	3.02	0.73	2.29	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
712	53.53	3.03	0.73	2.29	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
713	53.61	3.03	0.74	2.29	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
714	53.62	3.03	0.74	2.30	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
715	53.65	3.03	0.74	2.30	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
716	53.67	3.04	0.74	2.30	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
717	53.70	3.04	0.74	2.30	0.72	0.387	1.36	0.285	0.86	1.00	0.333	No
718	53.74	3.04	0.74	2.30	0.72	0.387	1.36	0.285	0.86	1.00	0.333	No
719	53.76	3.04	0.74	2.30	0.72	0.387	1.36	0.285	0.86	1.00	0.333	No
720	53.80	3.04	0.74	2.30	0.71	0.387	1.36	0.285	0.86	1.00	0.333	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	53.84	3.05	0.74	2.30	0.71	0.387	1.36	0.285	0.86	1.00	0.332	No
722	53.90	3.05	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
723	53.91	3.05	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
724	53.95	3.05	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
725	53.96	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
726	53.98	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
727	53.99	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
728	54.01	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
729	54.02	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
730	54.03	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
731	54.04	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
732	54.05	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
733	54.09	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
734	54.10	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
735	54.13	3.07	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
736	54.14	3.07	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
737	54.19	3.07	0.75	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
738	54.19	3.07	0.75	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
739	54.24	3.07	0.76	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
740	54.29	3.08	0.76	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
741	54.33	3.08	0.76	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
742	54.38	3.08	0.76	2.32	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
743	54.39	3.09	0.76	2.32	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
744	54.43	3.09	0.76	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
745	54.48	3.09	0.76	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
746	54.52	3.09	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
747	54.58	3.10	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
748	54.62	3.10	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
749	54.65	3.10	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
750	54.67	3.10	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
751	54.71	3.11	0.77	2.34	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
752	54.77	3.11	0.77	2.34	0.71	0.384	1.36	0.283	0.85	1.00	0.331	No
753	54.81	3.11	0.77	2.34	0.71	0.384	1.36	0.283	0.85	1.00	0.331	No
754	54.85	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
755	54.86	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
756	54.87	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
757	54.91	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
758	54.96	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
759	55.00	3.13	0.78	2.35	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
760	55.01	3.13	0.78	2.35	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
761	55.05	3.13	0.78	2.35	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
762	55.10	3.13	0.78	2.35	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
763	55.12	3.13	0.78	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
764	55.13	3.13	0.78	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
765	55.14	3.14	0.78	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
766	55.19	3.14	0.79	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
767	55.20	3.14	0.79	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
768	55.25	3.14	0.79	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	55.29	3.14	0.79	2.36	0.70	0.383	1.36	0.282	0.85	1.00	0.330	No
770	55.33	3.15	0.79	2.36	0.70	0.383	1.36	0.281	0.85	1.00	0.330	No
771	55.38	3.15	0.79	2.36	0.70	0.383	1.36	0.281	0.85	1.00	0.330	No
772	55.48	3.16	0.80	2.36	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
773	55.57	3.16	0.80	2.37	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
774	55.63	3.17	0.80	2.37	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
775	55.72	3.17	0.80	2.37	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
776	55.80	3.18	0.80	2.37	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
777	55.86	3.18	0.81	2.38	0.70	0.381	1.36	0.280	0.85	1.00	0.330	No
778	55.97	3.19	0.81	2.38	0.69	0.381	1.36	0.280	0.85	1.00	0.330	No
779	56.01	3.19	0.81	2.38	0.69	0.381	1.36	0.280	0.85	1.00	0.329	No
780	56.06	3.20	0.81	2.38	0.69	0.381	1.36	0.280	0.85	1.00	0.329	No
781	56.11	3.20	0.81	2.39	0.69	0.381	1.36	0.280	0.85	1.00	0.329	No
782	56.15	3.20	0.82	2.39	0.69	0.381	1.36	0.280	0.85	1.00	0.329	No
783	56.20	3.21	0.82	2.39	0.69	0.380	1.36	0.280	0.85	1.00	0.329	No
784	56.27	3.21	0.82	2.39	0.69	0.380	1.36	0.280	0.85	1.00	0.329	No
785	56.27	3.21	0.82	2.39	0.69	0.380	1.36	0.280	0.85	1.00	0.329	No
786	56.30	3.21	0.82	2.39	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
787	56.33	3.22	0.82	2.39	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
788	56.35	3.22	0.82	2.39	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
789	56.40	3.22	0.82	2.40	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
790	56.41	3.22	0.82	2.40	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
791	56.44	3.22	0.83	2.40	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
792	56.49	3.23	0.83	2.40	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
793	56.54	3.23	0.83	2.40	0.69	0.379	1.36	0.279	0.85	1.00	0.329	No
794	56.58	3.23	0.83	2.40	0.69	0.379	1.36	0.279	0.85	1.00	0.329	No
795	56.59	3.23	0.83	2.40	0.69	0.379	1.36	0.279	0.85	1.00	0.329	No
796	56.64	3.24	0.83	2.41	0.69	0.379	1.36	0.279	0.85	1.00	0.329	No
797	56.69	3.24	0.83	2.41	0.69	0.379	1.36	0.279	0.85	1.00	0.328	No
798	56.73	3.24	0.83	2.41	0.69	0.379	1.36	0.279	0.85	1.00	0.328	No
799	56.78	3.25	0.84	2.41	0.69	0.379	1.36	0.278	0.85	1.00	0.328	No
800	56.83	3.25	0.84	2.41	0.69	0.379	1.36	0.278	0.85	1.00	0.328	No
801	56.88	3.25	0.84	2.41	0.69	0.378	1.36	0.278	0.85	1.00	0.328	No
802	56.89	3.25	0.84	2.42	0.69	0.378	1.36	0.278	0.85	1.00	0.328	No
803	56.95	3.26	0.84	2.42	0.69	0.378	1.36	0.278	0.85	1.00	0.328	No
804	57.01	3.26	0.84	2.42	0.68	0.378	1.36	0.278	0.85	1.00	0.328	No
805	57.07	3.27	0.84	2.42	0.68	0.378	1.36	0.278	0.85	1.00	0.328	No
806	57.11	3.27	0.85	2.42	0.68	0.378	1.36	0.278	0.85	1.00	0.328	No
807	57.17	3.27	0.85	2.43	0.68	0.378	1.36	0.278	0.85	1.00	0.328	No
808	57.26	3.28	0.85	2.43	0.68	0.377	1.36	0.277	0.85	1.00	0.328	No
809	57.31	3.28	0.85	2.43	0.68	0.377	1.36	0.277	0.85	1.00	0.328	No
810	57.37	3.29	0.85	2.43	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
811	57.45	3.29	0.86	2.43	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
812	57.51	3.30	0.86	2.44	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
813	57.53	3.30	0.86	2.44	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
814	57.59	3.30	0.86	2.44	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
815	57.63	3.30	0.86	2.44	0.68	0.376	1.36	0.277	0.85	1.00	0.327	No
816	57.68	3.31	0.86	2.44	0.68	0.376	1.36	0.277	0.85	1.00	0.327	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	57.73	3.31	0.87	2.44	0.68	0.376	1.36	0.277	0.85	1.00	0.327	No
818	57.78	3.31	0.87	2.45	0.68	0.376	1.36	0.276	0.85	1.00	0.327	No
819	57.86	3.32	0.87	2.45	0.68	0.376	1.36	0.276	0.85	1.00	0.327	No
820	57.92	3.32	0.87	2.45	0.68	0.376	1.36	0.276	0.85	1.00	2.000	Yes
821	57.98	3.33	0.87	2.45	0.68	0.376	1.36	0.276	0.85	1.00	2.000	Yes
822	58.06	3.33	0.88	2.45	0.68	0.375	1.36	0.276	0.85	1.00	2.000	Yes
823	58.12	3.33	0.88	2.46	0.68	0.375	1.36	0.276	0.84	1.00	2.000	Yes
824	58.21	3.34	0.88	2.46	0.67	0.375	1.36	0.276	0.84	1.00	2.000	Yes
825	58.26	3.34	0.88	2.46	0.67	0.375	1.36	0.276	0.84	1.00	2.000	Yes
826	58.35	3.35	0.88	2.46	0.67	0.375	1.36	0.275	0.84	1.00	2.000	Yes
827	58.41	3.35	0.89	2.47	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
828	58.50	3.36	0.89	2.47	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
829	58.56	3.36	0.89	2.47	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
830	58.64	3.37	0.89	2.47	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
831	58.73	3.37	0.90	2.48	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
832	58.80	3.38	0.90	2.48	0.67	0.373	1.36	0.275	0.84	1.00	2.000	Yes
833	58.84	3.38	0.90	2.48	0.67	0.373	1.36	0.274	0.84	1.00	2.000	Yes
834	58.85	3.38	0.90	2.48	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
835	58.93	3.38	0.90	2.48	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
836	58.98	3.39	0.90	2.48	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
837	59.02	3.39	0.91	2.48	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
838	59.12	3.40	0.91	2.49	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
839	59.17	3.40	0.91	2.49	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
840	59.27	3.40	0.91	2.49	0.67	0.372	1.36	0.274	0.84	1.00	0.325	No
841	59.31	3.41	0.91	2.49	0.66	0.372	1.36	0.274	0.84	1.00	0.325	No
842	59.41	3.41	0.92	2.50	0.66	0.372	1.36	0.273	0.84	1.00	0.325	No
843	59.46	3.42	0.92	2.50	0.66	0.372	1.36	0.273	0.84	1.00	0.325	No
844	59.55	3.42	0.92	2.50	0.66	0.372	1.36	0.273	0.84	1.00	0.324	No
845	59.65	3.43	0.93	2.50	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
846	59.70	3.43	0.93	2.50	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
847	59.80	3.44	0.93	2.51	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
848	59.89	3.44	0.93	2.51	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
849	59.94	3.44	0.93	2.51	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
850	60.01	3.45	0.94	2.51	0.66	0.371	1.36	0.272	0.84	1.00	0.324	No
851	60.02	3.45	0.94	2.51	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
852	60.08	3.45	0.94	2.51	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
853	60.12	3.46	0.94	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
854	60.17	3.46	0.94	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
855	60.27	3.46	0.94	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
856	60.31	3.47	0.95	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.323	No
857	60.37	3.47	0.95	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.323	No
858	60.46	3.47	0.95	2.52	0.66	0.369	1.36	0.272	0.84	1.00	0.323	No
859	60.51	3.48	0.95	2.53	0.66	0.369	1.36	0.272	0.84	1.00	0.323	No
860	60.61	3.48	0.95	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No
861	60.65	3.49	0.96	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No
862	60.75	3.49	0.96	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No
863	60.81	3.49	0.96	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No
864	60.89	3.50	0.96	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	60.94	3.50	0.97	2.54	0.65	0.368	1.36	0.271	0.84	1.00	0.323	No
866	61.03	3.51	0.97	2.54	0.65	0.368	1.36	0.271	0.84	1.00	0.323	No
867	61.09	3.51	0.97	2.54	0.65	0.368	1.36	0.271	0.84	1.00	0.322	No
868	61.19	3.51	0.97	2.54	0.65	0.368	1.36	0.271	0.84	1.00	0.322	No
869	61.24	3.52	0.97	2.54	0.65	0.368	1.36	0.270	0.84	1.00	0.322	No
870	61.33	3.52	0.98	2.54	0.65	0.368	1.36	0.270	0.84	1.00	0.322	No
871	61.38	3.52	0.98	2.55	0.65	0.368	1.36	0.270	0.84	1.00	0.322	No
872	61.47	3.53	0.98	2.55	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
873	61.53	3.53	0.98	2.55	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
874	61.62	3.54	0.99	2.55	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
875	61.70	3.54	0.99	2.55	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
876	61.77	3.55	0.99	2.56	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
877	61.86	3.55	0.99	2.56	0.64	0.366	1.36	0.269	0.84	1.00	0.322	No
878	61.95	3.56	1.00	2.56	0.64	0.366	1.36	0.269	0.84	1.00	0.321	No
879	61.97	3.56	1.00	2.56	0.64	0.366	1.36	0.269	0.84	1.00	0.321	No
880	62.01	3.56	1.00	2.56	0.64	0.366	1.36	0.269	0.84	1.00	2.000	No
881	62.10	3.57	1.00	2.57	0.64	0.366	1.36	0.269	0.84	1.00	2.000	Yes
882	62.24	3.58	1.01	2.57	0.64	0.366	1.36	0.269	0.84	1.00	2.000	Yes
883	62.34	3.58	1.01	2.57	0.64	0.365	1.36	0.269	0.84	1.00	2.000	Yes
884	62.49	3.59	1.01	2.58	0.64	0.365	1.36	0.268	0.84	1.00	2.000	Yes
885	62.54	3.60	1.02	2.58	0.64	0.365	1.36	0.268	0.84	1.00	2.000	Yes
886	62.66	3.60	1.02	2.58	0.64	0.365	1.36	0.268	0.84	1.00	2.000	Yes
887	62.74	3.61	1.02	2.59	0.64	0.364	1.36	0.268	0.84	1.00	2.000	Yes
888	62.87	3.62	1.03	2.59	0.64	0.364	1.36	0.268	0.84	1.00	2.000	No
889	62.92	3.62	1.03	2.59	0.64	0.364	1.36	0.268	0.84	1.00	2.000	No
890	63.03	3.63	1.03	2.60	0.64	0.364	1.36	0.267	0.84	1.00	2.000	No
891	63.15	3.63	1.03	2.60	0.63	0.363	1.36	0.267	0.84	1.00	2.000	No
892	63.26	3.64	1.04	2.60	0.63	0.363	1.36	0.267	0.84	1.00	2.000	No
893	63.37	3.65	1.04	2.61	0.63	0.363	1.36	0.267	0.83	1.00	2.000	No
894	63.45	3.65	1.04	2.61	0.63	0.363	1.36	0.267	0.83	1.00	2.000	No
895	63.54	3.66	1.05	2.61	0.63	0.363	1.36	0.267	0.83	1.00	2.000	No
896	63.61	3.66	1.05	2.61	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
897	63.69	3.67	1.05	2.62	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
898	63.79	3.67	1.05	2.62	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
899	63.89	3.68	1.06	2.62	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
900	63.98	3.69	1.06	2.63	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
901	64.07	3.69	1.06	2.63	0.63	0.361	1.36	0.266	0.83	1.00	2.000	Yes
902	64.15	3.70	1.07	2.63	0.63	0.361	1.36	0.266	0.83	1.00	2.000	Yes
903	64.23	3.70	1.07	2.63	0.63	0.361	1.36	0.266	0.83	1.00	2.000	No
904	64.26	3.70	1.07	2.63	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
905	64.29	3.70	1.07	2.63	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
906	64.33	3.71	1.07	2.64	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
907	64.43	3.71	1.07	2.64	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
908	64.47	3.71	1.08	2.64	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
909	64.53	3.72	1.08	2.64	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
910	64.62	3.72	1.08	2.64	0.62	0.360	1.36	0.265	0.83	1.00	2.000	No
911	64.72	3.73	1.08	2.64	0.62	0.360	1.36	0.265	0.83	1.00	2.000	No
912	64.78	3.73	1.09	2.65	0.62	0.360	1.36	0.265	0.83	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	64.86	3.74	1.09	2.65	0.62	0.360	1.36	0.265	0.83	1.00	2.000	No
914	64.96	3.74	1.09	2.65	0.62	0.360	1.36	0.264	0.83	1.00	2.000	No
915	65.06	3.75	1.09	2.65	0.62	0.360	1.36	0.264	0.83	1.00	2.000	No
916	65.11	3.75	1.10	2.65	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
917	65.21	3.76	1.10	2.66	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
918	65.31	3.76	1.10	2.66	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
919	65.40	3.77	1.10	2.66	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
920	65.50	3.77	1.11	2.66	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
921	65.58	3.78	1.11	2.67	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
922	65.68	3.78	1.11	2.67	0.62	0.358	1.36	0.264	0.83	1.00	2.000	No
923	65.78	3.79	1.12	2.67	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
924	65.84	3.79	1.12	2.67	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
925	65.86	3.79	1.12	2.67	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
926	65.87	3.79	1.12	2.67	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
927	65.98	3.80	1.12	2.68	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
928	66.10	3.80	1.13	2.68	0.61	0.358	1.36	0.263	0.83	1.00	2.000	No
929	66.21	3.81	1.13	2.68	0.61	0.357	1.36	0.263	0.83	1.00	2.000	No
930	66.34	3.82	1.13	2.68	0.61	0.357	1.36	0.263	0.83	1.00	2.000	No
931	66.48	3.83	1.14	2.69	0.61	0.357	1.36	0.262	0.83	1.00	2.000	No
932	66.62	3.83	1.14	2.69	0.61	0.357	1.36	0.262	0.83	1.00	2.000	No
933	66.68	3.84	1.14	2.69	0.61	0.357	1.36	0.262	0.83	1.00	2.000	No
934	66.87	3.85	1.15	2.70	0.61	0.356	1.36	0.262	0.83	1.00	2.000	No
935	66.96	3.85	1.15	2.70	0.61	0.356	1.36	0.262	0.83	1.00	2.000	No
936	67.11	3.86	1.16	2.70	0.61	0.356	1.36	0.262	0.83	1.00	2.000	No
937	67.21	3.87	1.16	2.71	0.61	0.356	1.36	0.262	0.83	1.00	2.000	No
938	67.35	3.87	1.17	2.71	0.61	0.356	1.36	0.261	0.83	1.00	2.000	No
939	67.45	3.88	1.17	2.71	0.61	0.355	1.36	0.261	0.83	1.00	2.000	No
940	67.59	3.89	1.17	2.72	0.61	0.355	1.36	0.261	0.83	1.00	2.000	No
941	67.68	3.89	1.18	2.72	0.61	0.355	1.36	0.261	0.83	1.00	2.000	Yes
942	67.83	3.90	1.18	2.72	0.60	0.355	1.36	0.261	0.83	1.00	2.000	Yes
943	67.92	3.91	1.18	2.73	0.60	0.354	1.36	0.261	0.83	1.00	2.000	Yes
944	68.02	3.92	1.19	2.73	0.60	0.354	1.36	0.260	0.83	1.00	2.000	Yes
945	68.07	3.92	1.19	2.73	0.60	0.354	1.36	0.260	0.83	1.00	2.000	Yes
946	68.16	3.93	1.19	2.73	0.60	0.354	1.36	0.260	0.83	1.00	2.000	No
947	68.26	3.93	1.19	2.74	0.60	0.354	1.36	0.260	0.83	1.00	2.000	No
948	68.35	3.94	1.20	2.74	0.60	0.354	1.36	0.260	0.83	1.00	2.000	No
949	68.45	3.94	1.20	2.74	0.60	0.353	1.36	0.260	0.83	1.00	2.000	No
950	68.55	3.95	1.20	2.75	0.60	0.353	1.36	0.260	0.83	1.00	2.000	No
951	68.65	3.96	1.21	2.75	0.60	0.353	1.36	0.260	0.83	1.00	2.000	No
952	68.78	3.97	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
953	68.78	3.97	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
954	68.79	3.97	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
955	68.83	3.97	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
956	68.93	3.98	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
957	68.98	3.98	1.22	2.76	0.60	0.352	1.36	0.259	0.83	1.00	2.000	No
958	69.04	3.98	1.22	2.76	0.60	0.352	1.36	0.259	0.83	1.00	2.000	No
959	69.12	3.99	1.22	2.77	0.60	0.352	1.36	0.259	0.83	1.00	2.000	No
960	69.22	3.99	1.22	2.77	0.60	0.352	1.36	0.259	0.82	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	69.28	4.00	1.23	2.77	0.60	0.352	1.36	0.259	0.82	1.00	2.000	No
962	69.36	4.00	1.23	2.77	0.60	0.352	1.36	0.259	0.82	1.00	2.000	No
963	69.45	4.01	1.23	2.78	0.59	0.352	1.36	0.258	0.82	1.00	2.000	No
964	69.60	4.02	1.24	2.78	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
965	69.70	4.02	1.24	2.79	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
966	69.80	4.03	1.24	2.79	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
967	69.89	4.04	1.24	2.79	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
968	69.98	4.04	1.25	2.79	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
969	70.08	4.05	1.25	2.80	0.59	0.350	1.36	0.258	0.82	1.00	2.000	Yes
970	70.18	4.05	1.25	2.80	0.59	0.350	1.36	0.258	0.82	1.00	2.000	Yes
971	70.32	4.06	1.26	2.80	0.59	0.350	1.36	0.257	0.82	1.00	2.000	Yes
972	70.42	4.07	1.26	2.81	0.59	0.350	1.36	0.257	0.82	1.00	2.000	Yes
973	70.54	4.08	1.26	2.81	0.59	0.350	1.36	0.257	0.82	1.00	2.000	Yes
974	70.66	4.08	1.27	2.81	0.59	0.350	1.36	0.257	0.82	1.00	2.000	No
975	70.75	4.09	1.27	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
976	70.80	4.09	1.27	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
977	70.89	4.10	1.28	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
978	70.99	4.10	1.28	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
979	71.08	4.11	1.28	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
980	71.17	4.11	1.28	2.83	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
981	71.23	4.11	1.29	2.83	0.59	0.349	1.36	0.256	0.82	1.00	2.000	No
982	71.33	4.12	1.29	2.83	0.58	0.349	1.36	0.256	0.82	1.00	2.000	No
983	71.42	4.12	1.29	2.83	0.58	0.349	1.36	0.256	0.82	1.00	2.000	No
984	71.52	4.13	1.30	2.83	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
985	71.58	4.13	1.30	2.83	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
986	71.67	4.14	1.30	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
987	71.81	4.14	1.30	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
988	71.82	4.14	1.30	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
989	71.86	4.15	1.31	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
990	71.91	4.15	1.31	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
991	71.97	4.15	1.31	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
992	72.05	4.16	1.31	2.85	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
993	72.10	4.16	1.31	2.85	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
994	72.20	4.17	1.32	2.85	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
995	72.25	4.17	1.32	2.85	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
996	72.34	4.17	1.32	2.85	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
997	72.44	4.18	1.32	2.85	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
998	72.53	4.18	1.33	2.86	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
999	72.63	4.19	1.33	2.86	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1000	72.69	4.19	1.33	2.86	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1001	72.82	4.20	1.34	2.86	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1002	72.92	4.20	1.34	2.87	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1003	73.06	4.21	1.34	2.87	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1004	73.16	4.22	1.35	2.87	0.58	0.346	1.36	0.255	0.82	1.00	2.000	No
1005	73.30	4.23	1.35	2.87	0.58	0.346	1.36	0.255	0.82	1.00	2.000	No
1006	73.35	4.23	1.35	2.88	0.58	0.346	1.36	0.255	0.82	1.00	2.000	No
1007	73.38	4.23	1.35	2.88	0.57	0.346	1.36	0.255	0.82	1.00	2.000	No
1008	73.47	4.24	1.36	2.88	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	73.53	4.24	1.36	2.88	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1010	73.62	4.24	1.36	2.88	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1011	73.71	4.25	1.36	2.88	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1012	73.77	4.25	1.37	2.89	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1013	73.86	4.26	1.37	2.89	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1014	73.96	4.26	1.37	2.89	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1015	74.06	4.27	1.37	2.89	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1016	74.13	4.27	1.38	2.90	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1017	74.24	4.28	1.38	2.90	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1018	74.34	4.28	1.38	2.90	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1019	74.44	4.29	1.39	2.90	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1020	74.58	4.30	1.39	2.91	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1021	74.68	4.30	1.39	2.91	0.57	0.345	1.36	0.253	0.82	1.00	2.000	No
1022	74.80	4.31	1.40	2.91	0.57	0.345	1.36	0.253	0.82	1.00	2.000	No
1023	74.92	4.32	1.40	2.91	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1024	75.07	4.32	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1025	75.08	4.32	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1026	75.11	4.33	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1027	75.16	4.33	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1028	75.25	4.33	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1029	75.32	4.34	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1030	75.40	4.34	1.42	2.93	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1031	75.50	4.35	1.42	2.93	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1032	75.59	4.35	1.42	2.93	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1033	75.69	4.36	1.43	2.93	0.56	0.344	1.36	0.253	0.82	1.00	2.000	No
1034	75.78	4.36	1.43	2.93	0.56	0.344	1.36	0.253	0.82	1.00	2.000	No
1035	75.88	4.37	1.43	2.94	0.56	0.343	1.36	0.253	0.82	1.00	2.000	No
1036	75.96	4.37	1.43	2.94	0.56	0.343	1.36	0.252	0.82	1.00	2.000	No
1037	76.05	4.38	1.44	2.94	0.56	0.343	1.36	0.252	0.82	1.00	2.000	No
1038	76.14	4.38	1.44	2.94	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1039	76.26	4.39	1.44	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1040	76.36	4.39	1.45	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1041	76.41	4.40	1.45	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1042	76.51	4.40	1.45	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1043	76.65	4.41	1.46	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1044	76.72	4.41	1.46	2.96	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1045	76.79	4.42	1.46	2.96	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1046	76.89	4.42	1.46	2.96	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1047	76.98	4.43	1.47	2.96	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1048	77.08	4.43	1.47	2.96	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1049	77.18	4.44	1.47	2.97	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1050	77.28	4.44	1.48	2.97	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1051	77.37	4.45	1.48	2.97	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1052	77.42	4.45	1.48	2.97	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1053	77.42	4.45	1.48	2.97	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1054	77.44	4.45	1.48	2.97	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1055	77.48	4.46	1.48	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1056	77.52	4.46	1.48	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1057	77.54	4.46	1.48	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1058	77.57	4.46	1.48	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1059	77.62	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1060	77.65	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1061	77.67	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1062	77.71	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1063	77.71	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1064	77.76	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1065	77.81	4.48	1.49	2.99	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1066	77.90	4.48	1.49	2.99	0.56	0.341	1.36	0.251	0.81	1.00	2.000	No
1067	77.95	4.49	1.50	2.99	0.56	0.341	1.36	0.251	0.81	1.00	2.000	No
1068	78.01	4.49	1.50	2.99	0.56	0.341	1.36	0.251	0.81	1.00	2.000	No
1069	78.10	4.49	1.50	2.99	0.56	0.341	1.36	0.251	0.81	1.00	2.000	No
1070	78.16	4.50	1.50	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	No
1071	78.24	4.50	1.51	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1072	78.29	4.51	1.51	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1073	78.39	4.51	1.51	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1074	78.47	4.52	1.51	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1075	78.53	4.52	1.51	3.01	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1076	78.62	4.53	1.52	3.01	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1077	78.68	4.53	1.52	3.01	0.55	0.341	1.36	0.250	0.81	1.00	2.000	Yes
1078	78.69	4.53	1.52	3.01	0.55	0.341	1.36	0.250	0.81	1.00	2.000	Yes
1079	78.78	4.54	1.52	3.01	0.55	0.341	1.36	0.250	0.81	1.00	2.000	No
1080	78.81	4.54	1.52	3.02	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1081	78.92	4.55	1.53	3.02	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1082	79.03	4.55	1.53	3.02	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1083	79.16	4.56	1.53	3.03	0.55	0.340	1.36	0.250	0.81	1.00	2.000	Yes
1084	79.26	4.57	1.54	3.03	0.55	0.340	1.36	0.250	0.81	1.00	2.000	Yes
1085	79.35	4.57	1.54	3.03	0.55	0.340	1.36	0.250	0.81	1.00	2.000	Yes
1086	79.45	4.58	1.54	3.04	0.55	0.340	1.36	0.250	0.81	1.00	2.000	Yes
1087	79.54	4.58	1.55	3.04	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1088	79.64	4.59	1.55	3.04	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1089	79.74	4.60	1.55	3.05	0.55	0.339	1.36	0.250	0.81	1.00	2.000	No
1090	79.88	4.61	1.56	3.05	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1091	79.98	4.61	1.56	3.05	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1092	80.12	4.62	1.56	3.06	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1093	80.22	4.63	1.57	3.06	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1094	80.36	4.64	1.57	3.07	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1095	80.46	4.64	1.57	3.07	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1096	80.60	4.65	1.58	3.07	0.55	0.338	1.36	0.249	0.81	1.00	2.000	No
1097	80.70	4.66	1.58	3.08	0.55	0.338	1.36	0.249	0.81	1.00	2.000	No
1098	80.83	4.67	1.59	3.08	0.55	0.338	1.36	0.249	0.81	1.00	2.000	Yes
1099	80.94	4.67	1.59	3.09	0.54	0.338	1.36	0.249	0.81	1.00	2.000	Yes
1100	81.01	4.68	1.59	3.09	0.54	0.338	1.36	0.249	0.81	1.00	2.000	Yes
1101	81.04	4.68	1.59	3.09	0.54	0.338	1.36	0.249	0.81	1.00	2.000	Yes
1102	81.09	4.68	1.59	3.09	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1103	81.13	4.69	1.60	3.09	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1104	81.18	4.69	1.60	3.09	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1105	81.23	4.69	1.60	3.09	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1106	81.28	4.70	1.60	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1107	81.33	4.70	1.60	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1108	81.37	4.70	1.60	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1109	81.42	4.70	1.60	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1110	81.47	4.71	1.61	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1111	81.52	4.71	1.61	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1112	81.56	4.71	1.61	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1113	81.61	4.72	1.61	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1114	81.64	4.72	1.61	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1115	81.70	4.72	1.61	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1116	81.75	4.73	1.61	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1117	81.79	4.73	1.62	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1118	81.82	4.73	1.62	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1119	81.86	4.73	1.62	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1120	81.91	4.74	1.62	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1121	81.95	4.74	1.62	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1122	82.00	4.74	1.62	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1123	82.09	4.75	1.63	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1124	82.15	4.75	1.63	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1125	82.19	4.75	1.63	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1126	82.26	4.76	1.63	3.13	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1127	82.34	4.76	1.63	3.13	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1128	82.39	4.76	1.63	3.13	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1129	82.48	4.77	1.64	3.13	0.54	0.337	1.36	0.248	0.80	1.00	2.000	No
1130	82.58	4.77	1.64	3.13	0.54	0.337	1.36	0.248	0.80	1.00	2.000	No
1131	82.62	4.78	1.64	3.13	0.54	0.337	1.36	0.248	0.80	1.00	2.000	No
1132	82.70	4.78	1.64	3.14	0.54	0.337	1.36	0.247	0.80	1.00	2.000	No
1133	82.77	4.78	1.65	3.14	0.54	0.337	1.36	0.247	0.80	1.00	2.000	No
1134	82.87	4.79	1.65	3.14	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1135	82.96	4.80	1.65	3.14	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1136	83.06	4.80	1.66	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1137	83.16	4.81	1.66	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1138	83.25	4.81	1.66	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1139	83.34	4.82	1.66	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1140	83.44	4.82	1.67	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1141	83.54	4.83	1.67	3.16	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1142	83.64	4.83	1.67	3.16	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1143	83.73	4.84	1.68	3.16	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1144	83.83	4.84	1.68	3.16	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1145	83.85	4.85	1.68	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1146	83.89	4.85	1.68	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1147	83.94	4.85	1.68	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1148	84.04	4.86	1.69	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1149	84.09	4.86	1.69	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1150	84.13	4.86	1.69	3.17	0.53	0.336	1.36	0.247	0.80	1.00	2.000	No
1151	84.18	4.87	1.69	3.17	0.53	0.336	1.36	0.247	0.80	1.00	2.000	No
1152	84.25	4.87	1.69	3.18	0.53	0.336	1.36	0.247	0.80	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1153	84.33	4.87	1.69	3.18	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1154	84.37	4.88	1.70	3.18	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1155	84.46	4.88	1.70	3.18	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1156	84.52	4.89	1.70	3.18	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1157	84.57	4.89	1.70	3.19	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1158	84.67	4.89	1.71	3.19	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1159	84.71	4.90	1.71	3.19	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1160	84.81	4.90	1.71	3.19	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1161	84.86	4.91	1.71	3.19	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1162	84.91	4.91	1.71	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1163	85.00	4.91	1.72	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1164	85.05	4.92	1.72	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1165	85.15	4.92	1.72	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1166	85.19	4.93	1.72	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1167	85.29	4.93	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1168	85.35	4.94	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1169	85.42	4.94	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1170	85.48	4.94	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1171	85.55	4.95	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1172	85.63	4.95	1.74	3.22	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1173	85.68	4.95	1.74	3.22	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1174	85.77	4.96	1.74	3.22	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1175	85.82	4.96	1.74	3.22	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1176	85.89	4.97	1.74	3.22	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1177	85.96	4.97	1.75	3.22	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1178	86.03	4.97	1.75	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1179	86.11	4.98	1.75	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1180	86.16	4.98	1.75	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1181	86.25	4.99	1.76	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1182	86.36	4.99	1.76	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1183	86.50	5.00	1.76	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1184	86.51	5.00	1.76	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1185	86.52	5.00	1.76	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1186	86.57	5.01	1.76	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1187	86.65	5.01	1.77	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1188	86.71	5.01	1.77	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1189	86.80	5.02	1.77	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1190	86.90	5.02	1.78	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1191	86.99	5.03	1.78	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1192	87.04	5.03	1.78	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1193	87.14	5.04	1.78	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1194	87.19	5.04	1.78	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1195	87.28	5.04	1.79	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1196	87.38	5.05	1.79	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1197	87.43	5.05	1.79	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1198	87.52	5.06	1.79	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1199	87.61	5.06	1.80	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1200	87.66	5.07	1.80	3.27	0.53	0.333	1.36	0.245	0.80	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1201	87.76	5.07	1.80	3.27	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1202	87.84	5.07	1.80	3.27	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1203	87.91	5.08	1.81	3.27	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1204	88.00	5.08	1.81	3.27	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1205	88.11	5.09	1.81	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1206	88.19	5.09	1.82	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1207	88.25	5.10	1.82	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1208	88.34	5.10	1.82	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1209	88.44	5.11	1.82	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1210	88.54	5.11	1.83	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1211	88.64	5.12	1.83	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1212	88.72	5.12	1.83	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1213	88.82	5.13	1.84	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1214	88.91	5.13	1.84	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1215	89.01	5.14	1.84	3.30	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1216	89.10	5.14	1.84	3.30	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1217	89.19	5.15	1.85	3.30	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1218	89.30	5.15	1.85	3.30	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1219	89.39	5.16	1.85	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1220	89.49	5.16	1.86	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1221	89.59	5.17	1.86	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1222	89.69	5.17	1.86	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1223	89.73	5.18	1.86	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1224	89.78	5.18	1.87	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1225	89.83	5.18	1.87	3.32	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1226	89.88	5.19	1.87	3.32	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1227	89.93	5.19	1.87	3.32	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1228	90.00	5.19	1.87	3.32	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1229	90.07	5.20	1.87	3.32	0.52	0.333	1.36	0.244	0.80	1.00	2.000	No
1230	90.12	5.20	1.88	3.32	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1231	90.22	5.20	1.88	3.33	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1232	90.27	5.21	1.88	3.33	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1233	90.36	5.21	1.88	3.33	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1234	90.46	5.22	1.89	3.33	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1235	90.50	5.22	1.89	3.33	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1236	90.61	5.23	1.89	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1237	90.66	5.23	1.89	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1238	90.75	5.23	1.90	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1239	90.84	5.24	1.90	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1240	90.89	5.24	1.90	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1241	90.99	5.25	1.90	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1242	91.04	5.25	1.90	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1243	91.14	5.26	1.91	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1244	91.22	5.26	1.91	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1245	91.28	5.26	1.91	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1246	91.37	5.27	1.91	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1247	91.47	5.28	1.92	3.36	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1248	91.61	5.28	1.92	3.36	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1249	91.71	5.29	1.93	3.36	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1250	91.81	5.29	1.93	3.37	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1251	91.87	5.30	1.93	3.37	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1252	92.00	5.30	1.93	3.37	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1253	92.10	5.31	1.94	3.37	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1254	92.20	5.32	1.94	3.37	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1255	92.33	5.32	1.94	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1256	92.38	5.33	1.95	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1257	92.43	5.33	1.95	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1258	92.48	5.33	1.95	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1259	92.56	5.33	1.95	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1260	92.63	5.34	1.95	3.38	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1261	92.67	5.34	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1262	92.72	5.34	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1263	92.77	5.35	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1264	92.86	5.35	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1265	92.92	5.35	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1266	92.97	5.36	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1267	93.05	5.36	1.97	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1268	93.10	5.37	1.97	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1269	93.16	5.37	1.97	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1270	93.25	5.37	1.97	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1271	93.35	5.38	1.98	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1272	93.40	5.38	1.98	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1273	93.49	5.39	1.98	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1274	93.56	5.39	1.98	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1275	93.64	5.40	1.99	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1276	93.73	5.40	1.99	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1277	93.83	5.41	1.99	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1278	93.88	5.41	1.99	3.42	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1279	93.97	5.41	2.00	3.42	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1280	94.07	5.42	2.00	3.42	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1281	94.17	5.43	2.00	3.42	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1282	94.26	5.43	2.01	3.43	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1283	94.36	5.44	2.01	3.43	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1284	94.45	5.44	2.01	3.43	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1285	94.55	5.45	2.01	3.43	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1286	94.64	5.45	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1287	94.72	5.46	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1288	94.74	5.46	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1289	94.77	5.46	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1290	94.85	5.47	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1291	94.90	5.47	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1292	94.95	5.47	2.03	3.45	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1293	95.01	5.48	2.03	3.45	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1294	95.09	5.48	2.03	3.45	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1295	95.14	5.48	2.03	3.45	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1296	95.23	5.49	2.04	3.46	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1297	95.29	5.49	2.04	3.46	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1298	95.38	5.50	2.04	3.46	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1299	95.43	5.50	2.04	3.46	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1300	95.52	5.51	2.04	3.47	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1301	95.57	5.51	2.05	3.47	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1302	95.67	5.52	2.05	3.47	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1303	95.77	5.53	2.05	3.47	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1304	95.86	5.53	2.05	3.48	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1305	95.95	5.54	2.06	3.48	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1306	96.03	5.54	2.06	3.48	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1307	96.11	5.55	2.06	3.48	0.51	0.330	1.36	0.242	0.79	1.00	2.000	No
1308	96.20	5.55	2.07	3.49	0.51	0.330	1.36	0.242	0.79	1.00	2.000	No
1309	96.30	5.56	2.07	3.49	0.51	0.330	1.36	0.242	0.79	1.00	2.000	Yes
1310	96.39	5.57	2.07	3.49	0.51	0.330	1.36	0.242	0.79	1.00	2.000	Yes
1311	96.50	5.57	2.07	3.50	0.51	0.330	1.36	0.242	0.79	1.00	2.000	Yes
1312	96.59	5.58	2.08	3.50	0.50	0.330	1.36	0.242	0.79	1.00	2.000	Yes
1313	96.69	5.58	2.08	3.50	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1314	96.78	5.59	2.08	3.51	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1315	96.87	5.60	2.09	3.51	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1316	96.98	5.60	2.09	3.51	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1317	97.02	5.61	2.09	3.51	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1318	97.06	5.61	2.09	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1319	97.12	5.61	2.09	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1320	97.16	5.62	2.10	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1321	97.21	5.62	2.10	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1322	97.27	5.62	2.10	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1323	97.33	5.63	2.10	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1324	97.40	5.63	2.10	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1325	97.45	5.63	2.10	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1326	97.50	5.64	2.11	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1327	97.58	5.64	2.11	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1328	97.65	5.65	2.11	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1329	97.69	5.65	2.11	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1330	97.74	5.65	2.11	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1331	97.81	5.66	2.12	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1332	97.88	5.66	2.12	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1333	97.93	5.67	2.12	3.55	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1334	98.03	5.67	2.12	3.55	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1335	98.15	5.68	2.13	3.55	0.50	0.329	1.36	0.242	0.78	1.00	2.000	Yes
1336	98.21	5.68	2.13	3.56	0.50	0.329	1.36	0.242	0.78	1.00	2.000	Yes
1337	98.32	5.69	2.13	3.56	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1338	98.42	5.70	2.13	3.56	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1339	98.47	5.70	2.14	3.56	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1340	98.57	5.71	2.14	3.57	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1341	98.70	5.71	2.14	3.57	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1342	98.78	5.72	2.15	3.57	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1343	98.85	5.72	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1344	98.86	5.72	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1345	98.92	5.73	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1346	98.98	5.73	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1347	99.03	5.74	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1348	99.11	5.74	2.16	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1349	99.18	5.74	2.16	3.59	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1350	99.23	5.75	2.16	3.59	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1351	99.32	5.75	2.16	3.59	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1352	99.37	5.76	2.16	3.59	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1353	99.45	5.76	2.17	3.60	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1354	99.56	5.77	2.17	3.60	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1355	99.64	5.77	2.17	3.60	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1356	99.71	5.78	2.17	3.60	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1357	99.75	5.78	2.18	3.61	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1358	99.90	5.79	2.18	3.61	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1359	99.95	5.80	2.18	3.61	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1360	100.04	5.80	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1361	100.14	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1362	100.14	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1363	100.15	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1364	100.19	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1365	100.21	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1366	100.24	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1367	100.28	5.82	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1368	100.31	5.82	2.19	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1369	100.33	5.82	2.19	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1370	100.38	5.82	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1371	100.39	5.82	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1372	100.43	5.82	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1373	100.48	5.83	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1374	100.53	5.83	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1375	100.57	5.83	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1376	100.60	5.83	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.04	0.10	4.06	37.76	1.00	0.16	54.25	8.56	4.000	No	Yes	2.00
2	0.10	0.13	4.06	31.79	1.00	0.21	54.25	11.25	4.000	No	Yes	2.00
3	0.11	0.23	4.06	19.95	1.00	0.37	54.25	19.92	4.000	No	Yes	2.00
4	0.16	0.54	4.06	8.78	1.00	0.85	54.25	46.18	4.000	No	Yes	2.00
5	0.19	1.28	3.64	3.82	1.00	2.04	26.86	54.86	4.000	No	Yes	2.00
6	0.24	2.83	3.19	1.88	1.00	4.54	12.41	56.29	4.000	No	Yes	2.00
7	0.31	4.93	2.89	1.26	0.88	7.89	7.08	55.92	4.000	No	Yes	2.00
8	0.38	6.68	2.74	1.06	0.83	10.70	5.13	54.91	4.000	No	Yes	2.00
9	0.43	7.56	2.68	1.02	0.81	12.11	4.55	55.04	4.000	No	Yes	2.00
10	0.49	7.32	2.72	1.13	0.82	11.72	4.88	57.26	4.000	No	Yes	2.00
11	0.58	6.81	2.78	1.31	0.84	10.90	5.56	60.65	4.000	No	Yes	2.00
12	0.63	6.24	2.85	1.60	0.86	9.98	6.53	65.19	4.000	No	Yes	2.00
13	0.67	6.05	2.90	1.88	0.88	9.68	7.19	69.56	4.000	No	Yes	2.00
14	0.72	6.02	2.92	2.08	0.89	9.62	7.57	72.80	4.000	Yes	Yes	2.00
15	0.72	6.70	2.91	2.29	0.88	10.70	7.32	78.32	4.000	Yes	Yes	2.00
16	0.84	9.28	2.77	2.08	0.84	14.84	5.43	80.63	4.000	Yes	Yes	2.00
17	0.96	15.82	2.50	1.53	0.76	25.35	2.97	75.23	4.000	Yes	No	2.00
18	1.06	22.64	2.32	1.27	0.71	36.29	2.02	73.35	4.000	Yes	No	2.00
19	1.24	27.97	2.21	1.11	0.67	44.84	1.65	74.08	4.000	Yes	No	2.00
20	1.30	31.48	2.14	0.98	0.65	50.47	1.49	75.12	4.000	Yes	No	2.00
21	1.48	37.28	2.04	0.82	0.62	59.78	1.34	80.22	4.000	Yes	No	2.00
22	1.59	42.14	1.98	0.77	0.60	67.57	1.29	87.16	4.000	Yes	No	2.00
23	1.69	47.40	1.93	0.75	0.59	76.02	1.26	95.52	4.000	Yes	No	2.00
24	1.69	49.80	1.91	0.76	0.58	79.87	1.25	99.55	4.000	Yes	No	2.00
25	1.74	53.24	1.88	0.73	0.57	85.40	1.22	104.46	4.000	Yes	No	2.00
26	1.79	53.78	1.88	0.73	0.57	86.26	1.22	105.40	4.000	No	No	2.00
27	1.84	52.90	1.89	0.73	0.57	84.84	1.23	104.08	4.000	No	No	2.00
28	1.88	51.25	1.89	0.73	0.58	82.18	1.23	101.34	4.000	No	No	2.00
29	1.93	49.46	1.90	0.71	0.58	79.31	1.24	98.11	4.000	No	No	2.00
30	1.99	48.69	1.90	0.68	0.58	78.06	1.23	96.29	4.000	No	No	2.00
31	2.03	48.08	1.89	0.65	0.58	77.07	1.23	94.90	4.000	No	No	2.00
32	2.08	47.67	1.89	0.64	0.57	76.42	1.23	93.98	4.000	No	No	2.00
33	2.13	46.86	1.90	0.64	0.58	75.11	1.23	92.67	4.000	No	No	2.00
34	2.22	45.85	1.90	0.64	0.58	73.48	1.24	91.09	4.000	No	No	2.00
35	2.27	44.97	1.91	0.64	0.58	72.07	1.24	89.70	4.000	No	No	2.00
36	2.33	44.77	1.91	0.63	0.58	71.74	1.24	89.16	4.000	No	No	2.00
37	2.42	45.44	1.90	0.61	0.58	72.81	1.24	89.96	4.000	No	No	2.00
38	2.48	46.73	1.88	0.60	0.57	74.86	1.22	91.66	4.000	No	No	2.00
39	2.56	48.41	1.86	0.59	0.57	77.57	1.21	94.03	4.000	No	No	2.00
40	2.65	49.43	1.86	0.59	0.56	79.19	1.21	95.47	4.000	No	No	2.00
41	2.72	48.72	1.87	0.60	0.57	78.04	1.21	94.74	4.000	No	No	2.00
42	2.80	46.02	1.90	0.62	0.58	73.70	1.23	90.99	4.000	No	No	2.00
43	2.89	42.44	1.94	0.65	0.59	67.94	1.26	85.67	4.000	No	No	2.00
44	2.94	39.03	1.98	0.69	0.60	62.46	1.29	80.64	4.000	No	No	2.00
45	3.04	35.90	2.02	0.71	0.61	57.42	1.32	76.04	4.000	No	No	2.00
46	3.14	32.32	2.07	0.73	0.63	51.66	1.37	70.91	4.000	No	No	2.00
47	3.23	29.01	2.10	0.73	0.64	46.34	1.42	65.97	4.000	No	No	2.00
48	3.31	25.74	2.15	0.73	0.65	41.07	1.50	61.64	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	3.37	23.04	2.19	0.72	0.66	36.73	1.59	58.33	4.000	No	No	2.00
50	3.48	20.38	2.23	0.72	0.68	32.44	1.71	55.35	4.000	No	No	2.00
51	3.57	18.79	2.25	0.67	0.68	29.89	1.76	52.71	4.000	No	No	2.00
52	3.65	18.02	2.26	0.63	0.69	28.64	1.78	50.93	4.000	No	No	2.00
53	3.71	18.02	2.26	0.63	0.68	28.64	1.77	50.70	4.000	No	No	2.00
54	3.82	18.63	2.26	0.67	0.68	29.60	1.77	52.47	4.000	No	No	2.00
55	3.91	20.18	2.23	0.70	0.68	32.09	1.71	54.73	4.000	No	No	2.00
56	4.00	22.81	2.20	0.73	0.67	36.30	1.60	58.22	4.000	No	No	2.00
57	4.10	26.38	2.09	0.58	0.64	42.04	1.41	59.10	4.000	No	No	2.00
58	4.19	31.21	1.98	0.46	0.60	49.79	1.00	49.79	4.000	No	No	2.00
59	4.26	37.92	1.86	0.36	0.57	60.57	1.00	60.57	4.000	No	No	2.00
60	4.35	45.62	1.79	0.37	0.54	72.92	1.00	72.92	4.000	No	No	2.00
61	4.44	49.80	1.77	0.39	0.54	79.63	1.00	79.63	4.000	No	No	2.00
62	4.52	51.39	1.76	0.41	0.54	82.17	1.00	82.17	4.000	No	No	2.00
63	4.53	52.26	1.76	0.41	0.54	83.58	1.00	83.58	4.000	No	No	2.00
64	4.58	55.03	1.73	0.39	0.53	88.02	1.00	88.02	4.000	No	No	2.00
65	4.63	57.76	1.71	0.39	0.52	92.41	1.00	92.41	4.000	No	No	2.00
66	4.68	58.84	1.70	0.39	0.52	94.14	1.00	94.14	4.000	No	No	2.00
67	4.72	59.28	1.71	0.41	0.52	94.84	1.00	94.84	4.000	No	No	2.00
68	4.77	59.08	1.72	0.42	0.52	94.51	1.00	94.51	4.000	No	No	2.00
69	4.82	58.07	1.73	0.44	0.53	92.88	1.00	92.88	4.000	No	No	2.00
70	4.88	56.21	1.76	0.47	0.54	89.89	1.00	89.89	4.000	No	No	2.00
71	4.96	53.61	1.79	0.50	0.55	85.71	1.14	97.96	4.000	No	No	2.00
72	5.01	50.54	1.83	0.54	0.56	80.78	1.18	95.67	4.000	No	No	2.00
73	5.08	47.44	1.87	0.59	0.57	75.78	1.22	92.32	4.000	No	No	2.00
74	5.16	44.81	1.91	0.63	0.58	71.55	1.24	88.93	4.000	No	No	2.00
75	5.21	43.27	1.93	0.65	0.59	69.07	1.26	86.85	4.000	No	No	2.00
76	5.30	42.68	1.94	0.66	0.59	68.12	1.26	86.01	4.000	No	No	2.00
77	5.37	42.65	1.94	0.66	0.59	68.06	1.26	85.96	4.000	No	No	2.00
78	5.45	42.70	1.94	0.66	0.59	68.13	1.26	86.01	4.000	No	No	2.00
79	5.52	42.44	1.94	0.66	0.59	67.72	1.26	85.64	4.000	No	No	2.00
80	5.59	41.70	1.95	0.67	0.59	66.52	1.27	84.54	4.000	No	No	2.00
81	5.65	40.15	1.97	0.69	0.60	64.02	1.28	82.25	4.000	No	No	2.00
82	5.74	38.46	1.99	0.71	0.61	61.30	1.30	79.83	4.000	No	No	2.00
83	5.83	37.08	2.02	0.73	0.61	59.07	1.32	77.99	4.000	No	No	2.00
84	5.89	36.30	2.03	0.75	0.62	57.82	1.33	77.16	4.000	No	No	2.00
85	5.97	35.66	2.04	0.77	0.62	56.79	1.35	76.43	4.000	No	No	2.00
86	6.07	34.52	2.06	0.79	0.63	54.94	1.37	75.11	4.000	No	No	2.00
87	6.12	32.56	2.10	0.84	0.64	51.79	1.41	73.14	4.000	No	No	2.00
88	6.22	29.76	2.15	0.92	0.65	47.28	1.51	71.19	4.000	No	No	2.00
89	6.28	26.56	2.22	1.04	0.67	42.13	1.67	70.33	4.000	No	No	2.00
90	6.36	23.45	2.29	1.15	0.70	37.14	1.90	70.41	4.000	No	No	2.00
91	6.46	21.29	2.34	1.22	0.71	33.66	2.09	70.43	4.000	No	No	2.00
92	6.52	20.72	2.33	1.14	0.71	32.73	2.06	67.56	4.000	No	No	2.00
93	6.60	22.07	2.26	0.92	0.69	34.89	1.79	62.55	4.000	No	No	2.00
94	6.70	23.55	2.18	0.72	0.66	37.27	1.57	58.59	4.000	No	No	2.00
95	6.76	23.01	2.17	0.66	0.66	36.39	1.55	56.58	4.000	Yes	No	2.00
96	6.84	19.64	2.27	0.77	0.69	30.96	1.81	55.94	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	6.94	14.91	2.44	1.05	0.74	23.37	2.60	60.83	4.000	Yes	No	2.00
98	7.03	10.86	2.63	1.42	0.80	16.85	4.02	67.75	4.000	Yes	Yes	2.00
99	7.13	8.23	2.79	1.78	0.84	12.62	5.71	72.04	4.000	Yes	Yes	2.00
100	7.19	6.62	2.88	1.83	0.87	10.02	6.93	69.39	4.000	Yes	Yes	2.00
101	7.32	5.77	2.88	1.39	0.87	8.65	6.87	59.40	4.000	No	Yes	2.00
102	7.42	5.17	2.80	0.72	0.85	7.67	5.87	44.99	4.000	No	Yes	2.00
103	7.49	4.93	2.63	0.13	0.80	7.28	4.02	29.29	4.000	No	Yes	2.00
104	7.57	4.73	N/A	-0.03	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
105	7.66	4.56	N/A	-0.01	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
106	7.76	4.44	2.68	0.13	0.81	6.47	4.48	29.00	4.000	No	Yes	2.00
107	7.77	4.39	2.72	0.22	0.82	6.39	4.95	31.63	4.000	No	Yes	2.00
108	7.78	4.42	2.73	0.25	0.83	6.44	5.05	32.53	4.000	No	Yes	2.00
109	7.82	4.44	2.76	0.33	0.84	6.47	5.36	34.69	4.000	No	Yes	2.00
110	7.87	4.45	2.80	0.46	0.85	6.49	5.86	38.07	4.000	No	Yes	2.00
111	7.92	4.45	2.85	0.63	0.86	6.49	6.45	41.83	4.000	No	Yes	2.00
112	7.97	4.49	2.88	0.80	0.87	6.54	6.96	45.53	4.000	No	Yes	2.00
113	8.01	4.59	2.91	1.01	0.88	6.70	7.41	49.66	4.000	No	Yes	2.00
114	8.06	4.76	2.92	1.17	0.89	6.97	7.58	52.81	4.000	No	Yes	2.00
115	8.11	4.93	2.93	1.29	0.89	7.24	7.65	55.42	4.000	No	Yes	2.00
116	8.20	5.06	2.93	1.38	0.89	7.45	7.68	57.24	4.000	No	Yes	2.00
117	8.26	5.16	2.94	1.51	0.89	7.60	7.84	59.63	4.000	No	Yes	2.00
118	8.35	5.23	2.95	1.61	1.00	7.70	7.98	61.50	4.000	No	Yes	2.00
119	8.40	5.30	2.95	1.67	1.00	7.81	8.02	62.65	4.000	No	Yes	2.00
120	8.49	5.37	2.95	1.68	0.89	7.91	7.96	62.99	4.000	No	Yes	2.00
121	8.54	5.51	2.94	1.69	0.89	8.13	7.81	63.54	4.000	No	Yes	2.00
122	8.64	5.71	2.93	1.68	0.89	8.45	7.58	64.06	4.000	No	Yes	2.00
123	8.69	5.91	2.91	1.68	0.88	8.77	7.37	64.63	4.000	No	Yes	2.00
124	8.79	6.18	2.92	1.87	0.88	9.19	7.46	68.57	4.000	No	Yes	2.00
125	8.84	6.48	2.93	2.12	0.89	9.68	7.59	73.49	4.000	No	Yes	2.00
126	8.93	6.89	2.92	2.28	0.88	10.32	7.50	77.37	4.000	No	Yes	2.00
127	9.03	7.13	2.92	2.39	0.88	10.69	7.46	79.83	4.000	No	Yes	2.00
128	9.08	7.21	2.92	2.47	0.88	10.83	7.52	81.47	4.000	No	Yes	2.00
129	9.11	7.16	2.94	2.63	0.89	10.75	7.78	83.66	4.000	No	Yes	2.00
130	9.12	7.13	2.95	2.68	0.89	10.69	7.89	84.32	4.000	No	Yes	2.00
131	9.17	7.07	2.95	2.75	1.00	10.60	8.03	85.13	4.000	No	Yes	2.00
132	9.22	7.12	2.96	2.81	1.00	10.67	8.09	86.32	4.000	No	Yes	2.00
133	9.31	6.92	2.99	3.02	1.00	10.34	8.56	88.56	4.000	No	Yes	2.00
134	9.36	7.16	2.98	3.04	1.00	10.72	8.37	89.76	4.000	No	Yes	2.00
135	9.40	7.46	2.95	2.98	1.00	11.20	8.04	90.10	4.000	No	Yes	2.00
136	9.46	8.14	2.90	2.76	0.88	12.28	7.25	89.07	4.000	No	Yes	2.00
137	9.51	8.47	2.88	2.68	0.87	12.82	6.92	88.75	4.000	No	Yes	2.00
138	9.55	8.78	2.86	2.65	0.87	13.30	6.70	89.10	4.000	No	Yes	2.00
139	9.61	8.98	2.86	2.71	0.87	13.63	6.65	90.65	4.000	No	Yes	2.00
140	9.69	9.12	2.87	2.83	0.87	13.84	6.73	93.09	4.000	No	Yes	2.00
141	9.74	9.18	2.88	2.97	0.87	13.94	6.87	95.71	4.000	No	Yes	2.00
142	9.81	9.39	2.88	3.05	0.87	14.26	6.85	97.70	4.000	No	Yes	2.00
143	9.89	9.76	2.86	3.02	0.87	14.85	6.62	98.33	4.000	No	Yes	2.00
144	9.94	10.06	2.84	2.98	0.86	15.33	6.42	98.43	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	10.03	10.23	2.83	2.93	0.86	15.59	6.28	97.94	4.000	No	Yes	2.00
146	10.08	10.23	2.80	2.62	0.85	15.59	5.91	92.18	4.000	No	Yes	2.00
147	10.18	10.23	2.76	2.21	0.84	15.58	5.40	84.12	4.000	No	Yes	2.00
148	10.23	10.23	2.73	1.94	0.83	15.58	5.05	78.62	4.000	No	Yes	2.00
149	10.33	10.23	2.74	2.03	0.83	15.57	5.17	80.55	4.000	No	Yes	2.00
150	10.40	10.23	2.77	2.31	0.84	15.56	5.54	86.20	4.000	No	Yes	2.00
151	10.47	10.08	2.80	2.55	0.85	15.32	5.91	90.44	4.000	No	Yes	2.00
152	10.51	10.06	2.83	2.76	0.86	15.28	6.18	94.42	4.000	No	Yes	2.00
153	10.56	10.03	2.84	2.94	0.86	15.23	6.41	97.63	4.000	No	Yes	2.00
154	10.61	10.21	2.85	3.10	0.86	15.52	6.51	100.97	4.000	No	Yes	2.00
155	10.67	10.16	2.88	3.41	0.87	15.43	6.88	106.14	4.000	No	Yes	2.00
156	10.75	10.13	2.90	3.70	0.88	15.37	7.21	110.80	4.000	No	Yes	2.00
157	10.80	9.99	2.92	3.91	0.88	15.15	7.50	113.70	4.000	No	Yes	2.00
158	10.85	9.89	2.93	3.98	0.89	14.99	7.63	114.35	4.000	No	Yes	2.00
159	10.90	9.72	2.94	4.07	0.89	14.71	7.82	115.05	4.000	No	Yes	2.00
160	11.00	9.45	2.96	4.21	1.00	14.27	8.13	116.05	4.000	No	Yes	2.00
161	11.05	9.05	2.99	4.36	1.00	13.61	8.55	116.32	4.000	No	Yes	2.00
162	11.14	8.61	3.01	4.54	1.00	12.90	9.04	116.64	4.000	No	Yes	2.00
163	11.21	8.27	3.04	4.77	1.00	12.36	9.53	117.80	4.000	No	Yes	2.00
164	11.29	8.24	3.05	4.86	1.00	12.30	9.66	118.79	4.000	No	Yes	2.00
165	11.38	8.41	3.04	4.86	1.00	12.56	9.53	119.67	4.000	No	Yes	2.00
166	11.46	8.68	3.02	4.71	1.00	12.98	9.18	119.19	4.000	No	Yes	2.00
167	11.52	8.88	3.01	4.64	1.00	13.30	8.96	119.26	4.000	No	Yes	2.00
168	11.60	8.98	3.00	4.60	1.00	13.46	8.85	119.12	4.000	No	Yes	2.00
169	11.67	9.05	3.00	4.58	1.00	13.56	8.79	119.24	4.000	No	Yes	2.00
170	11.72	9.12	3.00	4.58	1.00	13.67	8.75	119.52	4.000	No	Yes	2.00
171	11.81	9.32	2.99	4.50	1.00	13.98	8.54	119.37	4.000	No	Yes	2.00
172	11.86	9.35	2.98	4.50	1.00	14.03	8.52	119.54	4.000	No	Yes	2.00
173	11.96	9.42	2.98	4.48	1.00	14.07	8.48	119.37	4.000	No	Yes	2.00
174	12.01	9.45	2.98	4.50	1.00	14.06	8.50	119.58	4.000	No	Yes	2.00
175	12.10	9.69	2.97	4.05	0.89	13.55	8.25	111.75	4.000	No	Yes	2.00
176	12.16	10.07	2.91	3.44	0.88	13.97	7.41	103.51	4.000	No	Yes	2.00
177	12.24	10.47	2.88	3.08	0.87	14.38	6.85	98.49	4.000	No	Yes	2.00
178	12.32	10.87	2.88	3.24	0.87	14.89	6.86	102.09	4.000	No	Yes	2.00
179	12.39	11.18	2.90	3.63	0.88	15.29	7.16	109.53	4.000	No	Yes	2.00
180	12.48	10.64	2.95	4.13	0.89	14.47	7.97	115.36	4.000	No	Yes	2.00
181	12.50	10.23	2.97	4.52	1.00	14.64	8.30	121.50	4.000	No	Yes	2.00
182	12.54	10.74	2.96	4.40	0.89	14.58	8.20	119.55	4.000	No	Yes	2.00
183	12.64	12.36	2.89	3.89	0.87	16.65	7.01	116.68	4.000	No	Yes	2.00
184	12.68	14.04	2.81	3.45	0.85	18.79	6.01	113.05	4.000	No	Yes	2.00
185	12.77	14.72	2.78	3.24	0.84	19.54	5.64	110.30	4.000	No	Yes	2.00
186	12.82	14.75	2.78	3.14	0.84	19.48	5.55	108.15	4.000	No	Yes	2.00
187	12.89	14.21	2.79	3.12	0.84	18.67	5.71	106.60	4.000	No	Yes	2.00
188	12.97	13.37	2.82	3.26	0.85	17.49	6.13	107.25	4.000	No	Yes	2.00
189	13.03	12.49	2.86	3.45	0.87	16.30	6.66	108.51	4.000	No	Yes	2.00
190	13.12	11.72	2.90	3.66	0.88	15.20	7.22	109.85	4.000	No	Yes	2.00
191	13.16	11.21	2.93	3.77	0.89	14.50	7.58	109.96	4.000	No	Yes	2.00
192	13.26	10.91	2.93	3.69	0.89	13.99	7.68	107.43	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	13.34	10.84	2.92	3.42	0.88	13.79	7.45	102.72	4.000	No	Yes	2.00
194	13.41	10.74	2.90	3.11	0.88	13.56	7.18	97.27	4.000	No	Yes	2.00
195	13.50	10.60	2.89	2.96	0.88	13.27	7.10	94.19	4.000	No	Yes	2.00
196	13.60	10.33	2.90	2.95	0.88	12.84	7.26	93.25	4.000	No	Yes	2.00
197	13.65	10.13	2.92	3.04	0.88	12.55	7.49	94.05	4.000	No	Yes	2.00
198	13.75	10.03	2.93	3.14	0.89	12.35	7.71	95.17	4.000	No	Yes	2.00
199	13.80	10.10	2.92	3.04	0.89	12.37	7.57	93.67	4.000	No	Yes	2.00
200	13.89	10.23	2.92	3.06	0.89	12.47	7.55	94.18	4.000	No	Yes	2.00
201	13.94	10.63	2.92	3.15	0.88	12.95	7.46	96.59	4.000	No	Yes	2.00
202	14.03	10.80	2.95	3.59	0.89	13.13	7.91	103.87	4.000	No	Yes	2.00
203	14.11	11.23	2.95	3.82	0.89	13.59	7.98	108.45	4.000	No	Yes	2.00
204	14.13	11.53	2.95	3.97	0.89	13.97	7.99	111.61	4.000	No	Yes	2.00
205	14.18	12.27	2.92	3.86	0.89	14.85	7.55	112.19	4.000	No	Yes	2.00
206	14.22	12.83	2.91	3.88	0.88	15.50	7.35	113.98	4.000	No	Yes	2.00
207	14.28	13.44	2.90	3.92	0.88	16.19	7.18	116.20	4.000	No	Yes	2.00
208	14.37	14.01	2.89	3.98	0.88	16.81	7.06	118.62	4.000	No	Yes	2.00
209	14.44	14.79	2.87	3.97	0.87	17.68	6.80	120.24	4.000	No	Yes	2.00
210	14.51	15.63	2.85	3.90	0.86	18.60	6.50	120.95	4.000	No	Yes	2.00
211	14.60	16.31	2.83	3.86	0.86	19.30	6.30	121.55	4.000	No	Yes	2.00
212	14.65	16.58	2.83	3.91	0.86	19.57	6.28	122.89	4.000	No	Yes	2.00
213	14.75	16.56	2.84	3.99	0.86	19.44	6.39	124.23	4.000	No	Yes	2.00
214	14.85	16.48	2.85	4.06	0.86	19.22	6.50	124.95	4.000	No	Yes	2.00
215	14.91	16.44	2.85	4.07	0.86	19.11	6.54	124.89	4.000	No	Yes	2.00
216	14.99	17.00	2.83	3.89	0.86	19.64	6.25	122.73	4.000	Yes	Yes	2.00
217	15.09	18.30	2.79	3.60	0.84	21.01	5.69	119.59	4.000	Yes	Yes	2.00
218	15.18	20.29	2.72	3.20	0.82	23.13	4.94	114.33	4.000	Yes	Yes	2.00
219	15.25	22.28	2.66	2.79	0.80	25.25	4.26	107.53	4.000	Yes	Yes	2.00
220	15.33	24.50	2.58	2.38	0.78	27.58	3.60	99.22	4.000	Yes	No	2.00
221	15.43	27.51	2.50	1.99	0.76	30.70	2.96	90.92	4.000	Yes	No	2.00
222	15.51	31.32	2.41	1.70	0.73	34.70	2.45	84.95	4.000	Yes	No	2.00
223	15.59	34.63	2.35	1.53	0.71	38.13	2.14	81.77	4.000	Yes	No	2.00
224	15.67	36.18	2.33	1.46	0.71	39.65	2.03	80.65	4.000	Yes	No	2.00
225	15.76	35.13	2.35	1.53	0.71	38.36	2.14	81.98	4.000	Yes	No	2.00
226	15.86	32.03	2.41	1.71	0.73	34.86	2.45	85.36	4.000	Yes	No	2.00
227	15.95	27.64	2.51	2.00	0.76	30.01	3.03	90.95	4.000	Yes	No	2.00
228	16.05	23.08	2.61	2.33	0.79	24.94	3.85	95.91	4.000	Yes	Yes	2.00
229	16.14	19.31	2.71	2.64	0.82	20.73	4.79	99.32	4.000	Yes	Yes	2.00
230	16.20	16.85	2.78	2.83	0.84	17.98	5.55	99.84	4.000	Yes	Yes	2.00
231	16.28	15.33	2.82	2.95	0.85	16.24	6.13	99.52	4.000	Yes	Yes	2.00
232	16.34	14.21	2.85	2.97	0.86	14.97	6.52	97.62	4.000	Yes	Yes	2.00
233	16.44	12.93	2.89	3.04	0.88	13.48	7.12	95.96	4.000	Yes	Yes	2.00
234	16.50	11.61	2.93	3.03	0.89	12.00	7.73	92.73	4.000	Yes	Yes	2.00
235	16.58	10.17	2.96	2.83	1.00	10.54	8.19	86.31	4.000	Yes	Yes	2.00
236	16.73	8.75	2.98	2.31	1.00	8.85	8.43	74.57	4.000	No	Yes	2.00
237	16.82	7.60	2.96	1.61	1.00	7.51	8.14	61.14	4.000	No	Yes	2.00
238	16.92	7.06	2.97	1.45	1.00	6.86	8.35	57.29	4.000	No	Yes	2.00
239	17.01	6.56	3.09	2.09	1.00	6.26	10.33	64.67	4.000	No	Yes	2.00
240	17.11	6.20	3.19	2.99	1.00	5.84	12.54	73.17	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	17.12	5.73	3.28	3.81	1.00	5.31	14.74	78.30	4.000	No	Yes	2.00
242	17.14	6.34	3.23	3.66	1.00	5.97	13.44	80.31	4.000	No	Yes	2.00
243	17.19	7.13	3.17	3.53	1.00	6.82	12.15	82.92	4.000	No	Yes	2.00
244	17.28	7.94	3.13	3.46	1.00	7.67	11.16	85.58	4.000	No	Yes	2.00
245	17.33	8.01	3.14	3.72	1.00	7.71	11.48	88.52	4.000	No	Yes	2.00
246	17.43	7.87	3.16	3.90	1.00	7.52	11.93	89.67	4.000	No	Yes	2.00
247	17.47	7.74	3.17	3.85	1.00	7.35	12.03	88.37	4.000	No	Yes	2.00
248	17.57	7.57	3.16	3.62	1.00	7.12	11.95	85.14	4.000	No	Yes	2.00
249	17.65	7.47	3.15	3.35	1.00	6.98	11.70	81.63	4.000	No	Yes	2.00
250	17.72	7.40	3.16	3.37	1.00	6.88	11.84	81.46	4.000	No	Yes	2.00
251	17.81	7.57	3.16	3.48	1.00	7.02	11.86	83.22	4.000	No	Yes	2.00
252	17.86	7.87	3.17	3.79	1.00	7.32	11.98	87.65	4.000	No	Yes	2.00
253	17.95	8.31	3.16	4.07	1.00	7.73	11.95	92.32	4.000	No	Yes	2.00
254	18.05	8.78	3.16	4.29	1.00	8.18	11.81	96.52	4.000	No	Yes	2.00
255	18.10	9.22	3.15	4.49	1.00	8.61	11.67	100.43	4.000	No	Yes	2.00
256	18.20	9.66	3.14	4.65	1.00	9.01	11.52	103.80	4.000	No	Yes	2.00
257	18.30	9.90	3.15	4.85	1.00	9.20	11.60	106.76	4.000	No	Yes	2.00
258	18.39	10.13	3.14	4.89	1.00	9.38	11.50	107.91	4.000	No	Yes	2.00
259	18.48	10.27	3.14	4.83	1.00	9.47	11.38	107.71	4.000	No	Yes	2.00
260	18.58	10.30	3.14	4.82	1.00	9.44	11.38	107.46	4.000	No	Yes	2.00
261	18.66	10.20	3.14	4.82	1.00	9.30	11.49	106.87	4.000	No	Yes	2.00
262	18.74	10.07	3.14	4.69	1.00	9.12	11.49	104.74	4.000	No	Yes	2.00
263	18.87	9.90	3.11	3.92	1.00	8.88	10.73	95.26	4.000	No	Yes	2.00
264	18.97	9.66	3.07	3.27	1.00	8.59	10.09	86.69	4.000	No	Yes	2.00
265	19.06	9.56	3.05	2.85	1.00	8.45	9.58	80.90	4.000	No	Yes	2.00
266	19.16	9.83	3.06	3.14	1.00	8.66	9.84	85.25	4.000	No	Yes	2.00
267	19.25	10.13	3.06	3.34	1.00	8.91	9.93	88.50	4.000	No	Yes	2.00
268	19.27	10.23	3.08	3.58	1.00	9.00	10.18	91.69	4.000	No	Yes	2.00
269	19.30	10.37	3.09	3.79	1.00	9.12	10.39	94.70	4.000	No	Yes	2.00
270	19.34	10.57	3.10	4.04	1.00	9.29	10.57	98.19	4.000	No	Yes	2.00
271	19.39	10.84	3.09	4.12	1.00	9.53	10.50	100.00	4.000	No	Yes	2.00
272	19.49	10.78	3.10	4.12	1.00	9.41	10.57	99.51	4.000	No	Yes	2.00
273	19.55	10.51	3.10	4.04	1.00	9.12	10.70	97.54	4.000	No	Yes	2.00
274	19.63	10.17	3.11	3.94	1.00	8.75	10.86	95.04	4.000	No	Yes	2.00
275	19.68	9.87	3.11	3.78	1.00	8.43	10.91	92.04	4.000	No	Yes	2.00
276	19.74	9.77	3.10	3.54	1.00	8.31	10.69	88.83	4.000	No	Yes	2.00
277	19.83	9.73	3.10	3.44	1.00	8.24	10.61	87.40	4.000	No	Yes	2.00
278	19.87	9.73	3.10	3.38	1.00	8.22	10.55	86.67	4.000	No	Yes	2.00
279	19.94	9.73	3.11	3.54	1.00	8.19	10.80	88.39	4.000	No	Yes	2.00
280	20.02	9.80	3.12	3.73	1.00	8.21	11.04	90.64	4.000	No	Yes	2.00
281	20.07	10.17	3.13	4.13	1.00	8.54	11.28	96.33	4.000	No	Yes	2.00
282	20.17	11.42	3.09	4.10	1.00	9.65	10.38	100.21	4.000	No	Yes	2.00
283	20.21	14.18	2.97	3.57	1.00	12.20	8.30	101.25	4.000	Yes	Yes	2.00
284	20.28	18.74	2.80	2.81	0.85	16.43	5.92	97.16	4.000	Yes	Yes	2.00
285	20.36	24.88	2.64	2.22	0.80	22.08	4.11	90.84	4.000	Yes	Yes	2.00
286	20.41	31.73	2.51	1.86	0.76	28.40	3.02	85.89	4.000	Yes	No	2.00
287	20.48	38.64	2.40	1.64	0.73	34.74	2.39	83.15	4.000	Yes	No	2.00
288	20.55	44.99	2.33	1.49	0.71	40.52	2.02	82.00	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	20.60	49.88	2.27	1.39	0.69	44.99	1.82	81.90	4.000	Yes	No	2.00
290	20.70	52.55	2.25	1.34	0.68	47.28	1.74	82.23	4.000	No	No	2.00
291	20.74	52.68	2.25	1.37	0.68	47.32	1.75	82.97	4.000	No	No	2.00
292	20.79	51.17	2.28	1.45	0.69	45.83	1.84	84.31	4.000	No	No	2.00
293	20.89	48.70	2.33	1.63	0.71	43.39	2.03	87.95	4.000	No	No	2.00
294	20.96	46.86	2.33	1.59	0.71	41.58	2.06	85.66	4.000	No	No	2.00
295	21.04	45.83	2.34	1.58	0.71	40.52	2.09	84.84	4.000	No	No	2.00
296	21.13	45.80	2.33	1.51	0.71	40.36	2.05	82.71	4.000	No	No	2.00
297	21.22	49.22	2.31	1.55	0.70	43.31	1.97	85.52	4.000	No	No	2.00
298	21.29	52.71	2.28	1.51	0.69	46.38	1.86	86.23	4.000	No	No	2.00
299	21.35	62.13	2.19	1.30	0.66	54.84	1.58	86.56	4.000	No	No	2.00
300	21.37	71.37	2.10	1.15	0.64	63.21	1.42	89.97	4.000	No	No	2.00
301	21.42	83.72	2.01	0.98	0.61	74.37	1.31	97.64	4.000	No	No	2.00
302	21.47	92.73	1.95	0.89	0.59	82.47	1.27	104.48	4.000	No	No	2.00
303	21.48	100.66	1.90	0.82	0.58	89.69	1.23	110.65	4.000	No	No	2.00
304	21.52	107.37	1.85	0.77	0.56	95.73	1.20	115.32	4.000	No	No	2.00
305	21.57	113.24	1.82	0.73	0.55	100.98	1.17	118.63	4.000	No	No	2.00
306	21.62	118.81	1.79	0.69	0.54	105.91	1.14	120.85	4.000	No	No	2.00
307	21.66	124.00	1.76	0.65	0.54	110.52	1.10	122.11	4.000	No	No	2.00
308	21.71	128.79	1.74	0.63	0.53	114.75	1.07	122.79	4.000	No	No	2.00
309	21.76	132.64	1.73	0.62	0.53	118.10	1.04	123.42	4.000	No	No	2.00
310	21.81	135.34	1.72	0.63	0.52	120.38	1.03	124.51	4.000	No	No	2.00
311	21.85	136.99	1.72	0.64	0.53	121.70	1.04	126.15	4.000	No	No	2.00
312	21.91	137.80	1.73	0.66	0.53	122.24	1.05	127.87	4.000	No	No	2.00
313	21.95	138.11	1.73	0.67	0.53	122.32	1.06	129.40	4.000	No	No	2.00
314	22.00	138.24	1.74	0.69	0.53	122.26	1.07	130.49	4.000	No	No	2.00
315	22.05	138.18	1.75	0.70	0.53	122.02	1.08	131.33	4.000	No	No	2.00
316	22.10	138.24	1.75	0.71	0.53	121.90	1.08	132.00	4.000	No	No	2.00
317	22.15	138.31	1.75	0.72	0.53	121.77	1.09	132.56	4.000	No	No	2.00
318	22.19	138.68	1.75	0.72	0.53	121.94	1.09	133.12	4.000	No	No	2.00
319	22.24	139.25	1.76	0.75	0.54	122.24	1.11	135.35	4.000	No	No	2.00
320	22.29	139.86	1.77	0.77	0.54	122.58	1.11	136.60	4.000	No	No	2.00
321	22.34	140.20	1.77	0.78	0.54	122.70	1.12	137.16	4.000	No	No	2.00
322	22.39	140.06	1.77	0.76	0.54	122.45	1.11	135.89	4.000	No	No	2.00
323	22.43	139.42	1.77	0.76	0.54	121.72	1.11	135.26	4.000	No	No	2.00
324	22.48	138.34	1.77	0.76	0.54	120.56	1.12	135.08	4.000	No	No	2.00
325	22.55	136.79	1.78	0.78	0.54	118.95	1.13	134.76	4.000	No	No	2.00
326	22.62	130.08	1.82	0.82	0.55	112.68	1.17	131.90	4.000	No	No	2.00
327	22.63	127.95	1.83	0.83	0.56	110.75	1.18	130.57	4.000	No	No	2.00
328	22.72	125.56	1.83	0.84	0.56	108.31	1.19	128.61	4.000	No	No	2.00
329	22.77	128.09	1.82	0.81	0.55	110.46	1.17	129.57	4.000	No	No	2.00
330	22.83	126.13	1.83	0.83	0.56	108.51	1.19	128.59	4.000	No	No	2.00
331	22.91	124.21	1.85	0.86	0.56	106.52	1.20	127.55	4.000	No	No	2.00
332	22.96	121.74	1.86	0.88	0.57	104.15	1.21	126.09	4.000	No	No	2.00
333	23.02	118.20	1.88	0.91	0.57	100.84	1.22	123.45	4.000	No	No	2.00
334	23.10	113.85	1.90	0.94	0.58	96.74	1.24	119.96	4.000	No	No	2.00
335	23.16	108.42	1.93	0.98	0.59	91.79	1.26	115.60	4.000	No	No	2.00
336	23.20	102.21	1.97	1.03	0.60	86.20	1.28	110.62	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	23.26	95.46	2.01	1.08	0.61	80.15	1.31	105.23	4.000	No	No	2.00
338	23.35	88.68	2.05	1.15	0.62	74.00	1.36	100.36	4.000	No	No	2.00
339	23.39	81.66	2.10	1.23	0.64	67.80	1.42	95.97	4.000	No	No	2.00
340	23.48	74.68	2.15	1.34	0.65	61.55	1.51	93.11	4.000	No	No	2.00
341	23.54	68.33	2.20	1.41	0.67	55.99	1.61	90.41	4.000	No	No	2.00
342	23.63	63.44	2.23	1.41	0.68	51.67	1.69	87.24	4.000	No	No	2.00
343	23.69	60.07	2.21	1.21	0.67	48.84	1.63	79.68	4.000	No	No	2.00
344	23.78	58.37	2.19	1.08	0.66	47.34	1.59	75.09	4.000	No	No	2.00
345	23.87	57.71	2.18	1.00	0.66	46.70	1.56	72.76	4.000	No	No	2.00
346	23.88	57.81	2.20	1.11	0.67	46.69	1.62	75.51	4.000	No	No	2.00
347	23.93	57.42	2.23	1.22	0.68	46.23	1.69	78.05	4.000	No	No	2.00
348	24.02	57.22	2.25	1.33	0.68	45.85	1.76	80.73	4.000	No	No	2.00
349	24.04	56.97	2.27	1.41	0.69	45.57	1.82	82.98	4.000	No	No	2.00
350	24.05	57.34	2.28	1.47	0.69	45.82	1.85	84.83	4.000	No	No	2.00
351	24.15	58.27	2.28	1.52	0.69	46.42	1.87	86.71	4.000	No	No	2.00
352	24.20	60.11	2.28	1.55	0.69	47.86	1.85	88.32	4.000	No	No	2.00
353	24.30	62.64	2.25	1.45	0.68	49.86	1.75	87.06	4.000	No	No	2.00
354	24.40	65.07	2.21	1.31	0.67	51.83	1.63	84.41	4.000	No	No	2.00
355	24.46	66.59	2.16	1.15	0.66	53.10	1.53	81.44	4.000	No	No	2.00
356	24.54	66.42	2.15	1.08	0.65	52.90	1.50	79.49	4.000	No	No	2.00
357	24.64	64.09	2.17	1.11	0.66	50.78	1.55	78.59	4.000	Yes	No	2.00
358	24.73	59.94	2.22	1.24	0.68	47.12	1.68	79.13	4.000	Yes	No	2.00
359	24.78	54.64	2.30	1.43	0.70	42.55	1.92	81.62	4.000	Yes	No	2.00
360	24.88	48.57	2.38	1.66	0.72	37.36	2.28	85.25	4.000	Yes	No	2.00
361	24.94	41.92	2.47	1.90	0.75	31.81	2.80	89.16	4.000	Yes	No	2.00
362	25.02	35.00	2.57	2.14	0.78	26.12	3.52	92.04	4.000	Yes	No	2.00
363	25.12	28.43	2.69	2.46	0.81	20.76	4.59	95.35	4.000	Yes	Yes	2.00
364	25.17	22.86	2.81	2.88	0.85	16.30	6.02	98.17	4.000	Yes	Yes	2.00
365	25.27	18.41	2.93	3.27	0.89	12.75	7.69	98.13	4.000	Yes	Yes	2.00
366	25.36	15.13	3.04	3.56	1.00	9.96	9.50	94.69	4.000	No	Yes	2.00
367	25.43	12.60	3.13	3.75	1.00	8.11	11.16	90.44	4.000	No	Yes	2.00
368	25.50	10.88	3.20	3.97	1.00	6.84	12.76	87.31	4.000	No	Yes	2.00
369	25.60	9.77	3.25	4.08	1.00	6.01	14.03	84.31	4.000	No	Yes	2.00
370	25.64	9.26	3.27	4.02	1.00	5.64	14.52	81.86	4.000	No	Yes	2.00
371	25.67	9.06	3.28	3.90	1.00	5.48	14.58	79.98	4.000	No	Yes	2.00
372	25.71	8.86	3.27	3.61	1.00	5.33	14.38	76.65	4.000	No	Yes	2.00
373	25.79	8.52	3.26	3.26	1.00	5.07	14.25	72.22	4.000	No	Yes	2.00
374	25.93	8.18	3.26	2.95	1.00	4.80	14.17	68.01	4.000	No	Yes	2.00
375	26.03	8.02	3.25	2.70	1.00	4.66	13.97	65.11	4.000	No	Yes	2.00
376	26.13	8.02	3.24	2.57	1.00	4.64	13.74	63.74	4.000	No	Yes	2.00
377	26.24	8.08	3.23	2.50	1.00	4.67	13.54	63.18	4.000	No	Yes	2.00
378	26.37	8.18	3.23	2.51	1.00	4.71	13.48	63.49	4.000	No	Yes	2.00
379	26.47	8.25	3.23	2.56	1.00	4.73	13.53	64.09	4.000	No	Yes	2.00
380	26.60	8.25	3.22	2.39	1.00	4.71	13.24	62.33	4.000	No	Yes	2.00
381	26.71	8.38	3.19	2.15	1.00	4.78	12.59	60.15	4.000	No	Yes	2.00
382	26.85	8.75	3.16	1.96	1.00	5.00	11.78	58.94	4.000	No	Yes	2.00
383	26.95	8.96	3.18	2.26	1.00	5.12	12.24	62.69	4.000	No	Yes	2.00
384	27.04	9.60	3.18	2.57	1.00	5.54	12.21	67.66	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	27.09	10.14	3.18	2.92	1.00	5.90	12.33	72.68	4.000	No	Yes	2.00
386	27.19	10.95	3.16	2.98	1.00	6.42	11.76	75.49	4.000	No	Yes	2.00
387	27.23	11.18	3.16	3.16	1.00	6.56	11.88	78.01	4.000	No	Yes	2.00
388	27.33	11.42	3.17	3.32	1.00	6.70	11.98	80.22	4.000	No	Yes	2.00
389	27.40	11.76	3.16	3.46	1.00	6.91	11.94	82.48	4.000	No	Yes	2.00
390	27.47	12.30	3.15	3.56	1.00	7.25	11.72	84.94	4.000	No	Yes	2.00
391	27.57	12.97	3.14	3.59	1.00	7.66	11.34	86.93	4.000	No	Yes	2.00
392	27.66	13.85	3.12	3.70	1.00	8.22	10.99	90.36	4.000	No	Yes	2.00
393	27.77	14.96	3.10	3.87	1.00	8.93	10.64	94.93	4.000	No	Yes	2.00
394	27.86	16.28	3.08	4.09	1.00	9.76	10.29	100.42	4.000	No	Yes	2.00
395	27.96	17.39	3.07	4.27	1.00	10.45	10.06	105.14	4.000	No	Yes	2.00
396	28.06	17.73	3.08	4.52	1.00	10.63	10.22	108.70	4.000	No	Yes	2.00
397	28.15	17.29	3.10	4.70	1.00	10.31	10.64	109.63	4.000	No	Yes	2.00
398	28.25	17.04	3.08	4.30	1.00	10.10	10.32	104.18	4.000	No	Yes	2.00
399	28.34	16.50	3.07	3.92	1.00	9.71	10.12	98.29	4.000	No	Yes	2.00
400	28.44	16.94	3.04	3.53	1.00	9.96	9.46	94.21	4.000	No	Yes	2.00
401	28.54	16.11	3.09	4.00	1.00	9.38	10.45	98.03	4.000	No	Yes	2.00
402	28.62	17.46	3.06	4.02	1.00	10.22	9.90	101.19	4.000	No	Yes	2.00
403	28.71	18.34	3.05	4.14	1.00	10.74	9.72	104.45	4.000	No	Yes	2.00
404	28.77	20.26	3.01	4.01	1.00	11.95	8.92	106.63	4.000	No	Yes	2.00
405	28.86	20.73	3.01	4.13	1.00	12.21	8.93	109.00	4.000	No	Yes	2.00
406	28.91	21.34	3.00	4.15	1.00	12.56	8.78	110.37	4.000	No	Yes	2.00
407	28.97	22.04	2.99	4.19	1.00	12.99	8.63	112.06	4.000	No	Yes	2.00
408	29.04	22.92	2.98	4.23	1.00	13.50	8.45	114.13	4.000	No	Yes	2.00
409	29.10	23.97	2.97	4.28	1.00	14.13	8.26	116.69	4.000	No	Yes	2.00
410	29.15	25.15	2.96	4.38	1.00	14.85	8.08	120.01	4.000	No	Yes	2.00
411	29.25	26.40	2.93	4.48	0.89	16.30	7.69	125.36	4.000	No	Yes	2.00
412	29.34	27.38	2.93	4.58	0.89	16.91	7.60	128.48	4.000	No	Yes	2.00
413	29.38	27.75	2.93	4.68	0.89	17.12	7.63	130.55	4.000	No	Yes	2.00
414	29.48	27.72	2.95	4.76	1.00	16.25	7.97	129.55	4.000	No	Yes	2.00
415	29.55	27.48	2.96	4.80	1.00	16.06	8.07	129.61	4.000	Yes	Yes	2.00
416	29.63	27.41	2.93	4.54	0.89	16.75	7.61	127.50	4.000	Yes	Yes	2.00
417	29.72	28.43	2.81	3.17	0.85	17.61	6.01	105.80	4.000	Yes	Yes	2.00
418	29.82	31.56	2.63	1.83	0.80	20.09	3.98	79.94	4.000	Yes	Yes	2.00
419	29.88	36.83	2.39	0.90	0.73	24.31	2.33	56.65	4.000	Yes	No	2.00
420	29.96	45.23	2.29	0.81	0.69	30.47	1.87	56.98	4.000	Yes	No	2.00
421	30.06	49.92	2.25	0.82	0.68	33.83	1.75	59.16	4.000	Yes	No	2.00
422	30.13	54.67	2.21	0.81	0.67	37.29	1.64	60.99	4.000	Yes	No	2.00
423	30.18	56.02	2.21	0.84	0.67	38.21	1.63	62.30	0.102	No	No	0.34
424	30.28	58.72	2.20	0.87	0.67	40.06	1.61	64.44	0.105	No	No	0.35
425	30.37	59.53	2.22	0.98	0.67	40.40	1.67	67.53	0.109	No	No	0.36
426	30.47	60.51	2.25	1.10	0.68	40.85	1.74	71.05	0.113	No	No	0.37
427	30.57	63.28	2.24	1.15	0.68	42.69	1.73	73.87	0.117	No	No	0.38
428	30.66	67.26	2.22	1.17	0.67	45.46	1.67	76.12	0.121	No	No	0.40
429	30.74	71.34	2.20	1.17	0.67	48.33	1.62	78.31	0.125	No	No	0.41
430	30.82	74.51	2.19	1.19	0.67	50.51	1.59	80.52	0.129	No	No	0.42
431	30.90	76.30	2.20	1.26	0.67	51.60	1.61	82.93	0.133	No	No	0.43
432	31.01	76.90	2.22	1.35	0.67	51.74	1.66	85.67	0.138	No	No	0.45

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	31.10	77.02	2.24	1.50	0.68	51.51	1.74	89.47	0.147	No	No	0.48
434	31.19	77.06	2.28	1.66	0.69	51.19	1.84	93.96	0.157	No	No	0.51
435	31.28	77.57	2.30	1.81	0.70	51.24	1.92	98.21	0.168	No	No	0.54
436	31.35	78.53	2.31	1.92	0.70	51.70	1.97	101.82	0.178	No	No	0.58
437	31.43	80.52	2.31	1.98	0.70	52.90	1.98	104.59	0.186	No	No	0.60
438	31.53	83.11	2.31	2.04	0.70	54.53	1.97	107.28	0.195	No	No	0.63
439	31.60	85.91	2.26	1.77	0.69	56.74	1.78	101.10	0.176	No	No	0.57
440	31.67	88.07	2.21	1.54	0.67	58.52	1.64	95.74	0.162	No	No	0.52
441	31.77	89.46	2.16	1.33	0.66	59.74	1.53	91.18	0.150	No	No	0.48
442	31.84	89.86	2.18	1.41	0.66	59.77	1.56	93.40	0.156	No	No	0.50
443	31.91	86.18	2.22	1.57	0.68	56.78	1.68	95.19	0.160	No	No	0.51
444	31.98	79.10	2.29	1.77	0.70	51.41	1.89	97.23	0.165	No	No	0.53
445	31.98	77.21	2.32	1.87	0.70	49.95	1.99	99.23	0.171	No	No	0.55
446	32.04	78.73	2.31	1.90	0.70	50.91	1.98	100.65	0.175	No	No	0.56
447	32.12	82.68	2.30	1.89	0.70	53.56	1.91	102.19	4.000	Yes	No	2.00
448	32.16	80.04	2.33	2.05	0.71	51.46	2.05	105.63	4.000	Yes	No	2.00
449	32.27	75.66	2.38	2.23	0.72	48.11	2.26	108.77	4.000	Yes	No	2.00
450	32.33	70.76	2.42	2.40	0.74	44.53	2.50	111.51	4.000	Yes	No	2.00
451	32.41	66.31	2.46	2.50	0.75	41.33	2.72	112.40	4.000	Yes	No	2.00
452	32.50	61.79	2.49	2.55	0.76	38.14	2.93	111.66	4.000	Yes	No	2.00
453	32.58	56.66	2.53	2.59	0.77	34.61	3.18	110.12	4.000	Yes	No	2.00
454	32.66	50.22	2.58	2.66	0.78	30.23	3.59	108.68	4.000	Yes	No	2.00
455	32.74	43.30	2.65	2.79	0.80	25.56	4.22	107.79	4.000	Yes	Yes	2.00
456	32.84	36.12	2.75	3.04	0.83	20.76	5.20	107.96	4.000	Yes	Yes	2.00
457	32.90	29.88	2.85	3.36	0.86	16.68	6.45	107.62	4.000	Yes	Yes	2.00
458	32.98	24.92	2.96	3.68	1.00	12.71	8.19	104.08	4.000	Yes	Yes	2.00
459	33.08	20.77	3.06	4.02	1.00	10.40	9.80	101.84	3.600	No	Yes	2.00
460	33.14	17.05	3.16	4.51	1.00	8.34	11.93	99.50	3.600	No	Yes	2.00
461	33.22	14.12	3.27	5.00	1.00	6.71	14.31	96.06	3.600	No	Yes	2.00
462	33.32	12.19	3.34	5.20	1.00	5.64	16.21	91.43	3.600	No	Yes	2.00
463	33.37	11.28	3.35	4.81	1.00	5.14	16.60	85.28	3.600	No	Yes	2.00
464	33.47	11.05	3.34	4.46	1.00	4.99	16.37	81.70	3.600	No	Yes	2.00
465	33.56	11.66	3.30	4.00	1.00	5.30	15.06	79.85	3.600	No	Yes	2.00
466	33.63	12.43	3.26	3.78	1.00	5.71	14.04	80.15	3.600	No	Yes	2.00
467	33.71	12.67	3.23	3.53	1.00	5.82	13.47	78.37	3.600	No	Yes	2.00
468	33.81	11.99	3.22	3.07	1.00	5.44	13.27	72.19	3.600	No	Yes	2.00
469	33.90	11.05	3.23	2.64	1.00	4.92	13.35	65.65	3.600	No	Yes	2.00
470	33.95	10.31	3.23	2.27	1.00	4.51	13.36	60.28	3.600	No	Yes	2.00
471	34.04	10.07	3.24	2.29	1.00	4.37	13.69	59.84	3.600	No	Yes	2.00
472	34.14	9.87	3.25	2.32	1.00	4.25	14.01	59.54	3.600	No	Yes	2.00
473	34.17	9.81	3.26	2.35	1.00	4.21	14.16	59.63	3.600	No	Yes	2.00
474	34.20	10.07	3.24	2.31	1.00	4.35	13.78	59.92	3.600	No	Yes	2.00
475	34.26	10.38	3.23	2.26	1.00	4.50	13.36	60.14	3.600	No	Yes	2.00
476	34.35	10.61	3.21	2.19	1.00	4.61	12.99	59.91	3.600	No	Yes	2.00
477	34.43	10.41	3.22	2.20	1.00	4.49	13.24	59.45	3.600	No	Yes	2.00
478	34.49	10.27	3.22	2.15	1.00	4.41	13.28	58.59	3.600	No	Yes	2.00
479	34.59	10.17	3.22	2.05	1.00	4.34	13.18	57.25	3.600	No	Yes	2.00
480	34.69	10.07	3.21	1.94	1.00	4.28	13.07	55.91	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	34.73	9.90	3.22	1.88	1.00	4.18	13.12	54.88	3.600	No	Yes	2.00
482	34.83	9.80	3.22	1.86	1.00	4.12	13.19	54.34	3.600	No	Yes	2.00
483	34.90	9.74	3.23	1.89	1.00	4.07	13.37	54.48	3.600	No	Yes	2.00
484	34.98	9.84	3.23	1.97	1.00	4.12	13.48	55.47	3.600	No	Yes	2.00
485	35.07	10.14	3.24	2.18	1.00	4.26	13.68	58.28	3.600	No	Yes	2.00
486	35.16	10.58	3.27	2.77	1.00	4.47	14.49	64.79	3.600	No	Yes	2.00
487	35.26	11.29	3.32	3.92	1.00	4.82	15.85	76.48	3.600	No	Yes	2.00
488	35.33	13.25	3.31	4.84	1.00	5.82	15.42	89.71	3.600	No	Yes	2.00
489	35.40	16.76	3.22	5.02	1.00	7.61	13.28	101.03	3.600	No	Yes	2.00
490	35.50	20.84	3.12	4.66	1.00	9.67	11.03	106.70	3.600	No	Yes	2.00
491	35.57	23.37	3.07	4.51	1.00	10.95	10.02	109.72	3.600	No	Yes	2.00
492	35.65	23.77	3.07	4.67	1.00	11.12	10.10	112.36	3.600	No	Yes	2.00
493	35.71	22.86	3.11	5.08	1.00	10.64	10.83	115.22	3.600	No	Yes	2.00
494	35.79	21.65	3.15	5.43	1.00	9.99	11.64	116.27	3.600	No	Yes	2.00
495	35.85	20.37	3.18	5.49	1.00	9.32	12.22	113.90	3.600	No	Yes	2.00
496	35.94	19.29	3.19	5.34	1.00	8.75	12.53	109.71	3.600	No	Yes	2.00
497	35.99	18.31	3.19	4.97	1.00	8.24	12.58	103.66	3.600	No	Yes	2.00
498	36.08	17.16	3.19	4.47	1.00	7.64	12.55	95.94	3.600	No	Yes	2.00
499	36.17	15.54	3.21	4.09	1.00	6.80	12.98	88.35	3.600	No	Yes	2.00
500	36.24	14.22	3.23	3.84	1.00	6.13	13.50	82.76	3.600	No	Yes	2.00
501	36.33	13.58	3.25	3.84	1.00	5.79	14.00	81.11	3.600	No	Yes	2.00
502	36.42	13.58	3.26	3.97	1.00	5.77	14.22	82.08	3.600	No	Yes	2.00
503	36.52	14.05	3.21	3.32	1.00	5.99	12.88	77.16	3.600	No	Yes	2.00
504	36.61	15.40	3.13	2.85	1.00	6.64	11.27	74.88	3.600	No	Yes	2.00
505	36.70	17.73	3.06	2.69	1.00	7.78	9.87	76.79	3.600	No	Yes	2.00
506	36.78	20.23	3.06	3.31	1.00	8.99	9.83	88.43	3.600	No	Yes	2.00
507	36.85	18.24	3.19	4.64	1.00	7.99	12.41	99.18	3.600	No	Yes	2.00
508	36.87	20.20	3.15	4.68	1.00	8.95	11.61	103.88	3.600	No	Yes	2.00
509	36.91	23.23	3.07	4.28	1.00	10.43	10.08	105.17	3.600	No	Yes	2.00
510	36.97	31.40	2.86	3.30	0.87	15.73	6.66	104.77	4.000	Yes	Yes	2.00
511	37.06	35.24	2.80	3.11	0.85	17.97	5.86	105.20	4.000	Yes	Yes	2.00
512	37.12	38.62	2.76	3.10	0.84	19.91	5.42	107.91	4.000	Yes	Yes	2.00
513	37.20	42.40	2.74	3.17	0.83	22.04	5.10	112.33	4.000	Yes	Yes	2.00
514	37.27	47.56	2.69	3.09	0.81	25.06	4.56	114.30	4.000	Yes	Yes	2.00
515	37.35	52.21	2.63	2.89	0.80	27.88	4.03	112.42	4.000	Yes	Yes	2.00
516	37.44	55.22	2.59	2.66	0.78	29.75	3.64	108.21	4.000	Yes	No	2.00
517	37.49	58.42	2.53	2.39	0.77	31.83	3.23	102.76	4.000	Yes	No	2.00
518	37.59	67.19	2.43	2.02	0.74	37.46	2.56	95.81	4.000	Yes	No	2.00
519	37.64	85.65	2.27	1.57	0.69	49.64	1.82	90.11	4.000	Yes	No	2.00
520	37.70	111.29	2.10	1.20	0.64	67.10	1.41	94.79	4.000	Yes	No	2.00
521	37.78	136.59	1.96	0.98	0.60	84.81	1.28	108.37	4.000	Yes	No	2.00
522	37.83	155.69	1.88	0.87	0.57	98.45	1.22	120.19	4.000	Yes	No	2.00
523	37.92	167.53	1.83	0.82	0.56	106.83	1.19	126.68	4.000	Yes	No	2.00
524	37.97	174.58	1.81	0.81	0.55	111.69	1.17	130.53	4.000	Yes	No	2.00
525	38.07	178.80	1.81	0.82	0.55	114.34	1.16	133.13	0.299	No	No	0.90
526	38.14	181.84	1.81	0.85	0.55	116.07	1.17	135.64	0.312	No	No	0.94
527	38.22	185.72	1.82	0.88	0.55	118.33	1.17	138.68	0.328	No	No	0.99
528	38.31	191.72	1.82	0.92	0.55	121.94	1.17	143.23	0.353	No	No	1.06

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	38.41	201.37	1.80	0.92	0.55	128.37	1.16	148.66	0.386	No	No	1.16
530	38.52	212.64	1.79	0.92	0.54	135.94	1.14	154.32	0.422	No	No	1.27
531	38.64	221.04	1.77	0.91	0.54	141.59	1.11	157.41	0.443	No	No	1.33
532	38.74	217.87	1.79	0.95	0.54	138.67	1.14	158.10	0.448	No	No	1.34
533	38.80	214.19	1.81	0.99	0.55	135.62	1.16	157.57	0.444	No	No	1.33
534	38.89	210.42	1.83	1.04	0.56	132.43	1.18	156.57	0.437	No	No	1.31
535	38.94	213.65	1.83	1.05	0.56	134.37	1.18	158.84	0.453	No	No	1.36
536	39.03	213.59	1.84	1.10	0.56	133.74	1.19	159.69	0.459	No	No	1.37
537	39.13	213.25	1.86	1.15	0.57	132.81	1.21	160.46	0.464	No	No	1.39
538	39.23	211.36	1.88	1.22	0.57	130.76	1.22	160.12	0.462	No	No	1.38
539	39.35	207.85	1.90	1.28	0.58	127.69	1.24	158.27	0.449	No	No	1.34
540	39.42	201.04	1.93	1.34	0.59	122.59	1.26	154.08	0.420	No	No	1.26
541	39.51	192.09	1.96	1.40	0.60	116.15	1.28	148.22	0.383	No	No	1.14
542	39.60	181.50	1.99	1.45	0.61	108.71	1.30	141.37	0.343	No	No	1.02
543	39.70	172.83	2.02	1.50	0.61	102.65	1.32	135.85	0.313	No	No	0.93
544	39.78	164.63	2.04	1.53	0.62	97.07	1.35	130.75	0.288	No	No	0.86
545	39.90	157.35	2.06	1.56	0.63	92.05	1.37	126.28	0.267	No	No	0.80
546	39.99	149.05	2.09	1.60	0.64	86.44	1.41	121.65	0.247	No	No	0.74
547	40.09	141.42	2.12	1.64	0.64	81.31	1.45	117.75	4.000	Yes	No	2.00
548	40.18	133.79	2.15	1.68	0.65	76.23	1.50	114.33	4.000	Yes	No	2.00
549	40.23	126.04	2.18	1.74	0.66	71.16	1.56	111.30	4.000	Yes	No	2.00
550	40.33	118.01	2.22	1.81	0.67	65.88	1.65	108.90	4.000	Yes	No	2.00
551	40.43	110.12	2.25	1.88	0.68	60.74	1.76	107.17	4.000	Yes	No	2.00
552	40.52	101.85	2.31	2.03	0.70	55.31	1.95	107.68	4.000	Yes	No	2.00
553	40.61	92.44	2.36	2.12	0.71	49.44	2.15	106.53	4.000	Yes	No	2.00
554	40.69	80.59	2.43	2.30	0.74	42.14	2.54	106.96	4.000	Yes	No	2.00
555	40.80	68.65	2.51	2.44	0.76	35.01	3.03	106.21	4.000	Yes	No	2.00
556	40.87	59.91	2.58	2.61	0.78	29.84	3.59	107.20	4.000	Yes	No	2.00
557	40.95	53.47	2.64	2.76	0.80	26.09	4.12	107.50	4.000	Yes	Yes	2.00
558	40.97	51.37	2.65	2.73	0.80	24.94	4.24	105.79	4.000	Yes	Yes	2.00
559	41.01	54.31	2.61	2.50	0.79	26.70	3.81	101.77	4.000	Yes	Yes	2.00
560	41.07	61.80	2.51	2.12	0.76	31.20	3.04	94.92	4.000	Yes	No	2.00
561	41.15	67.40	2.44	1.89	0.74	34.61	2.61	90.47	4.000	Yes	No	2.00
562	41.26	67.13	2.44	1.87	0.74	34.39	2.61	89.74	0.147	No	No	0.44
563	41.35	63.05	2.48	1.98	0.75	31.86	2.87	91.40	0.151	No	No	0.45
564	41.47	60.28	2.52	2.09	0.76	30.09	3.10	93.27	0.155	No	No	0.46
565	41.59	59.67	2.53	2.13	0.77	29.62	3.18	94.19	0.158	No	No	0.47
566	41.69	60.42	2.53	2.16	0.77	29.94	3.18	95.29	0.160	No	No	0.48
567	41.78	59.17	2.55	2.27	0.77	29.08	3.36	97.63	0.167	No	No	0.49
568	41.88	54.75	2.61	2.48	0.79	26.41	3.82	100.94	3.600	No	Yes	2.00
569	41.98	49.45	2.67	2.69	0.81	23.32	4.43	103.21	3.600	No	Yes	2.00
570	42.08	45.13	2.72	2.83	0.83	20.88	4.96	103.54	3.600	No	Yes	2.00
571	42.16	44.32	2.73	2.78	0.83	20.43	4.99	102.01	3.600	No	Yes	2.00
572	42.24	47.12	2.68	2.60	0.81	21.98	4.53	99.69	3.600	No	Yes	2.00
573	42.31	52.25	2.62	2.38	0.79	24.86	3.91	97.23	3.600	No	Yes	2.00
574	42.45	56.94	2.57	2.24	0.78	27.44	3.48	95.61	0.161	No	No	0.48
575	42.55	59.37	2.54	2.18	0.77	28.78	3.30	94.91	0.160	No	No	0.47
576	42.60	59.78	2.54	2.18	0.77	28.96	3.29	95.14	0.160	No	No	0.47

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	42.70	59.34	2.55	2.25	0.77	28.59	3.38	96.60	0.164	No	No	0.48
578	42.81	57.38	2.59	2.39	0.78	27.33	3.64	99.43	0.171	No	No	0.51
579	42.89	53.57	2.64	2.62	0.80	25.06	4.12	103.15	3.600	No	Yes	2.00
580	42.98	48.27	2.71	2.91	0.82	22.02	4.84	106.61	3.600	No	Yes	2.00
581	43.08	43.14	2.79	3.21	0.84	19.16	5.69	108.99	3.600	No	Yes	2.00
582	43.17	40.44	2.83	3.35	0.86	17.68	6.18	109.35	3.600	No	Yes	2.00
583	43.27	41.05	2.81	3.20	0.85	18.01	5.94	107.03	3.600	No	Yes	2.00
584	43.37	43.81	2.71	2.52	0.82	19.71	4.84	95.48	3.600	No	Yes	2.00
585	43.50	46.82	2.61	1.93	0.79	21.62	3.86	83.44	3.600	No	Yes	2.00
586	43.61	48.54	2.54	1.53	0.77	22.85	3.24	73.95	0.118	No	No	0.35
587	43.74	49.31	2.54	1.57	0.77	23.16	3.25	75.29	0.120	No	No	0.35
588	43.79	49.31	2.56	1.72	0.78	22.99	3.44	79.06	0.126	No	No	0.37
589	43.86	48.47	2.60	1.95	0.79	22.31	3.79	84.59	3.600	No	Yes	2.00
590	43.94	47.05	2.66	2.26	0.81	21.30	4.28	91.16	3.600	No	Yes	2.00
591	44.00	44.89	2.72	2.63	0.82	19.92	4.92	98.08	3.600	No	Yes	2.00
592	44.08	42.33	2.78	2.98	0.84	18.39	5.62	103.37	3.600	No	Yes	2.00
593	44.17	38.85	2.85	3.30	0.86	16.48	6.45	106.26	3.600	No	Yes	2.00
594	44.27	35.44	2.90	3.43	0.88	14.71	7.14	105.00	3.600	No	Yes	2.00
595	44.42	34.16	2.90	3.25	0.88	14.09	7.15	100.72	3.600	No	Yes	2.00
596	44.52	37.10	2.82	2.76	0.85	15.69	6.06	95.03	3.600	No	Yes	2.00
597	44.61	44.15	2.68	2.18	0.81	19.52	4.49	87.72	3.600	No	Yes	2.00
598	44.71	51.91	2.57	1.87	0.78	23.77	3.51	83.46	0.134	No	No	0.40
599	44.85	56.66	2.53	1.83	0.77	26.27	3.19	83.87	0.135	No	No	0.40
600	44.95	57.30	2.55	1.98	0.77	26.40	3.34	88.11	0.144	No	No	0.42
601	45.09	54.98	2.59	2.17	0.79	24.92	3.69	92.06	0.153	No	No	0.45
602	45.19	50.09	2.66	2.39	0.81	22.17	4.29	95.00	3.600	No	Yes	2.00
603	45.33	43.44	2.76	2.73	0.83	18.53	5.31	98.48	3.600	No	Yes	2.00
604	45.42	37.17	2.85	3.08	0.86	15.25	6.56	100.02	3.600	No	Yes	2.00
605	45.57	34.20	2.90	3.17	0.88	13.74	7.18	98.64	3.600	No	Yes	2.00
606	45.68	32.58	2.91	3.02	0.88	12.98	7.29	94.66	3.600	No	Yes	2.00
607	45.81	30.45	2.91	2.71	0.88	12.02	7.30	87.72	3.600	No	Yes	2.00
608	45.92	26.54	3.01	2.83	1.00	9.26	8.96	82.93	3.600	No	Yes	2.00
609	46.05	22.29	3.11	3.22	1.00	7.59	10.87	82.51	3.600	No	Yes	2.00
610	46.16	19.32	3.23	4.05	1.00	6.43	13.40	86.12	3.600	No	Yes	2.00
611	46.17	17.73	3.28	4.34	1.00	5.82	14.71	85.57	3.600	No	Yes	2.00
612	46.23	17.46	3.28	4.24	1.00	5.70	14.75	84.09	3.600	No	Yes	2.00
613	46.29	16.85	3.29	4.16	1.00	5.46	15.02	82.02	3.600	No	Yes	2.00
614	46.34	16.04	3.31	3.98	1.00	5.15	15.32	78.81	3.600	No	Yes	2.00
615	46.42	15.30	3.31	3.71	1.00	4.85	15.44	74.90	3.600	No	Yes	2.00
616	46.48	14.90	3.30	3.33	1.00	4.69	15.10	70.80	3.600	No	Yes	2.00
617	46.52	14.69	3.28	3.04	1.00	4.61	14.73	67.86	3.600	No	Yes	2.00
618	46.60	14.56	3.27	2.84	1.00	4.55	14.47	65.79	3.600	No	Yes	2.00
619	46.67	14.49	3.26	2.68	1.00	4.51	14.23	64.21	3.600	No	Yes	2.00
620	46.74	14.45	3.25	2.57	1.00	4.49	14.03	63.02	3.600	No	Yes	2.00
621	46.82	14.42	3.25	2.46	1.00	4.47	13.84	61.88	3.600	No	Yes	2.00
622	46.88	14.19	3.25	2.42	1.00	4.37	13.96	61.07	3.600	No	Yes	2.00
623	46.96	14.10	3.25	2.39	1.00	4.33	13.99	60.61	3.600	No	Yes	2.00
624	47.06	13.97	3.26	2.41	1.00	4.27	14.16	60.52	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	47.15	14.11	3.26	2.45	1.00	4.31	14.15	61.03	3.600	No	Yes	2.00
626	47.24	14.43	3.28	2.83	1.00	4.42	14.72	65.10	3.600	No	Yes	2.00
627	47.35	16.18	3.29	3.62	1.00	5.07	14.87	75.39	3.600	No	Yes	2.00
628	47.49	19.69	3.20	3.51	1.00	6.36	12.67	80.67	3.600	No	Yes	2.00
629	47.58	24.11	3.09	3.10	1.00	8.00	10.33	82.65	3.600	No	Yes	2.00
630	47.73	26.03	3.03	2.80	1.00	8.69	9.32	80.95	3.600	No	Yes	2.00
631	47.83	27.06	3.02	2.79	1.00	9.05	9.05	81.84	3.600	No	Yes	2.00
632	47.87	26.18	3.04	2.97	1.00	8.71	9.55	83.19	3.600	No	Yes	2.00
633	47.89	26.93	3.02	2.82	1.00	8.98	9.14	82.12	3.600	No	Yes	2.00
634	47.94	26.64	3.02	2.81	1.00	8.87	9.20	81.59	3.600	No	Yes	2.00
635	48.02	26.81	3.02	2.75	1.00	8.91	9.08	80.90	3.600	No	Yes	2.00
636	48.07	26.40	3.03	2.79	1.00	8.75	9.26	81.07	3.600	No	Yes	2.00
637	48.12	25.97	3.05	2.94	1.00	8.58	9.61	82.45	3.600	No	Yes	2.00
638	48.18	25.43	3.07	3.12	1.00	8.37	10.05	84.09	3.600	No	Yes	2.00
639	48.26	25.01	3.09	3.28	1.00	8.20	10.42	85.42	3.600	No	Yes	2.00
640	48.31	24.60	3.10	3.27	1.00	8.04	10.54	84.77	3.600	No	Yes	2.00
641	48.38	24.56	3.08	3.09	1.00	8.01	10.30	82.58	3.600	No	Yes	2.00
642	48.46	24.71	3.06	2.82	1.00	8.05	9.85	79.31	3.600	No	Yes	2.00
643	48.52	24.41	3.05	2.59	1.00	7.93	9.58	75.99	3.600	No	Yes	2.00
644	48.60	23.16	3.05	2.42	1.00	7.46	9.70	72.40	3.600	No	Yes	2.00
645	48.68	20.77	3.10	2.41	1.00	6.57	10.59	69.64	3.600	No	Yes	2.00
646	48.74	18.20	3.17	2.55	1.00	5.63	12.04	67.76	3.600	No	Yes	2.00
647	48.82	15.94	3.25	2.86	1.00	4.80	14.01	67.24	3.600	No	Yes	2.00
648	48.89	14.56	3.31	3.07	1.00	4.29	15.49	66.41	3.600	No	Yes	2.00
649	48.99	13.82	3.34	3.08	1.00	4.01	16.21	64.98	3.600	No	Yes	2.00
650	49.05	13.65	3.32	2.83	1.00	3.94	15.85	62.48	3.600	No	Yes	2.00
651	49.12	13.51	3.31	2.54	1.00	3.89	15.38	59.74	3.600	No	Yes	2.00
652	49.18	13.55	3.28	2.25	1.00	3.89	14.70	57.20	3.600	No	Yes	2.00
653	49.27	13.75	3.26	2.06	1.00	3.96	14.08	55.71	3.600	No	Yes	2.00
654	49.32	13.92	3.24	1.91	1.00	4.01	13.56	54.42	3.600	No	Yes	2.00
655	49.42	13.55	3.25	1.92	1.00	3.87	13.92	53.88	3.600	No	Yes	2.00
656	49.48	13.11	3.27	1.97	1.00	3.71	14.46	53.63	3.600	No	Yes	2.00
657	49.56	13.01	3.28	2.04	1.00	3.66	14.76	54.09	3.600	No	Yes	2.00
658	49.66	13.28	3.28	2.12	1.00	3.75	14.73	55.25	3.600	No	Yes	2.00
659	49.76	13.68	3.27	2.16	1.00	3.89	14.49	56.33	3.600	No	Yes	2.00
660	49.85	14.06	3.23	1.87	1.00	4.01	13.46	54.00	3.600	No	Yes	2.00
661	49.99	14.87	3.17	1.52	1.00	4.29	11.96	51.28	3.600	No	Yes	2.00
662	50.09	14.43	3.16	1.38	1.00	4.12	11.90	49.07	3.600	No	Yes	2.00
663	50.21	13.82	3.21	1.57	1.00	3.89	12.94	50.39	3.600	No	Yes	2.00
664	50.24	13.21	3.24	1.66	1.00	3.68	13.72	50.47	3.600	No	Yes	2.00
665	50.29	13.59	3.21	1.54	1.00	3.81	13.05	49.66	3.600	No	Yes	2.00
666	50.38	13.69	3.20	1.45	1.00	3.83	12.73	48.82	3.600	No	Yes	2.00
667	50.47	13.39	3.21	1.45	1.00	3.72	13.00	48.36	3.600	No	Yes	2.00
668	50.52	12.98	3.24	1.53	1.00	3.57	13.61	48.61	3.600	No	Yes	2.00
669	50.62	13.01	3.24	1.57	1.00	3.58	13.73	49.09	3.600	No	Yes	2.00
670	50.66	13.15	3.24	1.60	1.00	3.62	13.70	49.58	3.600	No	Yes	2.00
671	50.76	13.28	3.24	1.64	1.00	3.66	13.70	50.11	3.600	No	Yes	2.00
672	50.83	14.13	3.21	1.63	1.00	3.95	12.99	51.29	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	50.91	14.30	3.23	1.81	1.00	4.00	13.34	53.36	3.600	No	Yes	2.00
674	51.00	15.61	3.19	1.82	1.00	4.45	12.42	55.29	3.600	No	Yes	2.00
675	51.06	17.36	3.13	1.78	1.00	5.06	11.27	56.99	3.600	No	Yes	2.00
676	51.15	17.67	3.16	2.10	1.00	5.15	11.86	61.08	3.600	No	Yes	2.00
677	51.24	16.35	3.27	2.96	1.00	4.68	14.43	67.57	3.600	No	Yes	2.00
678	51.31	12.88	3.51	5.15	1.00	3.47	21.69	75.27	3.600	No	Yes	2.00
679	51.39	18.55	3.28	3.96	1.00	5.43	14.77	80.15	3.600	No	Yes	2.00
680	51.48	32.14	2.90	2.47	0.88	11.43	7.23	82.64	3.600	No	Yes	2.00
681	51.58	35.38	2.87	2.60	0.87	12.78	6.83	87.30	3.600	No	Yes	2.00
682	51.68	27.82	3.10	3.71	1.00	8.59	10.70	91.85	3.600	No	Yes	2.00
683	51.77	17.84	3.45	6.98	1.00	5.13	19.49	100.06	3.600	No	Yes	2.00
684	51.90	36.80	3.02	4.07	1.00	11.62	9.16	106.47	3.600	No	Yes	2.00
685	52.01	74.42	2.58	2.71	0.78	30.49	3.61	110.20	4.000	Yes	No	2.00
686	52.11	128.50	2.34	2.42	0.71	57.50	2.11	121.05	4.000	Yes	No	2.00
687	52.26	161.87	2.25	2.35	0.68	74.64	1.77	131.90	4.000	Yes	No	2.00
688	52.30	209.17	2.12	2.06	0.65	100.78	1.45	146.55	4.000	Yes	No	2.00
689	52.33	248.44	2.00	1.70	0.61	124.60	1.31	162.63	4.000	Yes	No	2.00
690	52.35	302.93	1.87	1.40	0.57	158.50	1.21	192.22	4.000	Yes	No	2.00
691	52.40	347.53	1.78	1.23	0.54	187.07	1.12	209.95	4.000	Yes	No	2.00
692	52.45	381.51	1.72	1.16	0.53	208.63	1.04	216.58	4.000	Yes	No	2.00
693	52.50	415.58	1.69	1.13	0.51	229.89	1.00	229.89	4.000	No	No	2.00
694	52.55	447.33	1.67	1.14	0.51	248.98	1.00	248.98	4.000	No	No	2.00
695	52.60	486.53	1.63	1.11	0.50	273.15	1.00	273.15	4.000	No	No	2.00
696	52.65	516.02	1.60	1.04	0.50	289.64	1.00	289.64	4.000	No	No	2.00
697	52.71	531.14	1.57	0.97	0.50	297.95	1.00	297.95	4.000	No	No	2.00
698	52.77	541.83	1.53	0.90	0.50	303.79	1.00	303.79	4.000	No	No	2.00
699	52.82	558.50	1.51	0.85	0.50	312.99	1.00	312.99	4.000	No	No	2.00
700	52.88	578.13	1.48	0.81	0.50	323.84	1.00	323.84	4.000	No	No	2.00
701	52.93	592.07	1.46	0.79	0.50	331.46	1.00	331.46	4.000	No	No	2.00
702	52.98	605.70	1.46	0.78	0.50	338.95	1.00	338.95	4.000	No	No	2.00
703	53.03	608.64	1.46	0.79	0.50	340.39	1.00	340.39	4.000	No	No	2.00
704	53.08	608.27	1.46	0.80	0.50	340.01	1.00	340.01	4.000	No	No	2.00
705	53.12	601.01	1.47	0.80	0.50	335.78	1.00	335.78	4.000	No	No	2.00
706	53.17	598.22	1.46	0.78	0.50	333.99	1.00	333.99	4.000	No	No	2.00
707	53.23	600.71	1.45	0.76	0.50	335.19	1.00	335.19	4.000	No	No	2.00
708	53.28	596.23	1.47	0.79	0.50	332.45	1.00	332.45	4.000	No	No	2.00
709	53.37	588.50	1.48	0.83	0.50	327.80	1.00	327.80	4.000	No	No	2.00
710	53.42	584.11	1.50	0.86	0.50	325.17	1.00	325.17	4.000	No	No	2.00
711	53.46	586.81	1.52	0.90	0.50	326.50	1.00	326.50	4.000	No	No	2.00
712	53.53	599.03	1.53	0.96	0.50	333.09	1.00	333.09	4.000	No	No	2.00
713	53.61	597.34	1.56	1.05	0.50	331.84	1.00	331.84	4.000	No	No	2.00
714	53.62	582.26	1.60	1.13	0.50	323.39	1.00	323.39	4.000	No	No	2.00
715	53.65	574.05	1.60	1.15	0.50	318.67	1.00	318.67	4.000	No	No	2.00
716	53.67	571.35	1.61	1.16	0.50	317.12	1.00	317.12	4.000	No	No	2.00
717	53.70	583.83	1.59	1.12	0.50	323.95	1.00	323.95	4.000	No	No	2.00
718	53.74	582.83	1.60	1.14	0.50	323.26	1.00	323.26	4.000	No	No	2.00
719	53.76	583.81	1.60	1.14	0.50	323.74	1.00	323.74	4.000	No	No	2.00
720	53.80	581.08	1.59	1.13	0.50	322.06	1.00	322.06	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	53.84	577.81	1.59	1.10	0.50	320.07	1.00	320.07	4.000	No	No	2.00
722	53.90	578.23	1.58	1.07	0.50	320.12	1.00	320.12	4.000	No	No	2.00
723	53.91	570.20	1.59	1.08	0.50	315.61	1.00	315.61	4.000	No	No	2.00
724	53.95	573.64	1.58	1.08	0.50	317.38	1.00	317.38	4.000	No	No	2.00
725	53.96	579.94	1.58	1.07	0.50	320.83	1.00	320.83	4.000	No	No	2.00
726	53.98	601.06	1.56	1.04	0.50	332.48	1.00	332.48	4.000	No	No	2.00
727	53.99	602.95	1.56	1.03	0.50	333.50	1.00	333.50	4.000	No	No	2.00
728	54.01	592.15	1.57	1.05	0.50	327.46	1.00	327.46	4.000	No	No	2.00
729	54.02	579.33	1.58	1.08	0.50	320.31	1.00	320.31	4.000	No	No	2.00
730	54.03	553.15	1.61	1.13	0.50	305.74	1.00	305.74	4.000	No	No	2.00
731	54.04	504.84	1.67	1.24	0.51	276.21	1.00	276.21	4.000	No	No	2.00
732	54.05	452.17	1.75	1.40	0.53	241.19	1.08	260.14	4.000	No	No	2.00
733	54.09	422.63	1.79	1.51	0.55	221.81	1.15	254.46	4.000	No	No	2.00
734	54.10	421.59	1.80	1.53	0.55	220.94	1.15	254.57	4.000	No	No	2.00
735	54.13	421.89	1.80	1.53	0.55	221.06	1.15	254.64	4.000	No	No	2.00
736	54.14	420.96	1.80	1.54	0.55	220.34	1.16	254.59	4.000	No	No	2.00
737	54.19	422.82	1.80	1.54	0.55	221.19	1.16	255.77	4.000	No	No	2.00
738	54.19	428.79	1.80	1.55	0.55	224.52	1.15	258.95	4.000	No	No	2.00
739	54.24	439.22	1.77	1.47	0.54	231.86	1.12	259.93	4.000	No	No	2.00
740	54.29	456.97	1.71	1.29	0.52	245.94	1.02	249.88	4.000	No	No	2.00
741	54.33	474.10	1.64	1.08	0.50	261.31	1.00	261.31	4.000	No	No	2.00
742	54.38	494.95	1.57	0.92	0.50	272.80	1.00	272.80	4.000	No	No	2.00
743	54.39	512.70	1.53	0.85	0.50	282.62	1.00	282.62	4.000	No	No	2.00
744	54.43	529.13	1.52	0.84	0.50	291.66	1.00	291.66	4.000	No	No	2.00
745	54.48	543.10	1.44	0.67	0.50	299.32	1.00	299.32	4.000	No	No	2.00
746	54.52	556.66	1.36	0.53	0.50	306.76	1.00	306.76	4.000	No	No	2.00
747	54.58	573.87	1.26	0.38	0.50	316.20	1.00	316.20	4.000	No	No	2.00
748	54.62	587.13	1.28	0.42	0.50	323.46	1.00	323.46	4.000	No	No	2.00
749	54.65	604.44	1.29	0.46	0.50	333.00	1.00	333.00	4.000	No	No	2.00
750	54.67	623.33	1.30	0.48	0.50	343.41	1.00	343.41	4.000	No	No	2.00
751	54.71	658.15	1.28	0.48	0.50	362.60	1.00	362.60	4.000	No	No	2.00
752	54.77	679.34	1.20	0.37	0.50	374.21	1.00	374.21	4.000	No	No	2.00
753	54.81	702.99	1.11	0.28	0.50	387.19	1.00	387.19	4.000	No	No	2.00
754	54.85	704.07	1.04	0.22	0.50	387.70	1.00	387.70	4.000	No	No	2.00
755	54.86	709.13	1.06	0.24	0.50	390.48	1.00	390.48	4.000	No	No	2.00
756	54.87	703.33	1.09	0.27	0.50	387.26	1.00	387.26	4.000	No	No	2.00
757	54.91	703.66	1.13	0.30	0.50	387.35	1.00	387.35	4.000	No	No	2.00
758	54.96	707.14	1.16	0.34	0.50	389.17	1.00	389.17	4.000	No	No	2.00
759	55.00	703.19	1.18	0.36	0.50	386.89	1.00	386.89	4.000	No	No	2.00
760	55.01	695.84	1.19	0.37	0.50	382.82	1.00	382.82	4.000	No	No	2.00
761	55.05	679.11	1.21	0.39	0.50	373.47	1.00	373.47	4.000	No	No	2.00
762	55.10	651.07	1.24	0.42	0.50	357.87	1.00	357.87	4.000	No	No	2.00
763	55.12	603.77	1.29	0.46	0.50	331.72	1.00	331.72	4.000	No	No	2.00
764	55.13	570.97	1.33	0.49	0.50	313.58	1.00	313.58	4.000	No	No	2.00
765	55.14	563.11	1.33	0.48	0.50	309.22	1.00	309.22	4.000	No	No	2.00
766	55.19	576.91	1.31	0.46	0.50	316.75	1.00	316.75	4.000	No	No	2.00
767	55.20	576.27	1.31	0.46	0.50	316.38	1.00	316.38	4.000	No	No	2.00
768	55.25	562.13	1.33	0.48	0.50	308.48	1.00	308.48	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	55.29	546.07	1.37	0.52	0.50	299.55	1.00	299.55	4.000	No	No	2.00
770	55.33	519.69	1.42	0.59	0.50	284.92	1.00	284.92	4.000	No	No	2.00
771	55.38	481.16	1.52	0.76	0.50	263.59	1.00	263.59	4.000	No	No	2.00
772	55.48	439.32	1.63	0.99	0.50	240.38	1.00	240.38	4.000	No	No	2.00
773	55.57	411.39	1.73	1.22	0.53	218.55	1.04	227.87	4.000	No	No	2.00
774	55.63	398.09	1.80	1.45	0.55	206.42	1.15	237.94	4.000	No	No	2.00
775	55.72	402.04	1.83	1.60	0.56	206.08	1.19	244.53	4.000	No	No	2.00
776	55.80	431.09	1.82	1.63	0.55	221.88	1.17	260.68	4.000	No	No	2.00
777	55.86	480.55	1.67	1.19	0.51	259.76	1.00	259.76	4.000	No	No	2.00
778	55.97	527.85	1.51	0.79	0.50	288.32	1.00	288.32	4.000	No	No	2.00
779	56.01	560.55	1.34	0.49	0.50	306.20	1.00	306.20	4.000	No	No	2.00
780	56.06	587.84	1.50	0.47	1.00	186.61	1.00	186.61	0.684	No	No	2.00
781	56.11	613.11	1.50	0.51	1.00	194.57	1.00	194.57	0.765	No	No	2.00
782	56.15	640.71	1.51	0.55	1.00	203.27	1.00	203.27	4.000	No	No	2.00
783	56.20	660.92	1.52	0.59	1.00	209.60	1.00	209.60	4.000	No	No	2.00
784	56.27	663.16	1.53	0.63	1.00	210.15	1.00	210.15	4.000	No	No	2.00
785	56.27	664.17	1.56	0.69	1.00	210.45	1.00	210.45	4.000	No	No	2.00
786	56.30	642.20	1.61	0.79	1.00	203.39	1.00	203.39	4.000	No	No	2.00
787	56.33	649.54	1.64	0.87	1.00	205.64	1.00	205.64	4.000	No	No	2.00
788	56.35	647.65	1.66	0.92	1.00	205.00	1.00	205.00	4.000	No	No	2.00
789	56.40	667.86	1.64	0.90	1.00	211.31	1.00	211.31	4.000	No	No	2.00
790	56.41	669.34	1.64	0.90	1.00	211.76	1.00	211.76	4.000	No	No	2.00
791	56.44	681.53	1.63	0.88	1.00	215.53	1.00	215.53	4.000	No	No	2.00
792	56.49	695.19	1.62	0.87	1.00	219.75	1.00	219.75	4.000	No	No	2.00
793	56.54	717.49	1.61	0.87	1.00	226.71	1.00	226.71	4.000	No	No	2.00
794	56.58	737.23	1.61	0.89	1.00	232.85	1.00	232.85	4.000	No	No	2.00
795	56.59	750.18	1.61	0.91	1.00	236.93	1.00	236.93	4.000	No	No	2.00
796	56.64	757.34	1.60	0.90	1.00	239.07	1.00	239.07	4.000	No	No	2.00
797	56.69	764.80	1.60	0.90	1.00	241.29	1.00	241.29	4.000	No	No	2.00
798	56.73	778.16	1.59	0.88	1.00	245.40	1.00	245.40	4.000	No	No	2.00
799	56.78	778.56	1.58	0.86	1.00	245.38	1.00	245.38	4.000	No	No	2.00
800	56.83	759.53	1.58	0.83	1.00	239.22	1.00	239.22	4.000	No	No	2.00
801	56.88	731.80	1.58	0.82	1.00	230.32	1.00	230.32	4.000	No	No	2.00
802	56.89	708.89	1.60	0.82	1.00	223.03	1.00	223.03	4.000	No	No	2.00
803	56.95	692.53	1.59	0.80	1.00	217.71	1.00	217.71	4.000	No	No	2.00
804	57.01	668.00	1.59	0.77	1.00	209.81	1.00	209.81	4.000	No	No	2.00
805	57.07	645.94	1.58	0.71	1.00	202.70	1.00	202.70	4.000	No	No	2.00
806	57.11	619.45	1.52	0.54	1.00	194.25	1.00	194.25	0.762	No	No	2.00
807	57.17	598.63	1.46	0.41	1.00	187.56	1.00	187.56	0.694	No	No	2.00
808	57.26	574.07	1.37	0.26	1.00	179.66	1.00	179.66	0.619	No	No	1.89
809	57.31	547.05	1.43	0.31	1.00	171.06	1.00	171.06	0.546	No	No	1.67
810	57.37	520.16	1.45	0.32	1.00	162.50	1.00	162.50	0.479	No	No	1.46
811	57.45	490.27	1.51	0.38	1.00	152.96	1.00	152.96	0.413	No	No	1.26
812	57.51	451.30	1.55	0.39	1.00	140.63	1.00	140.63	0.339	No	No	1.03
813	57.53	421.54	1.59	0.41	1.00	131.27	1.00	131.27	0.290	No	No	0.89
814	57.59	401.40	1.62	0.43	1.00	124.87	1.00	124.87	0.261	No	No	0.80
815	57.63	398.96	1.62	0.43	1.00	124.05	1.00	124.05	0.258	No	No	0.79
816	57.68	391.51	1.63	0.44	1.00	121.66	1.00	121.66	0.247	No	No	0.76

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	57.73	386.48	1.64	0.44	1.00	120.01	1.00	120.01	0.241	No	No	0.74
818	57.78	379.02	1.65	0.44	1.00	117.62	1.00	117.62	0.231	No	No	0.71
819	57.86	359.96	1.66	0.43	1.00	111.55	1.00	111.55	0.209	No	No	0.64
820	57.92	326.32	1.71	0.47	1.00	100.97	1.00	100.97	4.000	Yes	No	2.00
821	57.98	290.83	1.76	0.47	1.00	89.82	1.00	89.82	4.000	Yes	No	2.00
822	58.06	263.33	1.82	0.53	1.00	81.16	1.18	95.51	4.000	Yes	No	2.00
823	58.12	242.92	1.90	0.64	1.00	74.75	1.24	92.39	4.000	Yes	No	2.00
824	58.21	222.41	1.99	0.82	1.00	68.28	1.30	88.73	4.000	Yes	No	2.00
825	58.26	204.43	2.06	0.97	1.00	62.64	1.37	85.71	4.000	Yes	No	2.00
826	58.35	180.37	2.14	1.08	1.00	55.10	1.48	81.38	4.000	Yes	No	2.00
827	58.41	154.93	2.19	1.08	1.00	47.15	1.59	74.91	4.000	Yes	No	2.00
828	58.50	122.84	2.29	1.16	1.00	37.13	1.90	70.73	4.000	Yes	No	2.00
829	58.56	98.18	2.38	1.18	1.00	29.45	2.28	67.27	4.000	Yes	No	2.00
830	58.64	77.90	2.53	1.55	1.00	23.14	3.23	74.61	4.000	Yes	No	2.00
831	58.73	63.67	2.66	1.93	1.00	18.70	4.34	81.15	4.000	Yes	Yes	2.00
832	58.80	51.12	2.80	2.41	1.00	14.80	5.89	87.16	4.000	Yes	Yes	2.00
833	58.84	42.24	2.93	2.94	1.00	12.04	7.59	91.44	4.000	Yes	Yes	2.00
834	58.85	43.79	2.90	2.86	1.00	12.52	7.27	91.06	3.600	No	Yes	2.00
835	58.93	50.50	2.81	2.45	1.00	14.59	6.00	87.49	3.600	No	Yes	2.00
836	58.98	58.12	2.72	2.06	1.00	16.94	4.87	82.49	3.600	No	Yes	2.00
837	59.02	61.77	2.67	1.86	1.00	18.06	4.38	79.02	3.600	No	Yes	2.00
838	59.12	63.39	2.65	1.79	1.00	18.54	4.19	77.74	3.600	No	Yes	2.00
839	59.17	65.41	2.64	1.79	1.00	19.15	4.09	78.34	3.600	No	Yes	2.00
840	59.27	67.33	2.63	1.85	1.00	19.73	4.06	80.06	3.600	No	Yes	2.00
841	59.31	67.64	2.64	1.94	1.00	19.81	4.15	82.31	3.600	No	Yes	2.00
842	59.41	64.84	2.68	2.06	1.00	18.93	4.46	84.40	3.600	No	Yes	2.00
843	59.46	57.99	2.74	2.22	1.00	16.81	5.11	85.91	3.600	No	Yes	2.00
844	59.55	48.77	2.83	2.45	1.00	13.96	6.20	86.53	3.600	No	Yes	2.00
845	59.65	39.66	2.91	2.48	1.00	11.14	7.37	82.12	3.600	No	Yes	2.00
846	59.70	34.25	2.97	2.47	1.00	9.47	8.28	78.48	3.600	No	Yes	2.00
847	59.80	32.07	2.99	2.40	1.00	8.80	8.61	75.77	3.600	No	Yes	2.00
848	59.89	32.04	3.01	2.66	1.00	8.78	9.03	79.29	3.600	No	Yes	2.00
849	59.94	31.04	3.06	2.98	1.00	8.47	9.76	82.68	3.600	No	Yes	2.00
850	60.01	30.35	3.09	3.25	1.00	8.25	10.33	85.21	3.600	No	Yes	2.00
851	60.02	32.64	3.04	3.10	1.00	8.95	9.57	85.70	3.600	No	Yes	2.00
852	60.08	35.54	2.99	2.84	1.00	9.83	8.61	84.70	3.600	No	Yes	2.00
853	60.12	36.56	2.97	2.70	1.00	10.14	8.23	83.40	3.600	No	Yes	2.00
854	60.17	32.87	3.01	2.76	1.00	9.01	9.03	81.32	3.600	No	Yes	2.00
855	60.27	28.56	3.07	2.73	1.00	7.68	10.03	76.99	3.600	No	Yes	2.00
856	60.31	24.81	3.12	2.61	1.00	6.53	11.00	71.83	3.600	No	Yes	2.00
857	60.37	22.21	3.15	2.46	1.00	5.73	11.72	67.16	3.600	No	Yes	2.00
858	60.46	20.93	3.17	2.32	1.00	5.33	12.03	64.16	3.600	No	Yes	2.00
859	60.51	20.76	3.15	2.06	1.00	5.28	11.57	61.05	3.600	No	Yes	2.00
860	60.61	21.43	3.11	1.87	1.00	5.48	10.86	59.48	3.600	No	Yes	2.00
861	60.65	21.84	3.09	1.76	1.00	5.60	10.44	58.49	3.600	No	Yes	2.00
862	60.75	22.18	3.08	1.74	1.00	5.70	10.27	58.52	3.600	No	Yes	2.00
863	60.81	22.25	3.08	1.74	1.00	5.72	10.24	58.52	3.600	No	Yes	2.00
864	60.89	22.21	3.08	1.71	1.00	5.70	10.20	58.14	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	60.94	22.45	3.07	1.71	1.00	5.77	10.12	58.37	3.600	No	Yes	2.00
866	61.03	22.62	3.08	1.77	1.00	5.81	10.19	59.27	3.600	No	Yes	2.00
867	61.09	22.65	3.08	1.79	1.00	5.82	10.23	59.56	3.600	No	Yes	2.00
868	61.19	22.38	3.08	1.78	1.00	5.74	10.30	59.09	3.600	No	Yes	2.00
869	61.24	22.96	3.06	1.69	1.00	5.91	9.90	58.48	3.600	No	Yes	2.00
870	61.33	24.51	3.03	1.68	1.00	6.37	9.35	59.55	3.600	No	Yes	2.00
871	61.38	24.20	3.09	2.19	1.00	6.28	10.50	65.92	3.600	No	Yes	2.00
872	61.47	23.16	3.18	2.97	1.00	5.95	12.35	73.50	3.600	No	Yes	2.00
873	61.53	21.88	3.28	3.99	1.00	5.56	14.59	81.14	3.600	No	Yes	2.00
874	61.62	27.61	3.13	3.27	1.00	7.29	11.24	81.97	3.600	No	Yes	2.00
875	61.70	44.48	2.86	2.37	1.00	12.39	6.68	82.73	3.600	No	Yes	2.00
876	61.77	66.81	2.67	2.07	1.00	19.14	4.44	84.93	3.600	No	Yes	2.00
877	61.86	81.96	2.60	2.12	1.00	23.70	3.78	89.66	3.600	No	Yes	2.00
878	61.95	81.02	2.63	2.34	1.00	23.39	4.06	94.89	3.600	No	Yes	2.00
879	61.97	72.62	2.69	2.53	1.00	20.85	4.65	96.91	3.600	No	Yes	2.00
880	62.01	62.36	2.78	2.84	1.00	17.75	5.62	99.66	4.000	No	Yes	2.00
881	62.10	52.17	2.87	3.09	1.00	14.66	6.77	99.23	4.000	Yes	Yes	2.00
882	62.24	55.41	2.79	2.50	1.00	15.61	5.76	89.92	4.000	Yes	Yes	2.00
883	62.34	87.70	2.48	1.40	1.00	25.31	2.83	71.54	4.000	Yes	No	2.00
884	62.49	127.58	2.25	0.95	1.00	37.26	1.74	64.77	4.000	Yes	No	2.00
885	62.54	164.52	2.11	0.82	1.00	48.34	1.44	69.68	4.000	Yes	No	2.00
886	62.66	181.39	2.07	0.78	1.00	53.35	1.37	73.33	4.000	Yes	No	2.00
887	62.74	199.68	2.02	0.75	1.00	58.78	1.33	77.94	4.000	Yes	No	2.00
888	62.87	211.65	1.99	0.72	1.00	62.29	1.30	80.99	4.000	No	No	2.00
889	62.92	217.18	1.98	0.72	1.00	63.92	1.29	82.65	4.000	No	No	2.00
890	63.03	219.18	1.98	0.73	1.00	64.44	1.29	83.41	4.000	No	No	2.00
891	63.15	218.06	1.99	0.76	1.00	64.03	1.30	83.38	4.000	No	No	2.00
892	63.26	213.11	2.01	0.79	1.00	62.49	1.32	82.35	4.000	No	No	2.00
893	63.37	206.70	2.03	0.82	1.00	60.51	1.34	80.92	4.000	No	No	2.00
894	63.45	200.15	2.04	0.79	1.00	58.51	1.34	78.49	4.000	No	No	2.00
895	63.54	197.59	2.02	0.71	1.00	57.70	1.32	76.31	4.000	No	No	2.00
896	63.61	190.30	2.02	0.68	1.00	55.49	1.33	73.61	4.000	Yes	No	2.00
897	63.69	172.04	2.08	0.74	1.00	50.02	1.39	69.47	4.000	Yes	No	2.00
898	63.79	141.71	2.22	0.97	1.00	40.98	1.65	67.77	4.000	Yes	No	2.00
899	63.89	106.15	2.36	1.15	1.00	30.39	2.20	66.74	4.000	Yes	No	2.00
900	63.98	75.22	2.55	1.47	1.00	21.20	3.37	71.48	4.000	Yes	No	2.00
901	64.07	53.15	2.72	1.67	1.00	14.65	4.91	71.91	4.000	Yes	Yes	2.00
902	64.15	39.12	2.91	2.21	1.00	10.48	7.30	76.48	4.000	Yes	Yes	2.00
903	64.23	29.98	3.07	2.76	1.00	7.77	10.00	77.68	4.000	No	Yes	2.00
904	64.26	25.15	3.18	3.28	1.00	6.34	12.34	78.26	4.000	No	Yes	2.00
905	64.29	23.57	3.22	3.48	1.00	5.87	13.31	78.14	4.000	No	Yes	2.00
906	64.33	23.37	3.21	3.17	1.00	5.81	12.89	74.86	4.000	No	Yes	2.00
907	64.43	22.99	3.19	2.81	1.00	5.69	12.43	70.78	4.000	No	Yes	2.00
908	64.47	22.29	3.17	2.45	1.00	5.48	12.05	66.07	4.000	No	Yes	2.00
909	64.53	21.82	3.17	2.32	1.00	5.34	12.01	64.15	4.000	No	Yes	2.00
910	64.62	20.60	3.20	2.39	1.00	4.98	12.74	63.40	4.000	No	Yes	2.00
911	64.72	19.12	3.25	2.57	1.00	4.53	13.95	63.23	4.000	No	Yes	2.00
912	64.78	18.00	3.30	2.81	1.00	4.20	15.17	63.74	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	64.86	18.21	3.30	2.92	1.00	4.26	15.26	65.01	4.000	No	Yes	2.00
914	64.96	18.78	3.31	3.20	1.00	4.42	15.44	68.31	4.000	No	Yes	2.00
915	65.06	19.22	3.32	3.52	1.00	4.55	15.74	71.61	4.000	No	Yes	2.00
916	65.11	19.22	3.34	3.90	1.00	4.55	16.41	74.58	4.000	No	Yes	2.00
917	65.21	18.85	3.37	4.16	1.00	4.43	17.13	75.90	4.000	No	Yes	2.00
918	65.31	18.45	3.39	4.32	1.00	4.31	17.70	76.26	4.000	No	Yes	2.00
919	65.40	18.28	3.37	3.90	1.00	4.25	17.10	72.77	4.000	No	Yes	2.00
920	65.50	18.58	3.32	3.22	1.00	4.34	15.67	67.97	4.000	No	Yes	2.00
921	65.58	19.02	3.26	2.59	1.00	4.46	14.15	63.13	4.000	No	Yes	2.00
922	65.68	19.05	3.24	2.38	1.00	4.47	13.69	61.17	4.000	No	Yes	2.00
923	65.78	17.67	3.29	2.52	1.00	4.06	14.89	60.45	4.000	No	Yes	2.00
924	65.84	16.40	3.34	2.66	1.00	3.69	16.19	59.69	4.000	No	Yes	2.00
925	65.86	15.56	3.38	2.83	1.00	3.44	17.33	59.62	4.000	No	Yes	2.00
926	65.87	16.51	3.33	2.60	1.00	3.72	15.97	59.36	4.000	No	Yes	2.00
927	65.98	17.26	3.29	2.44	1.00	3.93	15.03	59.09	4.000	No	Yes	2.00
928	66.10	17.84	3.28	2.46	1.00	4.09	14.69	60.13	4.000	No	Yes	2.00
929	66.21	18.21	3.29	2.65	1.00	4.20	14.85	62.32	4.000	No	Yes	2.00
930	66.34	18.48	3.28	2.68	1.00	4.27	14.76	63.01	4.000	No	Yes	2.00
931	66.48	19.00	3.27	2.66	1.00	4.42	14.39	63.55	4.000	No	Yes	2.00
932	66.62	18.46	3.28	2.63	1.00	4.25	14.69	62.45	4.000	No	Yes	2.00
933	66.68	18.67	3.29	2.78	1.00	4.31	14.87	64.07	4.000	No	Yes	2.00
934	66.87	18.92	3.31	3.19	1.00	4.37	15.53	67.94	4.000	No	Yes	2.00
935	66.96	19.16	3.35	3.89	1.00	4.44	16.65	73.89	4.000	No	Yes	2.00
936	67.11	18.25	3.42	4.74	1.00	4.17	18.76	78.15	4.000	No	Yes	2.00
937	67.21	16.83	3.47	4.99	1.00	3.75	20.42	76.60	4.000	No	Yes	2.00
938	67.35	16.22	3.48	4.67	1.00	3.57	20.50	73.18	4.000	No	Yes	2.00
939	67.45	16.16	3.52	5.49	1.00	3.55	21.95	77.86	4.000	No	Yes	2.00
940	67.59	27.42	3.21	4.13	1.00	6.79	13.06	88.71	4.000	No	Yes	2.00
941	67.68	77.39	2.62	1.95	1.00	21.19	3.95	83.67	4.000	Yes	Yes	2.00
942	67.83	159.77	2.22	1.13	1.00	44.89	1.66	74.68	4.000	Yes	No	2.00
943	67.92	241.25	1.99	0.82	1.00	68.29	1.30	88.64	4.000	Yes	No	2.00
944	68.02	283.19	1.90	0.72	1.00	80.28	1.24	99.35	4.000	Yes	No	2.00
945	68.07	299.01	1.88	0.72	1.00	84.78	1.22	103.71	4.000	Yes	No	2.00
946	68.16	305.70	1.87	0.71	1.00	86.62	1.22	105.26	4.000	No	No	2.00
947	68.26	310.93	1.86	0.70	1.00	88.04	1.21	106.54	4.000	No	No	2.00
948	68.35	307.75	1.88	0.74	1.00	87.05	1.22	106.44	4.000	No	No	2.00
949	68.45	299.96	1.91	0.81	1.00	84.74	1.24	105.37	4.000	No	No	2.00
950	68.55	291.49	1.94	0.86	1.00	82.23	1.26	103.72	4.000	No	No	2.00
951	68.65	271.72	1.98	0.91	1.00	76.50	1.29	98.57	4.000	No	No	2.00
952	68.78	253.59	2.02	0.98	1.00	71.23	1.32	94.35	4.000	No	No	2.00
953	68.78	238.18	2.05	1.03	1.00	66.83	1.36	90.91	4.000	No	No	2.00
954	68.79	234.24	2.06	1.02	1.00	65.70	1.37	89.70	4.000	No	No	2.00
955	68.83	237.70	2.03	0.94	1.00	66.66	1.34	89.08	4.000	No	No	2.00
956	68.93	243.69	1.99	0.81	1.00	68.30	1.30	88.59	4.000	No	No	2.00
957	68.98	253.54	1.93	0.67	1.00	71.08	1.25	89.18	4.000	No	No	2.00
958	69.04	257.79	1.89	0.60	1.00	72.25	1.23	89.05	4.000	No	No	2.00
959	69.12	259.28	1.89	0.58	1.00	72.61	1.23	89.10	4.000	No	No	2.00
960	69.22	255.36	1.90	0.59	1.00	71.43	1.24	88.23	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	69.28	247.73	1.91	0.61	1.00	69.22	1.25	86.25	4.000	No	No	2.00
962	69.36	237.41	1.93	0.61	1.00	66.24	1.26	83.22	4.000	No	No	2.00
963	69.45	223.58	1.95	0.61	1.00	62.26	1.27	79.21	4.000	No	No	2.00
964	69.60	210.12	1.98	0.61	1.00	58.37	1.29	75.34	4.000	No	No	2.00
965	69.70	198.18	2.01	0.62	1.00	54.94	1.31	72.05	4.000	No	No	2.00
966	69.80	193.42	2.01	0.62	1.00	53.54	1.32	70.68	4.000	No	No	2.00
967	69.89	192.07	2.02	0.62	1.00	53.12	1.32	70.30	4.000	No	No	2.00
968	69.98	190.15	2.02	0.63	1.00	52.53	1.33	69.82	4.000	No	No	2.00
969	70.08	181.88	2.04	0.63	1.00	50.15	1.35	67.53	4.000	Yes	No	2.00
970	70.18	159.82	2.12	0.71	1.00	43.89	1.45	63.51	4.000	Yes	No	2.00
971	70.32	124.32	2.27	0.89	1.00	33.85	1.81	61.16	4.000	Yes	No	2.00
972	70.42	84.31	2.50	1.27	1.00	22.56	2.96	66.77	4.000	Yes	No	2.00
973	70.54	51.82	2.77	1.84	1.00	13.41	5.53	74.19	4.000	Yes	Yes	2.00
974	70.66	31.85	3.05	2.58	1.00	7.79	9.69	75.54	4.000	No	Yes	2.00
975	70.75	23.52	3.23	3.11	1.00	5.45	13.34	72.70	4.000	No	Yes	2.00
976	70.80	21.80	3.23	2.72	1.00	4.97	13.43	66.71	4.000	No	Yes	2.00
977	70.89	22.64	3.14	1.98	1.00	5.20	11.52	59.87	4.000	No	Yes	2.00
978	70.99	22.34	3.09	1.45	1.00	5.11	10.38	53.00	4.000	No	Yes	2.00
979	71.08	21.63	3.07	1.23	1.00	4.90	10.09	49.46	4.000	No	Yes	2.00
980	71.17	21.43	3.06	1.12	1.00	4.84	9.87	47.79	4.000	No	Yes	2.00
981	71.23	20.92	3.07	1.10	1.00	4.70	10.01	47.05	4.000	No	Yes	2.00
982	71.33	21.09	3.05	1.03	1.00	4.74	9.74	46.20	4.000	No	Yes	2.00
983	71.42	21.73	3.02	0.90	1.00	4.92	9.08	44.64	4.000	No	Yes	2.00
984	71.52	22.81	2.97	0.78	1.00	5.22	8.26	43.06	4.000	No	Yes	2.00
985	71.58	23.21	2.97	0.82	1.00	5.33	8.27	44.01	4.000	No	Yes	2.00
986	71.67	22.88	3.02	1.04	1.00	5.23	9.07	47.43	4.000	No	Yes	2.00
987	71.81	22.47	3.06	1.28	1.00	5.11	9.94	50.76	4.000	No	Yes	2.00
988	71.82	22.24	3.09	1.43	1.00	5.04	10.42	52.55	4.000	No	Yes	2.00
989	71.86	21.97	3.10	1.47	1.00	4.96	10.64	52.82	4.000	No	Yes	2.00
990	71.91	21.83	3.11	1.49	1.00	4.92	10.75	52.95	4.000	No	Yes	2.00
991	71.97	21.60	3.12	1.53	1.00	4.86	10.97	53.27	4.000	No	Yes	2.00
992	72.05	21.36	3.13	1.58	1.00	4.79	11.22	53.72	4.000	No	Yes	2.00
993	72.10	21.13	3.14	1.65	1.00	4.72	11.52	54.35	4.000	No	Yes	2.00
994	72.20	20.99	3.15	1.70	1.00	4.68	11.71	54.79	4.000	No	Yes	2.00
995	72.25	20.99	3.16	1.76	1.00	4.67	11.87	55.49	4.000	No	Yes	2.00
996	72.34	21.09	3.17	1.88	1.00	4.70	12.12	56.94	4.000	No	Yes	2.00
997	72.44	21.09	3.19	2.06	1.00	4.69	12.53	58.80	4.000	No	Yes	2.00
998	72.53	20.89	3.21	2.23	1.00	4.63	13.04	60.40	4.000	No	Yes	2.00
999	72.63	20.79	3.22	2.32	1.00	4.60	13.29	61.13	4.000	No	Yes	2.00
1000	72.69	20.48	3.23	2.36	1.00	4.51	13.55	61.14	4.000	No	Yes	2.00
1001	72.82	20.69	3.23	2.31	1.00	4.56	13.34	60.87	4.000	No	Yes	2.00
1002	72.92	21.13	3.20	2.18	1.00	4.68	12.83	60.05	4.000	No	Yes	2.00
1003	73.06	22.11	3.17	2.01	1.00	4.95	11.98	59.27	4.000	No	Yes	2.00
1004	73.16	22.34	3.16	2.02	1.00	5.01	11.90	59.57	4.000	No	Yes	2.00
1005	73.30	20.86	3.22	2.28	1.00	4.59	13.21	60.65	4.000	No	Yes	2.00
1006	73.35	19.88	3.26	2.50	1.00	4.32	14.25	61.53	4.000	No	Yes	2.00
1007	73.38	19.20	3.29	2.56	1.00	4.13	14.83	61.23	4.000	No	Yes	2.00
1008	73.47	20.02	3.25	2.39	1.00	4.35	13.95	60.67	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	73.53	20.08	3.24	2.33	1.00	4.37	13.79	60.20	4.000	No	Yes	2.00
1010	73.62	20.18	3.24	2.30	1.00	4.39	13.66	59.95	4.000	No	Yes	2.00
1011	73.71	19.95	3.25	2.36	1.00	4.32	13.95	60.28	4.000	No	Yes	2.00
1012	73.77	19.61	3.28	2.54	1.00	4.23	14.55	61.46	4.000	No	Yes	2.00
1013	73.86	19.34	3.30	2.76	1.00	4.15	15.21	63.08	4.000	No	Yes	2.00
1014	73.96	19.38	3.31	2.94	1.00	4.15	15.56	64.61	4.000	No	Yes	2.00
1015	74.06	19.58	3.32	3.02	1.00	4.20	15.60	65.59	4.000	No	Yes	2.00
1016	74.13	20.02	3.31	3.02	1.00	4.32	15.32	66.22	4.000	No	Yes	2.00
1017	74.24	20.36	3.30	3.02	1.00	4.41	15.12	66.66	4.000	No	Yes	2.00
1018	74.34	20.56	3.30	3.06	1.00	4.46	15.08	67.26	4.000	No	Yes	2.00
1019	74.44	20.42	3.31	3.15	1.00	4.42	15.35	67.81	4.000	No	Yes	2.00
1020	74.58	20.37	3.30	3.10	1.00	4.40	15.30	67.28	4.000	No	Yes	2.00
1021	74.68	20.30	3.27	2.60	1.00	4.38	14.35	62.80	4.000	No	Yes	2.00
1022	74.80	20.47	3.22	2.16	1.00	4.42	13.30	58.74	4.000	No	Yes	2.00
1023	74.92	20.26	3.21	1.96	1.00	4.35	12.97	56.43	4.000	No	Yes	2.00
1024	75.07	20.06	3.24	2.18	1.00	4.29	13.60	58.35	4.000	No	Yes	2.00
1025	75.08	19.75	3.26	2.32	1.00	4.21	14.10	59.34	4.000	No	Yes	2.00
1026	75.11	19.62	3.26	2.36	1.00	4.17	14.28	59.53	4.000	No	Yes	2.00
1027	75.16	19.55	3.27	2.45	1.00	4.15	14.53	60.28	4.000	No	Yes	2.00
1028	75.25	19.31	3.30	2.65	1.00	4.08	15.14	61.74	4.000	No	Yes	2.00
1029	75.32	19.14	3.32	2.86	1.00	4.03	15.69	63.23	4.000	No	Yes	2.00
1030	75.40	18.98	3.33	2.95	1.00	3.98	16.00	63.73	4.000	No	Yes	2.00
1031	75.50	18.81	3.33	2.87	1.00	3.93	15.96	62.77	4.000	No	Yes	2.00
1032	75.59	18.30	3.33	2.72	1.00	3.79	16.02	60.75	4.000	No	Yes	2.00
1033	75.69	17.56	3.34	2.60	1.00	3.59	16.34	58.60	4.000	No	Yes	2.00
1034	75.78	16.85	3.35	2.48	1.00	3.39	16.66	56.46	4.000	No	Yes	2.00
1035	75.88	16.41	3.36	2.34	1.00	3.27	16.73	54.66	4.000	No	Yes	2.00
1036	75.96	16.11	3.35	2.19	1.00	3.18	16.62	52.90	4.000	No	Yes	2.00
1037	76.05	16.04	3.34	2.06	1.00	3.16	16.34	51.65	4.000	No	Yes	2.00
1038	76.14	15.97	3.34	1.99	1.00	3.14	16.25	51.00	4.000	No	Yes	2.00
1039	76.26	16.07	3.34	1.99	1.00	3.16	16.16	51.09	4.000	No	Yes	2.00
1040	76.36	16.07	3.34	2.03	1.00	3.16	16.26	51.38	4.000	No	Yes	2.00
1041	76.41	16.07	3.34	2.04	1.00	3.16	16.31	51.50	4.000	No	Yes	2.00
1042	76.51	15.84	3.35	2.05	1.00	3.09	16.56	51.17	4.000	No	Yes	2.00
1043	76.65	15.50	3.37	2.09	1.00	2.99	17.04	51.04	4.000	No	Yes	2.00
1044	76.72	15.26	3.38	2.15	1.00	2.93	17.45	51.12	4.000	No	Yes	2.00
1045	76.79	15.16	3.39	2.21	1.00	2.90	17.72	51.39	4.000	No	Yes	2.00
1046	76.89	15.23	3.41	2.47	1.00	2.91	18.36	53.53	4.000	No	Yes	2.00
1047	76.98	15.47	3.48	3.62	1.00	2.98	20.80	61.89	4.000	No	Yes	2.00
1048	77.08	18.00	3.43	4.02	1.00	3.65	19.05	69.60	4.000	No	Yes	2.00
1049	77.18	22.18	3.34	4.06	1.00	4.77	16.19	77.29	4.000	No	Yes	2.00
1050	77.28	26.73	3.26	4.08	1.00	5.99	14.06	84.26	4.000	No	Yes	2.00
1051	77.37	27.88	3.29	4.98	1.00	6.30	14.87	93.62	4.000	No	Yes	2.00
1052	77.42	28.76	3.31	5.68	1.00	6.53	15.41	100.64	4.000	No	Yes	2.00
1053	77.42	30.22	3.30	5.86	1.00	6.92	15.09	104.44	4.000	No	Yes	2.00
1054	77.44	34.00	3.23	5.50	1.00	7.94	13.49	107.05	4.000	No	Yes	2.00
1055	77.48	37.40	3.19	5.36	1.00	8.85	12.47	110.31	4.000	No	Yes	2.00
1056	77.52	40.61	3.15	5.24	1.00	9.70	11.65	113.00	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	77.54	42.94	3.12	5.12	1.00	10.33	11.08	114.44	4.000	No	Yes	2.00
1058	77.57	43.37	3.12	5.18	1.00	10.44	11.07	115.54	4.000	No	Yes	2.00
1059	77.62	42.26	3.14	5.33	1.00	10.14	11.44	115.93	4.000	No	Yes	2.00
1060	77.65	40.10	3.17	5.56	1.00	9.55	12.10	115.64	4.000	No	Yes	2.00
1061	77.67	38.72	3.18	5.50	1.00	9.18	12.34	113.32	4.000	No	Yes	2.00
1062	77.71	37.91	3.19	5.40	1.00	8.96	12.41	111.24	4.000	No	Yes	2.00
1063	77.71	37.03	3.18	5.16	1.00	8.73	12.35	107.78	4.000	No	Yes	2.00
1064	77.76	34.77	3.20	5.10	1.00	8.12	12.85	104.25	4.000	No	Yes	2.00
1065	77.81	31.76	3.23	4.96	1.00	7.31	13.53	98.88	4.000	No	Yes	2.00
1066	77.90	29.03	3.27	4.92	1.00	6.57	14.40	94.60	4.000	No	Yes	2.00
1067	77.95	27.32	3.30	4.97	1.00	6.11	15.14	92.44	4.000	No	Yes	2.00
1068	78.01	26.34	3.32	5.03	1.00	5.84	15.63	91.29	4.000	No	Yes	2.00
1069	78.10	27.59	3.27	4.56	1.00	6.17	14.49	89.37	4.000	No	Yes	2.00
1070	78.16	36.29	3.07	3.14	1.00	8.49	9.98	84.71	4.000	No	Yes	2.00
1071	78.24	48.94	2.86	2.21	1.00	11.86	6.66	79.05	4.000	Yes	Yes	2.00
1072	78.29	64.83	2.68	1.67	1.00	16.10	4.54	73.14	4.000	Yes	Yes	2.00
1073	78.39	77.42	2.58	1.42	1.00	19.44	3.56	69.27	4.000	Yes	No	2.00
1074	78.47	87.30	2.52	1.35	1.00	22.06	3.11	68.51	4.000	Yes	No	2.00
1075	78.53	92.74	2.51	1.44	1.00	23.49	3.05	71.72	4.000	Yes	No	2.00
1076	78.62	94.25	2.54	1.65	1.00	23.88	3.25	77.71	4.000	Yes	No	2.00
1077	78.68	91.22	2.59	1.91	1.00	23.06	3.64	84.02	4.000	Yes	No	2.00
1078	78.69	92.97	2.61	2.12	1.00	23.52	3.81	89.57	4.000	Yes	Yes	2.00
1079	78.78	93.95	2.63	2.33	1.00	23.76	4.00	95.10	4.000	No	Yes	2.00
1080	78.81	94.86	2.65	2.61	1.00	24.00	4.25	102.04	4.000	No	Yes	2.00
1081	78.92	85.28	2.73	2.97	1.00	21.43	5.01	107.35	4.000	No	Yes	2.00
1082	79.03	72.83	2.81	3.21	1.00	18.11	5.93	107.43	4.000	No	Yes	2.00
1083	79.16	68.41	2.80	2.88	1.00	16.91	5.87	99.26	4.000	Yes	Yes	2.00
1084	79.26	78.39	2.68	2.21	1.00	19.54	4.53	88.45	4.000	Yes	Yes	2.00
1085	79.35	97.35	2.56	1.87	1.00	24.54	3.42	83.92	4.000	Yes	No	2.00
1086	79.45	114.43	2.50	1.84	1.00	29.03	2.95	85.78	4.000	Yes	No	2.00
1087	79.54	124.25	2.48	1.92	1.00	31.60	2.84	89.58	4.000	No	No	2.00
1088	79.64	131.23	2.47	1.97	1.00	33.41	2.75	91.91	4.000	No	No	2.00
1089	79.74	153.43	2.40	1.91	1.00	39.23	2.39	93.85	4.000	No	No	2.00
1090	79.88	186.93	2.31	1.77	1.00	48.00	1.98	94.86	4.000	No	No	2.00
1091	79.98	228.94	2.20	1.52	1.00	59.00	1.62	95.73	4.000	No	No	2.00
1092	80.12	248.77	2.14	1.34	1.00	64.13	1.48	95.14	4.000	No	No	2.00
1093	80.22	253.19	2.09	1.12	1.00	65.23	1.40	91.22	4.000	No	No	2.00
1094	80.36	244.79	2.06	0.97	1.00	62.94	1.37	86.07	4.000	No	No	2.00
1095	80.46	238.82	2.02	0.78	1.00	61.33	1.32	81.11	4.000	No	No	2.00
1096	80.60	231.84	1.99	0.66	1.00	59.42	1.30	77.21	4.000	No	No	2.00
1097	80.70	223.91	1.99	0.62	1.00	57.30	1.30	74.37	4.000	No	No	2.00
1098	80.83	213.12	2.02	0.65	1.00	54.42	1.32	72.04	4.000	Yes	No	2.00
1099	80.94	194.49	2.09	0.77	1.00	49.51	1.41	69.62	4.000	Yes	No	2.00
1100	81.01	177.96	2.15	0.85	1.00	45.17	1.50	67.91	4.000	Yes	No	2.00
1101	81.04	164.23	2.19	0.91	1.00	41.58	1.60	66.50	4.000	Yes	No	2.00
1102	81.09	158.43	2.21	0.93	1.00	40.05	1.65	65.97	4.000	Yes	No	2.00
1103	81.13	149.59	2.25	0.99	1.00	37.74	1.75	66.04	4.000	Yes	No	2.00
1104	81.18	136.87	2.31	1.12	1.00	34.41	1.98	67.98	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1105	81.23	123.31	2.39	1.33	1.00	30.87	2.34	72.13	4.000	Yes	No	2.00
1106	81.28	109.41	2.48	1.58	1.00	27.24	2.85	77.64	4.000	Yes	No	2.00
1107	81.33	98.17	2.57	1.89	1.00	24.30	3.46	84.19	4.000	Yes	No	2.00
1108	81.37	88.49	2.65	2.30	1.00	21.78	4.25	92.48	4.000	Yes	Yes	2.00
1109	81.42	81.24	2.73	2.74	1.00	19.88	5.05	100.46	4.000	Yes	Yes	2.00
1110	81.47	75.77	2.79	3.12	1.00	18.46	5.75	106.15	4.000	Yes	Yes	2.00
1111	81.52	71.99	2.83	3.36	1.00	17.47	6.25	109.13	4.000	Yes	Yes	2.00
1112	81.56	70.98	2.85	3.50	1.00	17.20	6.46	111.09	4.000	Yes	Yes	2.00
1113	81.61	70.58	2.86	3.61	1.00	17.08	6.60	112.75	4.000	No	Yes	2.00
1114	81.64	68.79	2.88	3.76	1.00	16.62	6.89	114.41	4.000	No	Yes	2.00
1115	81.70	62.18	2.94	4.16	1.00	14.89	7.85	116.91	4.000	No	Yes	2.00
1116	81.75	54.38	3.03	4.72	1.00	12.87	9.25	118.94	4.000	No	Yes	2.00
1117	81.79	46.89	3.11	5.33	1.00	10.92	10.91	119.14	4.000	No	Yes	2.00
1118	81.82	41.90	3.17	5.62	1.00	9.62	12.12	116.62	4.000	No	Yes	2.00
1119	81.86	37.62	3.22	5.76	1.00	8.51	13.21	112.49	4.000	No	Yes	2.00
1120	81.91	34.01	3.26	5.79	1.00	7.57	14.21	107.66	4.000	No	Yes	2.00
1121	81.95	30.63	3.30	5.75	1.00	6.70	15.27	102.27	4.000	No	Yes	2.00
1122	82.00	27.33	3.34	5.61	1.00	5.84	16.41	95.81	4.000	No	Yes	2.00
1123	82.09	24.26	3.39	5.48	1.00	5.04	17.74	89.46	4.000	No	Yes	2.00
1124	82.15	21.66	3.44	5.50	1.00	4.37	19.38	84.64	4.000	No	Yes	2.00
1125	82.19	19.83	3.48	5.52	1.00	3.89	20.80	81.03	4.000	No	Yes	2.00
1126	82.26	18.38	3.52	5.48	1.00	3.52	22.06	77.56	4.000	No	Yes	2.00
1127	82.34	17.00	3.56	5.45	1.00	3.16	23.49	74.17	4.000	No	Yes	2.00
1128	82.39	15.65	3.61	5.65	1.00	2.81	25.58	71.81	4.000	No	Yes	2.00
1129	82.48	14.77	3.64	5.76	1.00	2.58	27.14	69.97	4.000	No	Yes	2.00
1130	82.58	14.64	3.64	5.47	1.00	2.54	26.84	68.21	4.000	No	Yes	2.00
1131	82.62	14.74	3.62	5.09	1.00	2.57	25.95	66.60	4.000	No	Yes	2.00
1132	82.70	14.88	3.60	4.83	1.00	2.60	25.23	65.56	4.000	No	Yes	2.00
1133	82.77	14.81	3.59	4.65	1.00	2.58	24.98	64.46	4.000	No	Yes	2.00
1134	82.87	15.08	3.57	4.45	1.00	2.65	24.19	64.01	4.000	No	Yes	2.00
1135	82.96	16.23	3.51	3.90	1.00	2.94	21.57	63.38	4.000	No	Yes	2.00
1136	83.06	18.22	3.41	3.33	1.00	3.45	18.38	63.34	4.000	No	Yes	2.00
1137	83.16	21.39	3.29	2.70	1.00	4.26	14.82	63.10	4.000	No	Yes	2.00
1138	83.25	24.46	3.19	2.32	1.00	5.04	12.49	62.94	4.000	No	Yes	2.00
1139	83.34	27.20	3.11	2.06	1.00	5.74	10.91	62.57	4.000	No	Yes	2.00
1140	83.44	28.34	3.10	2.06	1.00	6.03	10.55	63.55	4.000	No	Yes	2.00
1141	83.54	28.75	3.10	2.14	1.00	6.12	10.60	64.89	4.000	No	Yes	2.00
1142	83.64	28.61	3.12	2.29	1.00	6.08	10.93	66.49	4.000	No	Yes	2.00
1143	83.73	27.70	3.15	2.52	1.00	5.84	11.68	68.29	4.000	No	Yes	2.00
1144	83.83	27.26	3.18	2.77	1.00	5.73	12.30	70.46	4.000	No	Yes	2.00
1145	83.85	26.83	3.21	3.11	1.00	5.62	13.07	73.38	4.000	No	Yes	2.00
1146	83.89	27.47	3.22	3.29	1.00	5.78	13.14	75.93	4.000	No	Yes	2.00
1147	83.94	28.11	3.24	3.78	1.00	5.94	13.69	81.26	4.000	No	Yes	2.00
1148	84.04	29.26	3.25	4.14	1.00	6.23	13.80	85.92	4.000	No	Yes	2.00
1149	84.09	30.40	3.25	4.44	1.00	6.51	13.83	90.10	4.000	No	Yes	2.00
1150	84.13	31.28	3.24	4.51	1.00	6.74	13.65	91.94	4.000	No	Yes	2.00
1151	84.18	31.68	3.24	4.64	1.00	6.83	13.70	93.61	4.000	No	Yes	2.00
1152	84.25	31.52	3.25	4.81	1.00	6.79	13.97	94.85	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1153	84.33	30.64	3.28	5.04	1.00	6.56	14.57	95.60	4.000	No	Yes	2.00
1154	84.37	29.46	3.31	5.29	1.00	6.26	15.33	95.90	4.000	No	Yes	2.00
1155	84.46	28.35	3.33	5.40	1.00	5.97	15.91	94.98	4.000	No	Yes	2.00
1156	84.52	27.50	3.34	5.37	1.00	5.75	16.25	93.43	4.000	No	Yes	2.00
1157	84.57	26.90	3.34	5.22	1.00	5.59	16.32	91.27	4.000	No	Yes	2.00
1158	84.67	26.52	3.34	5.14	1.00	5.49	16.38	90.00	4.000	No	Yes	2.00
1159	84.71	26.15	3.35	5.18	1.00	5.40	16.62	89.72	4.000	No	Yes	2.00
1160	84.81	25.58	3.38	5.48	1.00	5.25	17.32	90.86	4.000	No	Yes	2.00
1161	84.86	24.84	3.41	5.93	1.00	5.06	18.32	92.62	4.000	No	Yes	2.00
1162	84.91	24.06	3.44	6.37	1.00	4.86	19.36	94.03	4.000	No	Yes	2.00
1163	85.00	23.42	3.47	6.69	1.00	4.69	20.18	94.63	4.000	No	Yes	2.00
1164	85.05	22.81	3.48	6.79	1.00	4.53	20.72	93.94	4.000	No	Yes	2.00
1165	85.15	22.34	3.49	6.69	1.00	4.41	20.94	92.30	4.000	No	Yes	2.00
1166	85.19	21.80	3.49	6.36	1.00	4.27	20.88	89.13	4.000	No	Yes	2.00
1167	85.29	21.33	3.48	6.00	1.00	4.15	20.74	85.98	4.000	No	Yes	2.00
1168	85.35	20.72	3.49	5.75	1.00	3.99	20.84	83.14	4.000	No	Yes	2.00
1169	85.42	20.08	3.50	5.71	1.00	3.82	21.32	81.54	4.000	No	Yes	2.00
1170	85.48	19.40	3.52	5.78	1.00	3.65	22.03	80.45	4.000	No	Yes	2.00
1171	85.55	18.77	3.54	5.87	1.00	3.49	22.80	79.50	4.000	No	Yes	2.00
1172	85.63	18.19	3.56	5.98	1.00	3.34	23.58	78.76	4.000	No	Yes	2.00
1173	85.68	17.62	3.58	6.16	1.00	3.19	24.50	78.25	4.000	No	Yes	2.00
1174	85.77	17.18	3.60	6.34	1.00	3.08	25.34	78.03	4.000	No	Yes	2.00
1175	85.82	17.04	3.61	6.47	1.00	3.04	25.74	78.34	4.000	No	Yes	2.00
1176	85.89	17.42	3.60	6.38	1.00	3.13	25.13	78.79	4.000	No	Yes	2.00
1177	85.96	18.33	3.56	5.99	1.00	3.36	23.51	79.01	4.000	No	Yes	2.00
1178	86.03	19.71	3.49	5.35	1.00	3.71	21.16	78.44	4.000	No	Yes	2.00
1179	86.11	21.06	3.44	4.76	1.00	4.04	19.14	77.40	4.000	No	Yes	2.00
1180	86.16	22.11	3.39	4.32	1.00	4.30	17.71	76.21	4.000	No	Yes	2.00
1181	86.25	21.67	3.40	4.38	1.00	4.19	18.09	75.81	4.000	No	Yes	2.00
1182	86.36	19.98	3.45	4.62	1.00	3.76	19.76	74.32	4.000	No	Yes	2.00
1183	86.50	18.16	3.52	4.99	1.00	3.30	22.08	72.85	4.000	No	Yes	2.00
1184	86.51	17.25	3.55	5.00	1.00	3.07	23.09	70.91	4.000	No	Yes	2.00
1185	86.52	17.32	3.53	4.74	1.00	3.09	22.53	69.58	4.000	No	Yes	2.00
1186	86.57	17.35	3.51	4.25	1.00	3.10	21.58	66.80	4.000	No	Yes	2.00
1187	86.65	17.39	3.48	3.72	1.00	3.10	20.48	63.50	4.000	No	Yes	2.00
1188	86.71	17.35	3.45	3.31	1.00	3.09	19.65	60.73	4.000	No	Yes	2.00
1189	86.80	17.08	3.45	3.15	1.00	3.02	19.57	59.11	4.000	No	Yes	2.00
1190	86.90	16.48	3.46	3.06	1.00	2.87	20.04	57.42	4.000	No	Yes	2.00
1191	86.99	15.77	3.48	3.01	1.00	2.69	20.75	55.74	4.000	No	Yes	2.00
1192	87.04	15.26	3.50	2.94	1.00	2.56	21.24	54.32	4.000	No	Yes	2.00
1193	87.14	15.16	3.49	2.85	1.00	2.53	21.16	53.51	4.000	No	Yes	2.00
1194	87.19	15.36	3.48	2.77	1.00	2.58	20.70	53.36	4.000	No	Yes	2.00
1195	87.28	15.87	3.46	2.79	1.00	2.70	20.13	54.40	4.000	No	Yes	2.00
1196	87.38	16.51	3.45	2.81	1.00	2.86	19.47	55.67	4.000	No	Yes	2.00
1197	87.43	17.18	3.42	2.82	1.00	3.03	18.79	56.85	4.000	No	Yes	2.00
1198	87.52	17.76	3.40	2.76	1.00	3.17	18.12	57.36	4.000	No	Yes	2.00
1199	87.61	18.23	3.38	2.70	1.00	3.28	17.55	57.58	4.000	No	Yes	2.00
1200	87.66	18.53	3.37	2.63	1.00	3.35	17.13	57.47	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1201	87.76	18.57	3.37	2.58	1.00	3.36	17.00	57.12	4.000	No	Yes	2.00
1202	87.84	18.43	3.37	2.54	1.00	3.32	17.02	56.58	4.000	No	Yes	2.00
1203	87.91	18.13	3.37	2.53	1.00	3.25	17.27	56.08	4.000	No	Yes	2.00
1204	88.00	17.79	3.39	2.53	1.00	3.16	17.58	55.54	4.000	No	Yes	2.00
1205	88.11	17.46	3.40	2.56	1.00	3.07	17.98	55.23	4.000	No	Yes	2.00
1206	88.19	17.22	3.41	2.58	1.00	3.01	18.27	55.01	4.000	No	Yes	2.00
1207	88.25	17.08	3.41	2.59	1.00	2.98	18.42	54.79	4.000	No	Yes	2.00
1208	88.34	17.02	3.41	2.53	1.00	2.96	18.36	54.27	4.000	No	Yes	2.00
1209	88.44	16.98	3.41	2.45	1.00	2.94	18.20	53.59	4.000	No	Yes	2.00
1210	88.54	16.98	3.40	2.37	1.00	2.94	17.99	52.93	4.000	No	Yes	2.00
1211	88.64	16.95	3.40	2.33	1.00	2.93	17.92	52.52	4.000	No	Yes	2.00
1212	88.72	16.88	3.40	2.33	1.00	2.91	18.00	52.42	4.000	No	Yes	2.00
1213	88.82	16.82	3.40	2.36	1.00	2.89	18.16	52.53	4.000	No	Yes	2.00
1214	88.91	16.72	3.41	2.41	1.00	2.87	18.42	52.79	4.000	No	Yes	2.00
1215	89.01	16.62	3.42	2.47	1.00	2.84	18.68	53.02	4.000	No	Yes	2.00
1216	89.10	16.49	3.43	2.53	1.00	2.80	18.99	53.22	4.000	No	Yes	2.00
1217	89.19	16.32	3.44	2.53	1.00	2.76	19.19	52.91	4.000	No	Yes	2.00
1218	89.30	16.21	3.41	2.22	1.00	2.73	18.48	50.44	4.000	No	Yes	2.00
1219	89.39	16.31	3.39	2.02	1.00	2.75	17.80	48.98	4.000	No	Yes	2.00
1220	89.49	16.62	3.38	2.03	1.00	2.82	17.53	49.49	4.000	No	Yes	2.00
1221	89.59	16.90	3.41	2.39	1.00	2.89	18.25	52.76	4.000	No	Yes	2.00
1222	89.69	17.04	3.42	2.65	1.00	2.92	18.79	54.90	4.000	No	Yes	2.00
1223	89.73	17.68	3.40	2.64	1.00	3.08	18.14	55.86	4.000	No	Yes	2.00
1224	89.78	18.48	3.37	2.53	1.00	3.27	17.18	56.23	4.000	No	Yes	2.00
1225	89.83	19.36	3.34	2.42	1.00	3.49	16.22	56.56	4.000	No	Yes	2.00
1226	89.88	19.63	3.33	2.44	1.00	3.55	16.06	57.05	4.000	No	Yes	2.00
1227	89.93	19.86	3.33	2.48	1.00	3.61	16.01	57.77	4.000	No	Yes	2.00
1228	90.00	20.24	3.33	2.55	1.00	3.70	15.90	58.79	4.000	No	Yes	2.00
1229	90.07	20.88	3.31	2.57	1.00	3.85	15.53	59.82	4.000	No	Yes	2.00
1230	90.12	21.62	3.30	2.62	1.00	4.03	15.19	61.24	4.000	No	Yes	2.00
1231	90.22	22.26	3.29	2.71	1.00	4.19	15.01	62.84	4.000	No	Yes	2.00
1232	90.27	23.04	3.29	2.93	1.00	4.37	15.02	65.70	4.000	No	Yes	2.00
1233	90.36	24.99	3.26	2.95	1.00	4.85	14.09	68.34	4.000	No	Yes	2.00
1234	90.46	27.46	3.21	2.86	1.00	5.45	12.89	70.27	4.000	No	Yes	2.00
1235	90.50	29.28	3.17	2.76	1.00	5.89	12.05	71.01	4.000	No	Yes	2.00
1236	90.61	29.48	3.17	2.77	1.00	5.94	12.02	71.39	4.000	No	Yes	2.00
1237	90.66	28.70	3.18	2.82	1.00	5.75	12.38	71.12	4.000	No	Yes	2.00
1238	90.75	27.62	3.20	2.80	1.00	5.48	12.73	69.74	4.000	No	Yes	2.00
1239	90.84	26.17	3.22	2.78	1.00	5.12	13.28	67.94	4.000	No	Yes	2.00
1240	90.89	24.72	3.25	2.77	1.00	4.76	13.90	66.20	4.000	No	Yes	2.00
1241	90.99	23.48	3.28	2.82	1.00	4.45	14.63	65.12	4.000	No	Yes	2.00
1242	91.04	22.50	3.30	2.86	1.00	4.21	15.24	64.21	4.000	No	Yes	2.00
1243	91.14	21.59	3.33	2.94	1.00	3.99	15.98	63.69	4.000	No	Yes	2.00
1244	91.22	20.75	3.36	3.03	1.00	3.78	16.73	63.19	4.000	No	Yes	2.00
1245	91.28	19.83	3.39	3.13	1.00	3.55	17.61	62.55	4.000	No	Yes	2.00
1246	91.37	19.26	3.40	3.14	1.00	3.41	18.11	61.75	4.000	No	Yes	2.00
1247	91.47	18.99	3.40	3.07	1.00	3.34	18.18	60.75	4.000	No	Yes	2.00
1248	91.61	19.26	3.39	2.94	1.00	3.40	17.69	60.19	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1249	91.71	19.40	3.38	2.89	1.00	3.43	17.48	59.97	4.000	No	Yes	2.00
1250	91.81	19.50	3.38	2.88	1.00	3.45	17.39	60.03	4.000	No	Yes	2.00
1251	91.87	19.36	3.38	2.86	1.00	3.42	17.46	59.68	4.000	No	Yes	2.00
1252	92.00	19.38	3.36	2.58	1.00	3.42	16.82	57.50	4.000	No	Yes	2.00
1253	92.10	19.41	3.34	2.37	1.00	3.42	16.30	55.77	4.000	No	Yes	2.00
1254	92.20	19.62	3.32	2.25	1.00	3.47	15.85	54.98	4.000	No	Yes	2.00
1255	92.33	19.76	3.33	2.39	1.00	3.50	16.12	56.37	4.000	No	Yes	2.00
1256	92.38	19.89	3.34	2.50	1.00	3.53	16.27	57.43	4.000	No	Yes	2.00
1257	92.43	20.03	3.34	2.54	1.00	3.56	16.28	57.96	4.000	No	Yes	2.00
1258	92.48	19.98	3.35	2.62	1.00	3.55	16.52	58.57	4.000	No	Yes	2.00
1259	92.56	19.88	3.36	2.71	1.00	3.52	16.79	59.09	4.000	No	Yes	2.00
1260	92.63	19.64	3.37	2.79	1.00	3.46	17.17	59.41	4.000	No	Yes	2.00
1261	92.67	19.57	3.37	2.81	1.00	3.44	17.27	59.42	4.000	No	Yes	2.00
1262	92.72	19.54	3.38	2.81	1.00	3.43	17.30	59.38	4.000	No	Yes	2.00
1263	92.77	19.64	3.37	2.79	1.00	3.46	17.18	59.37	4.000	No	Yes	2.00
1264	92.86	19.84	3.37	2.77	1.00	3.50	16.99	59.49	4.000	No	Yes	2.00
1265	92.92	20.08	3.36	2.78	1.00	3.56	16.84	59.88	4.000	No	Yes	2.00
1266	92.97	20.21	3.37	2.90	1.00	3.59	17.01	61.03	4.000	No	Yes	2.00
1267	93.05	20.35	3.37	3.02	1.00	3.62	17.17	62.12	4.000	No	Yes	2.00
1268	93.10	20.62	3.37	3.09	1.00	3.68	17.13	63.07	4.000	No	Yes	2.00
1269	93.16	21.10	3.35	3.03	1.00	3.79	16.68	63.28	4.000	No	Yes	2.00
1270	93.25	21.70	3.33	2.92	1.00	3.94	16.06	63.20	4.000	No	Yes	2.00
1271	93.35	22.78	3.29	2.71	1.00	4.19	14.99	62.84	4.000	No	Yes	2.00
1272	93.40	23.19	3.27	2.59	1.00	4.29	14.52	62.27	4.000	No	Yes	2.00
1273	93.49	23.25	3.27	2.54	1.00	4.30	14.38	61.82	4.000	No	Yes	2.00
1274	93.56	22.71	3.28	2.58	1.00	4.17	14.77	61.55	4.000	No	Yes	2.00
1275	93.64	22.88	3.28	2.57	1.00	4.21	14.66	61.65	4.000	No	Yes	2.00
1276	93.73	23.63	3.27	2.60	1.00	4.38	14.34	62.81	4.000	No	Yes	2.00
1277	93.83	24.91	3.25	2.65	1.00	4.69	13.81	64.72	4.000	No	Yes	2.00
1278	93.88	26.43	3.23	2.80	1.00	5.05	13.44	67.85	4.000	No	Yes	2.00
1279	93.97	27.01	3.24	3.00	1.00	5.18	13.58	70.35	4.000	No	Yes	2.00
1280	94.07	26.43	3.27	3.36	1.00	5.04	14.48	72.95	4.000	No	Yes	2.00
1281	94.17	25.76	3.31	3.78	1.00	4.87	15.51	75.57	4.000	No	Yes	2.00
1282	94.26	26.70	3.29	3.75	1.00	5.09	15.04	76.60	4.000	No	Yes	2.00
1283	94.36	27.88	3.30	4.18	1.00	5.37	15.22	81.75	4.000	No	Yes	2.00
1284	94.45	29.47	3.30	4.56	1.00	5.75	15.14	87.02	4.000	No	Yes	2.00
1285	94.55	35.88	3.19	4.21	1.00	7.27	12.61	91.74	4.000	No	Yes	2.00
1286	94.64	48.46	3.00	3.11	1.00	10.27	8.71	89.52	4.000	No	Yes	2.00
1287	94.72	59.93	2.85	2.46	1.00	13.01	6.55	85.22	4.000	No	Yes	2.00
1288	94.74	73.87	2.72	1.96	1.00	16.33	4.89	79.85	4.000	No	Yes	2.00
1289	94.77	84.50	2.64	1.75	1.00	18.86	4.08	76.98	4.000	No	Yes	2.00
1290	94.85	97.35	2.56	1.57	1.00	21.92	3.39	74.39	4.000	No	No	2.00
1291	94.90	102.75	2.54	1.57	1.00	23.20	3.24	75.17	4.000	No	No	2.00
1292	94.95	105.32	2.54	1.66	1.00	23.80	3.27	77.89	4.000	No	No	2.00
1293	95.01	104.68	2.58	1.94	1.00	23.63	3.61	85.22	4.000	No	No	2.00
1294	95.09	100.83	2.64	2.34	1.00	22.70	4.16	94.37	4.000	No	Yes	2.00
1295	95.14	94.49	2.73	2.97	1.00	21.18	5.05	107.02	4.000	No	Yes	2.00
1296	95.23	86.42	2.82	3.64	1.00	19.25	6.10	117.34	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1297	95.29	78.06	2.91	4.43	1.00	17.25	7.36	126.89	4.000	No	Yes	2.00
1298	95.38	71.11	2.98	5.04	1.00	15.59	8.45	131.69	4.000	No	Yes	2.00
1299	95.43	67.53	3.02	5.36	1.00	14.73	9.06	133.43	4.000	No	Yes	2.00
1300	95.52	67.83	3.01	5.27	1.00	14.79	8.96	132.50	4.000	No	Yes	2.00
1301	95.57	70.23	2.98	4.89	1.00	15.35	8.40	128.95	4.000	No	Yes	2.00
1302	95.67	71.24	2.95	4.48	1.00	15.58	7.93	123.49	4.000	No	Yes	2.00
1303	95.77	66.52	2.97	4.36	1.00	14.45	8.22	118.72	4.000	No	Yes	2.00
1304	95.86	56.97	3.06	4.90	1.00	12.17	9.76	118.80	4.000	No	Yes	2.00
1305	95.95	52.94	3.09	5.00	1.00	11.21	10.40	116.56	4.000	No	Yes	2.00
1306	96.03	46.73	3.17	5.75	1.00	9.74	12.16	118.40	4.000	No	Yes	2.00
1307	96.11	51.55	3.12	5.30	1.00	10.87	10.92	118.64	4.000	No	Yes	2.00
1308	96.20	59.20	3.06	5.23	1.00	12.66	9.84	124.65	4.000	No	Yes	2.00
1309	96.30	80.15	2.90	4.31	1.00	17.59	7.15	125.73	4.000	Yes	Yes	2.00
1310	96.39	101.37	2.77	3.72	1.00	22.58	5.51	124.50	4.000	Yes	Yes	2.00
1311	96.50	122.96	2.67	3.23	1.00	27.64	4.35	120.31	4.000	Yes	Yes	2.00
1312	96.59	144.96	2.54	2.51	1.00	32.80	3.25	106.72	4.000	Yes	No	2.00
1313	96.69	164.86	2.41	1.87	1.00	37.45	2.44	91.36	4.000	Yes	No	2.00
1314	96.78	180.18	2.29	1.32	1.00	41.02	1.89	77.51	4.000	Yes	No	2.00
1315	96.87	185.95	2.24	1.13	1.00	42.35	1.72	72.98	4.000	Yes	No	2.00
1316	96.98	185.28	2.23	1.08	1.00	42.15	1.69	71.40	4.000	No	No	2.00
1317	97.02	177.79	2.26	1.14	1.00	40.38	1.78	71.90	4.000	No	No	2.00
1318	97.06	176.40	2.27	1.20	1.00	40.04	1.83	73.47	4.000	No	No	2.00
1319	97.12	175.60	2.30	1.30	1.00	39.84	1.91	76.16	4.000	No	No	2.00
1320	97.16	176.98	2.31	1.41	1.00	40.15	1.98	79.48	4.000	No	No	2.00
1321	97.21	173.67	2.35	1.58	1.00	39.35	2.13	83.99	4.000	No	No	2.00
1322	97.27	170.50	2.39	1.77	1.00	38.59	2.31	89.17	4.000	No	No	2.00
1323	97.33	168.21	2.42	1.93	1.00	38.04	2.46	93.67	4.000	No	No	2.00
1324	97.40	165.98	2.44	2.03	1.00	37.49	2.57	96.33	4.000	No	No	2.00
1325	97.45	163.92	2.45	2.09	1.00	37.00	2.64	97.51	4.000	Yes	No	2.00
1326	97.50	161.39	2.47	2.20	1.00	36.39	2.76	100.38	4.000	Yes	No	2.00
1327	97.58	155.82	2.50	2.38	1.00	35.06	2.99	104.78	4.000	Yes	No	2.00
1328	97.65	146.95	2.55	2.64	1.00	32.97	3.34	110.26	4.000	Yes	No	2.00
1329	97.69	134.43	2.60	2.87	1.00	30.04	3.79	113.95	4.000	Yes	Yes	2.00
1330	97.74	121.75	2.66	3.06	1.00	27.07	4.27	115.68	4.000	Yes	Yes	2.00
1331	97.81	110.51	2.71	3.22	1.00	24.44	4.76	116.42	4.000	Yes	Yes	2.00
1332	97.88	103.09	2.74	3.33	1.00	22.69	5.14	116.63	4.000	Yes	Yes	2.00
1333	97.93	108.66	2.70	3.05	1.00	23.98	4.67	111.98	4.000	Yes	Yes	2.00
1334	98.03	138.72	2.52	2.22	1.00	30.95	3.15	97.35	4.000	Yes	No	2.00
1335	98.15	182.62	2.33	1.53	1.00	41.12	2.03	83.50	4.000	Yes	No	2.00
1336	98.21	228.43	2.15	1.06	1.00	51.75	1.51	78.05	4.000	Yes	No	2.00
1337	98.32	264.20	2.03	0.81	1.00	60.00	1.34	80.19	4.000	Yes	No	2.00
1338	98.42	301.85	1.92	0.62	1.00	68.69	1.25	85.96	4.000	Yes	No	2.00
1339	98.47	349.59	1.79	0.45	1.00	79.73	1.00	79.73	4.000	Yes	No	2.00
1340	98.57	388.76	1.69	0.32	1.00	88.75	1.00	88.75	4.000	No	No	2.00
1341	98.70	411.84	1.61	0.24	1.00	94.00	1.00	94.00	4.000	No	No	2.00
1342	98.78	404.01	1.62	0.24	1.00	92.13	1.00	92.13	4.000	No	No	2.00
1343	98.85	372.43	1.67	0.27	1.00	84.79	1.00	84.79	4.000	No	No	2.00
1344	98.86	337.78	1.74	0.31	1.00	76.77	1.00	76.77	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1345	98.92	322.73	1.77	0.33	1.00	73.26	1.00	73.26	4.000	No	No	2.00
1346	98.98	318.48	1.78	0.34	1.00	72.24	1.00	72.24	4.000	Yes	No	2.00
1347	99.03	309.41	1.81	0.38	1.00	70.12	1.00	70.12	4.000	Yes	No	2.00
1348	99.11	281.64	1.90	0.48	1.00	63.67	1.00	63.67	4.000	Yes	No	2.00
1349	99.18	255.32	1.99	0.62	1.00	57.57	1.30	74.69	4.000	Yes	No	2.00
1350	99.23	231.33	2.09	0.83	1.00	52.01	1.41	73.25	4.000	Yes	No	2.00
1351	99.32	209.84	2.20	1.12	1.00	47.02	1.62	76.01	4.000	Yes	No	2.00
1352	99.37	189.39	2.31	1.49	1.00	42.29	1.96	83.05	4.000	Yes	No	2.00
1353	99.45	170.57	2.40	1.81	1.00	37.93	2.37	90.04	4.000	Yes	No	2.00
1354	99.56	157.24	2.47	2.08	1.00	34.83	2.76	96.01	4.000	Yes	No	2.00
1355	99.64	147.39	2.52	2.34	1.00	32.55	3.13	101.90	4.000	Yes	No	2.00
1356	99.71	140.04	2.57	2.64	1.00	30.84	3.53	108.77	4.000	Yes	No	2.00
1357	99.75	128.26	2.63	2.93	1.00	28.12	4.04	113.72	4.000	Yes	Yes	2.00
1358	99.90	116.32	2.70	3.25	1.00	25.35	4.67	118.27	4.000	Yes	Yes	2.00
1359	99.95	101.78	2.79	3.87	1.00	22.01	5.75	126.55	4.000	Yes	Yes	2.00
1360	100.04	116.32	2.73	3.67	1.00	25.32	5.03	127.45	4.000	Yes	Yes	2.00
1361	100.14	159.30	2.55	2.82	1.00	35.14	3.33	116.89	4.000	Yes	No	2.00
1362	100.14	204.99	2.39	2.20	1.00	45.59	2.33	106.43	4.000	Yes	No	2.00
1363	100.15	235.79	2.32	2.02	1.00	52.64	2.00	105.52	4.000	Yes	No	2.00
1364	100.19	258.80	2.30	2.10	1.00	57.89	1.93	111.71	4.000	Yes	No	2.00
1365	100.21	298.07	2.26	2.14	1.00	66.86	1.78	119.29	4.000	Yes	No	2.00
1366	100.24	351.88	2.06	1.31	1.00	79.16	1.37	108.37	4.000	Yes	No	2.00
1367	100.28	410.56	1.80	0.59	1.00	92.54	1.15	106.62	4.000	Yes	No	2.00
1368	100.31	470.98	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1369	100.33	508.57	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1370	100.38	524.63	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1371	100.39	526.55	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1372	100.43	531.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1373	100.48	522.24	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1374	100.53	509.38	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1375	100.57	496.12	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1376	100.60	497.27	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.04	2.00	0.00	0.00	0.06	0.00	0.10	2.00	0.00	0.00	0.06	0.00
0.11	2.00	0.00	0.00	0.01	0.00	0.16	2.00	0.00	0.00	0.05	0.00
0.19	2.00	0.00	0.00	0.04	0.00	0.24	2.00	0.00	0.00	0.05	0.00
0.31	2.00	0.00	0.00	0.07	0.00	0.38	2.00	0.00	0.00	0.07	0.00
0.43	2.00	0.00	0.00	0.05	0.00	0.49	2.00	0.00	0.00	0.06	0.00
0.58	2.00	0.00	0.00	0.09	0.00	0.63	2.00	0.00	0.00	0.05	0.00
0.67	2.00	0.00	0.00	0.04	0.00	0.72	2.00	0.00	0.00	0.05	0.00
0.72	2.00	0.00	0.00	0.01	0.00	0.84	2.00	0.00	0.00	0.12	0.00
0.96	2.00	0.00	0.00	0.12	0.00	1.06	2.00	0.00	0.00	0.09	0.00
1.24	2.00	0.00	0.00	0.19	0.00	1.30	2.00	0.00	0.00	0.06	0.00
1.48	2.00	0.00	0.00	0.18	0.00	1.59	2.00	0.00	0.00	0.10	0.00
1.69	2.00	0.00	0.00	0.10	0.00	1.69	2.00	0.00	0.00	0.01	0.00
1.74	2.00	0.00	0.00	0.05	0.00	1.79	2.00	0.00	0.00	0.04	0.00
1.84	2.00	0.00	0.00	0.05	0.00	1.88	2.00	0.00	0.00	0.05	0.00
1.93	2.00	0.00	0.00	0.05	0.00	1.99	2.00	0.00	0.00	0.06	0.00
2.03	2.00	0.00	0.00	0.04	0.00	2.08	2.00	0.00	0.00	0.05	0.00
2.13	2.00	0.00	0.00	0.05	0.00	2.22	2.00	0.00	0.00	0.09	0.00
2.27	2.00	0.00	0.00	0.06	0.00	2.33	2.00	0.00	0.00	0.05	0.00
2.42	2.00	0.00	0.00	0.09	0.00	2.48	2.00	0.00	0.00	0.07	0.00
2.56	2.00	0.00	0.00	0.07	0.00	2.65	2.00	0.00	0.00	0.10	0.00
2.72	2.00	0.00	0.00	0.07	0.00	2.80	2.00	0.00	0.00	0.08	0.00
2.89	2.00	0.00	0.00	0.09	0.00	2.94	2.00	0.00	0.00	0.05	0.00
3.04	2.00	0.00	0.00	0.10	0.00	3.14	2.00	0.00	0.00	0.10	0.00
3.23	2.00	0.00	0.00	0.10	0.00	3.31	2.00	0.00	0.00	0.07	0.00
3.37	2.00	0.00	0.00	0.06	0.00	3.48	2.00	0.00	0.00	0.11	0.00
3.57	2.00	0.00	0.00	0.09	0.00	3.65	2.00	0.00	0.00	0.09	0.00
3.71	2.00	0.00	0.00	0.06	0.00	3.82	2.00	0.00	0.00	0.11	0.00
3.91	2.00	0.00	0.00	0.09	0.00	4.00	2.00	0.00	0.00	0.10	0.00
4.10	2.00	0.00	0.00	0.09	0.00	4.19	2.00	0.00	0.00	0.10	0.00
4.26	2.00	0.00	0.00	0.07	0.00	4.35	2.00	0.00	0.00	0.09	0.00
4.44	2.00	0.00	0.00	0.10	0.00	4.52	2.00	0.00	0.00	0.08	0.00
4.53	2.00	0.00	0.00	0.01	0.00	4.58	2.00	0.00	0.00	0.05	0.00
4.63	2.00	0.00	0.00	0.05	0.00	4.68	2.00	0.00	0.00	0.05	0.00
4.72	2.00	0.00	0.00	0.04	0.00	4.77	2.00	0.00	0.00	0.05	0.00
4.82	2.00	0.00	0.00	0.05	0.00	4.88	2.00	0.00	0.00	0.06	0.00
4.96	2.00	0.00	0.00	0.08	0.00	5.01	2.00	0.00	0.00	0.05	0.00
5.08	2.00	0.00	0.00	0.07	0.00	5.16	2.00	0.00	0.00	0.08	0.00
5.21	2.00	0.00	0.00	0.05	0.00	5.30	2.00	0.00	0.00	0.09	0.00
5.37	2.00	0.00	0.00	0.07	0.00	5.45	2.00	0.00	0.00	0.08	0.00
5.52	2.00	0.00	0.00	0.07	0.00	5.59	2.00	0.00	0.00	0.07	0.00
5.65	2.00	0.00	0.00	0.06	0.00	5.74	2.00	0.00	0.00	0.08	0.00
5.83	2.00	0.00	0.00	0.09	0.00	5.89	2.00	0.00	0.00	0.06	0.00
5.97	2.00	0.00	0.00	0.08	0.00	6.07	2.00	0.00	0.00	0.09	0.00
6.12	2.00	0.00	0.00	0.05	0.00	6.22	2.00	0.00	0.00	0.10	0.00
6.28	2.00	0.00	0.00	0.06	0.00	6.36	2.00	0.00	0.00	0.08	0.00
6.46	2.00	0.00	0.00	0.10	0.00	6.52	2.00	0.00	0.00	0.06	0.00
6.60	2.00	0.00	0.00	0.09	0.00	6.70	2.00	0.00	0.00	0.09	0.00
6.76	2.00	0.00	0.00	0.07	0.00	6.84	2.00	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
6.94	2.00	0.00	0.00	0.10	0.00	7.03	2.00	0.00	0.00	0.09	0.00
7.13	2.00	0.00	0.00	0.09	0.00	7.19	2.00	0.00	0.00	0.06	0.00
7.32	2.00	0.00	0.00	0.13	0.00	7.42	2.00	0.00	0.00	0.10	0.00
7.49	2.00	0.00	0.00	0.07	0.00	7.57	2.00	0.00	0.00	0.08	0.00
7.66	2.00	0.00	0.00	0.09	0.00	7.76	2.00	0.00	0.00	0.10	0.00
7.77	2.00	0.00	0.00	0.01	0.00	7.78	2.00	0.00	0.00	0.00	0.00
7.82	2.00	0.00	0.00	0.04	0.00	7.87	2.00	0.00	0.00	0.05	0.00
7.92	2.00	0.00	0.00	0.04	0.00	7.97	2.00	0.00	0.00	0.05	0.00
8.01	2.00	0.00	0.00	0.04	0.00	8.06	2.00	0.00	0.00	0.05	0.00
8.11	2.00	0.00	0.00	0.05	0.00	8.20	2.00	0.00	0.00	0.09	0.00
8.26	2.00	0.00	0.00	0.06	0.00	8.35	2.00	0.00	0.00	0.09	0.00
8.40	2.00	0.00	0.00	0.06	0.00	8.49	2.00	0.00	0.00	0.09	0.00
8.54	2.00	0.00	0.00	0.05	0.00	8.64	2.00	0.00	0.00	0.09	0.00
8.69	2.00	0.00	0.00	0.05	0.00	8.79	2.00	0.00	0.00	0.10	0.00
8.84	2.00	0.00	0.00	0.05	0.00	8.93	2.00	0.00	0.00	0.09	0.00
9.03	2.00	0.00	0.00	0.10	0.00	9.08	2.00	0.00	0.00	0.06	0.00
9.11	2.00	0.00	0.00	0.02	0.00	9.12	2.00	0.00	0.00	0.01	0.00
9.17	2.00	0.00	0.00	0.05	0.00	9.22	2.00	0.00	0.00	0.05	0.00
9.31	2.00	0.00	0.00	0.10	0.00	9.36	2.00	0.00	0.00	0.05	0.00
9.40	2.00	0.00	0.00	0.03	0.00	9.46	2.00	0.00	0.00	0.06	0.00
9.51	2.00	0.00	0.00	0.05	0.00	9.55	2.00	0.00	0.00	0.04	0.00
9.61	2.00	0.00	0.00	0.06	0.00	9.69	2.00	0.00	0.00	0.09	0.00
9.74	2.00	0.00	0.00	0.05	0.00	9.81	2.00	0.00	0.00	0.07	0.00
9.89	2.00	0.00	0.00	0.07	0.00	9.94	2.00	0.00	0.00	0.05	0.00
10.03	2.00	0.00	0.00	0.09	0.00	10.08	2.00	0.00	0.00	0.05	0.00
10.18	2.00	0.00	0.00	0.11	0.00	10.23	2.00	0.00	0.00	0.04	0.00
10.33	2.00	0.00	0.00	0.10	0.00	10.40	2.00	0.00	0.00	0.07	0.00
10.47	2.00	0.00	0.00	0.07	0.00	10.51	2.00	0.00	0.00	0.04	0.00
10.56	2.00	0.00	0.00	0.05	0.00	10.61	2.00	0.00	0.00	0.05	0.00
10.67	2.00	0.00	0.00	0.05	0.00	10.75	2.00	0.00	0.00	0.08	0.00
10.80	2.00	0.00	0.00	0.05	0.00	10.85	2.00	0.00	0.00	0.05	0.00
10.90	2.00	0.00	0.00	0.04	0.00	11.00	2.00	0.00	0.00	0.10	0.00
11.05	2.00	0.00	0.00	0.06	0.00	11.14	2.00	0.00	0.00	0.09	0.00
11.21	2.00	0.00	0.00	0.07	0.00	11.29	2.00	0.00	0.00	0.08	0.00
11.38	2.00	0.00	0.00	0.09	0.00	11.46	2.00	0.00	0.00	0.08	0.00
11.52	2.00	0.00	0.00	0.06	0.00	11.60	2.00	0.00	0.00	0.08	0.00
11.67	2.00	0.00	0.00	0.07	0.00	11.72	2.00	0.00	0.00	0.05	0.00
11.81	2.00	0.00	0.00	0.09	0.00	11.86	2.00	0.00	0.00	0.05	0.00
11.96	2.00	0.00	0.00	0.10	0.00	12.01	2.00	0.00	0.00	0.05	0.00
12.10	2.00	0.00	0.00	0.09	0.00	12.16	2.00	0.00	0.00	0.06	0.00
12.24	2.00	0.00	0.00	0.09	0.00	12.32	2.00	0.00	0.00	0.07	0.00
12.39	2.00	0.00	0.00	0.08	0.00	12.48	2.00	0.00	0.00	0.09	0.00
12.50	2.00	0.00	0.00	0.01	0.00	12.54	2.00	0.00	0.00	0.04	0.00
12.64	2.00	0.00	0.00	0.10	0.00	12.68	2.00	0.00	0.00	0.05	0.00
12.77	2.00	0.00	0.00	0.08	0.00	12.82	2.00	0.00	0.00	0.06	0.00
12.89	2.00	0.00	0.00	0.07	0.00	12.97	2.00	0.00	0.00	0.08	0.00
13.03	2.00	0.00	0.00	0.06	0.00	13.12	2.00	0.00	0.00	0.09	0.00
13.16	2.00	0.00	0.00	0.05	0.00	13.26	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
13.34	2.00	0.00	0.00	0.08	0.00	13.41	2.00	0.00	0.00	0.06	0.00
13.50	2.00	0.00	0.00	0.09	0.00	13.60	2.00	0.00	0.00	0.10	0.00
13.65	2.00	0.00	0.00	0.05	0.00	13.75	2.00	0.00	0.00	0.10	0.00
13.80	2.00	0.00	0.00	0.06	0.00	13.89	2.00	0.00	0.00	0.09	0.00
13.94	2.00	0.00	0.00	0.05	0.00	14.03	2.00	0.00	0.00	0.09	0.00
14.11	2.00	0.00	0.00	0.07	0.00	14.13	2.00	0.00	0.00	0.02	0.00
14.18	2.00	0.00	0.00	0.05	0.00	14.22	2.00	0.00	0.00	0.04	0.00
14.28	2.00	0.00	0.00	0.06	0.00	14.37	2.00	0.00	0.00	0.09	0.00
14.44	2.00	0.00	0.00	0.07	0.00	14.51	2.00	0.00	0.00	0.08	0.00
14.60	2.00	0.00	0.00	0.09	0.00	14.65	2.00	0.00	0.00	0.05	0.00
14.75	2.00	0.00	0.00	0.10	0.00	14.85	2.00	0.00	0.00	0.10	0.00
14.91	2.00	0.00	0.00	0.06	0.00	14.99	2.00	0.00	0.00	0.08	0.00
15.09	2.00	0.00	0.00	0.09	0.00	15.18	2.00	0.00	0.00	0.09	0.00
15.25	2.00	0.00	0.00	0.07	0.00	15.33	2.00	0.00	0.00	0.08	0.00
15.43	2.00	0.00	0.00	0.10	0.00	15.51	2.00	0.00	0.00	0.09	0.00
15.59	2.00	0.00	0.00	0.08	0.00	15.67	2.00	0.00	0.00	0.08	0.00
15.76	2.00	0.00	0.00	0.09	0.00	15.86	2.00	0.00	0.00	0.10	0.00
15.95	2.00	0.00	0.00	0.09	0.00	16.05	2.00	0.00	0.00	0.10	0.00
16.14	2.00	0.00	0.00	0.09	0.00	16.20	2.00	0.00	0.00	0.06	0.00
16.28	2.00	0.00	0.00	0.09	0.00	16.34	2.00	0.00	0.00	0.05	0.00
16.44	2.00	0.00	0.00	0.10	0.00	16.50	2.00	0.00	0.00	0.06	0.00
16.58	2.00	0.00	0.00	0.08	0.00	16.73	2.00	0.00	0.00	0.15	0.00
16.82	2.00	0.00	0.00	0.09	0.00	16.92	2.00	0.00	0.00	0.10	0.00
17.01	2.00	0.00	0.00	0.09	0.00	17.11	2.00	0.00	0.00	0.09	0.00
17.12	2.00	0.00	0.00	0.01	0.00	17.14	2.00	0.00	0.00	0.02	0.00
17.19	2.00	0.00	0.00	0.05	0.00	17.28	2.00	0.00	0.00	0.09	0.00
17.33	2.00	0.00	0.00	0.05	0.00	17.43	2.00	0.00	0.00	0.10	0.00
17.47	2.00	0.00	0.00	0.05	0.00	17.57	2.00	0.00	0.00	0.10	0.00
17.65	2.00	0.00	0.00	0.08	0.00	17.72	2.00	0.00	0.00	0.06	0.00
17.81	2.00	0.00	0.00	0.09	0.00	17.86	2.00	0.00	0.00	0.05	0.00
17.95	2.00	0.00	0.00	0.10	0.00	18.05	2.00	0.00	0.00	0.10	0.00
18.10	2.00	0.00	0.00	0.05	0.00	18.20	2.00	0.00	0.00	0.10	0.00
18.30	2.00	0.00	0.00	0.10	0.00	18.39	2.00	0.00	0.00	0.10	0.00
18.48	2.00	0.00	0.00	0.09	0.00	18.58	2.00	0.00	0.00	0.10	0.00
18.66	2.00	0.00	0.00	0.08	0.00	18.74	2.00	0.00	0.00	0.08	0.00
18.87	2.00	0.00	0.00	0.13	0.00	18.97	2.00	0.00	0.00	0.10	0.00
19.06	2.00	0.00	0.00	0.10	0.00	19.16	2.00	0.00	0.00	0.10	0.00
19.25	2.00	0.00	0.00	0.10	0.00	19.27	2.00	0.00	0.00	0.01	0.00
19.30	2.00	0.00	0.00	0.03	0.00	19.34	2.00	0.00	0.00	0.04	0.00
19.39	2.00	0.00	0.00	0.05	0.00	19.49	2.00	0.00	0.00	0.10	0.00
19.55	2.00	0.00	0.00	0.06	0.00	19.63	2.00	0.00	0.00	0.08	0.00
19.68	2.00	0.00	0.00	0.05	0.00	19.74	2.00	0.00	0.00	0.06	0.00
19.83	2.00	0.00	0.00	0.08	0.00	19.87	2.00	0.00	0.00	0.05	0.00
19.94	2.00	0.00	0.00	0.07	0.00	20.02	2.00	0.00	0.00	0.08	0.00
20.07	2.00	0.00	0.00	0.05	0.00	20.17	2.00	0.00	0.00	0.10	0.00
20.21	2.00	0.00	0.00	0.05	0.00	20.28	2.00	0.00	0.00	0.07	0.00
20.36	2.00	0.00	0.00	0.08	0.00	20.41	2.00	0.00	0.00	0.05	0.00
20.48	2.00	0.00	0.00	0.07	0.00	20.55	2.00	0.00	0.00	0.07	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
20.60	2.00	0.00	0.00	0.05	0.00	20.70	2.00	0.00	0.00	0.10	0.00
20.74	2.00	0.00	0.00	0.05	0.00	20.79	2.00	0.00	0.00	0.05	0.00
20.89	2.00	0.00	0.00	0.09	0.00	20.96	2.00	0.00	0.00	0.08	0.00
21.04	2.00	0.00	0.00	0.07	0.00	21.13	2.00	0.00	0.00	0.09	0.00
21.22	2.00	0.00	0.00	0.09	0.00	21.29	2.00	0.00	0.00	0.06	0.00
21.35	2.00	0.00	0.00	0.06	0.00	21.37	2.00	0.00	0.00	0.03	0.00
21.42	2.00	0.00	0.00	0.05	0.00	21.47	2.00	0.00	0.00	0.05	0.00
21.48	2.00	0.00	0.00	0.01	0.00	21.52	2.00	0.00	0.00	0.04	0.00
21.57	2.00	0.00	0.00	0.05	0.00	21.62	2.00	0.00	0.00	0.05	0.00
21.66	2.00	0.00	0.00	0.05	0.00	21.71	2.00	0.00	0.00	0.05	0.00
21.76	2.00	0.00	0.00	0.05	0.00	21.81	2.00	0.00	0.00	0.05	0.00
21.85	2.00	0.00	0.00	0.04	0.00	21.91	2.00	0.00	0.00	0.05	0.00
21.95	2.00	0.00	0.00	0.05	0.00	22.00	2.00	0.00	0.00	0.05	0.00
22.05	2.00	0.00	0.00	0.04	0.00	22.10	2.00	0.00	0.00	0.05	0.00
22.15	2.00	0.00	0.00	0.05	0.00	22.19	2.00	0.00	0.00	0.05	0.00
22.24	2.00	0.00	0.00	0.05	0.00	22.29	2.00	0.00	0.00	0.05	0.00
22.34	2.00	0.00	0.00	0.05	0.00	22.39	2.00	0.00	0.00	0.05	0.00
22.43	2.00	0.00	0.00	0.05	0.00	22.48	2.00	0.00	0.00	0.05	0.00
22.55	2.00	0.00	0.00	0.06	0.00	22.62	2.00	0.00	0.00	0.07	0.00
22.63	2.00	0.00	0.00	0.01	0.00	22.72	2.00	0.00	0.00	0.10	0.00
22.77	2.00	0.00	0.00	0.04	0.00	22.83	2.00	0.00	0.00	0.06	0.00
22.91	2.00	0.00	0.00	0.08	0.00	22.96	2.00	0.00	0.00	0.05	0.00
23.02	2.00	0.00	0.00	0.05	0.00	23.10	2.00	0.00	0.00	0.09	0.00
23.16	2.00	0.00	0.00	0.06	0.00	23.20	2.00	0.00	0.00	0.05	0.00
23.26	2.00	0.00	0.00	0.06	0.00	23.35	2.00	0.00	0.00	0.09	0.00
23.39	2.00	0.00	0.00	0.04	0.00	23.48	2.00	0.00	0.00	0.09	0.00
23.54	2.00	0.00	0.00	0.06	0.00	23.63	2.00	0.00	0.00	0.09	0.00
23.69	2.00	0.00	0.00	0.06	0.00	23.78	2.00	0.00	0.00	0.09	0.00
23.87	2.00	0.00	0.00	0.09	0.00	23.88	2.00	0.00	0.00	0.01	0.00
23.93	2.00	0.00	0.00	0.05	0.00	24.02	2.00	0.00	0.00	0.10	0.00
24.04	2.00	0.00	0.00	0.01	0.00	24.05	2.00	0.00	0.00	0.02	0.00
24.15	2.00	0.00	0.00	0.10	0.00	24.20	2.00	0.00	0.00	0.05	0.00
24.30	2.00	0.00	0.00	0.10	0.00	24.40	2.00	0.00	0.00	0.09	0.00
24.46	2.00	0.00	0.00	0.07	0.00	24.54	2.00	0.00	0.00	0.08	0.00
24.64	2.00	0.00	0.00	0.10	0.00	24.73	2.00	0.00	0.00	0.09	0.00
24.78	2.00	0.00	0.00	0.06	0.00	24.88	2.00	0.00	0.00	0.09	0.00
24.94	2.00	0.00	0.00	0.06	0.00	25.02	2.00	0.00	0.00	0.08	0.00
25.12	2.00	0.00	0.00	0.10	0.00	25.17	2.00	0.00	0.00	0.05	0.00
25.27	2.00	0.00	0.00	0.10	0.00	25.36	2.00	0.00	0.00	0.09	0.00
25.43	2.00	0.00	0.00	0.07	0.00	25.50	2.00	0.00	0.00	0.08	0.00
25.60	2.00	0.00	0.00	0.10	0.00	25.64	2.00	0.00	0.00	0.04	0.00
25.67	2.00	0.00	0.00	0.03	0.00	25.71	2.00	0.00	0.00	0.04	0.00
25.79	2.00	0.00	0.00	0.09	0.00	25.93	2.00	0.00	0.00	0.14	0.00
26.03	2.00	0.00	0.00	0.10	0.00	26.13	2.00	0.00	0.00	0.10	0.00
26.24	2.00	0.00	0.00	0.11	0.00	26.37	2.00	0.00	0.00	0.13	0.00
26.47	2.00	0.00	0.00	0.10	0.00	26.60	2.00	0.00	0.00	0.13	0.00
26.71	2.00	0.00	0.00	0.11	0.00	26.85	2.00	0.00	0.00	0.15	0.00
26.95	2.00	0.00	0.00	0.09	0.00	27.04	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
27.09	2.00	0.00	0.00	0.05	0.00	27.19	2.00	0.00	0.00	0.10	0.00
27.23	2.00	0.00	0.00	0.05	0.00	27.33	2.00	0.00	0.00	0.10	0.00
27.40	2.00	0.00	0.00	0.07	0.00	27.47	2.00	0.00	0.00	0.07	0.00
27.57	2.00	0.00	0.00	0.11	0.00	27.66	2.00	0.00	0.00	0.09	0.00
27.77	2.00	0.00	0.00	0.10	0.00	27.86	2.00	0.00	0.00	0.10	0.00
27.96	2.00	0.00	0.00	0.10	0.00	28.06	2.00	0.00	0.00	0.10	0.00
28.15	2.00	0.00	0.00	0.09	0.00	28.25	2.00	0.00	0.00	0.10	0.00
28.34	2.00	0.00	0.00	0.09	0.00	28.44	2.00	0.00	0.00	0.10	0.00
28.54	2.00	0.00	0.00	0.10	0.00	28.62	2.00	0.00	0.00	0.08	0.00
28.71	2.00	0.00	0.00	0.09	0.00	28.77	2.00	0.00	0.00	0.05	0.00
28.86	2.00	0.00	0.00	0.09	0.00	28.91	2.00	0.00	0.00	0.05	0.00
28.97	2.00	0.00	0.00	0.05	0.00	29.04	2.00	0.00	0.00	0.08	0.00
29.10	2.00	0.00	0.00	0.06	0.00	29.15	2.00	0.00	0.00	0.05	0.00
29.25	2.00	0.00	0.00	0.10	0.00	29.34	2.00	0.00	0.00	0.09	0.00
29.38	2.00	0.00	0.00	0.04	0.00	29.48	2.00	0.00	0.00	0.10	0.00
29.55	2.00	0.00	0.00	0.06	0.00	29.63	2.00	0.00	0.00	0.09	0.00
29.72	2.00	0.00	0.00	0.09	0.00	29.82	2.00	0.00	0.00	0.10	0.00
29.88	2.00	0.00	0.00	0.06	0.00	29.96	2.00	0.00	0.00	0.08	0.00
30.06	2.00	0.00	0.00	0.09	0.00	30.13	2.00	0.00	0.00	0.07	0.00
30.18	0.34	0.00	0.00	0.04	0.05	30.28	0.35	0.00	0.00	0.10	0.11
30.37	0.36	0.00	0.00	0.09	0.10	30.47	0.37	0.00	0.00	0.10	0.10
30.57	0.38	0.00	0.00	0.10	0.10	30.66	0.40	0.00	0.00	0.10	0.10
30.74	0.41	0.00	0.00	0.08	0.07	30.82	0.42	0.00	0.00	0.08	0.07
30.90	0.43	0.00	0.00	0.08	0.07	31.01	0.45	0.00	0.00	0.11	0.10
31.10	0.48	0.00	0.00	0.08	0.07	31.19	0.51	0.00	0.00	0.09	0.07
31.28	0.54	0.00	0.00	0.09	0.07	31.35	0.58	0.00	0.00	0.06	0.04
31.43	0.60	0.00	0.00	0.09	0.06	31.53	0.63	0.00	0.00	0.09	0.05
31.60	0.57	0.00	0.00	0.07	0.05	31.67	0.52	0.00	0.00	0.08	0.06
31.77	0.48	0.00	0.00	0.10	0.08	31.84	0.50	0.00	0.00	0.07	0.05
31.91	0.51	0.00	0.00	0.07	0.05	31.98	0.53	0.00	0.00	0.07	0.05
31.98	0.55	0.00	0.00	0.01	0.01	32.04	0.56	0.00	0.00	0.05	0.04
32.12	2.00	0.00	0.00	0.08	0.00	32.16	2.00	0.00	0.00	0.05	0.00
32.27	2.00	0.00	0.00	0.10	0.00	32.33	2.00	0.00	0.00	0.06	0.00
32.41	2.00	0.00	0.00	0.08	0.00	32.50	2.00	0.00	0.00	0.09	0.00
32.58	2.00	0.00	0.00	0.08	0.00	32.66	2.00	0.00	0.00	0.07	0.00
32.74	2.00	0.00	0.00	0.09	0.00	32.84	2.00	0.00	0.00	0.10	0.00
32.90	2.00	0.00	0.00	0.06	0.00	32.98	2.00	0.00	0.00	0.09	0.00
33.08	2.00	0.00	0.00	0.09	0.00	33.14	2.00	0.00	0.00	0.07	0.00
33.22	2.00	0.00	0.00	0.08	0.00	33.32	2.00	0.00	0.00	0.10	0.00
33.37	2.00	0.00	0.00	0.05	0.00	33.47	2.00	0.00	0.00	0.10	0.00
33.56	2.00	0.00	0.00	0.09	0.00	33.63	2.00	0.00	0.00	0.07	0.00
33.71	2.00	0.00	0.00	0.08	0.00	33.81	2.00	0.00	0.00	0.09	0.00
33.90	2.00	0.00	0.00	0.09	0.00	33.95	2.00	0.00	0.00	0.05	0.00
34.04	2.00	0.00	0.00	0.09	0.00	34.14	2.00	0.00	0.00	0.10	0.00
34.17	2.00	0.00	0.00	0.02	0.00	34.20	2.00	0.00	0.00	0.04	0.00
34.26	2.00	0.00	0.00	0.05	0.00	34.35	2.00	0.00	0.00	0.09	0.00
34.43	2.00	0.00	0.00	0.08	0.00	34.49	2.00	0.00	0.00	0.06	0.00
34.59	2.00	0.00	0.00	0.09	0.00	34.69	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
34.73	2.00	0.00	0.00	0.05	0.00	34.83	2.00	0.00	0.00	0.10	0.00
34.90	2.00	0.00	0.00	0.07	0.00	34.98	2.00	0.00	0.00	0.08	0.00
35.07	2.00	0.00	0.00	0.09	0.00	35.16	2.00	0.00	0.00	0.10	0.00
35.26	2.00	0.00	0.00	0.10	0.00	35.33	2.00	0.00	0.00	0.07	0.00
35.40	2.00	0.00	0.00	0.07	0.00	35.50	2.00	0.00	0.00	0.10	0.00
35.57	2.00	0.00	0.00	0.06	0.00	35.65	2.00	0.00	0.00	0.08	0.00
35.71	2.00	0.00	0.00	0.06	0.00	35.79	2.00	0.00	0.00	0.09	0.00
35.85	2.00	0.00	0.00	0.06	0.00	35.94	2.00	0.00	0.00	0.08	0.00
35.99	2.00	0.00	0.00	0.06	0.00	36.08	2.00	0.00	0.00	0.08	0.00
36.17	2.00	0.00	0.00	0.10	0.00	36.24	2.00	0.00	0.00	0.07	0.00
36.33	2.00	0.00	0.00	0.08	0.00	36.42	2.00	0.00	0.00	0.09	0.00
36.52	2.00	0.00	0.00	0.10	0.00	36.61	2.00	0.00	0.00	0.09	0.00
36.70	2.00	0.00	0.00	0.09	0.00	36.78	2.00	0.00	0.00	0.08	0.00
36.85	2.00	0.00	0.00	0.07	0.00	36.87	2.00	0.00	0.00	0.01	0.00
36.91	2.00	0.00	0.00	0.05	0.00	36.97	2.00	0.00	0.00	0.06	0.00
37.06	2.00	0.00	0.00	0.09	0.00	37.12	2.00	0.00	0.00	0.06	0.00
37.20	2.00	0.00	0.00	0.08	0.00	37.27	2.00	0.00	0.00	0.08	0.00
37.35	2.00	0.00	0.00	0.07	0.00	37.44	2.00	0.00	0.00	0.09	0.00
37.49	2.00	0.00	0.00	0.05	0.00	37.59	2.00	0.00	0.00	0.10	0.00
37.64	2.00	0.00	0.00	0.05	0.00	37.70	2.00	0.00	0.00	0.07	0.00
37.78	2.00	0.00	0.00	0.08	0.00	37.83	2.00	0.00	0.00	0.05	0.00
37.92	2.00	0.00	0.00	0.09	0.00	37.97	2.00	0.00	0.00	0.05	0.00
38.07	0.90	0.00	0.00	0.09	0.01	38.14	0.94	0.00	0.00	0.07	0.01
38.22	0.99	0.00	0.00	0.08	0.00	38.31	1.06	0.00	0.00	0.09	0.00
38.41	1.16	0.00	0.00	0.09	0.00	38.52	1.27	0.00	0.00	0.11	0.00
38.64	1.33	0.00	0.00	0.13	0.00	38.74	1.34	0.00	0.00	0.10	0.00
38.80	1.33	0.00	0.00	0.06	0.00	38.89	1.31	0.00	0.00	0.08	0.00
38.94	1.36	0.00	0.00	0.05	0.00	39.03	1.37	0.00	0.00	0.09	0.00
39.13	1.39	0.00	0.00	0.10	0.00	39.23	1.38	0.00	0.00	0.10	0.00
39.35	1.34	0.00	0.00	0.12	0.00	39.42	1.26	0.00	0.00	0.07	0.00
39.51	1.14	0.00	0.00	0.09	0.00	39.60	1.02	0.00	0.00	0.09	0.00
39.70	0.93	0.00	0.00	0.10	0.01	39.78	0.86	0.00	0.00	0.07	0.01
39.90	0.80	0.00	0.00	0.12	0.03	39.99	0.74	0.00	0.00	0.09	0.03
40.09	2.00	0.00	0.00	0.10	0.00	40.18	2.00	0.00	0.00	0.09	0.00
40.23	2.00	0.00	0.00	0.05	0.00	40.33	2.00	0.00	0.00	0.10	0.00
40.43	2.00	0.00	0.00	0.10	0.00	40.52	2.00	0.00	0.00	0.09	0.00
40.61	2.00	0.00	0.00	0.08	0.00	40.69	2.00	0.00	0.00	0.09	0.00
40.80	2.00	0.00	0.00	0.10	0.00	40.87	2.00	0.00	0.00	0.08	0.00
40.95	2.00	0.00	0.00	0.08	0.00	40.97	2.00	0.00	0.00	0.02	0.00
41.01	2.00	0.00	0.00	0.04	0.00	41.07	2.00	0.00	0.00	0.06	0.00
41.15	2.00	0.00	0.00	0.08	0.00	41.26	0.44	0.00	0.00	0.11	0.07
41.35	0.45	0.00	0.00	0.09	0.06	41.47	0.46	0.00	0.00	0.12	0.08
41.59	0.47	0.00	0.00	0.12	0.07	41.69	0.48	0.00	0.00	0.10	0.06
41.78	0.49	0.00	0.00	0.09	0.05	41.88	2.00	0.00	0.00	0.10	0.00
41.98	2.00	0.00	0.00	0.10	0.00	42.08	2.00	0.00	0.00	0.10	0.00
42.16	2.00	0.00	0.00	0.08	0.00	42.24	2.00	0.00	0.00	0.08	0.00
42.31	2.00	0.00	0.00	0.07	0.00	42.45	0.48	0.00	0.00	0.14	0.08
42.55	0.47	0.00	0.00	0.09	0.05	42.60	0.47	0.00	0.00	0.05	0.03

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
42.70	0.48	0.00	0.00	0.10	0.06	42.81	0.51	0.00	0.00	0.11	0.06
42.89	2.00	0.00	0.00	0.08	0.00	42.98	2.00	0.00	0.00	0.10	0.00
43.08	2.00	0.00	0.00	0.10	0.00	43.17	2.00	0.00	0.00	0.09	0.00
43.27	2.00	0.00	0.00	0.10	0.00	43.37	2.00	0.00	0.00	0.09	0.00
43.50	2.00	0.00	0.00	0.14	0.00	43.61	0.35	0.00	0.00	0.10	0.07
43.74	0.35	0.00	0.00	0.13	0.09	43.79	0.37	0.00	0.00	0.05	0.03
43.86	2.00	0.00	0.00	0.07	0.00	43.94	2.00	0.00	0.00	0.07	0.00
44.00	2.00	0.00	0.00	0.06	0.00	44.08	2.00	0.00	0.00	0.08	0.00
44.17	2.00	0.00	0.00	0.09	0.00	44.27	2.00	0.00	0.00	0.10	0.00
44.42	2.00	0.00	0.00	0.14	0.00	44.52	2.00	0.00	0.00	0.10	0.00
44.61	2.00	0.00	0.00	0.10	0.00	44.71	0.40	0.00	0.00	0.09	0.06
44.85	0.40	0.00	0.00	0.14	0.08	44.95	0.42	0.00	0.00	0.10	0.06
45.09	0.45	0.00	0.00	0.14	0.07	45.19	2.00	0.00	0.00	0.10	0.00
45.33	2.00	0.00	0.00	0.14	0.00	45.42	2.00	0.00	0.00	0.10	0.00
45.57	2.00	0.00	0.00	0.14	0.00	45.68	2.00	0.00	0.00	0.11	0.00
45.81	2.00	0.00	0.00	0.14	0.00	45.92	2.00	0.00	0.00	0.11	0.00
46.05	2.00	0.00	0.00	0.13	0.00	46.16	2.00	0.00	0.00	0.10	0.00
46.17	2.00	0.00	0.00	0.01	0.00	46.23	2.00	0.00	0.00	0.06	0.00
46.29	2.00	0.00	0.00	0.05	0.00	46.34	2.00	0.00	0.00	0.05	0.00
46.42	2.00	0.00	0.00	0.09	0.00	46.48	2.00	0.00	0.00	0.05	0.00
46.52	2.00	0.00	0.00	0.05	0.00	46.60	2.00	0.00	0.00	0.08	0.00
46.67	2.00	0.00	0.00	0.07	0.00	46.74	2.00	0.00	0.00	0.07	0.00
46.82	2.00	0.00	0.00	0.08	0.00	46.88	2.00	0.00	0.00	0.06	0.00
46.96	2.00	0.00	0.00	0.09	0.00	47.06	2.00	0.00	0.00	0.09	0.00
47.15	2.00	0.00	0.00	0.10	0.00	47.24	2.00	0.00	0.00	0.09	0.00
47.35	2.00	0.00	0.00	0.10	0.00	47.49	2.00	0.00	0.00	0.14	0.00
47.58	2.00	0.00	0.00	0.09	0.00	47.73	2.00	0.00	0.00	0.15	0.00
47.83	2.00	0.00	0.00	0.10	0.00	47.87	2.00	0.00	0.00	0.04	0.00
47.89	2.00	0.00	0.00	0.02	0.00	47.94	2.00	0.00	0.00	0.05	0.00
48.02	2.00	0.00	0.00	0.08	0.00	48.07	2.00	0.00	0.00	0.05	0.00
48.12	2.00	0.00	0.00	0.05	0.00	48.18	2.00	0.00	0.00	0.06	0.00
48.26	2.00	0.00	0.00	0.08	0.00	48.31	2.00	0.00	0.00	0.06	0.00
48.38	2.00	0.00	0.00	0.06	0.00	48.46	2.00	0.00	0.00	0.08	0.00
48.52	2.00	0.00	0.00	0.06	0.00	48.60	2.00	0.00	0.00	0.08	0.00
48.68	2.00	0.00	0.00	0.08	0.00	48.74	2.00	0.00	0.00	0.06	0.00
48.82	2.00	0.00	0.00	0.08	0.00	48.89	2.00	0.00	0.00	0.07	0.00
48.99	2.00	0.00	0.00	0.10	0.00	49.05	2.00	0.00	0.00	0.06	0.00
49.12	2.00	0.00	0.00	0.08	0.00	49.18	2.00	0.00	0.00	0.06	0.00
49.27	2.00	0.00	0.00	0.09	0.00	49.32	2.00	0.00	0.00	0.05	0.00
49.42	2.00	0.00	0.00	0.09	0.00	49.48	2.00	0.00	0.00	0.06	0.00
49.56	2.00	0.00	0.00	0.09	0.00	49.66	2.00	0.00	0.00	0.10	0.00
49.76	2.00	0.00	0.00	0.09	0.00	49.85	2.00	0.00	0.00	0.09	0.00
49.99	2.00	0.00	0.00	0.14	0.00	50.09	2.00	0.00	0.00	0.10	0.00
50.21	2.00	0.00	0.00	0.12	0.00	50.24	2.00	0.00	0.00	0.03	0.00
50.29	2.00	0.00	0.00	0.05	0.00	50.38	2.00	0.00	0.00	0.09	0.00
50.47	2.00	0.00	0.00	0.09	0.00	50.52	2.00	0.00	0.00	0.05	0.00
50.62	2.00	0.00	0.00	0.10	0.00	50.66	2.00	0.00	0.00	0.05	0.00
50.76	2.00	0.00	0.00	0.10	0.00	50.83	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
50.91	2.00	0.00	0.00	0.09	0.00	51.00	2.00	0.00	0.00	0.09	0.00
51.06	2.00	0.00	0.00	0.06	0.00	51.15	2.00	0.00	0.00	0.08	0.00
51.24	2.00	0.00	0.00	0.10	0.00	51.31	2.00	0.00	0.00	0.07	0.00
51.39	2.00	0.00	0.00	0.08	0.00	51.48	2.00	0.00	0.00	0.09	0.00
51.58	2.00	0.00	0.00	0.10	0.00	51.68	2.00	0.00	0.00	0.10	0.00
51.77	2.00	0.00	0.00	0.10	0.00	51.90	2.00	0.00	0.00	0.13	0.00
52.01	2.00	0.00	0.00	0.11	0.00	52.11	2.00	0.00	0.00	0.10	0.00
52.26	2.00	0.00	0.00	0.14	0.00	52.30	2.00	0.00	0.00	0.05	0.00
52.33	2.00	0.00	0.00	0.03	0.00	52.35	2.00	0.00	0.00	0.02	0.00
52.40	2.00	0.00	0.00	0.05	0.00	52.45	2.00	0.00	0.00	0.05	0.00
52.50	2.00	0.00	0.00	0.05	0.00	52.55	2.00	0.00	0.00	0.05	0.00
52.60	2.00	0.00	0.00	0.05	0.00	52.65	2.00	0.00	0.00	0.05	0.00
52.71	2.00	0.00	0.00	0.07	0.00	52.77	2.00	0.00	0.00	0.05	0.00
52.82	2.00	0.00	0.00	0.05	0.00	52.88	2.00	0.00	0.00	0.06	0.00
52.93	2.00	0.00	0.00	0.06	0.00	52.98	2.00	0.00	0.00	0.05	0.00
53.03	2.00	0.00	0.00	0.05	0.00	53.08	2.00	0.00	0.00	0.05	0.00
53.12	2.00	0.00	0.00	0.04	0.00	53.17	2.00	0.00	0.00	0.05	0.00
53.23	2.00	0.00	0.00	0.05	0.00	53.28	2.00	0.00	0.00	0.06	0.00
53.37	2.00	0.00	0.00	0.09	0.00	53.42	2.00	0.00	0.00	0.05	0.00
53.46	2.00	0.00	0.00	0.05	0.00	53.53	2.00	0.00	0.00	0.06	0.00
53.61	2.00	0.00	0.00	0.08	0.00	53.62	2.00	0.00	0.00	0.01	0.00
53.65	2.00	0.00	0.00	0.04	0.00	53.67	2.00	0.00	0.00	0.01	0.00
53.70	2.00	0.00	0.00	0.04	0.00	53.74	2.00	0.00	0.00	0.04	0.00
53.76	2.00	0.00	0.00	0.02	0.00	53.80	2.00	0.00	0.00	0.04	0.00
53.84	2.00	0.00	0.00	0.05	0.00	53.90	2.00	0.00	0.00	0.05	0.00
53.91	2.00	0.00	0.00	0.01	0.00	53.95	2.00	0.00	0.00	0.04	0.00
53.96	2.00	0.00	0.00	0.01	0.00	53.98	2.00	0.00	0.00	0.02	0.00
53.99	2.00	0.00	0.00	0.01	0.00	54.01	2.00	0.00	0.00	0.01	0.00
54.02	2.00	0.00	0.00	0.01	0.00	54.03	2.00	0.00	0.00	0.01	0.00
54.04	2.00	0.00	0.00	0.01	0.00	54.05	2.00	0.00	0.00	0.01	0.00
54.09	2.00	0.00	0.00	0.04	0.00	54.10	2.00	0.00	0.00	0.01	0.00
54.13	2.00	0.00	0.00	0.04	0.00	54.14	2.00	0.00	0.00	0.01	0.00
54.19	2.00	0.00	0.00	0.05	0.00	54.19	2.00	0.00	0.00	0.01	0.00
54.24	2.00	0.00	0.00	0.05	0.00	54.29	2.00	0.00	0.00	0.04	0.00
54.33	2.00	0.00	0.00	0.05	0.00	54.38	2.00	0.00	0.00	0.05	0.00
54.39	2.00	0.00	0.00	0.01	0.00	54.43	2.00	0.00	0.00	0.04	0.00
54.48	2.00	0.00	0.00	0.05	0.00	54.52	2.00	0.00	0.00	0.05	0.00
54.58	2.00	0.00	0.00	0.05	0.00	54.62	2.00	0.00	0.00	0.04	0.00
54.65	2.00	0.00	0.00	0.03	0.00	54.67	2.00	0.00	0.00	0.02	0.00
54.71	2.00	0.00	0.00	0.04	0.00	54.77	2.00	0.00	0.00	0.05	0.00
54.81	2.00	0.00	0.00	0.05	0.00	54.85	2.00	0.00	0.00	0.04	0.00
54.86	2.00	0.00	0.00	0.01	0.00	54.87	2.00	0.00	0.00	0.01	0.00
54.91	2.00	0.00	0.00	0.04	0.00	54.96	2.00	0.00	0.00	0.04	0.00
55.00	2.00	0.00	0.00	0.04	0.00	55.01	2.00	0.00	0.00	0.01	0.00
55.05	2.00	0.00	0.00	0.05	0.00	55.10	2.00	0.00	0.00	0.05	0.00
55.12	2.00	0.00	0.00	0.01	0.00	55.13	2.00	0.00	0.00	0.02	0.00
55.14	2.00	0.00	0.00	0.01	0.00	55.19	2.00	0.00	0.00	0.05	0.00
55.20	2.00	0.00	0.00	0.01	0.00	55.25	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
55.29	2.00	0.00	0.00	0.04	0.00	55.33	2.00	0.00	0.00	0.04	0.00
55.38	2.00	0.00	0.00	0.05	0.00	55.48	2.00	0.00	0.00	0.10	0.00
55.57	2.00	0.00	0.00	0.09	0.00	55.63	2.00	0.00	0.00	0.05	0.00
55.72	2.00	0.00	0.00	0.10	0.00	55.80	2.00	0.00	0.00	0.08	0.00
55.86	2.00	0.00	0.00	0.06	0.00	55.97	2.00	0.00	0.00	0.10	0.00
56.01	2.00	0.00	0.00	0.05	0.00	56.06	2.00	0.00	0.00	0.05	0.00
56.11	2.00	0.00	0.00	0.05	0.00	56.15	2.00	0.00	0.00	0.04	0.00
56.20	2.00	0.00	0.00	0.05	0.00	56.27	2.00	0.00	0.00	0.06	0.00
56.27	2.00	0.00	0.00	0.01	0.00	56.30	2.00	0.00	0.00	0.03	0.00
56.33	2.00	0.00	0.00	0.03	0.00	56.35	2.00	0.00	0.00	0.01	0.00
56.40	2.00	0.00	0.00	0.05	0.00	56.41	2.00	0.00	0.00	0.01	0.00
56.44	2.00	0.00	0.00	0.04	0.00	56.49	2.00	0.00	0.00	0.05	0.00
56.54	2.00	0.00	0.00	0.04	0.00	56.58	2.00	0.00	0.00	0.05	0.00
56.59	2.00	0.00	0.00	0.01	0.00	56.64	2.00	0.00	0.00	0.05	0.00
56.69	2.00	0.00	0.00	0.05	0.00	56.73	2.00	0.00	0.00	0.04	0.00
56.78	2.00	0.00	0.00	0.05	0.00	56.83	2.00	0.00	0.00	0.05	0.00
56.88	2.00	0.00	0.00	0.05	0.00	56.89	2.00	0.00	0.00	0.02	0.00
56.95	2.00	0.00	0.00	0.06	0.00	57.01	2.00	0.00	0.00	0.06	0.00
57.07	2.00	0.00	0.00	0.06	0.00	57.11	2.00	0.00	0.00	0.05	0.00
57.17	2.00	0.00	0.00	0.06	0.00	57.26	1.89	0.00	0.00	0.09	0.00
57.31	1.67	0.00	0.00	0.05	0.00	57.37	1.46	0.00	0.00	0.06	0.00
57.45	1.26	0.00	0.00	0.08	0.00	57.51	1.03	0.00	0.00	0.06	0.00
57.53	0.89	0.00	0.00	0.02	0.00	57.59	0.80	0.00	0.00	0.05	0.00
57.63	0.79	0.00	0.00	0.05	0.00	57.68	0.76	0.00	0.00	0.05	0.00
57.73	0.74	0.00	0.00	0.05	0.01	57.78	0.71	0.00	0.00	0.05	0.01
57.86	0.64	0.00	0.00	0.08	0.01	57.92	2.00	0.00	0.00	0.06	0.00
57.98	2.00	0.00	0.00	0.06	0.00	58.06	2.00	0.00	0.00	0.08	0.00
58.12	2.00	0.00	0.00	0.05	0.00	58.21	2.00	0.00	0.00	0.09	0.00
58.26	2.00	0.00	0.00	0.05	0.00	58.35	2.00	0.00	0.00	0.09	0.00
58.41	2.00	0.00	0.00	0.06	0.00	58.50	2.00	0.00	0.00	0.09	0.00
58.56	2.00	0.00	0.00	0.06	0.00	58.64	2.00	0.00	0.00	0.08	0.00
58.73	2.00	0.00	0.00	0.09	0.00	58.80	2.00	0.00	0.00	0.07	0.00
58.84	2.00	0.00	0.00	0.03	0.00	58.85	2.00	0.00	0.00	0.01	0.00
58.93	2.00	0.00	0.00	0.08	0.00	58.98	2.00	0.00	0.00	0.05	0.00
59.02	2.00	0.00	0.00	0.05	0.00	59.12	2.00	0.00	0.00	0.10	0.00
59.17	2.00	0.00	0.00	0.05	0.00	59.27	2.00	0.00	0.00	0.09	0.00
59.31	2.00	0.00	0.00	0.05	0.00	59.41	2.00	0.00	0.00	0.09	0.00
59.46	2.00	0.00	0.00	0.05	0.00	59.55	2.00	0.00	0.00	0.09	0.00
59.65	2.00	0.00	0.00	0.10	0.00	59.70	2.00	0.00	0.00	0.05	0.00
59.80	2.00	0.00	0.00	0.10	0.00	59.89	2.00	0.00	0.00	0.09	0.00
59.94	2.00	0.00	0.00	0.05	0.00	60.01	2.00	0.00	0.00	0.07	0.00
60.02	2.00	0.00	0.00	0.02	0.00	60.08	2.00	0.00	0.00	0.05	0.00
60.12	2.00	0.00	0.00	0.04	0.00	60.17	2.00	0.00	0.00	0.05	0.00
60.27	2.00	0.00	0.00	0.10	0.00	60.31	2.00	0.00	0.00	0.04	0.00
60.37	2.00	0.00	0.00	0.06	0.00	60.46	2.00	0.00	0.00	0.09	0.00
60.51	2.00	0.00	0.00	0.05	0.00	60.61	2.00	0.00	0.00	0.10	0.00
60.65	2.00	0.00	0.00	0.05	0.00	60.75	2.00	0.00	0.00	0.10	0.00
60.81	2.00	0.00	0.00	0.05	0.00	60.89	2.00	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
60.94	2.00	0.00	0.00	0.05	0.00	61.03	2.00	0.00	0.00	0.09	0.00
61.09	2.00	0.00	0.00	0.06	0.00	61.19	2.00	0.00	0.00	0.09	0.00
61.24	2.00	0.00	0.00	0.06	0.00	61.33	2.00	0.00	0.00	0.08	0.00
61.38	2.00	0.00	0.00	0.05	0.00	61.47	2.00	0.00	0.00	0.10	0.00
61.53	2.00	0.00	0.00	0.06	0.00	61.62	2.00	0.00	0.00	0.09	0.00
61.70	2.00	0.00	0.00	0.09	0.00	61.77	2.00	0.00	0.00	0.06	0.00
61.86	2.00	0.00	0.00	0.09	0.00	61.95	2.00	0.00	0.00	0.10	0.00
61.97	2.00	0.00	0.00	0.02	0.00	62.01	2.00	0.00	0.00	0.04	0.00
62.10	2.00	0.00	0.00	0.09	0.00	62.24	2.00	0.00	0.00	0.14	0.00
62.34	2.00	0.00	0.00	0.10	0.00	62.49	2.00	0.00	0.00	0.14	0.00
62.54	2.00	0.00	0.00	0.05	0.00	62.66	2.00	0.00	0.00	0.12	0.00
62.74	2.00	0.00	0.00	0.08	0.00	62.87	2.00	0.00	0.00	0.13	0.00
62.92	2.00	0.00	0.00	0.05	0.00	63.03	2.00	0.00	0.00	0.11	0.00
63.15	2.00	0.00	0.00	0.12	0.00	63.26	2.00	0.00	0.00	0.11	0.00
63.37	2.00	0.00	0.00	0.11	0.00	63.45	2.00	0.00	0.00	0.08	0.00
63.54	2.00	0.00	0.00	0.10	0.00	63.61	2.00	0.00	0.00	0.07	0.00
63.69	2.00	0.00	0.00	0.08	0.00	63.79	2.00	0.00	0.00	0.09	0.00
63.89	2.00	0.00	0.00	0.10	0.00	63.98	2.00	0.00	0.00	0.09	0.00
64.07	2.00	0.00	0.00	0.09	0.00	64.15	2.00	0.00	0.00	0.08	0.00
64.23	2.00	0.00	0.00	0.08	0.00	64.26	2.00	0.00	0.00	0.03	0.00
64.29	2.00	0.00	0.00	0.02	0.00	64.33	2.00	0.00	0.00	0.05	0.00
64.43	2.00	0.00	0.00	0.10	0.00	64.47	2.00	0.00	0.00	0.04	0.00
64.53	2.00	0.00	0.00	0.05	0.00	64.62	2.00	0.00	0.00	0.10	0.00
64.72	2.00	0.00	0.00	0.09	0.00	64.78	2.00	0.00	0.00	0.06	0.00
64.86	2.00	0.00	0.00	0.09	0.00	64.96	2.00	0.00	0.00	0.10	0.00
65.06	2.00	0.00	0.00	0.09	0.00	65.11	2.00	0.00	0.00	0.05	0.00
65.21	2.00	0.00	0.00	0.10	0.00	65.31	2.00	0.00	0.00	0.10	0.00
65.40	2.00	0.00	0.00	0.09	0.00	65.50	2.00	0.00	0.00	0.10	0.00
65.58	2.00	0.00	0.00	0.09	0.00	65.68	2.00	0.00	0.00	0.10	0.00
65.78	2.00	0.00	0.00	0.10	0.00	65.84	2.00	0.00	0.00	0.07	0.00
65.86	2.00	0.00	0.00	0.01	0.00	65.87	2.00	0.00	0.00	0.01	0.00
65.98	2.00	0.00	0.00	0.11	0.00	66.10	2.00	0.00	0.00	0.12	0.00
66.21	2.00	0.00	0.00	0.11	0.00	66.34	2.00	0.00	0.00	0.13	0.00
66.48	2.00	0.00	0.00	0.14	0.00	66.62	2.00	0.00	0.00	0.14	0.00
66.68	2.00	0.00	0.00	0.06	0.00	66.87	2.00	0.00	0.00	0.19	0.00
66.96	2.00	0.00	0.00	0.09	0.00	67.11	2.00	0.00	0.00	0.15	0.00
67.21	2.00	0.00	0.00	0.10	0.00	67.35	2.00	0.00	0.00	0.14	0.00
67.45	2.00	0.00	0.00	0.10	0.00	67.59	2.00	0.00	0.00	0.14	0.00
67.68	2.00	0.00	0.00	0.09	0.00	67.83	2.00	0.00	0.00	0.15	0.00
67.92	2.00	0.00	0.00	0.10	0.00	68.02	2.00	0.00	0.00	0.09	0.00
68.07	2.00	0.00	0.00	0.05	0.00	68.16	2.00	0.00	0.00	0.09	0.00
68.26	2.00	0.00	0.00	0.10	0.00	68.35	2.00	0.00	0.00	0.09	0.00
68.45	2.00	0.00	0.00	0.10	0.00	68.55	2.00	0.00	0.00	0.10	0.00
68.65	2.00	0.00	0.00	0.10	0.00	68.78	2.00	0.00	0.00	0.13	0.00
68.78	2.00	0.00	0.00	0.01	0.00	68.79	2.00	0.00	0.00	0.01	0.00
68.83	2.00	0.00	0.00	0.04	0.00	68.93	2.00	0.00	0.00	0.09	0.00
68.98	2.00	0.00	0.00	0.05	0.00	69.04	2.00	0.00	0.00	0.06	0.00
69.12	2.00	0.00	0.00	0.08	0.00	69.22	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
69.28	2.00	0.00	0.00	0.07	0.00	69.36	2.00	0.00	0.00	0.08	0.00
69.45	2.00	0.00	0.00	0.09	0.00	69.60	2.00	0.00	0.00	0.14	0.00
69.70	2.00	0.00	0.00	0.10	0.00	69.80	2.00	0.00	0.00	0.09	0.00
69.89	2.00	0.00	0.00	0.10	0.00	69.98	2.00	0.00	0.00	0.09	0.00
70.08	2.00	0.00	0.00	0.10	0.00	70.18	2.00	0.00	0.00	0.10	0.00
70.32	2.00	0.00	0.00	0.14	0.00	70.42	2.00	0.00	0.00	0.10	0.00
70.54	2.00	0.00	0.00	0.12	0.00	70.66	2.00	0.00	0.00	0.12	0.00
70.75	2.00	0.00	0.00	0.09	0.00	70.80	2.00	0.00	0.00	0.05	0.00
70.89	2.00	0.00	0.00	0.09	0.00	70.99	2.00	0.00	0.00	0.10	0.00
71.08	2.00	0.00	0.00	0.09	0.00	71.17	2.00	0.00	0.00	0.09	0.00
71.23	2.00	0.00	0.00	0.05	0.00	71.33	2.00	0.00	0.00	0.10	0.00
71.42	2.00	0.00	0.00	0.09	0.00	71.52	2.00	0.00	0.00	0.10	0.00
71.58	2.00	0.00	0.00	0.06	0.00	71.67	2.00	0.00	0.00	0.08	0.00
71.81	2.00	0.00	0.00	0.14	0.00	71.82	2.00	0.00	0.00	0.01	0.00
71.86	2.00	0.00	0.00	0.04	0.00	71.91	2.00	0.00	0.00	0.05	0.00
71.97	2.00	0.00	0.00	0.06	0.00	72.05	2.00	0.00	0.00	0.08	0.00
72.10	2.00	0.00	0.00	0.05	0.00	72.20	2.00	0.00	0.00	0.10	0.00
72.25	2.00	0.00	0.00	0.05	0.00	72.34	2.00	0.00	0.00	0.10	0.00
72.44	2.00	0.00	0.00	0.10	0.00	72.53	2.00	0.00	0.00	0.09	0.00
72.63	2.00	0.00	0.00	0.10	0.00	72.69	2.00	0.00	0.00	0.06	0.00
72.82	2.00	0.00	0.00	0.13	0.00	72.92	2.00	0.00	0.00	0.09	0.00
73.06	2.00	0.00	0.00	0.14	0.00	73.16	2.00	0.00	0.00	0.10	0.00
73.30	2.00	0.00	0.00	0.14	0.00	73.35	2.00	0.00	0.00	0.05	0.00
73.38	2.00	0.00	0.00	0.03	0.00	73.47	2.00	0.00	0.00	0.09	0.00
73.53	2.00	0.00	0.00	0.06	0.00	73.62	2.00	0.00	0.00	0.09	0.00
73.71	2.00	0.00	0.00	0.09	0.00	73.77	2.00	0.00	0.00	0.06	0.00
73.86	2.00	0.00	0.00	0.09	0.00	73.96	2.00	0.00	0.00	0.09	0.00
74.06	2.00	0.00	0.00	0.10	0.00	74.13	2.00	0.00	0.00	0.07	0.00
74.24	2.00	0.00	0.00	0.11	0.00	74.34	2.00	0.00	0.00	0.10	0.00
74.44	2.00	0.00	0.00	0.10	0.00	74.58	2.00	0.00	0.00	0.14	0.00
74.68	2.00	0.00	0.00	0.10	0.00	74.80	2.00	0.00	0.00	0.13	0.00
74.92	2.00	0.00	0.00	0.12	0.00	75.07	2.00	0.00	0.00	0.14	0.00
75.08	2.00	0.00	0.00	0.01	0.00	75.11	2.00	0.00	0.00	0.03	0.00
75.16	2.00	0.00	0.00	0.05	0.00	75.25	2.00	0.00	0.00	0.09	0.00
75.32	2.00	0.00	0.00	0.07	0.00	75.40	2.00	0.00	0.00	0.08	0.00
75.50	2.00	0.00	0.00	0.10	0.00	75.59	2.00	0.00	0.00	0.09	0.00
75.69	2.00	0.00	0.00	0.10	0.00	75.78	2.00	0.00	0.00	0.09	0.00
75.88	2.00	0.00	0.00	0.09	0.00	75.96	2.00	0.00	0.00	0.09	0.00
76.05	2.00	0.00	0.00	0.08	0.00	76.14	2.00	0.00	0.00	0.09	0.00
76.26	2.00	0.00	0.00	0.12	0.00	76.36	2.00	0.00	0.00	0.10	0.00
76.41	2.00	0.00	0.00	0.05	0.00	76.51	2.00	0.00	0.00	0.10	0.00
76.65	2.00	0.00	0.00	0.14	0.00	76.72	2.00	0.00	0.00	0.07	0.00
76.79	2.00	0.00	0.00	0.07	0.00	76.89	2.00	0.00	0.00	0.10	0.00
76.98	2.00	0.00	0.00	0.09	0.00	77.08	2.00	0.00	0.00	0.10	0.00
77.18	2.00	0.00	0.00	0.10	0.00	77.28	2.00	0.00	0.00	0.10	0.00
77.37	2.00	0.00	0.00	0.10	0.00	77.42	2.00	0.00	0.00	0.04	0.00
77.42	2.00	0.00	0.00	0.01	0.00	77.44	2.00	0.00	0.00	0.01	0.00
77.48	2.00	0.00	0.00	0.04	0.00	77.52	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
77.54	2.00	0.00	0.00	0.02	0.00	77.57	2.00	0.00	0.00	0.03	0.00
77.62	2.00	0.00	0.00	0.05	0.00	77.65	2.00	0.00	0.00	0.04	0.00
77.67	2.00	0.00	0.00	0.01	0.00	77.71	2.00	0.00	0.00	0.04	0.00
77.71	2.00	0.00	0.00	0.01	0.00	77.76	2.00	0.00	0.00	0.05	0.00
77.81	2.00	0.00	0.00	0.05	0.00	77.90	2.00	0.00	0.00	0.09	0.00
77.95	2.00	0.00	0.00	0.05	0.00	78.01	2.00	0.00	0.00	0.06	0.00
78.10	2.00	0.00	0.00	0.09	0.00	78.16	2.00	0.00	0.00	0.06	0.00
78.24	2.00	0.00	0.00	0.08	0.00	78.29	2.00	0.00	0.00	0.05	0.00
78.39	2.00	0.00	0.00	0.10	0.00	78.47	2.00	0.00	0.00	0.08	0.00
78.53	2.00	0.00	0.00	0.06	0.00	78.62	2.00	0.00	0.00	0.09	0.00
78.68	2.00	0.00	0.00	0.05	0.00	78.69	2.00	0.00	0.00	0.01	0.00
78.78	2.00	0.00	0.00	0.09	0.00	78.81	2.00	0.00	0.00	0.04	0.00
78.92	2.00	0.00	0.00	0.11	0.00	79.03	2.00	0.00	0.00	0.11	0.00
79.16	2.00	0.00	0.00	0.13	0.00	79.26	2.00	0.00	0.00	0.10	0.00
79.35	2.00	0.00	0.00	0.09	0.00	79.45	2.00	0.00	0.00	0.10	0.00
79.54	2.00	0.00	0.00	0.09	0.00	79.64	2.00	0.00	0.00	0.10	0.00
79.74	2.00	0.00	0.00	0.10	0.00	79.88	2.00	0.00	0.00	0.14	0.00
79.98	2.00	0.00	0.00	0.10	0.00	80.12	2.00	0.00	0.00	0.14	0.00
80.22	2.00	0.00	0.00	0.09	0.00	80.36	2.00	0.00	0.00	0.14	0.00
80.46	2.00	0.00	0.00	0.10	0.00	80.60	2.00	0.00	0.00	0.14	0.00
80.70	2.00	0.00	0.00	0.10	0.00	80.83	2.00	0.00	0.00	0.13	0.00
80.94	2.00	0.00	0.00	0.11	0.00	81.01	2.00	0.00	0.00	0.07	0.00
81.04	2.00	0.00	0.00	0.03	0.00	81.09	2.00	0.00	0.00	0.06	0.00
81.13	2.00	0.00	0.00	0.04	0.00	81.18	2.00	0.00	0.00	0.05	0.00
81.23	2.00	0.00	0.00	0.05	0.00	81.28	2.00	0.00	0.00	0.05	0.00
81.33	2.00	0.00	0.00	0.05	0.00	81.37	2.00	0.00	0.00	0.05	0.00
81.42	2.00	0.00	0.00	0.04	0.00	81.47	2.00	0.00	0.00	0.05	0.00
81.52	2.00	0.00	0.00	0.05	0.00	81.56	2.00	0.00	0.00	0.05	0.00
81.61	2.00	0.00	0.00	0.04	0.00	81.64	2.00	0.00	0.00	0.04	0.00
81.70	2.00	0.00	0.00	0.06	0.00	81.75	2.00	0.00	0.00	0.05	0.00
81.79	2.00	0.00	0.00	0.04	0.00	81.82	2.00	0.00	0.00	0.03	0.00
81.86	2.00	0.00	0.00	0.04	0.00	81.91	2.00	0.00	0.00	0.05	0.00
81.95	2.00	0.00	0.00	0.04	0.00	82.00	2.00	0.00	0.00	0.05	0.00
82.09	2.00	0.00	0.00	0.09	0.00	82.15	2.00	0.00	0.00	0.06	0.00
82.19	2.00	0.00	0.00	0.04	0.00	82.26	2.00	0.00	0.00	0.07	0.00
82.34	2.00	0.00	0.00	0.08	0.00	82.39	2.00	0.00	0.00	0.05	0.00
82.48	2.00	0.00	0.00	0.10	0.00	82.58	2.00	0.00	0.00	0.09	0.00
82.62	2.00	0.00	0.00	0.04	0.00	82.70	2.00	0.00	0.00	0.08	0.00
82.77	2.00	0.00	0.00	0.07	0.00	82.87	2.00	0.00	0.00	0.10	0.00
82.96	2.00	0.00	0.00	0.09	0.00	83.06	2.00	0.00	0.00	0.10	0.00
83.16	2.00	0.00	0.00	0.10	0.00	83.25	2.00	0.00	0.00	0.09	0.00
83.34	2.00	0.00	0.00	0.09	0.00	83.44	2.00	0.00	0.00	0.10	0.00
83.54	2.00	0.00	0.00	0.10	0.00	83.64	2.00	0.00	0.00	0.09	0.00
83.73	2.00	0.00	0.00	0.10	0.00	83.83	2.00	0.00	0.00	0.09	0.00
83.85	2.00	0.00	0.00	0.02	0.00	83.89	2.00	0.00	0.00	0.04	0.00
83.94	2.00	0.00	0.00	0.05	0.00	84.04	2.00	0.00	0.00	0.10	0.00
84.09	2.00	0.00	0.00	0.05	0.00	84.13	2.00	0.00	0.00	0.04	0.00
84.18	2.00	0.00	0.00	0.05	0.00	84.25	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
84.33	2.00	0.00	0.00	0.08	0.00	84.37	2.00	0.00	0.00	0.05	0.00
84.46	2.00	0.00	0.00	0.08	0.00	84.52	2.00	0.00	0.00	0.06	0.00
84.57	2.00	0.00	0.00	0.05	0.00	84.67	2.00	0.00	0.00	0.10	0.00
84.71	2.00	0.00	0.00	0.04	0.00	84.81	2.00	0.00	0.00	0.10	0.00
84.86	2.00	0.00	0.00	0.05	0.00	84.91	2.00	0.00	0.00	0.06	0.00
85.00	2.00	0.00	0.00	0.09	0.00	85.05	2.00	0.00	0.00	0.05	0.00
85.15	2.00	0.00	0.00	0.10	0.00	85.19	2.00	0.00	0.00	0.05	0.00
85.29	2.00	0.00	0.00	0.10	0.00	85.35	2.00	0.00	0.00	0.06	0.00
85.42	2.00	0.00	0.00	0.07	0.00	85.48	2.00	0.00	0.00	0.06	0.00
85.55	2.00	0.00	0.00	0.06	0.00	85.63	2.00	0.00	0.00	0.08	0.00
85.68	2.00	0.00	0.00	0.05	0.00	85.77	2.00	0.00	0.00	0.09	0.00
85.82	2.00	0.00	0.00	0.05	0.00	85.89	2.00	0.00	0.00	0.07	0.00
85.96	2.00	0.00	0.00	0.08	0.00	86.03	2.00	0.00	0.00	0.07	0.00
86.11	2.00	0.00	0.00	0.07	0.00	86.16	2.00	0.00	0.00	0.06	0.00
86.25	2.00	0.00	0.00	0.09	0.00	86.36	2.00	0.00	0.00	0.11	0.00
86.50	2.00	0.00	0.00	0.14	0.00	86.51	2.00	0.00	0.00	0.01	0.00
86.52	2.00	0.00	0.00	0.01	0.00	86.57	2.00	0.00	0.00	0.05	0.00
86.65	2.00	0.00	0.00	0.09	0.00	86.71	2.00	0.00	0.00	0.06	0.00
86.80	2.00	0.00	0.00	0.09	0.00	86.90	2.00	0.00	0.00	0.09	0.00
86.99	2.00	0.00	0.00	0.09	0.00	87.04	2.00	0.00	0.00	0.05	0.00
87.14	2.00	0.00	0.00	0.09	0.00	87.19	2.00	0.00	0.00	0.06	0.00
87.28	2.00	0.00	0.00	0.09	0.00	87.38	2.00	0.00	0.00	0.09	0.00
87.43	2.00	0.00	0.00	0.06	0.00	87.52	2.00	0.00	0.00	0.09	0.00
87.61	2.00	0.00	0.00	0.09	0.00	87.66	2.00	0.00	0.00	0.05	0.00
87.76	2.00	0.00	0.00	0.10	0.00	87.84	2.00	0.00	0.00	0.08	0.00
87.91	2.00	0.00	0.00	0.07	0.00	88.00	2.00	0.00	0.00	0.09	0.00
88.11	2.00	0.00	0.00	0.11	0.00	88.19	2.00	0.00	0.00	0.08	0.00
88.25	2.00	0.00	0.00	0.06	0.00	88.34	2.00	0.00	0.00	0.09	0.00
88.44	2.00	0.00	0.00	0.10	0.00	88.54	2.00	0.00	0.00	0.11	0.00
88.64	2.00	0.00	0.00	0.10	0.00	88.72	2.00	0.00	0.00	0.09	0.00
88.82	2.00	0.00	0.00	0.10	0.00	88.91	2.00	0.00	0.00	0.09	0.00
89.01	2.00	0.00	0.00	0.10	0.00	89.10	2.00	0.00	0.00	0.09	0.00
89.19	2.00	0.00	0.00	0.09	0.00	89.30	2.00	0.00	0.00	0.11	0.00
89.39	2.00	0.00	0.00	0.09	0.00	89.49	2.00	0.00	0.00	0.10	0.00
89.59	2.00	0.00	0.00	0.09	0.00	89.69	2.00	0.00	0.00	0.10	0.00
89.73	2.00	0.00	0.00	0.05	0.00	89.78	2.00	0.00	0.00	0.04	0.00
89.83	2.00	0.00	0.00	0.06	0.00	89.88	2.00	0.00	0.00	0.05	0.00
89.93	2.00	0.00	0.00	0.05	0.00	90.00	2.00	0.00	0.00	0.07	0.00
90.07	2.00	0.00	0.00	0.08	0.00	90.12	2.00	0.00	0.00	0.05	0.00
90.22	2.00	0.00	0.00	0.09	0.00	90.27	2.00	0.00	0.00	0.05	0.00
90.36	2.00	0.00	0.00	0.09	0.00	90.46	2.00	0.00	0.00	0.10	0.00
90.50	2.00	0.00	0.00	0.04	0.00	90.61	2.00	0.00	0.00	0.10	0.00
90.66	2.00	0.00	0.00	0.05	0.00	90.75	2.00	0.00	0.00	0.09	0.00
90.84	2.00	0.00	0.00	0.09	0.00	90.89	2.00	0.00	0.00	0.05	0.00
90.99	2.00	0.00	0.00	0.10	0.00	91.04	2.00	0.00	0.00	0.05	0.00
91.14	2.00	0.00	0.00	0.09	0.00	91.22	2.00	0.00	0.00	0.09	0.00
91.28	2.00	0.00	0.00	0.06	0.00	91.37	2.00	0.00	0.00	0.09	0.00
91.47	2.00	0.00	0.00	0.10	0.00	91.61	2.00	0.00	0.00	0.14	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
91.71	2.00	0.00	0.00	0.10	0.00	91.81	2.00	0.00	0.00	0.10	0.00
91.87	2.00	0.00	0.00	0.06	0.00	92.00	2.00	0.00	0.00	0.13	0.00
92.10	2.00	0.00	0.00	0.10	0.00	92.20	2.00	0.00	0.00	0.10	0.00
92.33	2.00	0.00	0.00	0.13	0.00	92.38	2.00	0.00	0.00	0.05	0.00
92.43	2.00	0.00	0.00	0.05	0.00	92.48	2.00	0.00	0.00	0.05	0.00
92.56	2.00	0.00	0.00	0.08	0.00	92.63	2.00	0.00	0.00	0.07	0.00
92.67	2.00	0.00	0.00	0.05	0.00	92.72	2.00	0.00	0.00	0.04	0.00
92.77	2.00	0.00	0.00	0.05	0.00	92.86	2.00	0.00	0.00	0.10	0.00
92.92	2.00	0.00	0.00	0.05	0.00	92.97	2.00	0.00	0.00	0.05	0.00
93.05	2.00	0.00	0.00	0.08	0.00	93.10	2.00	0.00	0.00	0.06	0.00
93.16	2.00	0.00	0.00	0.06	0.00	93.25	2.00	0.00	0.00	0.09	0.00
93.35	2.00	0.00	0.00	0.10	0.00	93.40	2.00	0.00	0.00	0.05	0.00
93.49	2.00	0.00	0.00	0.10	0.00	93.56	2.00	0.00	0.00	0.07	0.00
93.64	2.00	0.00	0.00	0.08	0.00	93.73	2.00	0.00	0.00	0.09	0.00
93.83	2.00	0.00	0.00	0.10	0.00	93.88	2.00	0.00	0.00	0.05	0.00
93.97	2.00	0.00	0.00	0.09	0.00	94.07	2.00	0.00	0.00	0.10	0.00
94.17	2.00	0.00	0.00	0.10	0.00	94.26	2.00	0.00	0.00	0.10	0.00
94.36	2.00	0.00	0.00	0.09	0.00	94.45	2.00	0.00	0.00	0.09	0.00
94.55	2.00	0.00	0.00	0.10	0.00	94.64	2.00	0.00	0.00	0.09	0.00
94.72	2.00	0.00	0.00	0.07	0.00	94.74	2.00	0.00	0.00	0.03	0.00
94.77	2.00	0.00	0.00	0.02	0.00	94.85	2.00	0.00	0.00	0.08	0.00
94.90	2.00	0.00	0.00	0.05	0.00	94.95	2.00	0.00	0.00	0.05	0.00
95.01	2.00	0.00	0.00	0.06	0.00	95.09	2.00	0.00	0.00	0.08	0.00
95.14	2.00	0.00	0.00	0.05	0.00	95.23	2.00	0.00	0.00	0.09	0.00
95.29	2.00	0.00	0.00	0.06	0.00	95.38	2.00	0.00	0.00	0.09	0.00
95.43	2.00	0.00	0.00	0.05	0.00	95.52	2.00	0.00	0.00	0.09	0.00
95.57	2.00	0.00	0.00	0.05	0.00	95.67	2.00	0.00	0.00	0.10	0.00
95.77	2.00	0.00	0.00	0.09	0.00	95.86	2.00	0.00	0.00	0.10	0.00
95.95	2.00	0.00	0.00	0.09	0.00	96.03	2.00	0.00	0.00	0.08	0.00
96.11	2.00	0.00	0.00	0.08	0.00	96.20	2.00	0.00	0.00	0.09	0.00
96.30	2.00	0.00	0.00	0.10	0.00	96.39	2.00	0.00	0.00	0.09	0.00
96.50	2.00	0.00	0.00	0.11	0.00	96.59	2.00	0.00	0.00	0.09	0.00
96.69	2.00	0.00	0.00	0.10	0.00	96.78	2.00	0.00	0.00	0.09	0.00
96.87	2.00	0.00	0.00	0.09	0.00	96.98	2.00	0.00	0.00	0.11	0.00
97.02	2.00	0.00	0.00	0.04	0.00	97.06	2.00	0.00	0.00	0.05	0.00
97.12	2.00	0.00	0.00	0.05	0.00	97.16	2.00	0.00	0.00	0.04	0.00
97.21	2.00	0.00	0.00	0.05	0.00	97.27	2.00	0.00	0.00	0.06	0.00
97.33	2.00	0.00	0.00	0.06	0.00	97.40	2.00	0.00	0.00	0.07	0.00
97.45	2.00	0.00	0.00	0.05	0.00	97.50	2.00	0.00	0.00	0.05	0.00
97.58	2.00	0.00	0.00	0.08	0.00	97.65	2.00	0.00	0.00	0.07	0.00
97.69	2.00	0.00	0.00	0.04	0.00	97.74	2.00	0.00	0.00	0.05	0.00
97.81	2.00	0.00	0.00	0.07	0.00	97.88	2.00	0.00	0.00	0.08	0.00
97.93	2.00	0.00	0.00	0.05	0.00	98.03	2.00	0.00	0.00	0.10	0.00
98.15	2.00	0.00	0.00	0.12	0.00	98.21	2.00	0.00	0.00	0.06	0.00
98.32	2.00	0.00	0.00	0.11	0.00	98.42	2.00	0.00	0.00	0.09	0.00
98.47	2.00	0.00	0.00	0.05	0.00	98.57	2.00	0.00	0.00	0.10	0.00
98.70	2.00	0.00	0.00	0.13	0.00	98.78	2.00	0.00	0.00	0.08	0.00
98.85	2.00	0.00	0.00	0.06	0.00	98.86	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
98.92	2.00	0.00	0.00	0.06	0.00	98.98	2.00	0.00	0.00	0.06	0.00
99.03	2.00	0.00	0.00	0.05	0.00	99.11	2.00	0.00	0.00	0.07	0.00
99.18	2.00	0.00	0.00	0.07	0.00	99.23	2.00	0.00	0.00	0.05	0.00
99.32	2.00	0.00	0.00	0.09	0.00	99.37	2.00	0.00	0.00	0.05	0.00
99.45	2.00	0.00	0.00	0.08	0.00	99.56	2.00	0.00	0.00	0.11	0.00
99.64	2.00	0.00	0.00	0.07	0.00	99.71	2.00	0.00	0.00	0.07	0.00
99.75	2.00	0.00	0.00	0.04	0.00	99.90	2.00	0.00	0.00	0.15	0.00
99.95	2.00	0.00	0.00	0.05	0.00	100.04	2.00	0.00	0.00	0.09	0.00
100.14	2.00	0.00	0.00	0.09	0.00	100.14	2.00	0.00	0.00	0.00	0.00
100.15	2.00	0.00	0.00	0.01	0.00	100.19	2.00	0.00	0.00	0.03	0.00
100.21	2.00	0.00	0.00	0.02	0.00	100.24	2.00	0.00	0.00	0.03	0.00
100.28	2.00	0.00	0.00	0.05	0.00	100.31	2.00	0.00	0.00	0.02	0.00
100.33	2.00	0.00	0.00	0.02	0.00	100.38	2.00	0.00	0.00	0.05	0.00
100.39	2.00	0.00	0.00	0.01	0.00	100.43	2.00	0.00	0.00	0.03	0.00
100.48	2.00	0.00	0.00	0.05	0.00	100.53	2.00	0.00	0.00	0.05	0.00
100.57	2.00	0.00	0.00	0.05	0.00	100.60	2.00	0.00	0.00	0.02	0.00

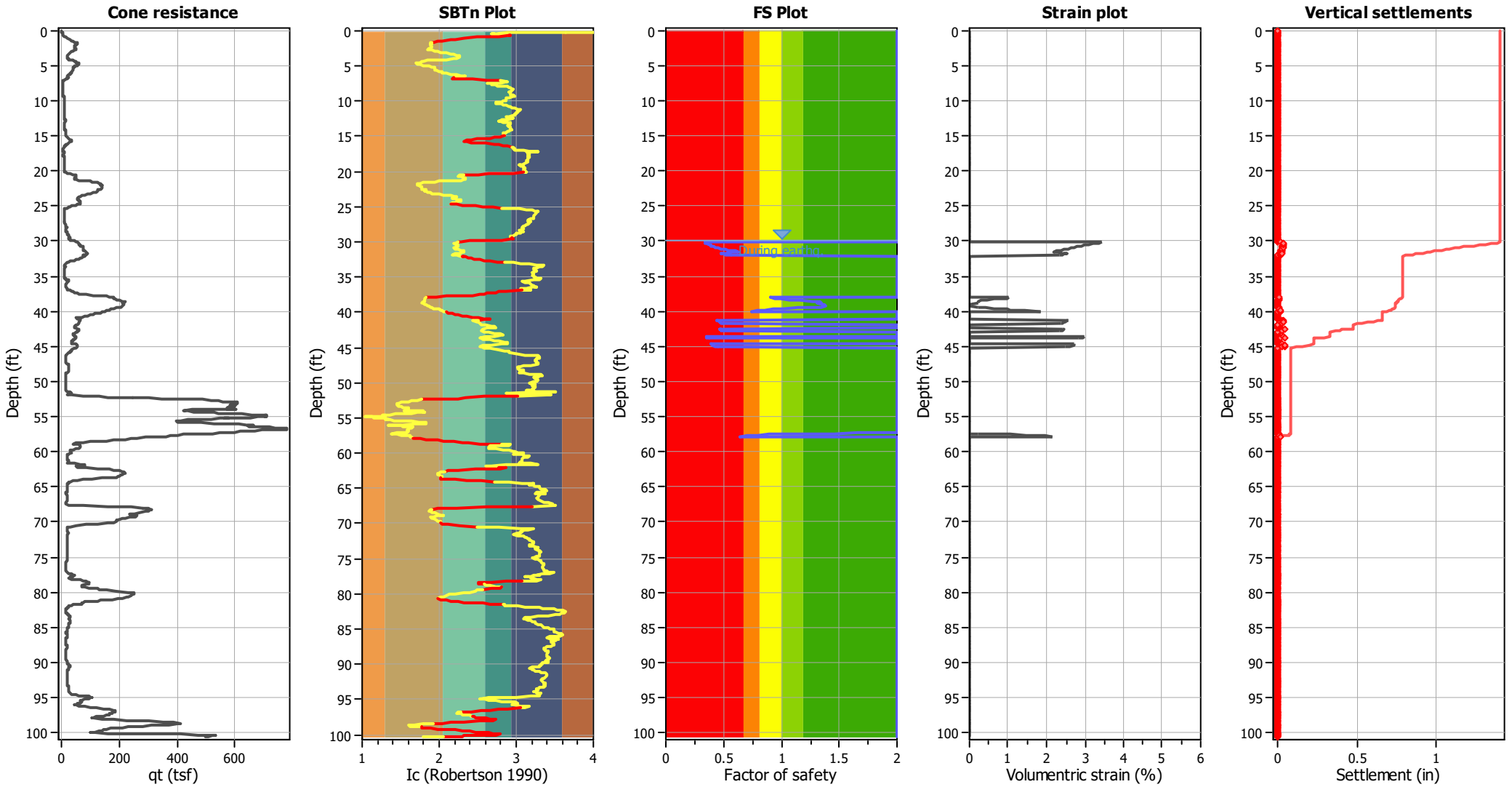
Overall liquefaction potential: 2.86

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.06	59.16	2.00	0.00	1.00	0.00	30.13	60.99	2.00	0.00	1.00	0.00
30.18	62.30	0.34	3.44	1.00	0.02	30.28	64.44	0.35	3.35	1.00	0.04
30.37	67.53	0.36	3.22	1.00	0.04	30.47	71.05	0.37	3.09	1.00	0.04
30.57	73.87	0.38	3.00	1.00	0.04	30.66	76.12	0.40	2.92	1.00	0.03
30.74	78.31	0.41	2.86	1.00	0.03	30.82	80.52	0.42	2.79	1.00	0.03
30.90	82.93	0.43	2.72	1.00	0.03	31.01	85.67	0.45	2.65	1.00	0.04
31.10	89.47	0.48	2.56	1.00	0.03	31.19	93.96	0.51	2.46	1.00	0.03
31.28	98.21	0.54	2.37	1.00	0.03	31.35	101.82	0.58	2.30	1.00	0.02
31.43	104.59	0.60	2.25	1.00	0.02	31.53	107.28	0.63	2.21	1.00	0.02
31.60	101.10	0.57	2.32	1.00	0.02	31.67	95.74	0.52	2.42	1.00	0.02
31.77	91.18	0.48	2.52	1.00	0.03	31.84	93.40	0.50	2.47	1.00	0.02
31.91	95.19	0.51	2.43	1.00	0.02	31.98	97.23	0.53	2.39	1.00	0.02
31.98	99.23	0.55	2.35	1.00	0.00	32.04	100.65	0.56	2.32	1.00	0.02
32.12	102.19	2.00	0.00	1.00	0.00	32.16	105.63	2.00	0.00	1.00	0.00
32.27	108.77	2.00	0.00	1.00	0.00	32.33	111.51	2.00	0.00	1.00	0.00
32.41	112.40	2.00	0.00	1.00	0.00	32.50	111.66	2.00	0.00	1.00	0.00
32.58	110.12	2.00	0.00	1.00	0.00	32.66	108.68	2.00	0.00	1.00	0.00
32.74	107.79	2.00	0.00	1.00	0.00	32.84	107.96	2.00	0.00	1.00	0.00
32.90	107.62	2.00	0.00	1.00	0.00	32.98	104.08	2.00	0.00	1.00	0.00
33.08	101.84	2.00	0.00	1.00	0.00	33.14	99.50	2.00	0.00	1.00	0.00
33.22	96.06	2.00	0.00	1.00	0.00	33.32	91.43	2.00	0.00	1.00	0.00
33.37	85.28	2.00	0.00	1.00	0.00	33.47	81.70	2.00	0.00	1.00	0.00
33.56	79.85	2.00	0.00	1.00	0.00	33.63	80.15	2.00	0.00	1.00	0.00
33.71	78.37	2.00	0.00	1.00	0.00	33.81	72.19	2.00	0.00	1.00	0.00
33.90	65.65	2.00	0.00	1.00	0.00	33.95	60.28	2.00	0.00	1.00	0.00
34.04	59.84	2.00	0.00	1.00	0.00	34.14	59.54	2.00	0.00	1.00	0.00
34.17	59.63	2.00	0.00	1.00	0.00	34.20	59.92	2.00	0.00	1.00	0.00
34.26	60.14	2.00	0.00	1.00	0.00	34.35	59.91	2.00	0.00	1.00	0.00
34.43	59.45	2.00	0.00	1.00	0.00	34.49	58.59	2.00	0.00	1.00	0.00
34.59	57.25	2.00	0.00	1.00	0.00	34.69	55.91	2.00	0.00	1.00	0.00
34.73	54.88	2.00	0.00	1.00	0.00	34.83	54.34	2.00	0.00	1.00	0.00
34.90	54.48	2.00	0.00	1.00	0.00	34.98	55.47	2.00	0.00	1.00	0.00
35.07	58.28	2.00	0.00	1.00	0.00	35.16	64.79	2.00	0.00	1.00	0.00
35.26	76.48	2.00	0.00	1.00	0.00	35.33	89.71	2.00	0.00	1.00	0.00
35.40	101.03	2.00	0.00	1.00	0.00	35.50	106.70	2.00	0.00	1.00	0.00
35.57	109.72	2.00	0.00	1.00	0.00	35.65	112.36	2.00	0.00	1.00	0.00
35.71	115.22	2.00	0.00	1.00	0.00	35.79	116.27	2.00	0.00	1.00	0.00
35.85	113.90	2.00	0.00	1.00	0.00	35.94	109.71	2.00	0.00	1.00	0.00
35.99	103.66	2.00	0.00	1.00	0.00	36.08	95.94	2.00	0.00	1.00	0.00
36.17	88.35	2.00	0.00	1.00	0.00	36.24	82.76	2.00	0.00	1.00	0.00
36.33	81.11	2.00	0.00	1.00	0.00	36.42	82.08	2.00	0.00	1.00	0.00
36.52	77.16	2.00	0.00	1.00	0.00	36.61	74.88	2.00	0.00	1.00	0.00
36.70	76.79	2.00	0.00	1.00	0.00	36.78	88.43	2.00	0.00	1.00	0.00
36.85	99.18	2.00	0.00	1.00	0.00	36.87	103.88	2.00	0.00	1.00	0.00
36.91	105.17	2.00	0.00	1.00	0.00	36.97	104.77	2.00	0.00	1.00	0.00
37.06	105.20	2.00	0.00	1.00	0.00	37.12	107.91	2.00	0.00	1.00	0.00
37.20	112.33	2.00	0.00	1.00	0.00	37.27	114.30	2.00	0.00	1.00	0.00
37.35	112.42	2.00	0.00	1.00	0.00	37.44	108.21	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
37.49	102.76	2.00	0.00	1.00	0.00	37.59	95.81	2.00	0.00	1.00	0.00
37.64	90.11	2.00	0.00	1.00	0.00	37.70	94.79	2.00	0.00	1.00	0.00
37.78	108.37	2.00	0.00	1.00	0.00	37.83	120.19	2.00	0.00	1.00	0.00
37.92	126.68	2.00	0.00	1.00	0.00	37.97	130.53	2.00	0.00	1.00	0.00
38.07	133.13	0.90	1.03	1.00	0.01	38.14	135.64	0.94	1.00	1.00	0.01
38.22	138.68	0.99	0.65	1.00	0.01	38.31	143.23	1.06	0.44	1.00	0.00
38.41	148.66	1.16	0.31	1.00	0.00	38.52	154.32	1.27	0.21	1.00	0.00
38.64	157.41	1.33	0.21	1.00	0.00	38.74	158.10	1.34	0.21	1.00	0.00
38.80	157.57	1.33	0.21	1.00	0.00	38.89	156.57	1.31	0.21	1.00	0.00
38.94	158.84	1.36	0.00	1.00	0.00	39.03	159.69	1.37	0.00	1.00	0.00
39.13	160.46	1.39	0.00	1.00	0.00	39.23	160.12	1.38	0.00	1.00	0.00
39.35	158.27	1.34	0.21	1.00	0.00	39.42	154.08	1.26	0.21	1.00	0.00
39.51	148.22	1.14	0.43	1.00	0.00	39.60	141.37	1.02	0.64	1.00	0.01
39.70	135.85	0.93	1.00	1.00	0.01	39.78	130.75	0.86	1.05	1.00	0.01
39.90	126.28	0.80	1.45	1.00	0.02	39.99	121.65	0.74	1.86	1.00	0.02
40.09	117.75	2.00	0.00	1.00	0.00	40.18	114.33	2.00	0.00	1.00	0.00
40.23	111.30	2.00	0.00	1.00	0.00	40.33	108.90	2.00	0.00	1.00	0.00
40.43	107.17	2.00	0.00	1.00	0.00	40.52	107.68	2.00	0.00	1.00	0.00
40.61	106.53	2.00	0.00	1.00	0.00	40.69	106.96	2.00	0.00	1.00	0.00
40.80	106.21	2.00	0.00	1.00	0.00	40.87	107.20	2.00	0.00	1.00	0.00
40.95	107.50	2.00	0.00	1.00	0.00	40.97	105.79	2.00	0.00	1.00	0.00
41.01	101.77	2.00	0.00	1.00	0.00	41.07	94.92	2.00	0.00	1.00	0.00
41.15	90.47	2.00	0.00	1.00	0.00	41.26	89.74	0.44	2.55	1.00	0.03
41.35	91.40	0.45	2.52	1.00	0.03	41.47	93.27	0.46	2.47	1.00	0.04
41.59	94.19	0.47	2.45	1.00	0.03	41.69	95.29	0.48	2.43	1.00	0.03
41.78	97.63	0.49	2.38	1.00	0.03	41.88	100.94	2.00	0.00	1.00	0.00
41.98	103.21	2.00	0.00	1.00	0.00	42.08	103.54	2.00	0.00	1.00	0.00
42.16	102.01	2.00	0.00	1.00	0.00	42.24	99.69	2.00	0.00	1.00	0.00
42.31	97.23	2.00	0.00	1.00	0.00	42.45	95.61	0.48	2.42	1.00	0.04
42.55	94.91	0.47	2.44	1.00	0.03	42.60	95.14	0.47	2.43	1.00	0.01
42.70	96.60	0.48	2.40	1.00	0.03	42.81	99.43	0.51	2.35	1.00	0.03
42.89	103.15	2.00	0.00	1.00	0.00	42.98	106.61	2.00	0.00	1.00	0.00
43.08	108.99	2.00	0.00	1.00	0.00	43.17	109.35	2.00	0.00	1.00	0.00
43.27	107.03	2.00	0.00	1.00	0.00	43.37	95.48	2.00	0.00	1.00	0.00
43.50	83.44	2.00	0.00	1.00	0.00	43.61	73.95	0.35	2.99	1.00	0.04
43.74	75.29	0.35	2.95	1.00	0.05	43.79	79.06	0.37	2.83	1.00	0.02
43.86	84.59	2.00	0.00	1.00	0.00	43.94	91.16	2.00	0.00	1.00	0.00
44.00	98.08	2.00	0.00	1.00	0.00	44.08	103.37	2.00	0.00	1.00	0.00
44.17	106.26	2.00	0.00	1.00	0.00	44.27	105.00	2.00	0.00	1.00	0.00
44.42	100.72	2.00	0.00	1.00	0.00	44.52	95.03	2.00	0.00	1.00	0.00
44.61	87.72	2.00	0.00	1.00	0.00	44.71	83.46	0.40	2.71	1.00	0.03
44.85	83.87	0.40	2.70	1.00	0.05	44.95	88.11	0.42	2.59	1.00	0.03
45.09	92.06	0.45	2.50	1.00	0.04	45.19	95.00	2.00	0.00	1.00	0.00
45.33	98.48	2.00	0.00	1.00	0.00	45.42	100.02	2.00	0.00	1.00	0.00
45.57	98.64	2.00	0.00	1.00	0.00	45.68	94.66	2.00	0.00	1.00	0.00
45.81	87.72	2.00	0.00	1.00	0.00	45.92	82.93	2.00	0.00	1.00	0.00
46.05	82.51	2.00	0.00	1.00	0.00	46.16	86.12	2.00	0.00	1.00	0.00
46.17	85.57	2.00	0.00	1.00	0.00	46.23	84.09	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
46.29	82.02	2.00	0.00	1.00	0.00	46.34	78.81	2.00	0.00	1.00	0.00
46.42	74.90	2.00	0.00	1.00	0.00	46.48	70.80	2.00	0.00	1.00	0.00
46.52	67.86	2.00	0.00	1.00	0.00	46.60	65.79	2.00	0.00	1.00	0.00
46.67	64.21	2.00	0.00	1.00	0.00	46.74	63.02	2.00	0.00	1.00	0.00
46.82	61.88	2.00	0.00	1.00	0.00	46.88	61.07	2.00	0.00	1.00	0.00
46.96	60.61	2.00	0.00	1.00	0.00	47.06	60.52	2.00	0.00	1.00	0.00
47.15	61.03	2.00	0.00	1.00	0.00	47.24	65.10	2.00	0.00	1.00	0.00
47.35	75.39	2.00	0.00	1.00	0.00	47.49	80.67	2.00	0.00	1.00	0.00
47.58	82.65	2.00	0.00	1.00	0.00	47.73	80.95	2.00	0.00	1.00	0.00
47.83	81.84	2.00	0.00	1.00	0.00	47.87	83.19	2.00	0.00	1.00	0.00
47.89	82.12	2.00	0.00	1.00	0.00	47.94	81.59	2.00	0.00	1.00	0.00
48.02	80.90	2.00	0.00	1.00	0.00	48.07	81.07	2.00	0.00	1.00	0.00
48.12	82.45	2.00	0.00	1.00	0.00	48.18	84.09	2.00	0.00	1.00	0.00
48.26	85.42	2.00	0.00	1.00	0.00	48.31	84.77	2.00	0.00	1.00	0.00
48.38	82.58	2.00	0.00	1.00	0.00	48.46	79.31	2.00	0.00	1.00	0.00
48.52	75.99	2.00	0.00	1.00	0.00	48.60	72.40	2.00	0.00	1.00	0.00
48.68	69.64	2.00	0.00	1.00	0.00	48.74	67.76	2.00	0.00	1.00	0.00
48.82	67.24	2.00	0.00	1.00	0.00	48.89	66.41	2.00	0.00	1.00	0.00
48.99	64.98	2.00	0.00	1.00	0.00	49.05	62.48	2.00	0.00	1.00	0.00
49.12	59.74	2.00	0.00	1.00	0.00	49.18	57.20	2.00	0.00	1.00	0.00
49.27	55.71	2.00	0.00	1.00	0.00	49.32	54.42	2.00	0.00	1.00	0.00
49.42	53.88	2.00	0.00	1.00	0.00	49.48	53.63	2.00	0.00	1.00	0.00
49.56	54.09	2.00	0.00	1.00	0.00	49.66	55.25	2.00	0.00	1.00	0.00
49.76	56.33	2.00	0.00	1.00	0.00	49.85	54.00	2.00	0.00	1.00	0.00
49.99	51.28	2.00	0.00	1.00	0.00	50.09	49.07	2.00	0.00	1.00	0.00
50.21	50.39	2.00	0.00	1.00	0.00	50.24	50.47	2.00	0.00	1.00	0.00
50.29	49.66	2.00	0.00	1.00	0.00	50.38	48.82	2.00	0.00	1.00	0.00
50.47	48.36	2.00	0.00	1.00	0.00	50.52	48.61	2.00	0.00	1.00	0.00
50.62	49.09	2.00	0.00	1.00	0.00	50.66	49.58	2.00	0.00	1.00	0.00
50.76	50.11	2.00	0.00	1.00	0.00	50.83	51.29	2.00	0.00	1.00	0.00
50.91	53.36	2.00	0.00	1.00	0.00	51.00	55.29	2.00	0.00	1.00	0.00
51.06	56.99	2.00	0.00	1.00	0.00	51.15	61.08	2.00	0.00	1.00	0.00
51.24	67.57	2.00	0.00	1.00	0.00	51.31	75.27	2.00	0.00	1.00	0.00
51.39	80.15	2.00	0.00	1.00	0.00	51.48	82.64	2.00	0.00	1.00	0.00
51.58	87.30	2.00	0.00	1.00	0.00	51.68	91.85	2.00	0.00	1.00	0.00
51.77	100.06	2.00	0.00	1.00	0.00	51.90	106.47	2.00	0.00	1.00	0.00
52.01	110.20	2.00	0.00	1.00	0.00	52.11	121.05	2.00	0.00	1.00	0.00
52.26	131.90	2.00	0.00	1.00	0.00	52.30	146.55	2.00	0.00	1.00	0.00
52.33	162.63	2.00	0.00	1.00	0.00	52.35	192.22	2.00	0.00	1.00	0.00
52.40	209.95	2.00	0.00	1.00	0.00	52.45	216.58	2.00	0.00	1.00	0.00
52.50	229.89	2.00	0.00	1.00	0.00	52.55	248.98	2.00	0.00	1.00	0.00
52.60	273.15	2.00	0.00	1.00	0.00	52.65	289.64	2.00	0.00	1.00	0.00
52.71	297.95	2.00	0.00	1.00	0.00	52.77	303.79	2.00	0.00	1.00	0.00
52.82	312.99	2.00	0.00	1.00	0.00	52.88	323.84	2.00	0.00	1.00	0.00
52.93	331.46	2.00	0.00	1.00	0.00	52.98	338.95	2.00	0.00	1.00	0.00
53.03	340.39	2.00	0.00	1.00	0.00	53.08	340.01	2.00	0.00	1.00	0.00
53.12	335.78	2.00	0.00	1.00	0.00	53.17	333.99	2.00	0.00	1.00	0.00
53.23	335.19	2.00	0.00	1.00	0.00	53.28	332.45	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
53.37	327.80	2.00	0.00	1.00	0.00	53.42	325.17	2.00	0.00	1.00	0.00
53.46	326.50	2.00	0.00	1.00	0.00	53.53	333.09	2.00	0.00	1.00	0.00
53.61	331.84	2.00	0.00	1.00	0.00	53.62	323.39	2.00	0.00	1.00	0.00
53.65	318.67	2.00	0.00	1.00	0.00	53.67	317.12	2.00	0.00	1.00	0.00
53.70	323.95	2.00	0.00	1.00	0.00	53.74	323.26	2.00	0.00	1.00	0.00
53.76	323.74	2.00	0.00	1.00	0.00	53.80	322.06	2.00	0.00	1.00	0.00
53.84	320.07	2.00	0.00	1.00	0.00	53.90	320.12	2.00	0.00	1.00	0.00
53.91	315.61	2.00	0.00	1.00	0.00	53.95	317.38	2.00	0.00	1.00	0.00
53.96	320.83	2.00	0.00	1.00	0.00	53.98	332.48	2.00	0.00	1.00	0.00
53.99	333.50	2.00	0.00	1.00	0.00	54.01	327.46	2.00	0.00	1.00	0.00
54.02	320.31	2.00	0.00	1.00	0.00	54.03	305.74	2.00	0.00	1.00	0.00
54.04	276.21	2.00	0.00	1.00	0.00	54.05	260.14	2.00	0.00	1.00	0.00
54.09	254.46	2.00	0.00	1.00	0.00	54.10	254.57	2.00	0.00	1.00	0.00
54.13	254.64	2.00	0.00	1.00	0.00	54.14	254.59	2.00	0.00	1.00	0.00
54.19	255.77	2.00	0.00	1.00	0.00	54.19	258.95	2.00	0.00	1.00	0.00
54.24	259.93	2.00	0.00	1.00	0.00	54.29	249.88	2.00	0.00	1.00	0.00
54.33	261.31	2.00	0.00	1.00	0.00	54.38	272.80	2.00	0.00	1.00	0.00
54.39	282.62	2.00	0.00	1.00	0.00	54.43	291.66	2.00	0.00	1.00	0.00
54.48	299.32	2.00	0.00	1.00	0.00	54.52	306.76	2.00	0.00	1.00	0.00
54.58	316.20	2.00	0.00	1.00	0.00	54.62	323.46	2.00	0.00	1.00	0.00
54.65	333.00	2.00	0.00	1.00	0.00	54.67	343.41	2.00	0.00	1.00	0.00
54.71	362.60	2.00	0.00	1.00	0.00	54.77	374.21	2.00	0.00	1.00	0.00
54.81	387.19	2.00	0.00	1.00	0.00	54.85	387.70	2.00	0.00	1.00	0.00
54.86	390.48	2.00	0.00	1.00	0.00	54.87	387.26	2.00	0.00	1.00	0.00
54.91	387.35	2.00	0.00	1.00	0.00	54.96	389.17	2.00	0.00	1.00	0.00
55.00	386.89	2.00	0.00	1.00	0.00	55.01	382.82	2.00	0.00	1.00	0.00
55.05	373.47	2.00	0.00	1.00	0.00	55.10	357.87	2.00	0.00	1.00	0.00
55.12	331.72	2.00	0.00	1.00	0.00	55.13	313.58	2.00	0.00	1.00	0.00
55.14	309.22	2.00	0.00	1.00	0.00	55.19	316.75	2.00	0.00	1.00	0.00
55.20	316.38	2.00	0.00	1.00	0.00	55.25	308.48	2.00	0.00	1.00	0.00
55.29	299.55	2.00	0.00	1.00	0.00	55.33	284.92	2.00	0.00	1.00	0.00
55.38	263.59	2.00	0.00	1.00	0.00	55.48	240.38	2.00	0.00	1.00	0.00
55.57	227.87	2.00	0.00	1.00	0.00	55.63	237.94	2.00	0.00	1.00	0.00
55.72	244.53	2.00	0.00	1.00	0.00	55.80	260.68	2.00	0.00	1.00	0.00
55.86	259.76	2.00	0.00	1.00	0.00	55.97	288.32	2.00	0.00	1.00	0.00
56.01	306.20	2.00	0.00	1.00	0.00	56.06	186.61	2.00	0.00	1.00	0.00
56.11	194.57	2.00	0.00	1.00	0.00	56.15	203.27	2.00	0.00	1.00	0.00
56.20	209.60	2.00	0.00	1.00	0.00	56.27	210.15	2.00	0.00	1.00	0.00
56.27	210.45	2.00	0.00	1.00	0.00	56.30	203.39	2.00	0.00	1.00	0.00
56.33	205.64	2.00	0.00	1.00	0.00	56.35	205.00	2.00	0.00	1.00	0.00
56.40	211.31	2.00	0.00	1.00	0.00	56.41	211.76	2.00	0.00	1.00	0.00
56.44	215.53	2.00	0.00	1.00	0.00	56.49	219.75	2.00	0.00	1.00	0.00
56.54	226.71	2.00	0.00	1.00	0.00	56.58	232.85	2.00	0.00	1.00	0.00
56.59	236.93	2.00	0.00	1.00	0.00	56.64	239.07	2.00	0.00	1.00	0.00
56.69	241.29	2.00	0.00	1.00	0.00	56.73	245.40	2.00	0.00	1.00	0.00
56.78	245.38	2.00	0.00	1.00	0.00	56.83	239.22	2.00	0.00	1.00	0.00
56.88	230.32	2.00	0.00	1.00	0.00	56.89	223.03	2.00	0.00	1.00	0.00
56.95	217.71	2.00	0.00	1.00	0.00	57.01	209.81	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
57.07	202.70	2.00	0.00	1.00	0.00	57.11	194.25	2.00	0.00	1.00	0.00
57.17	187.56	2.00	0.00	1.00	0.00	57.26	179.66	1.89	0.00	1.00	0.00
57.31	171.06	1.67	0.00	1.00	0.00	57.37	162.50	1.46	0.00	1.00	0.00
57.45	152.96	1.26	0.21	1.00	0.00	57.51	140.63	1.03	0.64	1.00	0.00
57.53	131.27	0.89	1.05	1.00	0.00	57.59	124.87	0.80	1.47	1.00	0.01
57.63	124.05	0.79	1.48	1.00	0.01	57.68	121.66	0.76	1.53	1.00	0.01
57.73	120.01	0.74	1.90	1.00	0.01	57.78	117.62	0.71	1.95	1.00	0.01
57.86	111.55	0.64	2.14	1.00	0.02	57.92	100.97	2.00	0.00	1.00	0.00
57.98	89.82	2.00	0.00	1.00	0.00	58.06	95.51	2.00	0.00	1.00	0.00
58.12	92.39	2.00	0.00	1.00	0.00	58.21	88.73	2.00	0.00	1.00	0.00
58.26	85.71	2.00	0.00	1.00	0.00	58.35	81.38	2.00	0.00	1.00	0.00
58.41	74.91	2.00	0.00	1.00	0.00	58.50	70.73	2.00	0.00	1.00	0.00
58.56	67.27	2.00	0.00	1.00	0.00	58.64	74.61	2.00	0.00	1.00	0.00
58.73	81.15	2.00	0.00	1.00	0.00	58.80	87.16	2.00	0.00	1.00	0.00
58.84	91.44	2.00	0.00	1.00	0.00	58.85	91.06	2.00	0.00	1.00	0.00
58.93	87.49	2.00	0.00	1.00	0.00	58.98	82.49	2.00	0.00	1.00	0.00
59.02	79.02	2.00	0.00	1.00	0.00	59.12	77.74	2.00	0.00	1.00	0.00
59.17	78.34	2.00	0.00	1.00	0.00	59.27	80.06	2.00	0.00	1.00	0.00
59.31	82.31	2.00	0.00	1.00	0.00	59.41	84.40	2.00	0.00	1.00	0.00
59.46	85.91	2.00	0.00	1.00	0.00	59.55	86.53	2.00	0.00	1.00	0.00
59.65	82.12	2.00	0.00	1.00	0.00	59.70	78.48	2.00	0.00	1.00	0.00
59.80	75.77	2.00	0.00	1.00	0.00	59.89	79.29	2.00	0.00	1.00	0.00
59.94	82.68	2.00	0.00	1.00	0.00	60.01	85.21	2.00	0.00	1.00	0.00
60.02	85.70	2.00	0.00	1.00	0.00	60.08	84.70	2.00	0.00	1.00	0.00
60.12	83.40	2.00	0.00	1.00	0.00	60.17	81.32	2.00	0.00	1.00	0.00
60.27	76.99	2.00	0.00	1.00	0.00	60.31	71.83	2.00	0.00	1.00	0.00
60.37	67.16	2.00	0.00	1.00	0.00	60.46	64.16	2.00	0.00	1.00	0.00
60.51	61.05	2.00	0.00	1.00	0.00	60.61	59.48	2.00	0.00	1.00	0.00
60.65	58.49	2.00	0.00	1.00	0.00	60.75	58.52	2.00	0.00	1.00	0.00
60.81	58.52	2.00	0.00	1.00	0.00	60.89	58.14	2.00	0.00	1.00	0.00
60.94	58.37	2.00	0.00	1.00	0.00	61.03	59.27	2.00	0.00	1.00	0.00
61.09	59.56	2.00	0.00	1.00	0.00	61.19	59.09	2.00	0.00	1.00	0.00
61.24	58.48	2.00	0.00	1.00	0.00	61.33	59.55	2.00	0.00	1.00	0.00
61.38	65.92	2.00	0.00	1.00	0.00	61.47	73.50	2.00	0.00	1.00	0.00
61.53	81.14	2.00	0.00	1.00	0.00	61.62	81.97	2.00	0.00	1.00	0.00
61.70	82.73	2.00	0.00	1.00	0.00	61.77	84.93	2.00	0.00	1.00	0.00
61.86	89.66	2.00	0.00	1.00	0.00	61.95	94.89	2.00	0.00	1.00	0.00
61.97	96.91	2.00	0.00	1.00	0.00	62.01	99.66	2.00	0.00	1.00	0.00
62.10	99.23	2.00	0.00	1.00	0.00	62.24	89.92	2.00	0.00	1.00	0.00
62.34	71.54	2.00	0.00	1.00	0.00	62.49	64.77	2.00	0.00	1.00	0.00
62.54	69.68	2.00	0.00	1.00	0.00	62.66	73.33	2.00	0.00	1.00	0.00
62.74	77.94	2.00	0.00	1.00	0.00	62.87	80.99	2.00	0.00	1.00	0.00
62.92	82.65	2.00	0.00	1.00	0.00	63.03	83.41	2.00	0.00	1.00	0.00
63.15	83.38	2.00	0.00	1.00	0.00	63.26	82.35	2.00	0.00	1.00	0.00
63.37	80.92	2.00	0.00	1.00	0.00	63.45	78.49	2.00	0.00	1.00	0.00
63.54	76.31	2.00	0.00	1.00	0.00	63.61	73.61	2.00	0.00	1.00	0.00
63.69	69.47	2.00	0.00	1.00	0.00	63.79	67.77	2.00	0.00	1.00	0.00
63.89	66.74	2.00	0.00	1.00	0.00	63.98	71.48	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
64.07	71.91	2.00	0.00	1.00	0.00	64.15	76.48	2.00	0.00	1.00	0.00
64.23	77.68	2.00	0.00	1.00	0.00	64.26	78.26	2.00	0.00	1.00	0.00
64.29	78.14	2.00	0.00	1.00	0.00	64.33	74.86	2.00	0.00	1.00	0.00
64.43	70.78	2.00	0.00	1.00	0.00	64.47	66.07	2.00	0.00	1.00	0.00
64.53	64.15	2.00	0.00	1.00	0.00	64.62	63.40	2.00	0.00	1.00	0.00
64.72	63.23	2.00	0.00	1.00	0.00	64.78	63.74	2.00	0.00	1.00	0.00
64.86	65.01	2.00	0.00	1.00	0.00	64.96	68.31	2.00	0.00	1.00	0.00
65.06	71.61	2.00	0.00	1.00	0.00	65.11	74.58	2.00	0.00	1.00	0.00
65.21	75.90	2.00	0.00	1.00	0.00	65.31	76.26	2.00	0.00	1.00	0.00
65.40	72.77	2.00	0.00	1.00	0.00	65.50	67.97	2.00	0.00	1.00	0.00
65.58	63.13	2.00	0.00	1.00	0.00	65.68	61.17	2.00	0.00	1.00	0.00
65.78	60.45	2.00	0.00	1.00	0.00	65.84	59.69	2.00	0.00	1.00	0.00
65.86	59.62	2.00	0.00	1.00	0.00	65.87	59.36	2.00	0.00	1.00	0.00
65.98	59.09	2.00	0.00	1.00	0.00	66.10	60.13	2.00	0.00	1.00	0.00
66.21	62.32	2.00	0.00	1.00	0.00	66.34	63.01	2.00	0.00	1.00	0.00
66.48	63.55	2.00	0.00	1.00	0.00	66.62	62.45	2.00	0.00	1.00	0.00
66.68	64.07	2.00	0.00	1.00	0.00	66.87	67.94	2.00	0.00	1.00	0.00
66.96	73.89	2.00	0.00	1.00	0.00	67.11	78.15	2.00	0.00	1.00	0.00
67.21	76.60	2.00	0.00	1.00	0.00	67.35	73.18	2.00	0.00	1.00	0.00
67.45	77.86	2.00	0.00	1.00	0.00	67.59	88.71	2.00	0.00	1.00	0.00
67.68	83.67	2.00	0.00	1.00	0.00	67.83	74.68	2.00	0.00	1.00	0.00
67.92	88.64	2.00	0.00	1.00	0.00	68.02	99.35	2.00	0.00	1.00	0.00
68.07	103.71	2.00	0.00	1.00	0.00	68.16	105.26	2.00	0.00	1.00	0.00
68.26	106.54	2.00	0.00	1.00	0.00	68.35	106.44	2.00	0.00	1.00	0.00
68.45	105.37	2.00	0.00	1.00	0.00	68.55	103.72	2.00	0.00	1.00	0.00
68.65	98.57	2.00	0.00	1.00	0.00	68.78	94.35	2.00	0.00	1.00	0.00
68.78	90.91	2.00	0.00	1.00	0.00	68.79	89.70	2.00	0.00	1.00	0.00
68.83	89.08	2.00	0.00	1.00	0.00	68.93	88.59	2.00	0.00	1.00	0.00
68.98	89.18	2.00	0.00	1.00	0.00	69.04	89.05	2.00	0.00	1.00	0.00
69.12	89.10	2.00	0.00	1.00	0.00	69.22	88.23	2.00	0.00	1.00	0.00
69.28	86.25	2.00	0.00	1.00	0.00	69.36	83.22	2.00	0.00	1.00	0.00
69.45	79.21	2.00	0.00	1.00	0.00	69.60	75.34	2.00	0.00	1.00	0.00
69.70	72.05	2.00	0.00	1.00	0.00	69.80	70.68	2.00	0.00	1.00	0.00
69.89	70.30	2.00	0.00	1.00	0.00	69.98	69.82	2.00	0.00	1.00	0.00
70.08	67.53	2.00	0.00	1.00	0.00	70.18	63.51	2.00	0.00	1.00	0.00
70.32	61.16	2.00	0.00	1.00	0.00	70.42	66.77	2.00	0.00	1.00	0.00
70.54	74.19	2.00	0.00	1.00	0.00	70.66	75.54	2.00	0.00	1.00	0.00
70.75	72.70	2.00	0.00	1.00	0.00	70.80	66.71	2.00	0.00	1.00	0.00
70.89	59.87	2.00	0.00	1.00	0.00	70.99	53.00	2.00	0.00	1.00	0.00
71.08	49.46	2.00	0.00	1.00	0.00	71.17	47.79	2.00	0.00	1.00	0.00
71.23	47.05	2.00	0.00	1.00	0.00	71.33	46.20	2.00	0.00	1.00	0.00
71.42	44.64	2.00	0.00	1.00	0.00	71.52	43.06	2.00	0.00	1.00	0.00
71.58	44.01	2.00	0.00	1.00	0.00	71.67	47.43	2.00	0.00	1.00	0.00
71.81	50.76	2.00	0.00	1.00	0.00	71.82	52.55	2.00	0.00	1.00	0.00
71.86	52.82	2.00	0.00	1.00	0.00	71.91	52.95	2.00	0.00	1.00	0.00
71.97	53.27	2.00	0.00	1.00	0.00	72.05	53.72	2.00	0.00	1.00	0.00
72.10	54.35	2.00	0.00	1.00	0.00	72.20	54.79	2.00	0.00	1.00	0.00
72.25	55.49	2.00	0.00	1.00	0.00	72.34	56.94	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
72.44	58.80	2.00	0.00	1.00	0.00	72.53	60.40	2.00	0.00	1.00	0.00
72.63	61.13	2.00	0.00	1.00	0.00	72.69	61.14	2.00	0.00	1.00	0.00
72.82	60.87	2.00	0.00	1.00	0.00	72.92	60.05	2.00	0.00	1.00	0.00
73.06	59.27	2.00	0.00	1.00	0.00	73.16	59.57	2.00	0.00	1.00	0.00
73.30	60.65	2.00	0.00	1.00	0.00	73.35	61.53	2.00	0.00	1.00	0.00
73.38	61.23	2.00	0.00	1.00	0.00	73.47	60.67	2.00	0.00	1.00	0.00
73.53	60.20	2.00	0.00	1.00	0.00	73.62	59.95	2.00	0.00	1.00	0.00
73.71	60.28	2.00	0.00	1.00	0.00	73.77	61.46	2.00	0.00	1.00	0.00
73.86	63.08	2.00	0.00	1.00	0.00	73.96	64.61	2.00	0.00	1.00	0.00
74.06	65.59	2.00	0.00	1.00	0.00	74.13	66.22	2.00	0.00	1.00	0.00
74.24	66.66	2.00	0.00	1.00	0.00	74.34	67.26	2.00	0.00	1.00	0.00
74.44	67.81	2.00	0.00	1.00	0.00	74.58	67.28	2.00	0.00	1.00	0.00
74.68	62.80	2.00	0.00	1.00	0.00	74.80	58.74	2.00	0.00	1.00	0.00
74.92	56.43	2.00	0.00	1.00	0.00	75.07	58.35	2.00	0.00	1.00	0.00
75.08	59.34	2.00	0.00	1.00	0.00	75.11	59.53	2.00	0.00	1.00	0.00
75.16	60.28	2.00	0.00	1.00	0.00	75.25	61.74	2.00	0.00	1.00	0.00
75.32	63.23	2.00	0.00	1.00	0.00	75.40	63.73	2.00	0.00	1.00	0.00
75.50	62.77	2.00	0.00	1.00	0.00	75.59	60.75	2.00	0.00	1.00	0.00
75.69	58.60	2.00	0.00	1.00	0.00	75.78	56.46	2.00	0.00	1.00	0.00
75.88	54.66	2.00	0.00	1.00	0.00	75.96	52.90	2.00	0.00	1.00	0.00
76.05	51.65	2.00	0.00	1.00	0.00	76.14	51.00	2.00	0.00	1.00	0.00
76.26	51.09	2.00	0.00	1.00	0.00	76.36	51.38	2.00	0.00	1.00	0.00
76.41	51.50	2.00	0.00	1.00	0.00	76.51	51.17	2.00	0.00	1.00	0.00
76.65	51.04	2.00	0.00	1.00	0.00	76.72	51.12	2.00	0.00	1.00	0.00
76.79	51.39	2.00	0.00	1.00	0.00	76.89	53.53	2.00	0.00	1.00	0.00
76.98	61.89	2.00	0.00	1.00	0.00	77.08	69.60	2.00	0.00	1.00	0.00
77.18	77.29	2.00	0.00	1.00	0.00	77.28	84.26	2.00	0.00	1.00	0.00
77.37	93.62	2.00	0.00	1.00	0.00	77.42	100.64	2.00	0.00	1.00	0.00
77.42	104.44	2.00	0.00	1.00	0.00	77.44	107.05	2.00	0.00	1.00	0.00
77.48	110.31	2.00	0.00	1.00	0.00	77.52	113.00	2.00	0.00	1.00	0.00
77.54	114.44	2.00	0.00	1.00	0.00	77.57	115.54	2.00	0.00	1.00	0.00
77.62	115.93	2.00	0.00	1.00	0.00	77.65	115.64	2.00	0.00	1.00	0.00
77.67	113.32	2.00	0.00	1.00	0.00	77.71	111.24	2.00	0.00	1.00	0.00
77.71	107.78	2.00	0.00	1.00	0.00	77.76	104.25	2.00	0.00	1.00	0.00
77.81	98.88	2.00	0.00	1.00	0.00	77.90	94.60	2.00	0.00	1.00	0.00
77.95	92.44	2.00	0.00	1.00	0.00	78.01	91.29	2.00	0.00	1.00	0.00
78.10	89.37	2.00	0.00	1.00	0.00	78.16	84.71	2.00	0.00	1.00	0.00
78.24	79.05	2.00	0.00	1.00	0.00	78.29	73.14	2.00	0.00	1.00	0.00
78.39	69.27	2.00	0.00	1.00	0.00	78.47	68.51	2.00	0.00	1.00	0.00
78.53	71.72	2.00	0.00	1.00	0.00	78.62	77.71	2.00	0.00	1.00	0.00
78.68	84.02	2.00	0.00	1.00	0.00	78.69	89.57	2.00	0.00	1.00	0.00
78.78	95.10	2.00	0.00	1.00	0.00	78.81	102.04	2.00	0.00	1.00	0.00
78.92	107.35	2.00	0.00	1.00	0.00	79.03	107.43	2.00	0.00	1.00	0.00
79.16	99.26	2.00	0.00	1.00	0.00	79.26	88.45	2.00	0.00	1.00	0.00
79.35	83.92	2.00	0.00	1.00	0.00	79.45	85.78	2.00	0.00	1.00	0.00
79.54	89.58	2.00	0.00	1.00	0.00	79.64	91.91	2.00	0.00	1.00	0.00
79.74	93.85	2.00	0.00	1.00	0.00	79.88	94.86	2.00	0.00	1.00	0.00
79.98	95.73	2.00	0.00	1.00	0.00	80.12	95.14	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
80.22	91.22	2.00	0.00	1.00	0.00	80.36	86.07	2.00	0.00	1.00	0.00
80.46	81.11	2.00	0.00	1.00	0.00	80.60	77.21	2.00	0.00	1.00	0.00
80.70	74.37	2.00	0.00	1.00	0.00	80.83	72.04	2.00	0.00	1.00	0.00
80.94	69.62	2.00	0.00	1.00	0.00	81.01	67.91	2.00	0.00	1.00	0.00
81.04	66.50	2.00	0.00	1.00	0.00	81.09	65.97	2.00	0.00	1.00	0.00
81.13	66.04	2.00	0.00	1.00	0.00	81.18	67.98	2.00	0.00	1.00	0.00
81.23	72.13	2.00	0.00	1.00	0.00	81.28	77.64	2.00	0.00	1.00	0.00
81.33	84.19	2.00	0.00	1.00	0.00	81.37	92.48	2.00	0.00	1.00	0.00
81.42	100.46	2.00	0.00	1.00	0.00	81.47	106.15	2.00	0.00	1.00	0.00
81.52	109.13	2.00	0.00	1.00	0.00	81.56	111.09	2.00	0.00	1.00	0.00
81.61	112.75	2.00	0.00	1.00	0.00	81.64	114.41	2.00	0.00	1.00	0.00
81.70	116.91	2.00	0.00	1.00	0.00	81.75	118.94	2.00	0.00	1.00	0.00
81.79	119.14	2.00	0.00	1.00	0.00	81.82	116.62	2.00	0.00	1.00	0.00
81.86	112.49	2.00	0.00	1.00	0.00	81.91	107.66	2.00	0.00	1.00	0.00
81.95	102.27	2.00	0.00	1.00	0.00	82.00	95.81	2.00	0.00	1.00	0.00
82.09	89.46	2.00	0.00	1.00	0.00	82.15	84.64	2.00	0.00	1.00	0.00
82.19	81.03	2.00	0.00	1.00	0.00	82.26	77.56	2.00	0.00	1.00	0.00
82.34	74.17	2.00	0.00	1.00	0.00	82.39	71.81	2.00	0.00	1.00	0.00
82.48	69.97	2.00	0.00	1.00	0.00	82.58	68.21	2.00	0.00	1.00	0.00
82.62	66.60	2.00	0.00	1.00	0.00	82.70	65.56	2.00	0.00	1.00	0.00
82.77	64.46	2.00	0.00	1.00	0.00	82.87	64.01	2.00	0.00	1.00	0.00
82.96	63.38	2.00	0.00	1.00	0.00	83.06	63.34	2.00	0.00	1.00	0.00
83.16	63.10	2.00	0.00	1.00	0.00	83.25	62.94	2.00	0.00	1.00	0.00
83.34	62.57	2.00	0.00	1.00	0.00	83.44	63.55	2.00	0.00	1.00	0.00
83.54	64.89	2.00	0.00	1.00	0.00	83.64	66.49	2.00	0.00	1.00	0.00
83.73	68.29	2.00	0.00	1.00	0.00	83.83	70.46	2.00	0.00	1.00	0.00
83.85	73.38	2.00	0.00	1.00	0.00	83.89	75.93	2.00	0.00	1.00	0.00
83.94	81.26	2.00	0.00	1.00	0.00	84.04	85.92	2.00	0.00	1.00	0.00
84.09	90.10	2.00	0.00	1.00	0.00	84.13	91.94	2.00	0.00	1.00	0.00
84.18	93.61	2.00	0.00	1.00	0.00	84.25	94.85	2.00	0.00	1.00	0.00
84.33	95.60	2.00	0.00	1.00	0.00	84.37	95.90	2.00	0.00	1.00	0.00
84.46	94.98	2.00	0.00	1.00	0.00	84.52	93.43	2.00	0.00	1.00	0.00
84.57	91.27	2.00	0.00	1.00	0.00	84.67	90.00	2.00	0.00	1.00	0.00
84.71	89.72	2.00	0.00	1.00	0.00	84.81	90.86	2.00	0.00	1.00	0.00
84.86	92.62	2.00	0.00	1.00	0.00	84.91	94.03	2.00	0.00	1.00	0.00
85.00	94.63	2.00	0.00	1.00	0.00	85.05	93.94	2.00	0.00	1.00	0.00
85.15	92.30	2.00	0.00	1.00	0.00	85.19	89.13	2.00	0.00	1.00	0.00
85.29	85.98	2.00	0.00	1.00	0.00	85.35	83.14	2.00	0.00	1.00	0.00
85.42	81.54	2.00	0.00	1.00	0.00	85.48	80.45	2.00	0.00	1.00	0.00
85.55	79.50	2.00	0.00	1.00	0.00	85.63	78.76	2.00	0.00	1.00	0.00
85.68	78.25	2.00	0.00	1.00	0.00	85.77	78.03	2.00	0.00	1.00	0.00
85.82	78.34	2.00	0.00	1.00	0.00	85.89	78.79	2.00	0.00	1.00	0.00
85.96	79.01	2.00	0.00	1.00	0.00	86.03	78.44	2.00	0.00	1.00	0.00
86.11	77.40	2.00	0.00	1.00	0.00	86.16	76.21	2.00	0.00	1.00	0.00
86.25	75.81	2.00	0.00	1.00	0.00	86.36	74.32	2.00	0.00	1.00	0.00
86.50	72.85	2.00	0.00	1.00	0.00	86.51	70.91	2.00	0.00	1.00	0.00
86.52	69.58	2.00	0.00	1.00	0.00	86.57	66.80	2.00	0.00	1.00	0.00
86.65	63.50	2.00	0.00	1.00	0.00	86.71	60.73	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
86.80	59.11	2.00	0.00	1.00	0.00	86.90	57.42	2.00	0.00	1.00	0.00
86.99	55.74	2.00	0.00	1.00	0.00	87.04	54.32	2.00	0.00	1.00	0.00
87.14	53.51	2.00	0.00	1.00	0.00	87.19	53.36	2.00	0.00	1.00	0.00
87.28	54.40	2.00	0.00	1.00	0.00	87.38	55.67	2.00	0.00	1.00	0.00
87.43	56.85	2.00	0.00	1.00	0.00	87.52	57.36	2.00	0.00	1.00	0.00
87.61	57.58	2.00	0.00	1.00	0.00	87.66	57.47	2.00	0.00	1.00	0.00
87.76	57.12	2.00	0.00	1.00	0.00	87.84	56.58	2.00	0.00	1.00	0.00
87.91	56.08	2.00	0.00	1.00	0.00	88.00	55.54	2.00	0.00	1.00	0.00
88.11	55.23	2.00	0.00	1.00	0.00	88.19	55.01	2.00	0.00	1.00	0.00
88.25	54.79	2.00	0.00	1.00	0.00	88.34	54.27	2.00	0.00	1.00	0.00
88.44	53.59	2.00	0.00	1.00	0.00	88.54	52.93	2.00	0.00	1.00	0.00
88.64	52.52	2.00	0.00	1.00	0.00	88.72	52.42	2.00	0.00	1.00	0.00
88.82	52.53	2.00	0.00	1.00	0.00	88.91	52.79	2.00	0.00	1.00	0.00
89.01	53.02	2.00	0.00	1.00	0.00	89.10	53.22	2.00	0.00	1.00	0.00
89.19	52.91	2.00	0.00	1.00	0.00	89.30	50.44	2.00	0.00	1.00	0.00
89.39	48.98	2.00	0.00	1.00	0.00	89.49	49.49	2.00	0.00	1.00	0.00
89.59	52.76	2.00	0.00	1.00	0.00	89.69	54.90	2.00	0.00	1.00	0.00
89.73	55.86	2.00	0.00	1.00	0.00	89.78	56.23	2.00	0.00	1.00	0.00
89.83	56.56	2.00	0.00	1.00	0.00	89.88	57.05	2.00	0.00	1.00	0.00
89.93	57.77	2.00	0.00	1.00	0.00	90.00	58.79	2.00	0.00	1.00	0.00
90.07	59.82	2.00	0.00	1.00	0.00	90.12	61.24	2.00	0.00	1.00	0.00
90.22	62.84	2.00	0.00	1.00	0.00	90.27	65.70	2.00	0.00	1.00	0.00
90.36	68.34	2.00	0.00	1.00	0.00	90.46	70.27	2.00	0.00	1.00	0.00
90.50	71.01	2.00	0.00	1.00	0.00	90.61	71.39	2.00	0.00	1.00	0.00
90.66	71.12	2.00	0.00	1.00	0.00	90.75	69.74	2.00	0.00	1.00	0.00
90.84	67.94	2.00	0.00	1.00	0.00	90.89	66.20	2.00	0.00	1.00	0.00
90.99	65.12	2.00	0.00	1.00	0.00	91.04	64.21	2.00	0.00	1.00	0.00
91.14	63.69	2.00	0.00	1.00	0.00	91.22	63.19	2.00	0.00	1.00	0.00
91.28	62.55	2.00	0.00	1.00	0.00	91.37	61.75	2.00	0.00	1.00	0.00
91.47	60.75	2.00	0.00	1.00	0.00	91.61	60.19	2.00	0.00	1.00	0.00
91.71	59.97	2.00	0.00	1.00	0.00	91.81	60.03	2.00	0.00	1.00	0.00
91.87	59.68	2.00	0.00	1.00	0.00	92.00	57.50	2.00	0.00	1.00	0.00
92.10	55.77	2.00	0.00	1.00	0.00	92.20	54.98	2.00	0.00	1.00	0.00
92.33	56.37	2.00	0.00	1.00	0.00	92.38	57.43	2.00	0.00	1.00	0.00
92.43	57.96	2.00	0.00	1.00	0.00	92.48	58.57	2.00	0.00	1.00	0.00
92.56	59.09	2.00	0.00	1.00	0.00	92.63	59.41	2.00	0.00	1.00	0.00
92.67	59.42	2.00	0.00	1.00	0.00	92.72	59.38	2.00	0.00	1.00	0.00
92.77	59.37	2.00	0.00	1.00	0.00	92.86	59.49	2.00	0.00	1.00	0.00
92.92	59.88	2.00	0.00	1.00	0.00	92.97	61.03	2.00	0.00	1.00	0.00
93.05	62.12	2.00	0.00	1.00	0.00	93.10	63.07	2.00	0.00	1.00	0.00
93.16	63.28	2.00	0.00	1.00	0.00	93.25	63.20	2.00	0.00	1.00	0.00
93.35	62.84	2.00	0.00	1.00	0.00	93.40	62.27	2.00	0.00	1.00	0.00
93.49	61.82	2.00	0.00	1.00	0.00	93.56	61.55	2.00	0.00	1.00	0.00
93.64	61.65	2.00	0.00	1.00	0.00	93.73	62.81	2.00	0.00	1.00	0.00
93.83	64.72	2.00	0.00	1.00	0.00	93.88	67.85	2.00	0.00	1.00	0.00
93.97	70.35	2.00	0.00	1.00	0.00	94.07	72.95	2.00	0.00	1.00	0.00
94.17	75.57	2.00	0.00	1.00	0.00	94.26	76.60	2.00	0.00	1.00	0.00
94.36	81.75	2.00	0.00	1.00	0.00	94.45	87.02	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
94.55	91.74	2.00	0.00	1.00	0.00	94.64	89.52	2.00	0.00	1.00	0.00
94.72	85.22	2.00	0.00	1.00	0.00	94.74	79.85	2.00	0.00	1.00	0.00
94.77	76.98	2.00	0.00	1.00	0.00	94.85	74.39	2.00	0.00	1.00	0.00
94.90	75.17	2.00	0.00	1.00	0.00	94.95	77.89	2.00	0.00	1.00	0.00
95.01	85.22	2.00	0.00	1.00	0.00	95.09	94.37	2.00	0.00	1.00	0.00
95.14	107.02	2.00	0.00	1.00	0.00	95.23	117.34	2.00	0.00	1.00	0.00
95.29	126.89	2.00	0.00	1.00	0.00	95.38	131.69	2.00	0.00	1.00	0.00
95.43	133.43	2.00	0.00	1.00	0.00	95.52	132.50	2.00	0.00	1.00	0.00
95.57	128.95	2.00	0.00	1.00	0.00	95.67	123.49	2.00	0.00	1.00	0.00
95.77	118.72	2.00	0.00	1.00	0.00	95.86	118.80	2.00	0.00	1.00	0.00
95.95	116.56	2.00	0.00	1.00	0.00	96.03	118.40	2.00	0.00	1.00	0.00
96.11	118.64	2.00	0.00	1.00	0.00	96.20	124.65	2.00	0.00	1.00	0.00
96.30	125.73	2.00	0.00	1.00	0.00	96.39	124.50	2.00	0.00	1.00	0.00
96.50	120.31	2.00	0.00	1.00	0.00	96.59	106.72	2.00	0.00	1.00	0.00
96.69	91.36	2.00	0.00	1.00	0.00	96.78	77.51	2.00	0.00	1.00	0.00
96.87	72.98	2.00	0.00	1.00	0.00	96.98	71.40	2.00	0.00	1.00	0.00
97.02	71.90	2.00	0.00	1.00	0.00	97.06	73.47	2.00	0.00	1.00	0.00
97.12	76.16	2.00	0.00	1.00	0.00	97.16	79.48	2.00	0.00	1.00	0.00
97.21	83.99	2.00	0.00	1.00	0.00	97.27	89.17	2.00	0.00	1.00	0.00
97.33	93.67	2.00	0.00	1.00	0.00	97.40	96.33	2.00	0.00	1.00	0.00
97.45	97.51	2.00	0.00	1.00	0.00	97.50	100.38	2.00	0.00	1.00	0.00
97.58	104.78	2.00	0.00	1.00	0.00	97.65	110.26	2.00	0.00	1.00	0.00
97.69	113.95	2.00	0.00	1.00	0.00	97.74	115.68	2.00	0.00	1.00	0.00
97.81	116.42	2.00	0.00	1.00	0.00	97.88	116.63	2.00	0.00	1.00	0.00
97.93	111.98	2.00	0.00	1.00	0.00	98.03	97.35	2.00	0.00	1.00	0.00
98.15	83.50	2.00	0.00	1.00	0.00	98.21	78.05	2.00	0.00	1.00	0.00
98.32	80.19	2.00	0.00	1.00	0.00	98.42	85.96	2.00	0.00	1.00	0.00
98.47	79.73	2.00	0.00	1.00	0.00	98.57	88.75	2.00	0.00	1.00	0.00
98.70	94.00	2.00	0.00	1.00	0.00	98.78	92.13	2.00	0.00	1.00	0.00
98.85	84.79	2.00	0.00	1.00	0.00	98.86	76.77	2.00	0.00	1.00	0.00
98.92	73.26	2.00	0.00	1.00	0.00	98.98	72.24	2.00	0.00	1.00	0.00
99.03	70.12	2.00	0.00	1.00	0.00	99.11	63.67	2.00	0.00	1.00	0.00
99.18	74.69	2.00	0.00	1.00	0.00	99.23	73.25	2.00	0.00	1.00	0.00
99.32	76.01	2.00	0.00	1.00	0.00	99.37	83.05	2.00	0.00	1.00	0.00
99.45	90.04	2.00	0.00	1.00	0.00	99.56	96.01	2.00	0.00	1.00	0.00
99.64	101.90	2.00	0.00	1.00	0.00	99.71	108.77	2.00	0.00	1.00	0.00
99.75	113.72	2.00	0.00	1.00	0.00	99.90	118.27	2.00	0.00	1.00	0.00
99.95	126.55	2.00	0.00	1.00	0.00	100.04	127.45	2.00	0.00	1.00	0.00
100.14	116.89	2.00	0.00	1.00	0.00	100.14	106.43	2.00	0.00	1.00	0.00
100.15	105.52	2.00	0.00	1.00	0.00	100.19	111.71	2.00	0.00	1.00	0.00
100.21	119.29	2.00	0.00	1.00	0.00	100.24	108.37	2.00	0.00	1.00	0.00
100.28	106.62	2.00	0.00	1.00	0.00	100.31	-1.00	2.00	0.00	1.00	0.00
100.33	-1.00	2.00	0.00	1.00	0.00	100.38	-1.00	2.00	0.00	1.00	0.00
100.39	-1.00	2.00	0.00	1.00	0.00	100.43	-1.00	2.00	0.00	1.00	0.00
100.48	-1.00	2.00	0.00	1.00	0.00	100.53	-1.00	2.00	0.00	1.00	0.00
100.57	-1.00	2.00	0.00	1.00	0.00	100.60	-1.00	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)

Total estimated settlement: 1.40

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.04	0.10	0.16	54.25	8.56	4.06	18.21	3.82
0.10	0.13	0.21	54.25	11.25	4.06	10.48	2.18
0.11	0.23	0.37	54.25	19.92	4.06	9.43	3.40
0.16	0.54	0.85	54.25	46.18	4.06	6.91	5.55
0.19	1.28	2.04	26.86	54.86	3.64	5.54	10.68
0.24	2.83	4.54	12.41	56.29	3.19	4.85	19.02
0.31	4.93	7.89	7.08	55.92	2.89	0.08	0.64
0.38	6.68	10.70	5.13	54.91	2.74	0.08	0.64
0.43	7.56	12.11	4.55	55.04	2.68	0.08	0.64
0.49	7.32	11.72	4.88	57.26	2.72	0.09	0.65
0.58	6.81	10.90	5.56	60.65	2.78	0.12	0.66
0.63	6.24	9.98	6.53	65.19	2.85	0.17	0.67
0.67	6.05	9.68	7.19	69.56	2.90	0.25	0.68
0.72	6.02	9.62	7.57	72.80	2.92	0.32	0.69
0.72	6.70	10.70	7.32	78.32	2.91	0.51	0.70
0.84	9.28	14.84	5.43	80.63	2.77	0.62	0.71
0.96	15.82	25.35	2.97	75.23	2.50	0.39	0.70
1.06	22.64	36.29	2.02	73.35	2.32	0.34	0.69
1.24	27.97	44.84	1.65	74.08	2.21	0.36	0.69
1.30	31.48	50.47	1.49	75.12	2.14	0.39	0.70
1.48	37.28	59.78	1.34	80.22	2.04	0.59	0.71
1.59	42.14	67.57	1.29	87.16	1.98	0.72	0.72
1.69	47.40	76.02	1.26	95.52	1.93	0.74	0.74
1.69	49.80	79.87	1.25	99.55	1.91	0.75	0.75
1.74	53.24	85.40	1.22	104.46	1.88	0.76	0.76
1.79	53.78	86.26	1.22	105.40	1.88	0.76	0.76
1.84	52.90	84.84	1.23	104.08	1.89	0.76	0.76
1.88	51.25	82.18	1.23	101.34	1.89	0.75	0.75
1.93	49.46	79.31	1.24	98.11	1.90	0.74	0.74
1.99	48.69	78.06	1.23	96.29	1.90	0.74	0.74
2.03	48.08	77.07	1.23	94.90	1.89	0.74	0.74
2.08	47.67	76.42	1.23	93.98	1.89	0.74	0.74
2.13	46.86	75.11	1.23	92.67	1.90	0.73	0.73
2.22	45.85	73.48	1.24	91.09	1.90	0.73	0.73
2.27	44.97	72.07	1.24	89.70	1.91	0.73	0.73
2.33	44.77	71.74	1.24	89.16	1.91	0.73	0.73
2.42	45.44	72.81	1.24	89.96	1.90	0.73	0.73
2.48	46.73	74.86	1.22	91.66	1.88	0.73	0.73
2.56	48.41	77.57	1.21	94.03	1.86	0.74	0.74
2.65	49.43	79.19	1.21	95.47	1.86	0.74	0.74
2.72	48.72	78.04	1.21	94.74	1.87	0.74	0.74
2.80	46.02	73.70	1.23	90.99	1.90	0.73	0.73
2.89	42.44	67.94	1.26	85.67	1.94	0.72	0.72
2.94	39.03	62.46	1.29	80.64	1.98	0.62	0.71
3.04	35.90	57.42	1.32	76.04	2.02	0.42	0.70
3.14	32.32	51.66	1.37	70.91	2.07	0.27	0.69
3.23	29.01	46.34	1.42	65.97	2.10	0.18	0.67
3.31	25.74	41.07	1.50	61.64	2.15	0.13	0.66

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.37	23.04	36.73	1.59	58.33	2.19	0.10	0.65
3.48	20.38	32.44	1.71	55.35	2.23	0.08	0.64
3.57	18.79	29.89	1.76	52.71	2.25	0.06	0.63
3.65	18.02	28.64	1.78	50.93	2.26	0.06	0.63
3.71	18.02	28.64	1.77	50.70	2.26	0.06	0.63
3.82	18.63	29.60	1.77	52.47	2.26	0.06	0.63
3.91	20.18	32.09	1.71	54.73	2.23	0.07	0.64
4.00	22.81	36.30	1.60	58.22	2.20	0.10	0.65
4.10	26.38	42.04	1.41	59.10	2.09	0.11	0.65
4.19	31.21	49.79	1.00	49.79	1.98	0.05	0.62
4.26	37.92	60.57	1.00	60.57	1.86	0.12	0.66
4.35	45.62	72.92	1.00	72.92	1.79	0.32	0.69
4.44	49.80	79.63	1.00	79.63	1.77	0.57	0.71
4.52	51.39	82.17	1.00	82.17	1.76	0.70	0.71
4.53	52.26	83.58	1.00	83.58	1.76	0.72	0.72
4.58	55.03	88.02	1.00	88.02	1.73	0.72	0.72
4.63	57.76	92.41	1.00	92.41	1.71	0.73	0.73
4.68	58.84	94.14	1.00	94.14	1.70	0.74	0.74
4.72	59.28	94.84	1.00	94.84	1.71	0.74	0.74
4.77	59.08	94.51	1.00	94.51	1.72	0.74	0.74
4.82	58.07	92.88	1.00	92.88	1.73	0.73	0.73
4.88	56.21	89.89	1.00	89.89	1.76	0.73	0.73
4.96	53.61	85.71	1.14	97.96	1.79	0.74	0.74
5.01	50.54	80.78	1.18	95.67	1.83	0.74	0.74
5.08	47.44	75.78	1.22	92.32	1.87	0.73	0.73
5.16	44.81	71.55	1.24	88.93	1.91	0.73	0.73
5.21	43.27	69.07	1.26	86.85	1.93	0.72	0.72
5.30	42.68	68.12	1.26	86.01	1.94	0.72	0.72
5.37	42.65	68.06	1.26	85.96	1.94	0.72	0.72
5.45	42.70	68.13	1.26	86.01	1.94	0.72	0.72
5.52	42.44	67.72	1.26	85.64	1.94	0.72	0.72
5.59	41.70	66.52	1.27	84.54	1.95	0.72	0.72
5.65	40.15	64.02	1.28	82.25	1.97	0.70	0.71
5.74	38.46	61.30	1.30	79.83	1.99	0.58	0.71
5.83	37.08	59.07	1.32	77.99	2.02	0.49	0.70
5.89	36.30	57.82	1.33	77.16	2.03	0.46	0.70
5.97	35.66	56.79	1.35	76.43	2.04	0.43	0.70
6.07	34.52	54.94	1.37	75.11	2.06	0.39	0.70
6.12	32.56	51.79	1.41	73.14	2.10	0.33	0.69
6.22	29.76	47.28	1.51	71.19	2.15	0.28	0.69
6.28	26.56	42.13	1.67	70.33	2.22	0.26	0.68
6.36	23.45	37.14	1.90	70.41	2.29	0.26	0.68
6.46	21.29	33.66	2.09	70.43	2.34	0.26	0.68
6.52	20.72	32.73	2.06	67.56	2.33	0.21	0.68
6.60	22.07	34.89	1.79	62.55	2.26	0.14	0.66
6.70	23.55	37.27	1.57	58.59	2.18	0.10	0.65
6.76	23.01	36.39	1.55	56.58	2.17	0.09	0.65
6.84	19.64	30.96	1.81	55.94	2.27	0.08	0.64

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.94	14.91	23.37	2.60	60.83	2.44	0.12	0.66
7.03	10.86	16.85	4.02	67.75	2.63	0.21	0.68
7.13	8.23	12.62	5.71	72.04	2.79	0.30	0.69
7.19	6.62	10.02	6.93	69.39	2.88	0.24	0.68
7.32	5.77	8.65	6.87	59.40	2.88	0.11	0.65
7.42	5.17	7.67	5.87	44.99	2.80	0.04	0.62
7.49	4.93	7.28	4.02	29.29	2.63	0.02	0.62
7.57	4.73	-1.00	1.00	-1.00	-1.00	0.00	0.00
7.66	4.56	-1.00	1.00	-1.00	-1.00	0.00	0.00
7.76	4.44	6.47	4.48	29.00	2.68	0.02	0.62
7.77	4.39	6.39	4.95	31.63	2.72	0.02	0.62
7.78	4.42	6.44	5.05	32.53	2.73	0.02	0.62
7.82	4.44	6.47	5.36	34.69	2.76	0.02	0.62
7.87	4.45	6.49	5.86	38.07	2.80	0.03	0.62
7.92	4.45	6.49	6.45	41.83	2.85	0.03	0.62
7.97	4.49	6.54	6.96	45.53	2.88	0.04	0.62
8.01	4.59	6.70	7.41	49.66	2.91	0.05	0.62
8.06	4.76	6.97	7.58	52.81	2.92	0.06	0.63
8.11	4.93	7.24	7.65	55.42	2.93	0.08	0.64
8.20	5.06	7.45	7.68	57.24	2.93	0.09	0.65
8.26	5.16	7.60	7.84	59.63	2.94	0.11	0.66
8.35	5.23	7.70	7.98	61.50	2.95	0.13	0.66
8.40	5.30	7.81	8.02	62.65	2.95	0.14	0.66
8.49	5.37	7.91	7.96	62.99	2.95	0.14	0.66
8.54	5.51	8.13	7.81	63.54	2.94	0.15	0.67
8.64	5.71	8.45	7.58	64.06	2.93	0.16	0.67
8.69	5.91	8.77	7.37	64.63	2.91	0.16	0.67
8.79	6.18	9.19	7.46	68.57	2.92	0.23	0.68
8.84	6.48	9.68	7.59	73.49	2.93	0.34	0.69
8.93	6.89	10.32	7.50	77.37	2.92	0.47	0.70
9.03	7.13	10.69	7.46	79.83	2.92	0.58	0.71
9.08	7.21	10.83	7.52	81.47	2.92	0.66	0.71
9.11	7.16	10.75	7.78	83.66	2.94	0.72	0.72
9.12	7.13	10.69	7.89	84.32	2.95	0.72	0.72
9.17	7.07	10.60	8.03	85.13	2.95	0.72	0.72
9.22	7.12	10.67	8.09	86.32	2.96	0.72	0.72
9.31	6.92	10.34	8.56	88.56	2.99	0.73	0.73
9.36	7.16	10.72	8.37	89.76	2.98	0.73	0.73
9.40	7.46	11.20	8.04	90.10	2.95	0.73	0.73
9.46	8.14	12.28	7.25	89.07	2.90	0.73	0.73
9.51	8.47	12.82	6.92	88.75	2.88	0.73	0.73
9.55	8.78	13.30	6.70	89.10	2.86	0.73	0.73
9.61	8.98	13.63	6.65	90.65	2.86	0.73	0.73
9.69	9.12	13.84	6.73	93.09	2.87	0.73	0.73
9.74	9.18	13.94	6.87	95.71	2.88	0.74	0.74
9.81	9.39	14.26	6.85	97.70	2.88	0.74	0.74
9.89	9.76	14.85	6.62	98.33	2.86	0.74	0.74
9.94	10.06	15.33	6.42	98.43	2.84	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.03	10.23	15.59	6.28	97.94	2.83	0.74	0.74
10.08	10.23	15.59	5.91	92.18	2.80	0.73	0.73
10.18	10.23	15.58	5.40	84.12	2.76	0.72	0.72
10.23	10.23	15.58	5.05	78.62	2.73	0.52	0.70
10.33	10.23	15.57	5.17	80.55	2.74	0.61	0.71
10.40	10.23	15.56	5.54	86.20	2.77	0.72	0.72
10.47	10.08	15.32	5.91	90.44	2.80	0.73	0.73
10.51	10.06	15.28	6.18	94.42	2.83	0.74	0.74
10.56	10.03	15.23	6.41	97.63	2.84	0.74	0.74
10.61	10.21	15.52	6.51	100.97	2.85	0.75	0.75
10.67	10.16	15.43	6.88	106.14	2.88	0.76	0.76
10.75	10.13	15.37	7.21	110.80	2.90	0.77	0.77
10.80	9.99	15.15	7.50	113.70	2.92	0.77	0.77
10.85	9.89	14.99	7.63	114.35	2.93	0.77	0.77
10.90	9.72	14.71	7.82	115.05	2.94	0.77	0.77
11.00	9.45	14.27	8.13	116.05	2.96	0.78	0.78
11.05	9.05	13.61	8.55	116.32	2.99	0.78	0.78
11.14	8.61	12.90	9.04	116.64	3.01	0.62	0.99
11.21	8.27	12.36	9.53	117.80	3.04	0.62	0.94
11.29	8.24	12.30	9.66	118.79	3.05	0.65	0.93
11.38	8.41	12.56	9.53	119.67	3.04	0.63	0.94
11.46	8.68	12.98	9.18	119.19	3.02	0.64	0.97
11.52	8.88	13.30	8.96	119.26	3.01	0.64	0.98
11.60	8.98	13.46	8.85	119.12	3.00	0.64	0.99
11.67	9.05	13.56	8.79	119.24	3.00	0.64	0.99
11.72	9.12	13.67	8.75	119.52	3.00	0.78	0.78
11.81	9.32	13.98	8.54	119.37	2.99	0.78	0.78
11.86	9.35	14.03	8.52	119.54	2.98	0.78	0.78
11.96	9.42	14.07	8.48	119.37	2.98	0.78	0.78
12.01	9.45	14.06	8.50	119.58	2.98	0.78	0.78
12.10	9.69	13.55	8.25	111.75	2.97	0.77	0.77
12.16	10.07	13.97	7.41	103.51	2.91	0.75	0.75
12.24	10.47	14.38	6.85	98.49	2.88	0.75	0.75
12.32	10.87	14.89	6.86	102.09	2.88	0.75	0.75
12.39	11.18	15.29	7.16	109.53	2.90	0.77	0.77
12.48	10.64	14.47	7.97	115.36	2.95	0.78	0.78
12.50	10.23	14.64	8.30	121.50	2.97	0.79	0.79
12.54	10.74	14.58	8.20	119.55	2.96	0.78	0.78
12.64	12.36	16.65	7.01	116.68	2.89	0.78	0.78
12.68	14.04	18.79	6.01	113.05	2.81	0.77	0.77
12.77	14.72	19.54	5.64	110.30	2.78	0.77	0.77
12.82	14.75	19.48	5.55	108.15	2.78	0.76	0.76
12.89	14.21	18.67	5.71	106.60	2.79	0.76	0.76
12.97	13.37	17.49	6.13	107.25	2.82	0.76	0.76
13.03	12.49	16.30	6.66	108.51	2.86	0.76	0.76
13.12	11.72	15.20	7.22	109.85	2.90	0.77	0.77
13.16	11.21	14.50	7.58	109.96	2.93	0.77	0.77
13.26	10.91	13.99	7.68	107.43	2.93	0.76	0.76

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.34	10.84	13.79	7.45	102.72	2.92	0.75	0.75
13.41	10.74	13.56	7.18	97.27	2.90	0.74	0.74
13.50	10.60	13.27	7.10	94.19	2.89	0.74	0.74
13.60	10.33	12.84	7.26	93.25	2.90	0.74	0.74
13.65	10.13	12.55	7.49	94.05	2.92	0.74	0.74
13.75	10.03	12.35	7.71	95.17	2.93	0.74	0.74
13.80	10.10	12.37	7.57	93.67	2.92	0.74	0.74
13.89	10.23	12.47	7.55	94.18	2.92	0.74	0.74
13.94	10.63	12.95	7.46	96.59	2.92	0.74	0.74
14.03	10.80	13.13	7.91	103.87	2.95	0.76	0.76
14.11	11.23	13.59	7.98	108.45	2.95	0.76	0.76
14.13	11.53	13.97	7.99	111.61	2.95	0.77	0.77
14.18	12.27	14.85	7.55	112.19	2.92	0.77	0.77
14.22	12.83	15.50	7.35	113.98	2.91	0.77	0.77
14.28	13.44	16.19	7.18	116.20	2.90	0.78	0.78
14.37	14.01	16.81	7.06	118.62	2.89	0.78	0.78
14.44	14.79	17.68	6.80	120.24	2.87	0.78	0.78
14.51	15.63	18.60	6.50	120.95	2.85	0.78	0.78
14.60	16.31	19.30	6.30	121.55	2.83	0.79	0.79
14.65	16.58	19.57	6.28	122.89	2.83	0.79	0.79
14.75	16.56	19.44	6.39	124.23	2.84	0.79	0.79
14.85	16.48	19.22	6.50	124.95	2.85	0.79	0.79
14.91	16.44	19.11	6.54	124.89	2.85	0.79	0.79
14.99	17.00	19.64	6.25	122.73	2.83	0.79	0.79
15.09	18.30	21.01	5.69	119.59	2.79	0.78	0.78
15.18	20.29	23.13	4.94	114.33	2.72	0.77	0.77
15.25	22.28	25.25	4.26	107.53	2.66	0.76	0.76
15.33	24.50	27.58	3.60	99.22	2.58	0.75	0.75
15.43	27.51	30.70	2.96	90.92	2.50	0.73	0.73
15.51	31.32	34.70	2.45	84.95	2.41	0.72	0.72
15.59	34.63	38.13	2.14	81.77	2.35	0.68	0.71
15.67	36.18	39.65	2.03	80.65	2.33	0.62	0.71
15.76	35.13	38.36	2.14	81.98	2.35	0.69	0.71
15.86	32.03	34.86	2.45	85.36	2.41	0.72	0.72
15.95	27.64	30.01	3.03	90.95	2.51	0.73	0.73
16.05	23.08	24.94	3.85	95.91	2.61	0.74	0.74
16.14	19.31	20.73	4.79	99.32	2.71	0.75	0.75
16.20	16.85	17.98	5.55	99.84	2.78	0.75	0.75
16.28	15.33	16.24	6.13	99.52	2.82	0.75	0.75
16.34	14.21	14.97	6.52	97.62	2.85	0.74	0.74
16.44	12.93	13.48	7.12	95.96	2.89	0.74	0.74
16.50	11.61	12.00	7.73	92.73	2.93	0.73	0.73
16.58	10.17	10.54	8.19	86.31	2.96	0.72	0.72
16.73	8.75	8.85	8.43	74.57	2.98	0.37	0.69
16.82	7.60	7.51	8.14	61.14	2.96	0.12	0.66
16.92	7.06	6.86	8.35	57.29	2.97	0.09	0.65
17.01	6.56	6.26	10.33	64.67	3.09	0.13	0.45
17.11	6.20	5.84	12.54	73.17	3.19	0.19	0.42

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
17.12	5.73	5.31	14.74	78.30	3.28	0.20	0.38
17.14	6.34	5.97	13.44	80.31	3.23	0.21	0.43
17.19	7.13	6.82	12.15	82.92	3.17	0.24	0.49
17.28	7.94	7.67	11.16	85.58	3.13	0.27	0.55
17.33	8.01	7.71	11.48	88.52	3.14	0.29	0.55
17.43	7.87	7.52	11.93	89.67	3.16	0.30	0.54
17.47	7.74	7.35	12.03	88.37	3.17	0.29	0.52
17.57	7.57	7.12	11.95	85.14	3.16	0.25	0.51
17.65	7.47	6.98	11.70	81.63	3.15	0.23	0.50
17.72	7.40	6.88	11.84	81.46	3.16	0.22	0.49
17.81	7.57	7.02	11.86	83.22	3.16	0.25	0.50
17.86	7.87	7.32	11.98	87.65	3.17	0.27	0.52
17.95	8.31	7.73	11.95	92.32	3.16	0.32	0.55
18.05	8.78	8.18	11.81	96.52	3.16	0.36	0.58
18.10	9.22	8.61	11.67	100.43	3.15	0.38	0.61
18.20	9.66	9.01	11.52	103.80	3.14	0.42	0.64
18.30	9.90	9.20	11.60	106.76	3.15	0.46	0.66
18.39	10.13	9.38	11.50	107.91	3.14	0.46	0.67
18.48	10.27	9.47	11.38	107.71	3.14	0.46	0.68
18.58	10.30	9.44	11.38	107.46	3.14	0.46	0.67
18.66	10.20	9.30	11.49	106.87	3.14	0.45	0.66
18.74	10.07	9.12	11.49	104.74	3.14	0.44	0.65
18.87	9.90	8.88	10.73	95.26	3.11	0.39	0.63
18.97	9.66	8.59	10.09	86.69	3.07	0.22	0.61
19.06	9.56	8.45	9.58	80.90	3.05	0.24	0.60
19.16	9.83	8.66	9.84	85.25	3.06	0.27	0.62
19.25	10.13	8.91	9.93	88.50	3.06	0.31	0.64
19.27	10.23	9.00	10.18	91.69	3.08	0.31	0.64
19.30	10.37	9.12	10.39	94.70	3.09	0.34	0.65
19.34	10.57	9.29	10.57	98.19	3.10	0.38	0.66
19.39	10.84	9.53	10.50	100.00	3.09	0.40	0.68
19.49	10.78	9.41	10.57	99.51	3.10	0.39	0.67
19.55	10.51	9.12	10.70	97.54	3.10	0.37	0.65
19.63	10.17	8.75	10.86	95.04	3.11	0.34	0.63
19.68	9.87	8.43	10.91	92.04	3.11	0.32	0.60
19.74	9.77	8.31	10.69	88.83	3.10	0.29	0.59
19.83	9.73	8.24	10.61	87.40	3.10	0.27	0.59
19.87	9.73	8.22	10.55	86.67	3.10	0.29	0.59
19.94	9.73	8.19	10.80	88.39	3.11	0.27	0.58
20.02	9.80	8.21	11.04	90.64	3.12	0.31	0.59
20.07	10.17	8.54	11.28	96.33	3.13	0.34	0.61
20.17	11.42	9.65	10.38	100.21	3.09	0.41	0.69
20.21	14.18	12.20	8.30	101.25	2.97	0.75	0.75
20.28	18.74	16.43	5.92	97.16	2.80	0.74	0.74
20.36	24.88	22.08	4.11	90.84	2.64	0.73	0.73
20.41	31.73	28.40	3.02	85.89	2.51	0.72	0.72
20.48	38.64	34.74	2.39	83.15	2.40	0.71	0.71
20.55	44.99	40.52	2.02	82.00	2.33	0.69	0.71

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
20.60	49.88	44.99	1.82	81.90	2.27	0.68	0.71
20.70	52.55	47.28	1.74	82.23	2.25	0.70	0.71
20.74	52.68	47.32	1.75	82.97	2.25	0.71	0.71
20.79	51.17	45.83	1.84	84.31	2.28	0.72	0.72
20.89	48.70	43.39	2.03	87.95	2.33	0.72	0.72
20.96	46.86	41.58	2.06	85.66	2.33	0.72	0.72
21.04	45.83	40.52	2.09	84.84	2.34	0.72	0.72
21.13	45.80	40.36	2.05	82.71	2.33	0.71	0.71
21.22	49.22	43.31	1.97	85.52	2.31	0.72	0.72
21.29	52.71	46.38	1.86	86.23	2.28	0.72	0.72
21.35	62.13	54.84	1.58	86.56	2.19	0.72	0.72
21.37	71.37	63.21	1.42	89.97	2.10	0.73	0.73
21.42	83.72	74.37	1.31	97.64	2.01	0.74	0.74
21.47	92.73	82.47	1.27	104.48	1.95	0.76	0.76
21.48	100.66	89.69	1.23	110.65	1.90	0.77	0.77
21.52	107.37	95.73	1.20	115.32	1.85	0.78	0.78
21.57	113.24	100.98	1.17	118.63	1.82	0.78	0.78
21.62	118.81	105.91	1.14	120.85	1.79	0.78	0.78
21.66	124.00	110.52	1.10	122.11	1.76	0.79	0.79
21.71	128.79	114.75	1.07	122.79	1.74	0.79	0.79
21.76	132.64	118.10	1.04	123.42	1.73	0.79	0.79
21.81	135.34	120.38	1.03	124.51	1.72	0.79	0.79
21.85	136.99	121.70	1.04	126.15	1.72	0.79	0.79
21.91	137.80	122.24	1.05	127.87	1.73	0.80	0.80
21.95	138.11	122.32	1.06	129.40	1.73	0.80	0.80
22.00	138.24	122.26	1.07	130.49	1.74	0.80	0.80
22.05	138.18	122.02	1.08	131.33	1.75	0.80	0.80
22.10	138.24	121.90	1.08	132.00	1.75	0.80	0.80
22.15	138.31	121.77	1.09	132.56	1.75	0.80	0.80
22.19	138.68	121.94	1.09	133.12	1.75	0.80	0.80
22.24	139.25	122.24	1.11	135.35	1.76	0.81	0.81
22.29	139.86	122.58	1.11	136.60	1.77	0.81	0.81
22.34	140.20	122.70	1.12	137.16	1.77	0.81	0.81
22.39	140.06	122.45	1.11	135.89	1.77	0.81	0.81
22.43	139.42	121.72	1.11	135.26	1.77	0.81	0.81
22.48	138.34	120.56	1.12	135.08	1.77	0.81	0.81
22.55	136.79	118.95	1.13	134.76	1.78	0.81	0.81
22.62	130.08	112.68	1.17	131.90	1.82	0.80	0.80
22.63	127.95	110.75	1.18	130.57	1.83	0.80	0.80
22.72	125.56	108.31	1.19	128.61	1.83	0.80	0.80
22.77	128.09	110.46	1.17	129.57	1.82	0.80	0.80
22.83	126.13	108.51	1.19	128.59	1.83	0.80	0.80
22.91	124.21	106.52	1.20	127.55	1.85	0.79	0.79
22.96	121.74	104.15	1.21	126.09	1.86	0.79	0.79
23.02	118.20	100.84	1.22	123.45	1.88	0.79	0.79
23.10	113.85	96.74	1.24	119.96	1.90	0.78	0.78
23.16	108.42	91.79	1.26	115.60	1.93	0.78	0.78
23.20	102.21	86.20	1.28	110.62	1.97	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
23.26	95.46	80.15	1.31	105.23	2.01	0.76	0.76
23.35	88.68	74.00	1.36	100.36	2.05	0.75	0.75
23.39	81.66	67.80	1.42	95.97	2.10	0.74	0.74
23.48	74.68	61.55	1.51	93.11	2.15	0.73	0.73
23.54	68.33	55.99	1.61	90.41	2.20	0.73	0.73
23.63	63.44	51.67	1.69	87.24	2.23	0.72	0.72
23.69	60.07	48.84	1.63	79.68	2.21	0.57	0.71
23.78	58.37	47.34	1.59	75.09	2.19	0.39	0.70
23.87	57.71	46.70	1.56	72.76	2.18	0.32	0.69
23.88	57.81	46.69	1.62	75.51	2.20	0.40	0.70
23.93	57.42	46.23	1.69	78.05	2.23	0.50	0.70
24.02	57.22	45.85	1.76	80.73	2.25	0.62	0.71
24.04	56.97	45.57	1.82	82.98	2.27	0.71	0.71
24.05	57.34	45.82	1.85	84.83	2.28	0.72	0.72
24.15	58.27	46.42	1.87	86.71	2.28	0.72	0.72
24.20	60.11	47.86	1.85	88.32	2.28	0.73	0.73
24.30	62.64	49.86	1.75	87.06	2.25	0.72	0.72
24.40	65.07	51.83	1.63	84.41	2.21	0.72	0.72
24.46	66.59	53.10	1.53	81.44	2.16	0.66	0.71
24.54	66.42	52.90	1.50	79.49	2.15	0.56	0.71
24.64	64.09	50.78	1.55	78.59	2.17	0.52	0.70
24.73	59.94	47.12	1.68	79.13	2.22	0.54	0.71
24.78	54.64	42.55	1.92	81.62	2.30	0.67	0.71
24.88	48.57	37.36	2.28	85.25	2.38	0.72	0.72
24.94	41.92	31.81	2.80	89.16	2.47	0.73	0.73
25.02	35.00	26.12	3.52	92.04	2.57	0.73	0.73
25.12	28.43	20.76	4.59	95.35	2.69	0.74	0.74
25.17	22.86	16.30	6.02	98.17	2.81	0.74	0.74
25.27	18.41	12.75	7.69	98.13	2.93	0.74	0.74
25.36	15.13	9.96	9.50	94.69	3.04	0.34	0.71
25.43	12.60	8.11	11.16	90.44	3.13	0.30	0.58
25.50	10.88	6.84	12.76	87.31	3.20	0.27	0.49
25.60	9.77	6.01	14.03	84.31	3.25	0.24	0.43
25.64	9.26	5.64	14.52	81.86	3.27	0.23	0.40
25.67	9.06	5.48	14.58	79.98	3.28	0.22	0.39
25.71	8.86	5.33	14.38	76.65	3.27	0.20	0.38
25.79	8.52	5.07	14.25	72.22	3.26	0.16	0.36
25.93	8.18	4.80	14.17	68.01	3.26	0.14	0.34
26.03	8.02	4.66	13.97	65.11	3.25	0.13	0.33
26.13	8.02	4.64	13.74	63.74	3.24	0.11	0.33
26.24	8.08	4.67	13.54	63.18	3.23	0.12	0.33
26.37	8.18	4.71	13.48	63.49	3.23	0.12	0.34
26.47	8.25	4.73	13.53	64.09	3.23	0.12	0.34
26.60	8.25	4.71	13.24	62.33	3.22	0.12	0.34
26.71	8.38	4.78	12.59	60.15	3.19	0.09	0.34
26.85	8.75	5.00	11.78	58.94	3.16	0.09	0.36
26.95	8.96	5.12	12.24	62.69	3.18	0.11	0.37
27.04	9.60	5.54	12.21	67.66	3.18	0.15	0.40

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
27.09	10.14	5.90	12.33	72.68	3.18	0.17	0.42
27.19	10.95	6.42	11.76	75.49	3.16	0.20	0.46
27.23	11.18	6.56	11.88	78.01	3.16	0.21	0.47
27.33	11.42	6.70	11.98	80.22	3.17	0.22	0.48
27.40	11.76	6.91	11.94	82.48	3.16	0.24	0.49
27.47	12.30	7.25	11.72	84.94	3.15	0.25	0.52
27.57	12.97	7.66	11.34	86.93	3.14	0.28	0.55
27.66	13.85	8.22	10.99	90.36	3.12	0.30	0.59
27.77	14.96	8.93	10.64	94.93	3.10	0.34	0.64
27.86	16.28	9.76	10.29	100.42	3.08	0.40	0.70
27.96	17.39	10.45	10.06	105.14	3.07	0.45	0.75
28.06	17.73	10.63	10.22	108.70	3.08	0.49	0.76
28.15	17.29	10.31	10.64	109.63	3.10	0.50	0.74
28.25	17.04	10.10	10.32	104.18	3.08	0.47	0.72
28.34	16.50	9.71	10.12	98.29	3.07	0.34	0.69
28.44	16.94	9.96	9.46	94.21	3.04	0.34	0.71
28.54	16.11	9.38	10.45	98.03	3.09	0.38	0.67
28.62	17.46	10.22	9.90	101.19	3.06	0.41	0.73
28.71	18.34	10.74	9.72	104.45	3.05	0.45	0.77
28.77	20.26	11.95	8.92	106.63	3.01	0.48	0.85
28.86	20.73	12.21	8.93	109.00	3.01	0.51	0.87
28.91	21.34	12.56	8.78	110.37	3.00	0.52	0.90
28.97	22.04	12.99	8.63	112.06	2.99	0.77	0.77
29.04	22.92	13.50	8.45	114.13	2.98	0.77	0.77
29.10	23.97	14.13	8.26	116.69	2.97	0.78	0.78
29.15	25.15	14.85	8.08	120.01	2.96	0.78	0.78
29.25	26.40	16.30	7.69	125.36	2.93	0.79	0.79
29.34	27.38	16.91	7.60	128.48	2.93	0.80	0.80
29.38	27.75	17.12	7.63	130.55	2.93	0.80	0.80
29.48	27.72	16.25	7.97	129.55	2.95	0.80	0.80
29.55	27.48	16.06	8.07	129.61	2.96	0.80	0.80
29.63	27.41	16.75	7.61	127.50	2.93	0.79	0.79
29.72	28.43	17.61	6.01	105.80	2.81	0.76	0.76
29.82	31.56	20.09	3.98	79.94	2.63	0.58	0.71
29.88	36.83	24.31	2.33	56.65	2.39	0.09	0.65
29.96	45.23	30.47	1.87	56.98	2.29	0.09	0.65
30.06	49.92	33.83	1.75	59.16	2.25	0.11	0.65
30.13	54.67	37.29	1.64	60.99	2.21	0.12	0.66
30.18	56.02	38.21	1.63	62.30	2.21	0.14	0.66
30.28	58.72	40.06	1.61	64.44	2.20	0.16	0.67
30.37	59.53	40.40	1.67	67.53	2.22	0.21	0.68
30.47	60.51	40.85	1.74	71.05	2.25	0.28	0.69
30.57	63.28	42.69	1.73	73.87	2.24	0.35	0.69
30.66	67.26	45.46	1.67	76.12	2.22	0.42	0.70
30.74	71.34	48.33	1.62	78.31	2.20	0.51	0.70
30.82	74.51	50.51	1.59	80.52	2.19	0.61	0.71
30.90	76.30	51.60	1.61	82.93	2.20	0.71	0.71
31.01	76.90	51.74	1.66	85.67	2.22	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
31.10	77.02	51.51	1.74	89.47	2.24	0.73	0.73
31.19	77.06	51.19	1.84	93.96	2.28	0.74	0.74
31.28	77.57	51.24	1.92	98.21	2.30	0.74	0.74
31.35	78.53	51.70	1.97	101.82	2.31	0.75	0.75
31.43	80.52	52.90	1.98	104.59	2.31	0.76	0.76
31.53	83.11	54.53	1.97	107.28	2.31	0.76	0.76
31.60	85.91	56.74	1.78	101.10	2.26	0.75	0.75
31.67	88.07	58.52	1.64	95.74	2.21	0.74	0.74
31.77	89.46	59.74	1.53	91.18	2.16	0.73	0.73
31.84	89.86	59.77	1.56	93.40	2.18	0.74	0.74
31.91	86.18	56.78	1.68	95.19	2.22	0.74	0.74
31.98	79.10	51.41	1.89	97.23	2.29	0.74	0.74
31.98	77.21	49.95	1.99	99.23	2.32	0.75	0.75
32.04	78.73	50.91	1.98	100.65	2.31	0.75	0.75
32.12	82.68	53.56	1.91	102.19	2.30	0.75	0.75
32.16	80.04	51.46	2.05	105.63	2.33	0.76	0.76
32.27	75.66	48.11	2.26	108.77	2.38	0.76	0.76
32.33	70.76	44.53	2.50	111.51	2.42	0.77	0.77
32.41	66.31	41.33	2.72	112.40	2.46	0.77	0.77
32.50	61.79	38.14	2.93	111.66	2.49	0.77	0.77
32.58	56.66	34.61	3.18	110.12	2.53	0.77	0.77
32.66	50.22	30.23	3.59	108.68	2.58	0.76	0.76
32.74	43.30	25.56	4.22	107.79	2.65	0.76	0.76
32.84	36.12	20.76	5.20	107.96	2.75	0.76	0.76
32.90	29.88	16.68	6.45	107.62	2.85	0.76	0.76
32.98	24.92	12.71	8.19	104.08	2.96	0.76	0.76
33.08	20.77	10.40	9.80	101.84	3.06	0.43	0.74
33.14	17.05	8.34	11.93	99.50	3.16	0.40	0.60
33.22	14.12	6.71	14.31	96.06	3.27	0.36	0.48
33.32	12.19	5.64	16.21	91.43	3.34	0.30	0.40
33.37	11.28	5.14	16.60	85.28	3.35	0.27	0.37
33.47	11.05	4.99	16.37	81.70	3.34	0.22	0.36
33.56	11.66	5.30	15.06	79.85	3.30	0.23	0.38
33.63	12.43	5.71	14.04	80.15	3.26	0.23	0.41
33.71	12.67	5.82	13.47	78.37	3.23	0.23	0.42
33.81	11.99	5.44	13.27	72.19	3.22	0.19	0.39
33.90	11.05	4.92	13.35	65.65	3.23	0.11	0.35
33.95	10.31	4.51	13.36	60.28	3.23	0.11	0.32
34.04	10.07	4.37	13.69	59.84	3.24	0.11	0.31
34.14	9.87	4.25	14.01	59.54	3.25	0.10	0.30
34.17	9.81	4.21	14.16	59.63	3.26	0.11	0.30
34.20	10.07	4.35	13.78	59.92	3.24	0.11	0.31
34.26	10.38	4.50	13.36	60.14	3.23	0.11	0.32
34.35	10.61	4.61	12.99	59.91	3.21	0.11	0.33
34.43	10.41	4.49	13.24	59.45	3.22	0.11	0.32
34.49	10.27	4.41	13.28	58.59	3.22	0.10	0.32
34.59	10.17	4.34	13.18	57.25	3.22	0.10	0.31
34.69	10.07	4.28	13.07	55.91	3.21	0.09	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
34.73	9.90	4.18	13.12	54.88	3.22	0.08	0.30
34.83	9.80	4.12	13.19	54.34	3.22	0.08	0.29
34.90	9.74	4.07	13.37	54.48	3.23	0.08	0.29
34.98	9.84	4.12	13.48	55.47	3.23	0.09	0.29
35.07	10.14	4.26	13.68	58.28	3.24	0.10	0.30
35.16	10.58	4.47	14.49	64.79	3.27	0.12	0.32
35.26	11.29	4.82	15.85	76.48	3.32	0.19	0.34
35.33	13.25	5.82	15.42	89.71	3.31	0.31	0.42
35.40	16.76	7.61	13.28	101.03	3.22	0.42	0.54
35.50	20.84	9.67	11.03	106.70	3.12	0.52	0.69
35.57	23.37	10.95	10.02	109.72	3.07	0.54	0.78
35.65	23.77	11.12	10.10	112.36	3.07	0.57	0.79
35.71	22.86	10.64	10.83	115.22	3.11	0.61	0.76
35.79	21.65	9.99	11.64	116.27	3.15	0.61	0.71
35.85	20.37	9.32	12.22	113.90	3.18	0.57	0.67
35.94	19.29	8.75	12.53	109.71	3.19	0.51	0.63
35.99	18.31	8.24	12.58	103.66	3.19	0.46	0.59
36.08	17.16	7.64	12.55	95.94	3.19	0.38	0.55
36.17	15.54	6.80	12.98	88.35	3.21	0.28	0.49
36.24	14.22	6.13	13.50	82.76	3.23	0.26	0.44
36.33	13.58	5.79	14.00	81.11	3.25	0.24	0.41
36.42	13.58	5.77	14.22	82.08	3.26	0.24	0.41
36.52	14.05	5.99	12.88	77.16	3.21	0.28	0.43
36.61	15.40	6.64	11.27	74.88	3.13	0.14	0.47
36.70	17.73	7.78	9.87	76.79	3.06	0.21	0.56
36.78	20.23	8.99	9.83	88.43	3.06	0.34	0.64
36.85	18.24	7.99	12.41	99.18	3.19	0.44	0.57
36.87	20.20	8.95	11.61	103.88	3.15	0.46	0.64
36.91	23.23	10.43	10.08	105.17	3.07	0.51	0.75
36.97	31.40	15.73	6.66	104.77	2.86	0.76	0.76
37.06	35.24	17.97	5.86	105.20	2.80	0.76	0.76
37.12	38.62	19.91	5.42	107.91	2.76	0.76	0.76
37.20	42.40	22.04	5.10	112.33	2.74	0.77	0.77
37.27	47.56	25.06	4.56	114.30	2.69	0.77	0.77
37.35	52.21	27.88	4.03	112.42	2.63	0.77	0.77
37.44	55.22	29.75	3.64	108.21	2.59	0.76	0.76
37.49	58.42	31.83	3.23	102.76	2.53	0.75	0.75
37.59	67.19	37.46	2.56	95.81	2.43	0.74	0.74
37.64	85.65	49.64	1.82	90.11	2.27	0.73	0.73
37.70	111.29	67.10	1.41	94.79	2.10	0.74	0.74
37.78	136.59	84.81	1.28	108.37	1.96	0.76	0.76
37.83	155.69	98.45	1.22	120.19	1.88	0.78	0.78
37.92	167.53	106.83	1.19	126.68	1.83	0.79	0.79
37.97	174.58	111.69	1.17	130.53	1.81	0.80	0.80
38.07	178.80	114.34	1.16	133.13	1.81	0.80	0.80
38.14	181.84	116.07	1.17	135.64	1.81	0.81	0.81
38.22	185.72	118.33	1.17	138.68	1.82	0.81	0.81
38.31	191.72	121.94	1.17	143.23	1.82	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
38.41	201.37	128.37	1.16	148.66	1.80	0.83	0.83
38.52	212.64	135.94	1.14	154.32	1.79	0.83	0.83
38.64	221.04	141.59	1.11	157.41	1.77	0.84	0.84
38.74	217.87	138.67	1.14	158.10	1.79	0.84	0.84
38.80	214.19	135.62	1.16	157.57	1.81	0.84	0.84
38.89	210.42	132.43	1.18	156.57	1.83	0.84	0.84
38.94	213.65	134.37	1.18	158.84	1.83	0.84	0.84
39.03	213.59	133.74	1.19	159.69	1.84	0.84	0.84
39.13	213.25	132.81	1.21	160.46	1.86	0.84	0.84
39.23	211.36	130.76	1.22	160.12	1.88	0.84	0.84
39.35	207.85	127.69	1.24	158.27	1.90	0.84	0.84
39.42	201.04	122.59	1.26	154.08	1.93	0.83	0.83
39.51	192.09	116.15	1.28	148.22	1.96	0.82	0.82
39.60	181.50	108.71	1.30	141.37	1.99	0.82	0.82
39.70	172.83	102.65	1.32	135.85	2.02	0.81	0.81
39.78	164.63	97.07	1.35	130.75	2.04	0.80	0.80
39.90	157.35	92.05	1.37	126.28	2.06	0.79	0.79
39.99	149.05	86.44	1.41	121.65	2.09	0.79	0.79
40.09	141.42	81.31	1.45	117.75	2.12	0.78	0.78
40.18	133.79	76.23	1.50	114.33	2.15	0.77	0.77
40.23	126.04	71.16	1.56	111.30	2.18	0.77	0.77
40.33	118.01	65.88	1.65	108.90	2.22	0.76	0.76
40.43	110.12	60.74	1.76	107.17	2.25	0.76	0.76
40.52	101.85	55.31	1.95	107.68	2.31	0.76	0.76
40.61	92.44	49.44	2.15	106.53	2.36	0.76	0.76
40.69	80.59	42.14	2.54	106.96	2.43	0.76	0.76
40.80	68.65	35.01	3.03	106.21	2.51	0.76	0.76
40.87	59.91	29.84	3.59	107.20	2.58	0.76	0.76
40.95	53.47	26.09	4.12	107.50	2.64	0.76	0.76
40.97	51.37	24.94	4.24	105.79	2.65	0.76	0.76
41.01	54.31	26.70	3.81	101.77	2.61	0.75	0.75
41.07	61.80	31.20	3.04	94.92	2.51	0.74	0.74
41.15	67.40	34.61	2.61	90.47	2.44	0.73	0.73
41.26	67.13	34.39	2.61	89.74	2.44	0.73	0.73
41.35	63.05	31.86	2.87	91.40	2.48	0.73	0.73
41.47	60.28	30.09	3.10	93.27	2.52	0.74	0.74
41.59	59.67	29.62	3.18	94.19	2.53	0.74	0.74
41.69	60.42	29.94	3.18	95.29	2.53	0.74	0.74
41.78	59.17	29.08	3.36	97.63	2.55	0.74	0.74
41.88	54.75	26.41	3.82	100.94	2.61	0.75	0.75
41.98	49.45	23.32	4.43	103.21	2.67	0.75	0.75
42.08	45.13	20.88	4.96	103.54	2.72	0.75	0.75
42.16	44.32	20.43	4.99	102.01	2.73	0.75	0.75
42.24	47.12	21.98	4.53	99.69	2.68	0.75	0.75
42.31	52.25	24.86	3.91	97.23	2.62	0.74	0.74
42.45	56.94	27.44	3.48	95.61	2.57	0.74	0.74
42.55	59.37	28.78	3.30	94.91	2.54	0.74	0.74
42.60	59.78	28.96	3.29	95.14	2.54	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.70	59.34	28.59	3.38	96.60	2.55	0.74	0.74
42.81	57.38	27.33	3.64	99.43	2.59	0.75	0.75
42.89	53.57	25.06	4.12	103.15	2.64	0.75	0.75
42.98	48.27	22.02	4.84	106.61	2.71	0.76	0.76
43.08	43.14	19.16	5.69	108.99	2.79	0.76	0.76
43.17	40.44	17.68	6.18	109.35	2.83	0.76	0.76
43.27	41.05	18.01	5.94	107.03	2.81	0.76	0.76
43.37	43.81	19.71	4.84	95.48	2.71	0.74	0.74
43.50	46.82	21.62	3.86	83.44	2.61	0.71	0.71
43.61	48.54	22.85	3.24	73.95	2.54	0.35	0.69
43.74	49.31	23.16	3.25	75.29	2.54	0.39	0.70
43.79	49.31	22.99	3.44	79.06	2.56	0.54	0.71
43.86	48.47	22.31	3.79	84.59	2.60	0.72	0.72
43.94	47.05	21.30	4.28	91.16	2.66	0.73	0.73
44.00	44.89	19.92	4.92	98.08	2.72	0.74	0.74
44.08	42.33	18.39	5.62	103.37	2.78	0.75	0.75
44.17	38.85	16.48	6.45	106.26	2.85	0.76	0.76
44.27	35.44	14.71	7.14	105.00	2.90	0.76	0.76
44.42	34.16	14.09	7.15	100.72	2.90	0.75	0.75
44.52	37.10	15.69	6.06	95.03	2.82	0.74	0.74
44.61	44.15	19.52	4.49	87.72	2.68	0.72	0.72
44.71	51.91	23.77	3.51	83.46	2.57	0.71	0.71
44.85	56.66	26.27	3.19	83.87	2.53	0.72	0.72
44.95	57.30	26.40	3.34	88.11	2.55	0.72	0.72
45.09	54.98	24.92	3.69	92.06	2.59	0.73	0.73
45.19	50.09	22.17	4.29	95.00	2.66	0.74	0.74
45.33	43.44	18.53	5.31	98.48	2.76	0.75	0.75
45.42	37.17	15.25	6.56	100.02	2.85	0.75	0.75
45.57	34.20	13.74	7.18	98.64	2.90	0.75	0.75
45.68	32.58	12.98	7.29	94.66	2.91	0.74	0.74
45.81	30.45	12.02	7.30	87.72	2.91	0.72	0.72
45.92	26.54	9.26	8.96	82.93	3.01	0.26	0.66
46.05	22.29	7.59	10.87	82.51	3.11	0.33	0.54
46.16	19.32	6.43	13.40	86.12	3.23	0.32	0.46
46.17	17.73	5.82	14.71	85.57	3.28	0.32	0.42
46.23	17.46	5.70	14.75	84.09	3.28	0.30	0.41
46.29	16.85	5.46	15.02	82.02	3.29	0.28	0.39
46.34	16.04	5.15	15.32	78.81	3.31	0.26	0.37
46.42	15.30	4.85	15.44	74.90	3.31	0.22	0.35
46.48	14.90	4.69	15.10	70.80	3.30	0.19	0.34
46.52	14.69	4.61	14.73	67.86	3.28	0.17	0.33
46.60	14.56	4.55	14.47	65.79	3.27	0.16	0.32
46.67	14.49	4.51	14.23	64.21	3.26	0.15	0.32
46.74	14.45	4.49	14.03	63.02	3.25	0.14	0.32
46.82	14.42	4.47	13.84	61.88	3.25	0.14	0.32
46.88	14.19	4.37	13.96	61.07	3.25	0.13	0.31
46.96	14.10	4.33	13.99	60.61	3.25	0.13	0.31
47.06	13.97	4.27	14.16	60.52	3.26	0.13	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
47.15	14.11	4.31	14.15	61.03	3.26	0.13	0.31
47.24	14.43	4.42	14.72	65.10	3.28	0.14	0.32
47.35	16.18	5.07	14.87	75.39	3.29	0.20	0.36
47.49	19.69	6.36	12.67	80.67	3.20	0.35	0.45
47.58	24.11	8.00	10.33	82.65	3.09	0.29	0.57
47.73	26.03	8.69	9.32	80.95	3.03	0.30	0.62
47.83	27.06	9.05	9.05	81.84	3.02	0.33	0.65
47.87	26.18	8.71	9.55	83.19	3.04	0.32	0.62
47.89	26.93	8.98	9.14	82.12	3.02	0.32	0.64
47.94	26.64	8.87	9.20	81.59	3.02	0.31	0.63
48.02	26.81	8.91	9.08	80.90	3.02	0.31	0.64
48.07	26.40	8.75	9.26	81.07	3.03	0.31	0.63
48.12	25.97	8.58	9.61	82.45	3.05	0.31	0.61
48.18	25.43	8.37	10.05	84.09	3.07	0.34	0.60
48.26	25.01	8.20	10.42	85.42	3.09	0.34	0.59
48.31	24.60	8.04	10.54	84.77	3.10	0.34	0.57
48.38	24.56	8.01	10.30	82.58	3.08	0.31	0.57
48.46	24.71	8.05	9.85	79.31	3.06	0.29	0.58
48.52	24.41	7.93	9.58	75.99	3.05	0.26	0.57
48.60	23.16	7.46	9.70	72.40	3.05	0.23	0.53
48.68	20.77	6.57	10.59	69.64	3.10	0.19	0.47
48.74	18.20	5.63	12.04	67.76	3.17	0.18	0.40
48.82	15.94	4.80	14.01	67.24	3.25	0.17	0.34
48.89	14.56	4.29	15.49	66.41	3.31	0.17	0.31
48.99	13.82	4.01	16.21	64.98	3.34	0.16	0.29
49.05	13.65	3.94	15.85	62.48	3.32	0.14	0.28
49.12	13.51	3.89	15.38	59.74	3.31	0.12	0.28
49.18	13.55	3.89	14.70	57.20	3.28	0.11	0.28
49.27	13.75	3.96	14.08	55.71	3.26	0.10	0.28
49.32	13.92	4.01	13.56	54.42	3.24	0.10	0.29
49.42	13.55	3.87	13.92	53.88	3.25	0.09	0.28
49.48	13.11	3.71	14.46	53.63	3.27	0.09	0.26
49.56	13.01	3.66	14.76	54.09	3.28	0.09	0.26
49.66	13.28	3.75	14.73	55.25	3.28	0.10	0.27
49.76	13.68	3.89	14.49	56.33	3.27	0.11	0.28
49.85	14.06	4.01	13.46	54.00	3.23	0.11	0.29
49.99	14.87	4.29	11.96	51.28	3.17	0.06	0.31
50.09	14.43	4.12	11.90	49.07	3.16	0.08	0.29
50.21	13.82	3.89	12.94	50.39	3.21	0.08	0.28
50.24	13.21	3.68	13.72	50.47	3.24	0.08	0.26
50.29	13.59	3.81	13.05	49.66	3.21	0.08	0.27
50.38	13.69	3.83	12.73	48.82	3.20	0.07	0.27
50.47	13.39	3.72	13.00	48.36	3.21	0.07	0.27
50.52	12.98	3.57	13.61	48.61	3.24	0.07	0.26
50.62	13.01	3.58	13.73	49.09	3.24	0.07	0.26
50.66	13.15	3.62	13.70	49.58	3.24	0.08	0.26
50.76	13.28	3.66	13.70	50.11	3.24	0.08	0.26
50.83	14.13	3.95	12.99	51.29	3.21	0.08	0.28

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
50.91	14.30	4.00	13.34	53.36	3.23	0.09	0.29
51.00	15.61	4.45	12.42	55.29	3.19	0.11	0.32
51.06	17.36	5.06	11.27	56.99	3.13	0.11	0.36
51.15	17.67	5.15	11.86	61.08	3.16	0.13	0.37
51.24	16.35	4.68	14.43	67.57	3.27	0.18	0.33
51.31	12.88	3.47	21.69	75.27	3.51	0.23	0.25
51.39	18.55	5.43	14.77	80.15	3.28	0.29	0.39
51.48	32.14	11.43	7.23	82.64	2.90	0.71	0.71
51.58	35.38	12.78	6.83	87.30	2.87	0.72	0.72
51.68	27.82	8.59	10.70	91.85	3.10	0.45	0.61
51.77	17.84	5.13	19.49	100.06	3.45	0.43	0.37
51.90	36.80	11.62	9.16	106.47	3.02	0.53	0.83
52.01	74.42	30.49	3.61	110.20	2.58	0.77	0.77
52.11	128.50	57.50	2.11	121.05	2.34	0.78	0.78
52.26	161.87	74.64	1.77	131.90	2.25	0.80	0.80
52.30	209.17	100.78	1.45	146.55	2.12	0.82	0.82
52.33	248.44	124.60	1.31	162.63	2.00	0.84	0.84
52.35	302.93	158.50	1.21	192.22	1.87	0.88	0.88
52.40	347.53	187.07	1.12	209.95	1.78	0.90	0.90
52.45	381.51	208.63	1.04	216.58	1.72	0.90	0.90
52.50	415.58	229.89	1.00	229.89	1.69	0.92	0.92
52.55	447.33	248.98	1.00	248.98	1.67	0.93	0.93
52.60	486.53	273.15	1.00	273.15	1.63	0.96	0.96
52.65	516.02	289.64	1.00	289.64	1.60	0.97	0.97
52.71	531.14	297.95	1.00	297.95	1.57	0.98	0.98
52.77	541.83	303.79	1.00	303.79	1.53	0.98	0.98
52.82	558.50	312.99	1.00	312.99	1.51	0.99	0.99
52.88	578.13	323.84	1.00	323.84	1.48	1.00	1.00
52.93	592.07	331.46	1.00	331.46	1.46	1.00	1.00
52.98	605.70	338.95	1.00	338.95	1.46	1.01	1.01
53.03	608.64	340.39	1.00	340.39	1.46	1.01	1.01
53.08	608.27	340.01	1.00	340.01	1.46	1.01	1.01
53.12	601.01	335.78	1.00	335.78	1.47	1.00	1.00
53.17	598.22	333.99	1.00	333.99	1.46	1.00	1.00
53.23	600.71	335.19	1.00	335.19	1.45	1.00	1.00
53.28	596.23	332.45	1.00	332.45	1.47	1.00	1.00
53.37	588.50	327.80	1.00	327.80	1.48	1.00	1.00
53.42	584.11	325.17	1.00	325.17	1.50	1.00	1.00
53.46	586.81	326.50	1.00	326.50	1.52	1.00	1.00
53.53	599.03	333.09	1.00	333.09	1.53	1.00	1.00
53.61	597.34	331.84	1.00	331.84	1.56	1.00	1.00
53.62	582.26	323.39	1.00	323.39	1.60	1.00	1.00
53.65	574.05	318.67	1.00	318.67	1.60	0.99	0.99
53.67	571.35	317.12	1.00	317.12	1.61	0.99	0.99
53.70	583.83	323.95	1.00	323.95	1.59	1.00	1.00
53.74	582.83	323.26	1.00	323.26	1.60	1.00	1.00
53.76	583.81	323.74	1.00	323.74	1.60	1.00	1.00
53.80	581.08	322.06	1.00	322.06	1.59	0.99	0.99

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.84	577.81	320.07	1.00	320.07	1.59	0.99	0.99
53.90	578.23	320.12	1.00	320.12	1.58	0.99	0.99
53.91	570.20	315.61	1.00	315.61	1.59	0.99	0.99
53.95	573.64	317.38	1.00	317.38	1.58	0.99	0.99
53.96	579.94	320.83	1.00	320.83	1.58	0.99	0.99
53.98	601.06	332.48	1.00	332.48	1.56	1.00	1.00
53.99	602.95	333.50	1.00	333.50	1.56	1.00	1.00
54.01	592.15	327.46	1.00	327.46	1.57	1.00	1.00
54.02	579.33	320.31	1.00	320.31	1.58	0.99	0.99
54.03	553.15	305.74	1.00	305.74	1.61	0.98	0.98
54.04	504.84	276.21	1.00	276.21	1.67	0.96	0.96
54.05	452.17	241.19	1.08	260.14	1.75	0.94	0.94
54.09	422.63	221.81	1.15	254.46	1.79	0.94	0.94
54.10	421.59	220.94	1.15	254.57	1.80	0.94	0.94
54.13	421.89	221.06	1.15	254.64	1.80	0.94	0.94
54.14	420.96	220.34	1.16	254.59	1.80	0.94	0.94
54.19	422.82	221.19	1.16	255.77	1.80	0.94	0.94
54.19	428.79	224.52	1.15	258.95	1.80	0.94	0.94
54.24	439.22	231.86	1.12	259.93	1.77	0.94	0.94
54.29	456.97	245.94	1.02	249.88	1.71	0.94	0.94
54.33	474.10	261.31	1.00	261.31	1.64	0.95	0.95
54.38	494.95	272.80	1.00	272.80	1.57	0.96	0.96
54.39	512.70	282.62	1.00	282.62	1.53	0.96	0.96
54.43	529.13	291.66	1.00	291.66	1.52	0.97	0.97
54.48	543.10	299.32	1.00	299.32	1.44	0.98	0.98
54.52	556.66	306.76	1.00	306.76	1.36	0.98	0.98
54.58	573.87	316.20	1.00	316.20	1.26	0.99	0.99
54.62	587.13	323.46	1.00	323.46	1.28	1.00	1.00
54.65	604.44	333.00	1.00	333.00	1.29	1.00	1.00
54.67	623.33	343.41	1.00	343.41	1.30	1.01	1.01
54.71	658.15	362.60	1.00	362.60	1.28	1.02	1.02
54.77	679.34	374.21	1.00	374.21	1.20	1.03	1.03
54.81	702.99	387.19	1.00	387.19	1.11	1.04	1.04
54.85	704.07	387.70	1.00	387.70	1.04	1.04	1.04
54.86	709.13	390.48	1.00	390.48	1.06	1.04	1.04
54.87	703.33	387.26	1.00	387.26	1.09	1.04	1.04
54.91	703.66	387.35	1.00	387.35	1.13	1.04	1.04
54.96	707.14	389.17	1.00	389.17	1.16	1.04	1.04
55.00	703.19	386.89	1.00	386.89	1.18	1.04	1.04
55.01	695.84	382.82	1.00	382.82	1.19	1.04	1.04
55.05	679.11	373.47	1.00	373.47	1.21	1.03	1.03
55.10	651.07	357.87	1.00	357.87	1.24	1.02	1.02
55.12	603.77	331.72	1.00	331.72	1.29	1.00	1.00
55.13	570.97	313.58	1.00	313.58	1.33	0.99	0.99
55.14	563.11	309.22	1.00	309.22	1.33	0.98	0.98
55.19	576.91	316.75	1.00	316.75	1.31	0.99	0.99
55.20	576.27	316.38	1.00	316.38	1.31	0.99	0.99
55.25	562.13	308.48	1.00	308.48	1.33	0.98	0.98

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.29	546.07	299.55	1.00	299.55	1.37	0.98	0.98
55.33	519.69	284.92	1.00	284.92	1.42	0.97	0.97
55.38	481.16	263.59	1.00	263.59	1.52	0.95	0.95
55.48	439.32	240.38	1.00	240.38	1.63	0.93	0.93
55.57	411.39	218.55	1.04	227.87	1.73	0.92	0.92
55.63	398.09	206.42	1.15	237.94	1.80	0.92	0.92
55.72	402.04	206.08	1.19	244.53	1.83	0.93	0.93
55.80	431.09	221.88	1.17	260.68	1.82	0.95	0.95
55.86	480.55	259.76	1.00	259.76	1.67	0.94	0.94
55.97	527.85	288.32	1.00	288.32	1.51	0.97	0.97
56.01	560.55	306.20	1.00	306.20	1.34	0.98	0.98
56.06	587.84	186.61	1.00	186.61	1.50	0.87	0.87
56.11	613.11	194.57	1.00	194.57	1.50	0.88	0.88
56.15	640.71	203.27	1.00	203.27	1.51	0.89	0.89
56.20	660.92	209.60	1.00	209.60	1.52	0.90	0.90
56.27	663.16	210.15	1.00	210.15	1.53	0.90	0.90
56.27	664.17	210.45	1.00	210.45	1.56	0.90	0.90
56.30	642.20	203.39	1.00	203.39	1.61	0.89	0.89
56.33	649.54	205.64	1.00	205.64	1.64	0.89	0.89
56.35	647.65	205.00	1.00	205.00	1.66	0.89	0.89
56.40	667.86	211.31	1.00	211.31	1.64	0.90	0.90
56.41	669.34	211.76	1.00	211.76	1.64	0.90	0.90
56.44	681.53	215.53	1.00	215.53	1.63	0.90	0.90
56.49	695.19	219.75	1.00	219.75	1.62	0.91	0.91
56.54	717.49	226.71	1.00	226.71	1.61	0.91	0.91
56.58	737.23	232.85	1.00	232.85	1.61	0.92	0.92
56.59	750.18	236.93	1.00	236.93	1.61	0.92	0.92
56.64	757.34	239.07	1.00	239.07	1.60	0.93	0.93
56.69	764.80	241.29	1.00	241.29	1.60	0.93	0.93
56.73	778.16	245.40	1.00	245.40	1.59	0.93	0.93
56.78	778.56	245.38	1.00	245.38	1.58	0.93	0.93
56.83	759.53	239.22	1.00	239.22	1.58	0.93	0.93
56.88	731.80	230.32	1.00	230.32	1.58	0.92	0.92
56.89	708.89	223.03	1.00	223.03	1.60	0.91	0.91
56.95	692.53	217.71	1.00	217.71	1.59	0.91	0.91
57.01	668.00	209.81	1.00	209.81	1.59	0.90	0.90
57.07	645.94	202.70	1.00	202.70	1.58	0.89	0.89
57.11	619.45	194.25	1.00	194.25	1.52	0.88	0.88
57.17	598.63	187.56	1.00	187.56	1.46	0.87	0.87
57.26	574.07	179.66	1.00	179.66	1.37	0.86	0.86
57.31	547.05	171.06	1.00	171.06	1.43	0.85	0.85
57.37	520.16	162.50	1.00	162.50	1.45	0.84	0.84
57.45	490.27	152.96	1.00	152.96	1.51	0.83	0.83
57.51	451.30	140.63	1.00	140.63	1.55	0.81	0.81
57.53	421.54	131.27	1.00	131.27	1.59	0.80	0.80
57.59	401.40	124.87	1.00	124.87	1.62	0.79	0.79
57.63	398.96	124.05	1.00	124.05	1.62	0.79	0.79
57.68	391.51	121.66	1.00	121.66	1.63	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
57.73	386.48	120.01	1.00	120.01	1.64	0.78	0.78
57.78	379.02	117.62	1.00	117.62	1.65	0.78	0.78
57.86	359.96	111.55	1.00	111.55	1.66	0.77	0.77
57.92	326.32	100.97	1.00	100.97	1.71	0.75	0.75
57.98	290.83	89.82	1.00	89.82	1.76	0.73	0.73
58.06	263.33	81.16	1.18	95.51	1.82	0.74	0.74
58.12	242.92	74.75	1.24	92.39	1.90	0.73	0.73
58.21	222.41	68.28	1.30	88.73	1.99	0.73	0.73
58.26	204.43	62.64	1.37	85.71	2.06	0.72	0.72
58.35	180.37	55.10	1.48	81.38	2.14	0.65	0.71
58.41	154.93	47.15	1.59	74.91	2.19	0.38	0.70
58.50	122.84	37.13	1.90	70.73	2.29	0.27	0.69
58.56	98.18	29.45	2.28	67.27	2.38	0.20	0.68
58.64	77.90	23.14	3.23	74.61	2.53	0.37	0.69
58.73	63.67	18.70	4.34	81.15	2.66	0.64	0.71
58.80	51.12	14.80	5.89	87.16	2.80	0.72	0.72
58.84	42.24	12.04	7.59	91.44	2.93	0.73	0.73
58.85	43.79	12.52	7.27	91.06	2.90	0.73	0.73
58.93	50.50	14.59	6.00	87.49	2.81	0.72	0.72
58.98	58.12	16.94	4.87	82.49	2.72	0.71	0.71
59.02	61.77	18.06	4.38	79.02	2.67	0.54	0.70
59.12	63.39	18.54	4.19	77.74	2.65	0.48	0.70
59.17	65.41	19.15	4.09	78.34	2.64	0.51	0.70
59.27	67.33	19.73	4.06	80.06	2.63	0.59	0.71
59.31	67.64	19.81	4.15	82.31	2.64	0.71	0.71
59.41	64.84	18.93	4.46	84.40	2.68	0.72	0.72
59.46	57.99	16.81	5.11	85.91	2.74	0.72	0.72
59.55	48.77	13.96	6.20	86.53	2.83	0.72	0.72
59.65	39.66	11.14	7.37	82.12	2.91	0.70	0.71
59.70	34.25	9.47	8.28	78.48	2.97	0.51	0.70
59.80	32.07	8.80	8.61	75.77	2.99	0.41	0.70
59.89	32.04	8.78	9.03	79.29	3.01	0.30	0.63
59.94	31.04	8.47	9.76	82.68	3.06	0.33	0.60
60.01	30.35	8.25	10.33	85.21	3.09	0.36	0.59
60.02	32.64	8.95	9.57	85.70	3.04	0.36	0.64
60.08	35.54	9.83	8.61	84.70	2.99	0.72	0.72
60.12	36.56	10.14	8.23	83.40	2.97	0.71	0.71
60.17	32.87	9.01	9.03	81.32	3.01	0.34	0.64
60.27	28.56	7.68	10.03	76.99	3.07	0.27	0.55
60.31	24.81	6.53	11.00	71.83	3.12	0.21	0.47
60.37	22.21	5.73	11.72	67.16	3.15	0.19	0.41
60.46	20.93	5.33	12.03	64.16	3.17	0.15	0.38
60.51	20.76	5.28	11.57	61.05	3.15	0.14	0.38
60.61	21.43	5.48	10.86	59.48	3.11	0.13	0.39
60.65	21.84	5.60	10.44	58.49	3.09	0.13	0.40
60.75	22.18	5.70	10.27	58.52	3.08	0.13	0.41
60.81	22.25	5.72	10.24	58.52	3.08	0.13	0.41
60.89	22.21	5.70	10.20	58.14	3.08	0.13	0.41

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
60.94	22.45	5.77	10.12	58.37	3.07	0.12	0.41
61.03	22.62	5.81	10.19	59.27	3.08	0.13	0.42
61.09	22.65	5.82	10.23	59.56	3.08	0.14	0.42
61.19	22.38	5.74	10.30	59.09	3.08	0.13	0.41
61.24	22.96	5.91	9.90	58.48	3.06	0.12	0.42
61.33	24.51	6.37	9.35	59.55	3.03	0.14	0.46
61.38	24.20	6.28	10.50	65.92	3.09	0.15	0.45
61.47	23.16	5.95	12.35	73.50	3.18	0.24	0.43
61.53	21.88	5.56	14.59	81.14	3.28	0.29	0.40
61.62	27.61	7.29	11.24	81.97	3.13	0.33	0.52
61.70	44.48	12.39	6.68	82.73	2.86	0.71	0.71
61.77	66.81	19.14	4.44	84.93	2.67	0.72	0.72
61.86	81.96	23.70	3.78	89.66	2.60	0.73	0.73
61.95	81.02	23.39	4.06	94.89	2.63	0.74	0.74
61.97	72.62	20.85	4.65	96.91	2.69	0.74	0.74
62.01	62.36	17.75	5.62	99.66	2.78	0.75	0.75
62.10	52.17	14.66	6.77	99.23	2.87	0.75	0.75
62.24	55.41	15.61	5.76	89.92	2.79	0.73	0.73
62.34	87.70	25.31	2.83	71.54	2.48	0.29	0.69
62.49	127.58	37.26	1.74	64.77	2.25	0.17	0.67
62.54	164.52	48.34	1.44	69.68	2.11	0.25	0.68
62.66	181.39	53.35	1.37	73.33	2.07	0.34	0.69
62.74	199.68	58.78	1.33	77.94	2.02	0.49	0.70
62.87	211.65	62.29	1.30	80.99	1.99	0.63	0.71
62.92	217.18	63.92	1.29	82.65	1.98	0.71	0.71
63.03	219.18	64.44	1.29	83.41	1.98	0.71	0.71
63.15	218.06	64.03	1.30	83.38	1.99	0.71	0.71
63.26	213.11	62.49	1.32	82.35	2.01	0.71	0.71
63.37	206.70	60.51	1.34	80.92	2.03	0.63	0.71
63.45	200.15	58.51	1.34	78.49	2.04	0.51	0.70
63.54	197.59	57.70	1.32	76.31	2.02	0.43	0.70
63.61	190.30	55.49	1.33	73.61	2.02	0.34	0.69
63.69	172.04	50.02	1.39	69.47	2.08	0.24	0.68
63.79	141.71	40.98	1.65	67.77	2.22	0.21	0.68
63.89	106.15	30.39	2.20	66.74	2.36	0.19	0.67
63.98	75.22	21.20	3.37	71.48	2.55	0.29	0.69
64.07	53.15	14.65	4.91	71.91	2.72	0.30	0.69
64.15	39.12	10.48	7.30	76.48	2.91	0.44	0.70
64.23	29.98	7.77	10.00	77.68	3.07	0.27	0.56
64.26	25.15	6.34	12.34	78.26	3.18	0.27	0.45
64.29	23.57	5.87	13.31	78.14	3.22	0.26	0.42
64.33	23.37	5.81	12.89	74.86	3.21	0.26	0.41
64.43	22.99	5.69	12.43	70.78	3.19	0.19	0.41
64.47	22.29	5.48	12.05	66.07	3.17	0.17	0.39
64.53	21.82	5.34	12.01	64.15	3.17	0.16	0.38
64.62	20.60	4.98	12.74	63.40	3.20	0.15	0.36
64.72	19.12	4.53	13.95	63.23	3.25	0.15	0.32
64.78	18.00	4.20	15.17	63.74	3.30	0.15	0.30

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
64.86	18.21	4.26	15.26	65.01	3.30	0.16	0.30
64.96	18.78	4.42	15.44	68.31	3.31	0.18	0.32
65.06	19.22	4.55	15.74	71.61	3.32	0.21	0.32
65.11	19.22	4.55	16.41	74.58	3.34	0.23	0.32
65.21	18.85	4.43	17.13	75.90	3.37	0.24	0.32
65.31	18.45	4.31	17.70	76.26	3.39	0.24	0.31
65.40	18.28	4.25	17.10	72.77	3.37	0.23	0.30
65.50	18.58	4.34	15.67	67.97	3.32	0.16	0.31
65.58	19.02	4.46	14.15	63.13	3.26	0.14	0.32
65.68	19.05	4.47	13.69	61.17	3.24	0.14	0.32
65.78	17.67	4.06	14.89	60.45	3.29	0.13	0.29
65.84	16.40	3.69	16.19	59.69	3.34	0.13	0.26
65.86	15.56	3.44	17.33	59.62	3.38	0.12	0.25
65.87	16.51	3.72	15.97	59.36	3.33	0.12	0.27
65.98	17.26	3.93	15.03	59.09	3.29	0.12	0.28
66.10	17.84	4.09	14.69	60.13	3.28	0.12	0.29
66.21	18.21	4.20	14.85	62.32	3.29	0.14	0.30
66.34	18.48	4.27	14.76	63.01	3.28	0.16	0.31
66.48	19.00	4.42	14.39	63.55	3.27	0.13	0.32
66.62	18.46	4.25	14.69	62.45	3.28	0.15	0.30
66.68	18.67	4.31	14.87	64.07	3.29	0.14	0.31
66.87	18.92	4.37	15.53	67.94	3.31	0.16	0.31
66.96	19.16	4.44	16.65	73.89	3.35	0.23	0.32
67.11	18.25	4.17	18.76	78.15	3.42	0.27	0.30
67.21	16.83	3.75	20.42	76.60	3.47	0.26	0.27
67.35	16.22	3.57	20.50	73.18	3.48	0.19	0.26
67.45	16.16	3.55	21.95	77.86	3.52	0.19	0.25
67.59	27.42	6.79	13.06	88.71	3.21	0.37	0.49
67.68	77.39	21.19	3.95	83.67	2.62	0.72	0.72
67.83	159.77	44.89	1.66	74.68	2.22	0.38	0.69
67.92	241.25	68.29	1.30	88.64	1.99	0.73	0.73
68.02	283.19	80.28	1.24	99.35	1.90	0.75	0.75
68.07	299.01	84.78	1.22	103.71	1.88	0.75	0.75
68.16	305.70	86.62	1.22	105.26	1.87	0.76	0.76
68.26	310.93	88.04	1.21	106.54	1.86	0.76	0.76
68.35	307.75	87.05	1.22	106.44	1.88	0.76	0.76
68.45	299.96	84.74	1.24	105.37	1.91	0.76	0.76
68.55	291.49	82.23	1.26	103.72	1.94	0.75	0.75
68.65	271.72	76.50	1.29	98.57	1.98	0.75	0.75
68.78	253.59	71.23	1.32	94.35	2.02	0.74	0.74
68.78	238.18	66.83	1.36	90.91	2.05	0.73	0.73
68.79	234.24	65.70	1.37	89.70	2.06	0.73	0.73
68.83	237.70	66.66	1.34	89.08	2.03	0.73	0.73
68.93	243.69	68.30	1.30	88.59	1.99	0.73	0.73
68.98	253.54	71.08	1.25	89.18	1.93	0.73	0.73
69.04	257.79	72.25	1.23	89.05	1.89	0.73	0.73
69.12	259.28	72.61	1.23	89.10	1.89	0.73	0.73
69.22	255.36	71.43	1.24	88.23	1.90	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
69.28	247.73	69.22	1.25	86.25	1.91	0.72	0.72
69.36	237.41	66.24	1.26	83.22	1.93	0.71	0.71
69.45	223.58	62.26	1.27	79.21	1.95	0.55	0.71
69.60	210.12	58.37	1.29	75.34	1.98	0.40	0.70
69.70	198.18	54.94	1.31	72.05	2.01	0.30	0.69
69.80	193.42	53.54	1.32	70.68	2.01	0.27	0.69
69.89	192.07	53.12	1.32	70.30	2.02	0.26	0.68
69.98	190.15	52.53	1.33	69.82	2.02	0.25	0.68
70.08	181.88	50.15	1.35	67.53	2.04	0.21	0.68
70.18	159.82	43.89	1.45	63.51	2.12	0.15	0.67
70.32	124.32	33.85	1.81	61.16	2.27	0.12	0.66
70.42	84.31	22.56	2.96	66.77	2.50	0.20	0.68
70.54	51.82	13.41	5.53	74.19	2.77	0.36	0.69
70.66	31.85	7.79	9.69	75.54	3.05	0.25	0.56
70.75	23.52	5.45	13.34	72.70	3.23	0.21	0.39
70.80	21.80	4.97	13.43	66.71	3.23	0.18	0.35
70.89	22.64	5.20	11.52	59.87	3.14	0.12	0.37
70.99	22.34	5.11	10.38	53.00	3.09	0.09	0.36
71.08	21.63	4.90	10.09	49.46	3.07	0.07	0.35
71.17	21.43	4.84	9.87	47.79	3.06	0.07	0.35
71.23	20.92	4.70	10.01	47.05	3.07	0.07	0.34
71.33	21.09	4.74	9.74	46.20	3.05	0.06	0.34
71.42	21.73	4.92	9.08	44.64	3.02	0.06	0.35
71.52	22.81	5.22	8.26	43.06	2.97	0.03	0.62
71.58	23.21	5.33	8.27	44.01	2.97	0.04	0.62
71.67	22.88	5.23	9.07	47.43	3.02	0.07	0.37
71.81	22.47	5.11	9.94	50.76	3.06	0.09	0.36
71.82	22.24	5.04	10.42	52.55	3.09	0.09	0.36
71.86	21.97	4.96	10.64	52.82	3.10	0.09	0.35
71.91	21.83	4.92	10.75	52.95	3.11	0.09	0.35
71.97	21.60	4.86	10.97	53.27	3.12	0.09	0.35
72.05	21.36	4.79	11.22	53.72	3.13	0.10	0.34
72.10	21.13	4.72	11.52	54.35	3.14	0.10	0.34
72.20	20.99	4.68	11.71	54.79	3.15	0.10	0.33
72.25	20.99	4.67	11.87	55.49	3.16	0.10	0.33
72.34	21.09	4.70	12.12	56.94	3.17	0.11	0.34
72.44	21.09	4.69	12.53	58.80	3.19	0.12	0.34
72.53	20.89	4.63	13.04	60.40	3.21	0.13	0.33
72.63	20.79	4.60	13.29	61.13	3.22	0.14	0.33
72.69	20.48	4.51	13.55	61.14	3.23	0.14	0.32
72.82	20.69	4.56	13.34	60.87	3.23	0.13	0.33
72.92	21.13	4.68	12.83	60.05	3.20	0.13	0.33
73.06	22.11	4.95	11.98	59.27	3.17	0.12	0.35
73.16	22.34	5.01	11.90	59.57	3.16	0.12	0.36
73.30	20.86	4.59	13.21	60.65	3.22	0.14	0.33
73.35	19.88	4.32	14.25	61.53	3.26	0.14	0.31
73.38	19.20	4.13	14.83	61.23	3.29	0.13	0.30
73.47	20.02	4.35	13.95	60.67	3.25	0.13	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
73.53	20.08	4.37	13.79	60.20	3.24	0.13	0.31
73.62	20.18	4.39	13.66	59.95	3.24	0.13	0.31
73.71	19.95	4.32	13.95	60.28	3.25	0.13	0.31
73.77	19.61	4.23	14.55	61.46	3.28	0.13	0.30
73.86	19.34	4.15	15.21	63.08	3.30	0.15	0.30
73.96	19.38	4.15	15.56	64.61	3.31	0.15	0.30
74.06	19.58	4.20	15.60	65.59	3.32	0.16	0.30
74.13	20.02	4.32	15.32	66.22	3.31	0.16	0.31
74.24	20.36	4.41	15.12	66.66	3.30	0.17	0.31
74.34	20.56	4.46	15.08	67.26	3.30	0.17	0.32
74.44	20.42	4.42	15.35	67.81	3.31	0.18	0.32
74.58	20.37	4.40	15.30	67.28	3.30	0.18	0.31
74.68	20.30	4.38	14.35	62.80	3.27	0.16	0.31
74.80	20.47	4.42	13.30	58.74	3.22	0.09	0.32
74.92	20.26	4.35	12.97	56.43	3.21	0.11	0.31
75.07	20.06	4.29	13.60	58.35	3.24	0.12	0.31
75.08	19.75	4.21	14.10	59.34	3.26	0.12	0.30
75.11	19.62	4.17	14.28	59.53	3.26	0.12	0.30
75.16	19.55	4.15	14.53	60.28	3.27	0.13	0.30
75.25	19.31	4.08	15.14	61.74	3.30	0.13	0.29
75.32	19.14	4.03	15.69	63.23	3.32	0.15	0.29
75.40	18.98	3.98	16.00	63.73	3.33	0.15	0.28
75.50	18.81	3.93	15.96	62.77	3.33	0.14	0.28
75.59	18.30	3.79	16.02	60.75	3.33	0.13	0.27
75.69	17.56	3.59	16.34	58.60	3.34	0.11	0.26
75.78	16.85	3.39	16.66	56.46	3.35	0.11	0.24
75.88	16.41	3.27	16.73	54.66	3.36	0.10	0.23
75.96	16.11	3.18	16.62	52.90	3.35	0.09	0.23
76.05	16.04	3.16	16.34	51.65	3.34	0.08	0.23
76.14	15.97	3.14	16.25	51.00	3.34	0.08	0.22
76.26	16.07	3.16	16.16	51.09	3.34	0.08	0.23
76.36	16.07	3.16	16.26	51.38	3.34	0.08	0.23
76.41	16.07	3.16	16.31	51.50	3.34	0.08	0.23
76.51	15.84	3.09	16.56	51.17	3.35	0.08	0.22
76.65	15.50	2.99	17.04	51.04	3.37	0.08	0.21
76.72	15.26	2.93	17.45	51.12	3.38	0.08	0.21
76.79	15.16	2.90	17.72	51.39	3.39	0.08	0.21
76.89	15.23	2.91	18.36	53.53	3.41	0.08	0.21
76.98	15.47	2.98	20.80	61.89	3.48	0.11	0.21
77.08	18.00	3.65	19.05	69.60	3.43	0.21	0.26
77.18	22.18	4.77	16.19	77.29	3.34	0.23	0.34
77.28	26.73	5.99	14.06	84.26	3.26	0.29	0.43
77.37	27.88	6.30	14.87	93.62	3.29	0.40	0.45
77.42	28.76	6.53	15.41	100.64	3.31	0.49	0.47
77.42	30.22	6.92	15.09	104.44	3.30	0.50	0.49
77.44	34.00	7.94	13.49	107.05	3.23	0.53	0.57
77.48	37.40	8.85	12.47	110.31	3.19	0.60	0.63
77.52	40.61	9.70	11.65	113.00	3.15	0.64	0.69

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
77.54	42.94	10.33	11.08	114.44	3.12	0.66	0.74
77.57	43.37	10.44	11.07	115.54	3.12	0.68	0.75
77.62	42.26	10.14	11.44	115.93	3.14	0.69	0.72
77.65	40.10	9.55	12.10	115.64	3.17	0.66	0.68
77.67	38.72	9.18	12.34	113.32	3.18	0.65	0.66
77.71	37.91	8.96	12.41	111.24	3.19	0.59	0.64
77.71	37.03	8.73	12.35	107.78	3.18	0.58	0.62
77.76	34.77	8.12	12.85	104.25	3.20	0.52	0.58
77.81	31.76	7.31	13.53	98.88	3.23	0.45	0.52
77.90	29.03	6.57	14.40	94.60	3.27	0.39	0.47
77.95	27.32	6.11	15.14	92.44	3.30	0.37	0.44
78.01	26.34	5.84	15.63	91.29	3.32	0.38	0.42
78.10	27.59	6.17	14.49	89.37	3.27	0.35	0.44
78.16	36.29	8.49	9.98	84.71	3.07	0.33	0.61
78.24	48.94	11.86	6.66	79.05	2.86	0.54	0.70
78.29	64.83	16.10	4.54	73.14	2.68	0.33	0.69
78.39	77.42	19.44	3.56	69.27	2.58	0.24	0.68
78.47	87.30	22.06	3.11	68.51	2.52	0.23	0.68
78.53	92.74	23.49	3.05	71.72	2.51	0.29	0.69
78.62	94.25	23.88	3.25	77.71	2.54	0.48	0.70
78.68	91.22	23.06	3.64	84.02	2.59	0.72	0.72
78.69	92.97	23.52	3.81	89.57	2.61	0.73	0.73
78.78	93.95	23.76	4.00	95.10	2.63	0.74	0.74
78.81	94.86	24.00	4.25	102.04	2.65	0.75	0.75
78.92	85.28	21.43	5.01	107.35	2.73	0.76	0.76
79.03	72.83	18.11	5.93	107.43	2.81	0.76	0.76
79.16	68.41	16.91	5.87	99.26	2.80	0.75	0.75
79.26	78.39	19.54	4.53	88.45	2.68	0.73	0.73
79.35	97.35	24.54	3.42	83.92	2.56	0.72	0.72
79.45	114.43	29.03	2.95	85.78	2.50	0.72	0.72
79.54	124.25	31.60	2.84	89.58	2.48	0.73	0.73
79.64	131.23	33.41	2.75	91.91	2.47	0.73	0.73
79.74	153.43	39.23	2.39	93.85	2.40	0.74	0.74
79.88	186.93	48.00	1.98	94.86	2.31	0.74	0.74
79.98	228.94	59.00	1.62	95.73	2.20	0.74	0.74
80.12	248.77	64.13	1.48	95.14	2.14	0.74	0.74
80.22	253.19	65.23	1.40	91.22	2.09	0.73	0.73
80.36	244.79	62.94	1.37	86.07	2.06	0.72	0.72
80.46	238.82	61.33	1.32	81.11	2.02	0.64	0.71
80.60	231.84	59.42	1.30	77.21	1.99	0.46	0.70
80.70	223.91	57.30	1.30	74.37	1.99	0.37	0.69
80.83	213.12	54.42	1.32	72.04	2.02	0.30	0.69
80.94	194.49	49.51	1.41	69.62	2.09	0.25	0.68
81.01	177.96	45.17	1.50	67.91	2.15	0.21	0.68
81.04	164.23	41.58	1.60	66.50	2.19	0.19	0.67
81.09	158.43	40.05	1.65	65.97	2.21	0.18	0.67
81.13	149.59	37.74	1.75	66.04	2.25	0.18	0.67
81.18	136.87	34.41	1.98	67.98	2.31	0.22	0.68

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
81.23	123.31	30.87	2.34	72.13	2.39	0.30	0.69
81.28	109.41	27.24	2.85	77.64	2.48	0.48	0.70
81.33	98.17	24.30	3.46	84.19	2.57	0.72	0.72
81.37	88.49	21.78	4.25	92.48	2.65	0.73	0.73
81.42	81.24	19.88	5.05	100.46	2.73	0.75	0.75
81.47	75.77	18.46	5.75	106.15	2.79	0.76	0.76
81.52	71.99	17.47	6.25	109.13	2.83	0.76	0.76
81.56	70.98	17.20	6.46	111.09	2.85	0.77	0.77
81.61	70.58	17.08	6.60	112.75	2.86	0.77	0.77
81.64	68.79	16.62	6.89	114.41	2.88	0.77	0.77
81.70	62.18	14.89	7.85	116.91	2.94	0.78	0.78
81.75	54.38	12.87	9.25	118.94	3.03	0.76	0.92
81.79	46.89	10.92	10.91	119.14	3.11	0.73	0.78
81.82	41.90	9.62	12.12	116.62	3.17	0.68	0.69
81.86	37.62	8.51	13.21	112.49	3.22	0.61	0.61
81.91	34.01	7.57	14.21	107.66	3.26	0.54	0.54
81.95	30.63	6.70	15.27	102.27	3.30	0.48	0.48
82.00	27.33	5.84	16.41	95.81	3.34	0.41	0.42
82.09	24.26	5.04	17.74	89.46	3.39	0.33	0.36
82.15	21.66	4.37	19.38	84.64	3.44	0.29	0.31
82.19	19.83	3.89	20.80	81.03	3.48	0.27	0.28
82.26	18.38	3.52	22.06	77.56	3.52	0.23	0.25
82.34	17.00	3.16	23.49	74.17	3.56	0.21	0.23
82.39	15.65	2.81	25.58	71.81	3.61	0.20	0.20
82.48	14.77	2.58	27.14	69.97	3.64	0.18	0.18
82.58	14.64	2.54	26.84	68.21	3.64	0.17	0.18
82.62	14.74	2.57	25.95	66.60	3.62	0.16	0.18
82.70	14.88	2.60	25.23	65.56	3.60	0.15	0.19
82.77	14.81	2.58	24.98	64.46	3.59	0.15	0.18
82.87	15.08	2.65	24.19	64.01	3.57	0.14	0.19
82.96	16.23	2.94	21.57	63.38	3.51	0.14	0.21
83.06	18.22	3.45	18.38	63.34	3.41	0.14	0.25
83.16	21.39	4.26	14.82	63.10	3.29	0.14	0.30
83.25	24.46	5.04	12.49	62.94	3.19	0.15	0.36
83.34	27.20	5.74	10.91	62.57	3.11	0.15	0.41
83.44	28.34	6.03	10.55	63.55	3.10	0.15	0.43
83.54	28.75	6.12	10.60	64.89	3.10	0.17	0.44
83.64	28.61	6.08	10.93	66.49	3.12	0.17	0.43
83.73	27.70	5.84	11.68	68.29	3.15	0.18	0.42
83.83	27.26	5.73	12.30	70.46	3.18	0.20	0.41
83.85	26.83	5.62	13.07	73.38	3.21	0.21	0.40
83.89	27.47	5.78	13.14	75.93	3.22	0.24	0.41
83.94	28.11	5.94	13.69	81.26	3.24	0.26	0.42
84.04	29.26	6.23	13.80	85.92	3.25	0.34	0.44
84.09	30.40	6.51	13.83	90.10	3.25	0.36	0.47
84.13	31.28	6.74	13.65	91.94	3.24	0.37	0.48
84.18	31.68	6.83	13.70	93.61	3.24	0.40	0.49
84.25	31.52	6.79	13.97	94.85	3.25	0.41	0.48

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
84.33	30.64	6.56	14.57	95.60	3.28	0.41	0.47
84.37	29.46	6.26	15.33	95.90	3.31	0.41	0.45
84.46	28.35	5.97	15.91	94.98	3.33	0.41	0.43
84.52	27.50	5.75	16.25	93.43	3.34	0.38	0.41
84.57	26.90	5.59	16.32	91.27	3.34	0.36	0.40
84.67	26.52	5.49	16.38	90.00	3.34	0.34	0.39
84.71	26.15	5.40	16.62	89.72	3.35	0.34	0.39
84.81	25.58	5.25	17.32	90.86	3.38	0.35	0.37
84.86	24.84	5.06	18.32	92.62	3.41	0.37	0.36
84.91	24.06	4.86	19.36	94.03	3.44	0.38	0.35
85.00	23.42	4.69	20.18	94.63	3.47	0.39	0.33
85.05	22.81	4.53	20.72	93.94	3.48	0.39	0.32
85.15	22.34	4.41	20.94	92.30	3.49	0.36	0.31
85.19	21.80	4.27	20.88	89.13	3.49	0.34	0.30
85.29	21.33	4.15	20.74	85.98	3.48	0.30	0.30
85.35	20.72	3.99	20.84	83.14	3.49	0.28	0.28
85.42	20.08	3.82	21.32	81.54	3.50	0.27	0.27
85.48	19.40	3.65	22.03	80.45	3.52	0.26	0.26
85.55	18.77	3.49	22.80	79.50	3.54	0.25	0.25
85.63	18.19	3.34	23.58	78.76	3.56	0.25	0.24
85.68	17.62	3.19	24.50	78.25	3.58	0.24	0.23
85.77	17.18	3.08	25.34	78.03	3.60	0.24	0.22
85.82	17.04	3.04	25.74	78.34	3.61	0.24	0.22
85.89	17.42	3.13	25.13	78.79	3.60	0.25	0.22
85.96	18.33	3.36	23.51	79.01	3.56	0.25	0.24
86.03	19.71	3.71	21.16	78.44	3.49	0.25	0.26
86.11	21.06	4.04	19.14	77.40	3.44	0.24	0.29
86.16	22.11	4.30	17.71	76.21	3.39	0.23	0.31
86.25	21.67	4.19	18.09	75.81	3.40	0.22	0.30
86.36	19.98	3.76	19.76	74.32	3.45	0.23	0.27
86.50	18.16	3.30	22.08	72.85	3.52	0.19	0.24
86.51	17.25	3.07	23.09	70.91	3.55	0.19	0.22
86.52	17.32	3.09	22.53	69.58	3.53	0.19	0.22
86.57	17.35	3.10	21.58	66.80	3.51	0.17	0.22
86.65	17.39	3.10	20.48	63.50	3.48	0.13	0.22
86.71	17.35	3.09	19.65	60.73	3.45	0.13	0.22
86.80	17.08	3.02	19.57	59.11	3.45	0.12	0.22
86.90	16.48	2.87	20.04	57.42	3.46	0.11	0.20
86.99	15.77	2.69	20.75	55.74	3.48	0.10	0.19
87.04	15.26	2.56	21.24	54.32	3.50	0.09	0.18
87.14	15.16	2.53	21.16	53.51	3.49	0.09	0.18
87.19	15.36	2.58	20.70	53.36	3.48	0.09	0.18
87.28	15.87	2.70	20.13	54.40	3.46	0.09	0.19
87.38	16.51	2.86	19.47	55.67	3.45	0.10	0.20
87.43	17.18	3.03	18.79	56.85	3.42	0.11	0.22
87.52	17.76	3.17	18.12	57.36	3.40	0.11	0.23
87.61	18.23	3.28	17.55	57.58	3.38	0.11	0.23
87.66	18.53	3.35	17.13	57.47	3.37	0.11	0.24

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
87.76	18.57	3.36	17.00	57.12	3.37	0.11	0.24
87.84	18.43	3.32	17.02	56.58	3.37	0.10	0.24
87.91	18.13	3.25	17.27	56.08	3.37	0.10	0.23
88.00	17.79	3.16	17.58	55.54	3.39	0.10	0.23
88.11	17.46	3.07	17.98	55.23	3.40	0.10	0.22
88.19	17.22	3.01	18.27	55.01	3.41	0.10	0.22
88.25	17.08	2.98	18.42	54.79	3.41	0.10	0.21
88.34	17.02	2.96	18.36	54.27	3.41	0.09	0.21
88.44	16.98	2.94	18.20	53.59	3.41	0.09	0.21
88.54	16.98	2.94	17.99	52.93	3.40	0.09	0.21
88.64	16.95	2.93	17.92	52.52	3.40	0.08	0.21
88.72	16.88	2.91	18.00	52.42	3.40	0.08	0.21
88.82	16.82	2.89	18.16	52.53	3.40	0.08	0.21
88.91	16.72	2.87	18.42	52.79	3.41	0.08	0.20
89.01	16.62	2.84	18.68	53.02	3.42	0.09	0.20
89.10	16.49	2.80	18.99	53.22	3.43	0.09	0.20
89.19	16.32	2.76	19.19	52.91	3.44	0.09	0.20
89.30	16.21	2.73	18.48	50.44	3.41	0.08	0.19
89.39	16.31	2.75	17.80	48.98	3.39	0.05	0.20
89.49	16.62	2.82	17.53	49.49	3.38	0.07	0.20
89.59	16.90	2.89	18.25	52.76	3.41	0.09	0.21
89.69	17.04	2.92	18.79	54.90	3.42	0.10	0.21
89.73	17.68	3.08	18.14	55.86	3.40	0.10	0.22
89.78	18.48	3.27	17.18	56.23	3.37	0.10	0.23
89.83	19.36	3.49	16.22	56.56	3.34	0.10	0.25
89.88	19.63	3.55	16.06	57.05	3.33	0.11	0.25
89.93	19.86	3.61	16.01	57.77	3.33	0.11	0.26
90.00	20.24	3.70	15.90	58.79	3.33	0.11	0.26
90.07	20.88	3.85	15.53	59.82	3.31	0.12	0.28
90.12	21.62	4.03	15.19	61.24	3.30	0.13	0.29
90.22	22.26	4.19	15.01	62.84	3.29	0.14	0.30
90.27	23.04	4.37	15.02	65.70	3.29	0.15	0.31
90.36	24.99	4.85	14.09	68.34	3.26	0.18	0.35
90.46	27.46	5.45	12.89	70.27	3.21	0.20	0.39
90.50	29.28	5.89	12.05	71.01	3.17	0.20	0.42
90.61	29.48	5.94	12.02	71.39	3.17	0.20	0.42
90.66	28.70	5.75	12.38	71.12	3.18	0.20	0.41
90.75	27.62	5.48	12.73	69.74	3.20	0.19	0.39
90.84	26.17	5.12	13.28	67.94	3.22	0.17	0.37
90.89	24.72	4.76	13.90	66.20	3.25	0.16	0.34
90.99	23.48	4.45	14.63	65.12	3.28	0.15	0.32
91.04	22.50	4.21	15.24	64.21	3.30	0.15	0.30
91.14	21.59	3.99	15.98	63.69	3.33	0.14	0.28
91.22	20.75	3.78	16.73	63.19	3.36	0.14	0.27
91.28	19.83	3.55	17.61	62.55	3.39	0.14	0.25
91.37	19.26	3.41	18.11	61.75	3.40	0.13	0.24
91.47	18.99	3.34	18.18	60.75	3.40	0.13	0.24
91.61	19.26	3.40	17.69	60.19	3.39	0.12	0.24

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
91.71	19.40	3.43	17.48	59.97	3.38	0.12	0.25
91.81	19.50	3.45	17.39	60.03	3.38	0.12	0.25
91.87	19.36	3.42	17.46	59.68	3.38	0.12	0.24
92.00	19.38	3.42	16.82	57.50	3.36	0.12	0.24
92.10	19.41	3.42	16.30	55.77	3.34	0.09	0.24
92.20	19.62	3.47	15.85	54.98	3.32	0.09	0.25
92.33	19.76	3.50	16.12	56.37	3.33	0.10	0.25
92.38	19.89	3.53	16.27	57.43	3.34	0.11	0.25
92.43	20.03	3.56	16.28	57.96	3.34	0.11	0.25
92.48	19.98	3.55	16.52	58.57	3.35	0.11	0.25
92.56	19.88	3.52	16.79	59.09	3.36	0.12	0.25
92.63	19.64	3.46	17.17	59.41	3.37	0.12	0.25
92.67	19.57	3.44	17.27	59.42	3.37	0.12	0.25
92.72	19.54	3.43	17.30	59.38	3.38	0.12	0.25
92.77	19.64	3.46	17.18	59.37	3.37	0.12	0.25
92.86	19.84	3.50	16.99	59.49	3.37	0.12	0.25
92.92	20.08	3.56	16.84	59.88	3.36	0.12	0.25
92.97	20.21	3.59	17.01	61.03	3.37	0.12	0.26
93.05	20.35	3.62	17.17	62.12	3.37	0.14	0.26
93.10	20.62	3.68	17.13	63.07	3.37	0.14	0.26
93.16	21.10	3.79	16.68	63.28	3.35	0.14	0.27
93.25	21.70	3.94	16.06	63.20	3.33	0.14	0.28
93.35	22.78	4.19	14.99	62.84	3.29	0.14	0.30
93.40	23.19	4.29	14.52	62.27	3.27	0.14	0.31
93.49	23.25	4.30	14.38	61.82	3.27	0.13	0.31
93.56	22.71	4.17	14.77	61.55	3.28	0.13	0.30
93.64	22.88	4.21	14.66	61.65	3.28	0.13	0.30
93.73	23.63	4.38	14.34	62.81	3.27	0.13	0.31
93.83	24.91	4.69	13.81	64.72	3.25	0.15	0.33
93.88	26.43	5.05	13.44	67.85	3.23	0.17	0.36
93.97	27.01	5.18	13.58	70.35	3.24	0.20	0.37
94.07	26.43	5.04	14.48	72.95	3.27	0.20	0.36
94.17	25.76	4.87	15.51	75.57	3.31	0.22	0.35
94.26	26.70	5.09	15.04	76.60	3.29	0.25	0.36
94.36	27.88	5.37	15.22	81.75	3.30	0.23	0.38
94.45	29.47	5.75	15.14	87.02	3.30	0.34	0.41
94.55	35.88	7.27	12.61	91.74	3.19	0.39	0.52
94.64	48.46	10.27	8.71	89.52	3.00	0.73	0.73
94.72	59.93	13.01	6.55	85.22	2.85	0.72	0.72
94.74	73.87	16.33	4.89	79.85	2.72	0.58	0.71
94.77	84.50	18.86	4.08	76.98	2.64	0.45	0.70
94.85	97.35	21.92	3.39	74.39	2.56	0.37	0.69
94.90	102.75	23.20	3.24	75.17	2.54	0.39	0.70
94.95	105.32	23.80	3.27	77.89	2.54	0.49	0.70
95.01	104.68	23.63	3.61	85.22	2.58	0.72	0.72
95.09	100.83	22.70	4.16	94.37	2.64	0.74	0.74
95.14	94.49	21.18	5.05	107.02	2.73	0.76	0.76
95.23	86.42	19.25	6.10	117.34	2.82	0.78	0.78

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
95.29	78.06	17.25	7.36	126.89	2.91	0.79	0.79
95.38	71.11	15.59	8.45	131.69	2.98	0.80	0.80
95.43	67.53	14.73	9.06	133.43	3.02	0.97	1.05
95.52	67.83	14.79	8.96	132.50	3.01	0.95	1.06
95.57	70.23	15.35	8.40	128.95	2.98	0.80	0.80
95.67	71.24	15.58	7.93	123.49	2.95	0.79	0.79
95.77	66.52	14.45	8.22	118.72	2.97	0.78	0.78
95.86	56.97	12.17	9.76	118.80	3.06	0.69	0.87
95.95	52.94	11.21	10.40	116.56	3.09	0.74	0.80
96.03	46.73	9.74	12.16	118.40	3.17	0.62	0.70
96.11	51.55	10.87	10.92	118.64	3.12	0.68	0.78
96.20	59.20	12.66	9.84	124.65	3.06	0.80	0.90
96.30	80.15	17.59	7.15	125.73	2.90	0.79	0.79
96.39	101.37	22.58	5.51	124.50	2.77	0.79	0.79
96.50	122.96	27.64	4.35	120.31	2.67	0.78	0.78
96.59	144.96	32.80	3.25	106.72	2.54	0.76	0.76
96.69	164.86	37.45	2.44	91.36	2.41	0.73	0.73
96.78	180.18	41.02	1.89	77.51	2.29	0.47	0.70
96.87	185.95	42.35	1.72	72.98	2.24	0.33	0.69
96.98	185.28	42.15	1.69	71.40	2.23	0.29	0.69
97.02	177.79	40.38	1.78	71.90	2.26	0.30	0.69
97.06	176.40	40.04	1.83	73.47	2.27	0.34	0.69
97.12	175.60	39.84	1.91	76.16	2.30	0.42	0.70
97.16	176.98	40.15	1.98	79.48	2.31	0.56	0.71
97.21	173.67	39.35	2.13	83.99	2.35	0.72	0.72
97.27	170.50	38.59	2.31	89.17	2.39	0.73	0.73
97.33	168.21	38.04	2.46	93.67	2.42	0.74	0.74
97.40	165.98	37.49	2.57	96.33	2.44	0.74	0.74
97.45	163.92	37.00	2.64	97.51	2.45	0.74	0.74
97.50	161.39	36.39	2.76	100.38	2.47	0.75	0.75
97.58	155.82	35.06	2.99	104.78	2.50	0.76	0.76
97.65	146.95	32.97	3.34	110.26	2.55	0.77	0.77
97.69	134.43	30.04	3.79	113.95	2.60	0.77	0.77
97.74	121.75	27.07	4.27	115.68	2.66	0.78	0.78
97.81	110.51	24.44	4.76	116.42	2.71	0.78	0.78
97.88	103.09	22.69	5.14	116.63	2.74	0.78	0.78
97.93	108.66	23.98	4.67	111.98	2.70	0.77	0.77
98.03	138.72	30.95	3.15	97.35	2.52	0.74	0.74
98.15	182.62	41.12	2.03	83.50	2.33	0.71	0.71
98.21	228.43	51.75	1.51	78.05	2.15	0.50	0.70
98.32	264.20	60.00	1.34	80.19	2.03	0.59	0.71
98.42	301.85	68.69	1.25	85.96	1.92	0.72	0.72
98.47	349.59	79.73	1.00	79.73	1.79	0.57	0.71
98.57	388.76	88.75	1.00	88.75	1.69	0.73	0.73
98.70	411.84	94.00	1.00	94.00	1.61	0.74	0.74
98.78	404.01	92.13	1.00	92.13	1.62	0.73	0.73
98.85	372.43	84.79	1.00	84.79	1.67	0.72	0.72
98.86	337.78	76.77	1.00	76.77	1.74	0.45	0.70

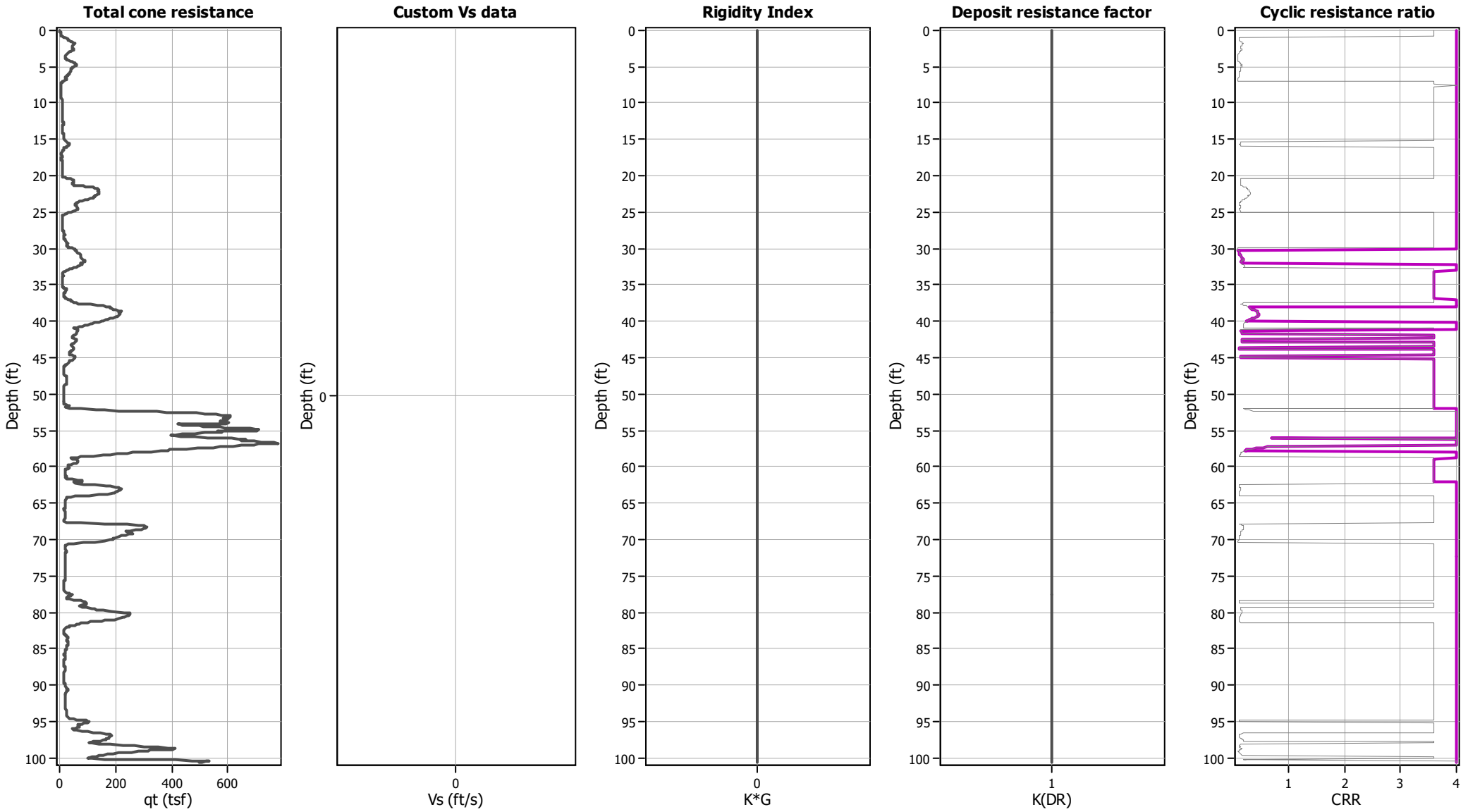
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
98.92	322.73	73.26	1.00	73.26	1.77	0.33	0.69
98.98	318.48	72.24	1.00	72.24	1.78	0.31	0.69
99.03	309.41	70.12	1.00	70.12	1.81	0.26	0.68
99.11	281.64	63.67	1.00	63.67	1.90	0.15	0.67
99.18	255.32	57.57	1.30	74.69	1.99	0.38	0.69
99.23	231.33	52.01	1.41	73.25	2.09	0.33	0.69
99.32	209.84	47.02	1.62	76.01	2.20	0.42	0.70
99.37	189.39	42.29	1.96	83.05	2.31	0.71	0.71
99.45	170.57	37.93	2.37	90.04	2.40	0.73	0.73
99.56	157.24	34.83	2.76	96.01	2.47	0.74	0.74
99.64	147.39	32.55	3.13	101.90	2.52	0.75	0.75
99.71	140.04	30.84	3.53	108.77	2.57	0.76	0.76
99.75	128.26	28.12	4.04	113.72	2.63	0.77	0.77
99.90	116.32	25.35	4.67	118.27	2.70	0.78	0.78
99.95	101.78	22.01	5.75	126.55	2.79	0.79	0.79
100.04	116.32	25.32	5.03	127.45	2.73	0.79	0.79
100.14	159.30	35.14	3.33	116.89	2.55	0.78	0.78
100.14	204.99	45.59	2.33	106.43	2.39	0.76	0.76
100.15	235.79	52.64	2.00	105.52	2.32	0.76	0.76
100.19	258.80	57.89	1.93	111.71	2.30	0.77	0.77
100.21	298.07	66.86	1.78	119.29	2.26	0.78	0.78
100.24	351.88	79.16	1.37	108.37	2.06	0.76	0.76
100.28	410.56	92.54	1.15	106.62	1.80	0.76	0.76
100.31	470.98	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.33	508.57	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.38	524.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.39	526.55	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.43	531.78	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.48	522.24	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.53	509.38	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.57	496.12	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.60	497.27	-1.00	1.00	-1.00	-1.00	0.00	0.00

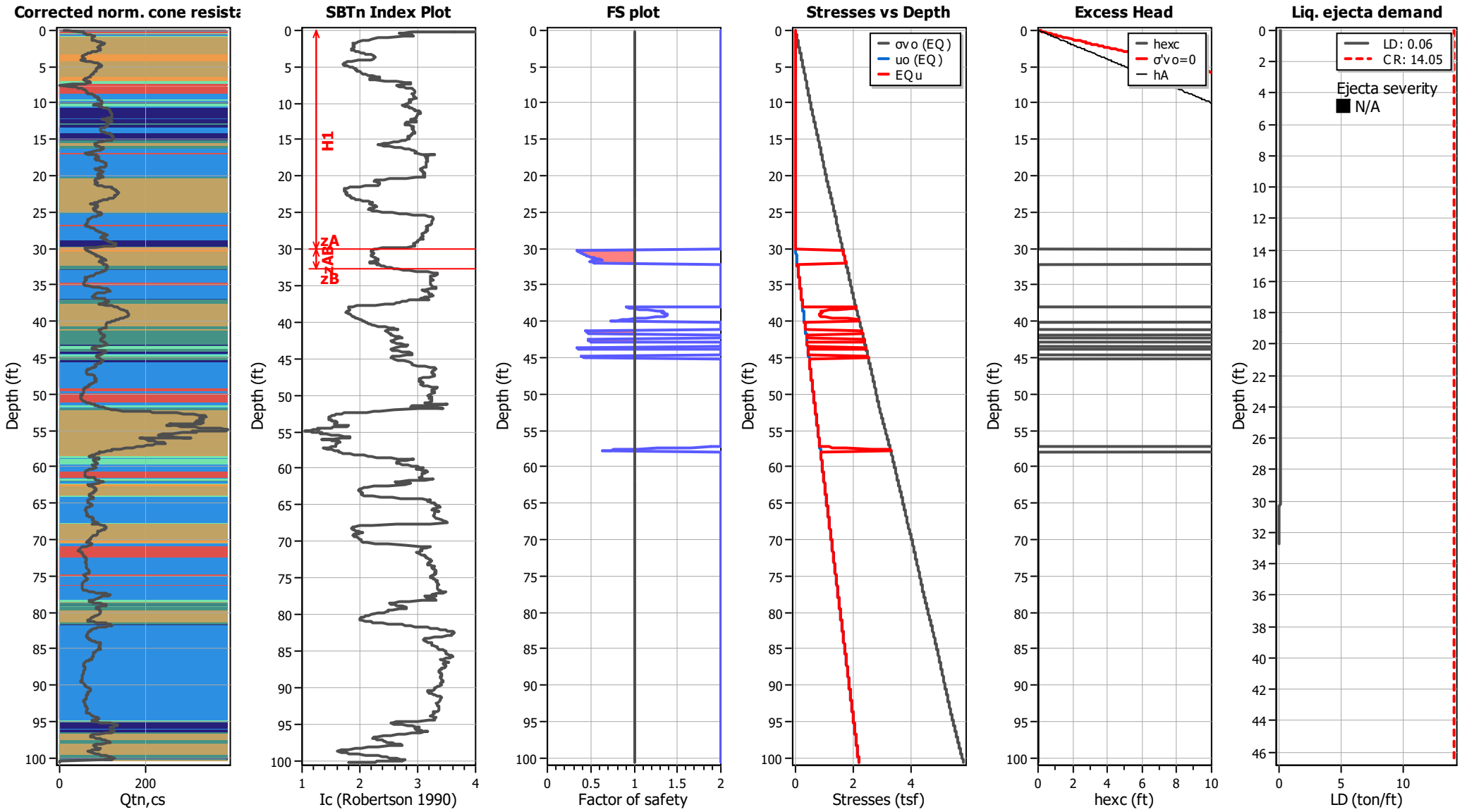
Abbreviations

q_t:	Total cone resistance
K_c:	Cone resistance correction factor due to fines
$Q_{tn,cs}$:	Adjusted and corrected cone resistance due to fines
I_c:	Soil behavior type index
$S_{u(liq)}/\sigma'_v$:	Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$:	Calculated peak undrained strength ratio

Aging Calculation Estimation

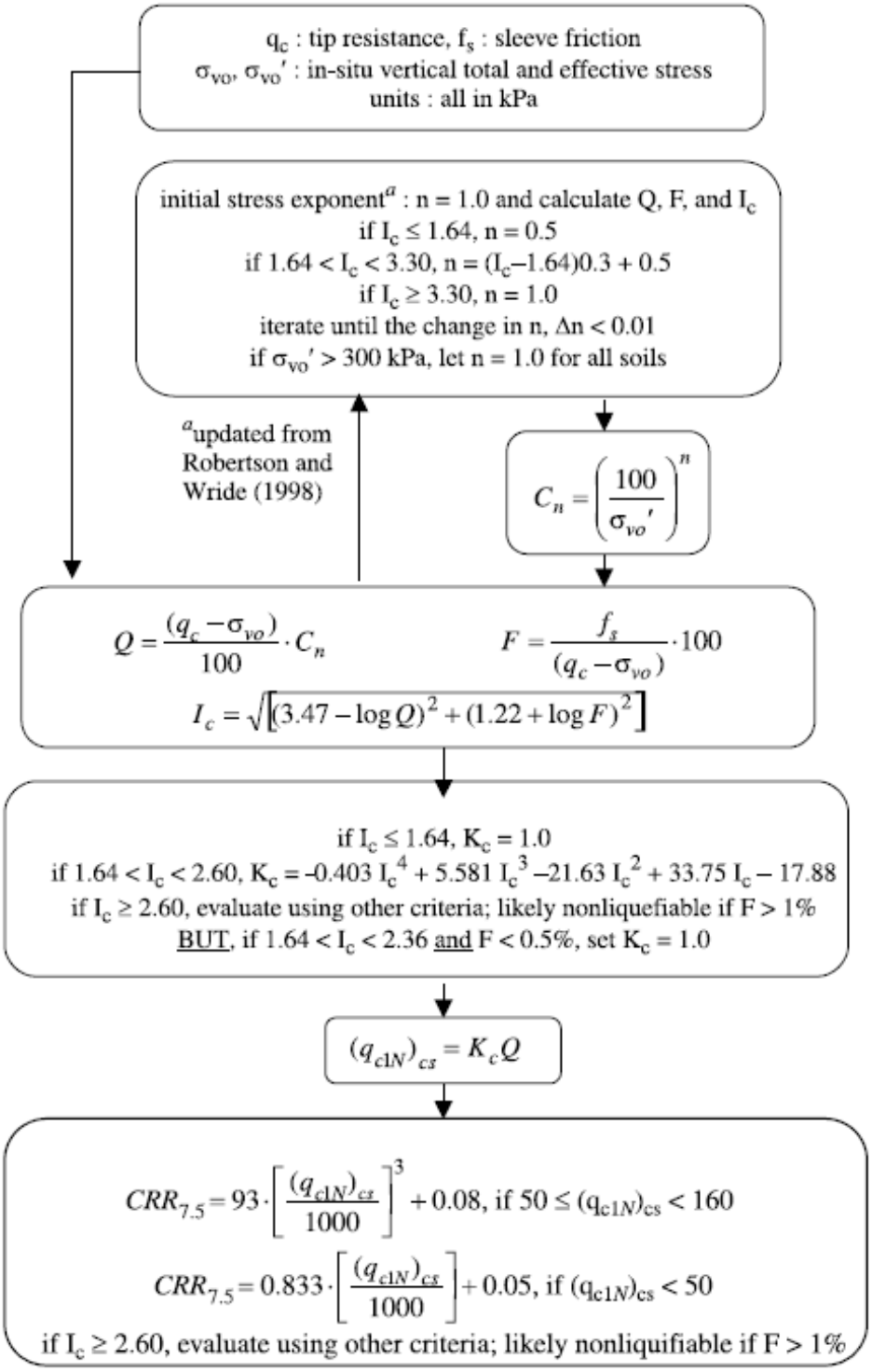


Ejecta Severity Estimation



Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

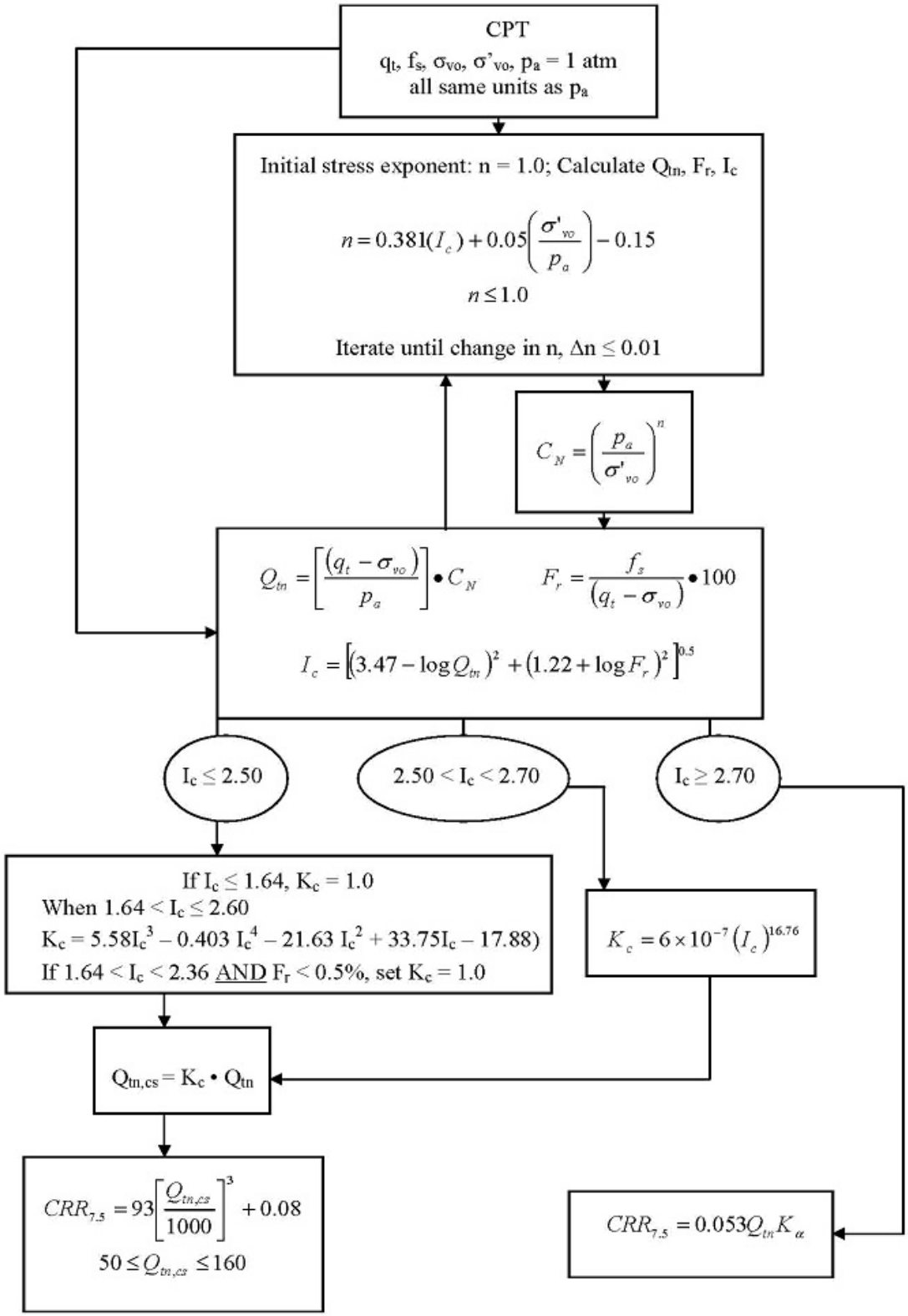
Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

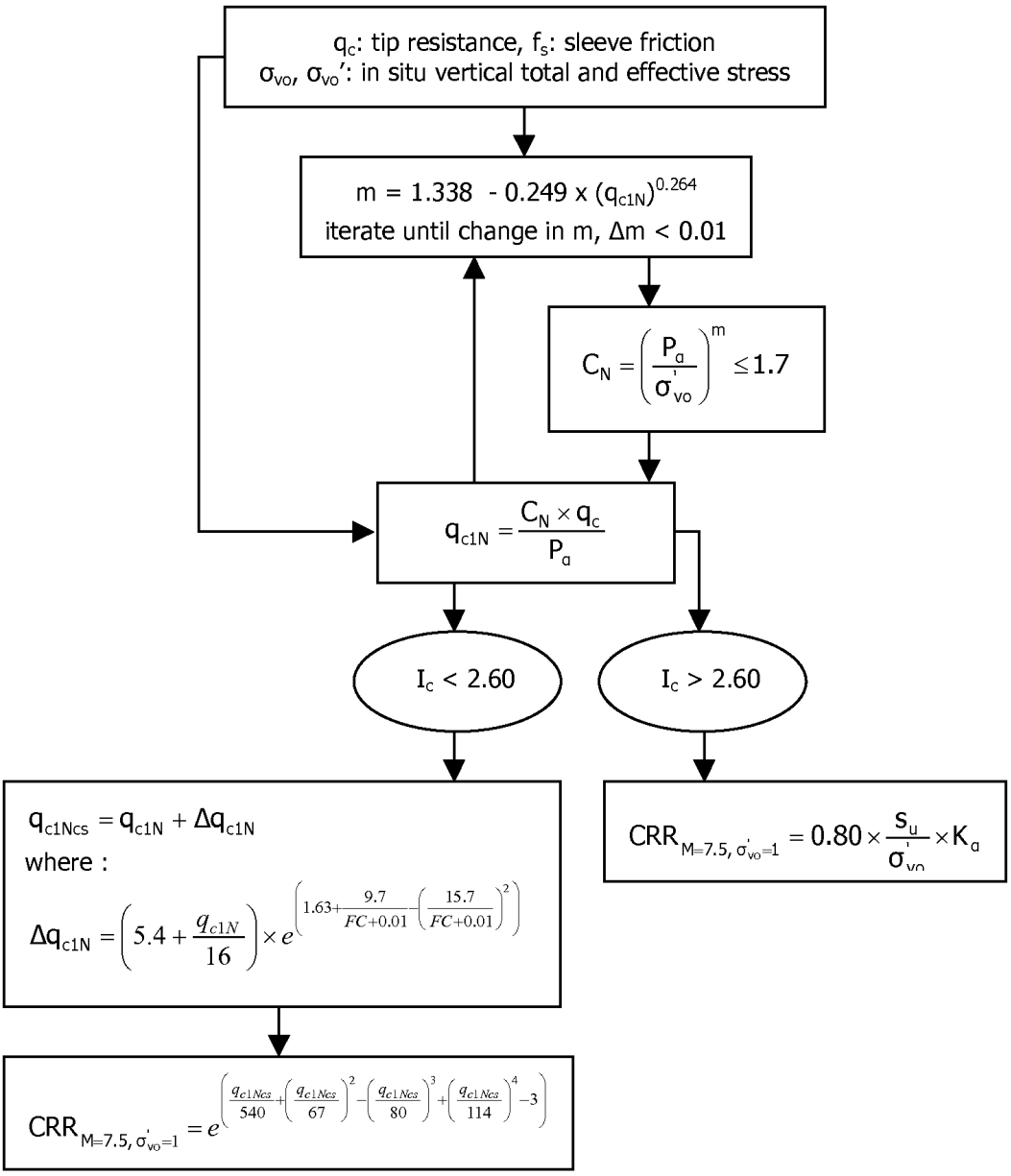
Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:

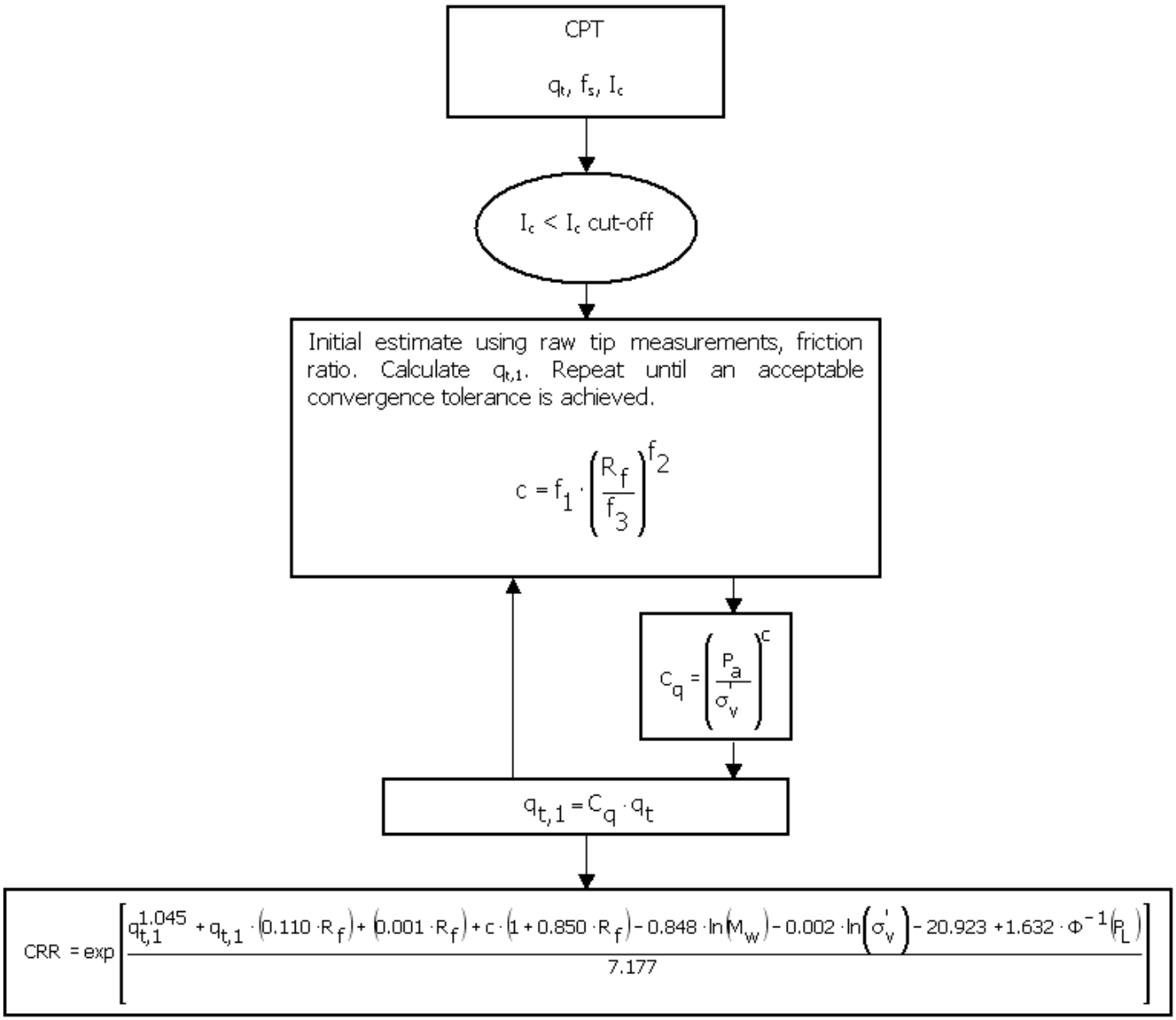


[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)

$$FS_{liq} = \frac{CRR_{M=7.5,\sigma'_v=1atm}}{CSR_{M=7.5,\sigma'_v=1atm}}$$

$$CSR_{M=7.5,\sigma'_v=1atm} = 0.65 \frac{\sigma_v}{\sigma'_v} \frac{a_{max}}{g} r_d \frac{1}{MSF} \frac{1}{K_\sigma}$$

$$r_d = \exp\left[\alpha(z) + \beta(z) \cdot M\right]$$

$$\alpha(z) = -1.012 - 1.126 \sin\left(\frac{z}{11.73} + 5.133\right)$$

$$\beta(z) = 0.106 + 0.118 \sin\left(\frac{z}{11.28} + 5.142\right)$$

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_v}{P_a}\right) \le 1.1$$

$$C_\sigma = \frac{1}{37.3 - 8.27\left(q_{c1Ncs}\right)^{0.264}} \le 0.3$$

$$MSF = 1 + \left(MSF_{max} - 1\right)\left(8.64 \exp\left(\frac{-M}{4}\right) - 1.325\right)$$

$$MSF_{max} = 1.09 + \left(\frac{q_{C1Ncs}}{180}\right)^3 \le 2.2$$

σ'_v *and* σ_v *at start of earthquake shaking*

$$CRR_{M=7.5,\sigma'_v=1atm} = \exp\left(\frac{q_{c1Ncs}}{113} + \left(\frac{q_{c1Ncs}}{1000}\right)^2 - \left(\frac{q_{c1Ncs}}{140}\right)^3 + \left(\frac{q_{c1Ncs}}{137}\right)^4 - 2.80\right)$$

$$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$$

$$\Delta q_{c1N} = \left(11.9 + \frac{q_{c1N}}{14.6}\right) \exp\left(1.63 - \frac{9.7}{FC+2} - \left(\frac{15.7}{FC+2}\right)^2\right)$$

$$q_{c1N} = C_{Ne} \frac{q_c}{P_a}$$

$$C_{Ne} = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 1.338 - 0.249\left(q_{c1Ncs}\right)^{0.264} \quad with \quad 0.264 \le m \le 0.782$$

$$FC = 80\left(I_C + C_{FC}\right) - 137 \quad with \quad 0\% \le FC \le 100\%$$

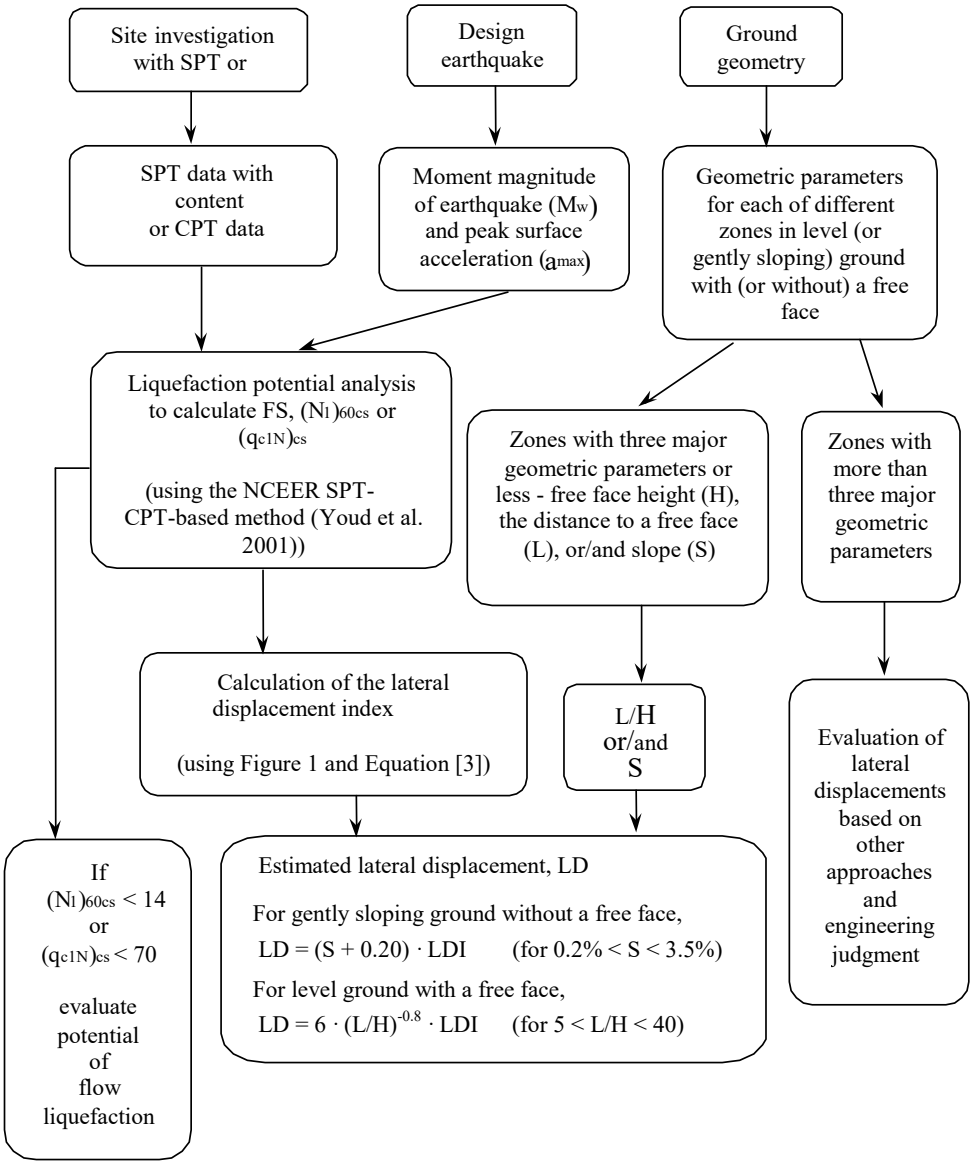
$$I_c = \left[\left(3.47 - \log\left(Q\right)\right)^2 + \left(1.22 + \log\left(F\right)\right)^2\right]^{0.5}$$

$$Q = \left(\frac{q_c - \sigma_{vc}}{P_a}\right)\left(\frac{P_a}{\sigma'_{vc}}\right)^n \; with \; 0.5 \le n \le 1.0 \; per \; Robertson \; \& \; Wride \; (1998)$$

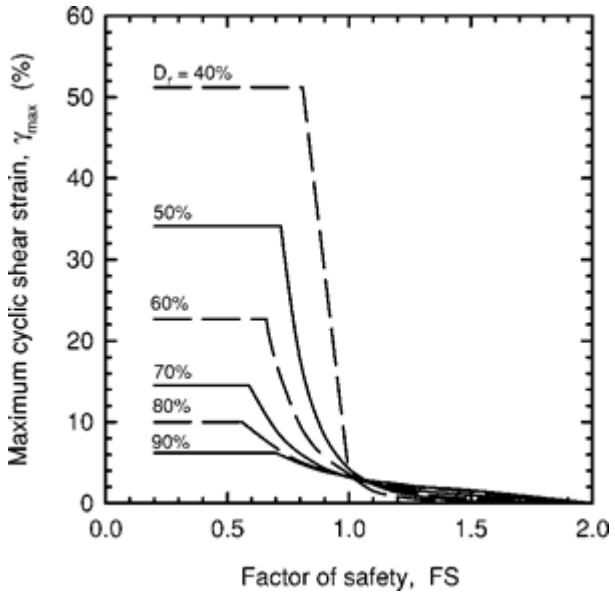
$$F = \left(\frac{f_s}{q_c - \sigma_{vc}}\right) \cdot 100\%$$

σ'_v *at time of CPT sounding*

Procedure for the evaluation of liquefaction-induced lateral spreading displacements



[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



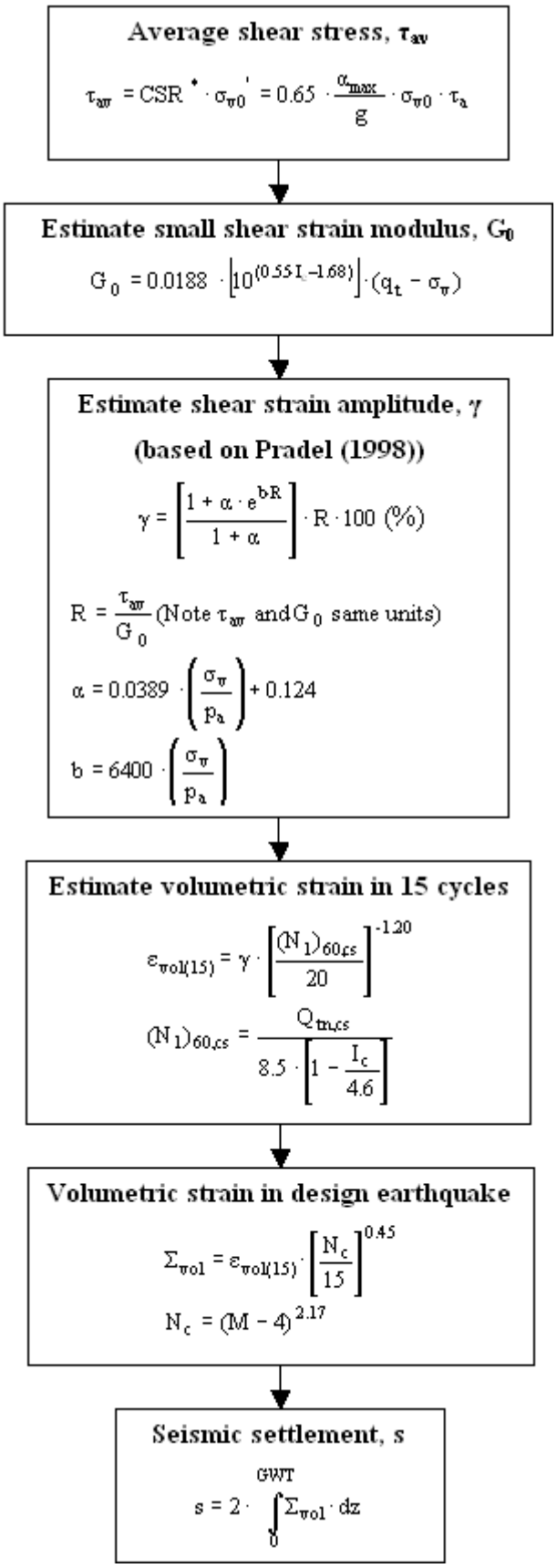
[1] Figure 1

$$LDI = \int_0^{z_{max}} \gamma_{max} dz$$

[1] Equation [3]

[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

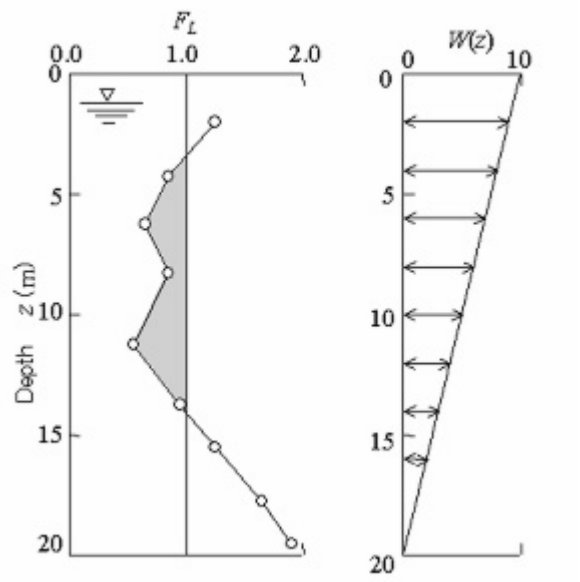
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\mathbf{LPI} = \int_0^{20} (10 - 0{,}5z) \times F_L \times dz$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) + 4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B + 0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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APPENDIX F

PALEONTOLOGICAL RESOURCES ANALYSIS

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CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: November 15, 2024

TO: Amanda Johnson, Senior Environmental Planner, LSA, Project Manager

FROM: Kelly Vreeland, M.Sc., Senior Paleontologist

SUBJECT: Results of Paleontological Resources Analysis for Inclusion in the Initial Study/Mitigated Negative Declaration for the Orange County Juvenile Hall Youth Transition Center Project (OYC2001.48)

INTRODUCTION

This memorandum documents the results of the paleontological analysis conducted for the proposed Orange County Juvenile Hall Youth Transition Center Project (project) in the City of Orange, Orange County, California. This analysis was conducted to determine the potential for the project to impact paleontological resources in compliance with all applicable State and County of Orange (County) regulations and requirements regarding paleontological resources, as well as the standards of the Society of Vertebrate Paleontology (SVP, 2010). The applicable regulations and requirements include the California Environmental Quality Act (CEQA): Public Resources Code (PRC) Division 13, Chapter 2.6; the *State CEQA Guidelines*: California Code of Regulations, Title 14, Chapter 3, Appendix G; PRC §5097.5; and the Conservation and Open Space Element from the City General Plan (County of Orange, 2015). Information from this paleontological memorandum is intended for incorporation in the Initial Study/Mitigated Negative Declaration being prepared for this project.

GEOLOGY AND SOILS

Methods

To assess the impacts of the project with respect to paleontological resources, LSA reviewed geologic maps of the project site and relevant geological and paleontological literature to determine which geologic units are present within the project site and whether fossils have been recovered within the project site or from those or similar geologic units elsewhere in the region. In addition, a fossil locality search was conducted through the Natural History Museum of Los Angeles County (NHMLAC) to determine the status and extent of previously recorded paleontological resources within and surrounding the project site.

Setting

Results of the literature review indicate that the project area is within the Peninsular Ranges Geomorphic Province, a 900-mile-long northwest-southeast trending structural block with similarly

trending faults, that extends from the Transverse Ranges in the north to the tip of Baja California in the south and includes the Los Angeles Basin (California Geological Survey, 2002; Norris and Webb, 1976). The total width of this province is 225 miles, extending from the Colorado Desert in the east, across the continental shelf, to the southern Channel Islands (Santa Barbara, San Nicolas, Santa Catalina, and San Clemente) in the west (Sharp, 1976). This province is characterized by a series of mountain ranges and valleys that trend in a northwest-southeast direction roughly parallel to the San Andreas Fault Zone (Norris and Webb, 1976; Sharp, 1976). It contains extensive pre-Cenozoic (more than 66 million years ago [Ma]) igneous and metamorphic rocks covered by Cenozoic (less than 66 Ma) sedimentary deposits (Norris and Webb, 1976).

Geologic mapping by Morton and Miller (2006) shows that the entire project site is underlain by Late Pleistocene to Holocene (2.58 million years ago to 11,700 years ago) Young Alluvial Fan Deposits. While not mapped by Morton and Miller (2006), Artificial Fill is likely present from the prior construction of the project site and adjacent roads. These geologic units and their paleontological sensitivities are described in more detail below. Dates for the geologic time intervals referenced in this report are derived from the *International Chronostratigraphic Chart* published by the International Commission on Stratigraphy (Cohen et al., 2023).

Artificial Fill

Artificial Fill consists of sediments that have been removed from one location and transported to another location by human activity, rather than by natural means. The transportation distance can vary from a few feet to many miles, and composition depends on the source and purpose. Artificial Fill will sometimes contain modern debris such as asphalt, wood, bricks, concrete, metal, glass, plastic, and even plant material.

Although Artificial Fill may contain fossils, these fossils have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study, and Artificial Fill has no paleontological sensitivity.

Young Alluvial Fan Deposits

The Young Alluvial Fan Deposits are Holocene to late Pleistocene in age (less than 126,000 years ago) and consist of unconsolidated silt, sand, and gravel (Morton and Miller, 2006). Cobble- and boulder-size clasts are also present and become more abundant closer to the hills and mountains (Morton and Miller, 2006). These sediments were eroded from higher elevations, carried by flooding streams and debris flows, and deposited in a fan or lobe shape at the base of the hills. They show slight to moderate dissection by erosional gullies (Morton and Miller, 2006).

Although Holocene (less than 11,700 years ago) deposits can contain remains of plants and animals, only those from the middle to early Holocene (4,200 to 11,700 years ago; Walker et al., 2012) are considered scientifically important (SVP, 2010), and fossils from this time interval are not very common. These Holocene deposits overlie older, Pleistocene deposits, which have produced scientifically important fossils elsewhere in the region (Jefferson 1991a, 1991b; Miller 1971; Reynolds and Reynolds 1991; Springer et al. 2009). These older, Pleistocene deposits span the end of the Rancholabrean North American Land Mammal Age (NALMA), which dates from 11,000 to 240,000 years ago (Sanders et al., 2009) and was named for the Rancho La Brea fossil site in central Los Angeles.

The presence of Bison defines the beginning of the Rancholabrean NALMA (Bell et al. 2004), but fossils from this time also include other large and small mammals, reptiles, fish, invertebrates, and plants (Jefferson 1991a, 1991b; Miller 1971; Reynolds and Reynolds 1991; Springer et al. 2009). There is a potential to find these types of fossils in the older sediments of this geologic unit, which may be encountered below a depth of approximately 10 ft. Therefore, these deposits are assigned a low paleontological sensitivity above a depth of 10 ft and a high sensitivity below that mark.

Fossil Locality Search

According to the locality search conducted by the NHMLAC, there are no known fossil localities within the boundaries of the project. However, this search noted a few of fossil localities near to the project within sediments similar to those found in the project area. Locality LACM VP 1652 produced remains of Sheep (*Ovis*) at Rio Vista Avenue, south of Lincoln Avenue in Pleistocene sediments. In Richfield (south of Yorba Linda), LACM VP 3292 produced Elephant (Proboscidae) from Pleistocene Terrace Deposits. From the former El Toro marine base, LACM VP 7867 produced Rodent (Rodentia) from Pleistocene sediments. Localities LACM VP 4185 – 4201 from Coyote Creek adjacent to Clark Regional Park produced several fossils including Bison (*Bison*), camel (*Camelops*), horse (*Equus*), mammoth (*Mammuthus),* mastodon (*Mamut*), elephant (Proboscidea), dire wolf (*Canis dirus*), Coyote (*C. latrans*), deer (Odocoileus), dwarf pronghorn (*Capromeryx*), unidentified artiodactyl, and sea duck (*Chendytes*). *A* copy of the NHMLAC fossil locality search results letter is included in Attachment A.

Mitigation

To ensure that potential impacts to undiscovered paleontological resources remain less than significant, preparation of a Paleontological Resources Impacts Mitigation Program (PRIMP), paleontological monitoring of construction activities, appropriate treatment of newly discovered resources, and preparation of a final paleontological monitoring report would be required, as outlined in the following Mitigation Measure (MM) PALEO-1.

MM PALEO-1 **Paleontological Resources.** Prior to the commencement of ground-disturbing activities, a qualified, professional paleontologist who meets the standards set by the Society of Vertebrate Paleontology (SVP) shall be retained to develop a Paleontological Resources Impact Mitigation Program (PRIMP) for this project. The PRIMP shall be consistent with the guidelines of the SVP and shall include the methods that will be used to protect paleontological resources that may exist within the project limits, as well as procedures for monitoring, fossil preparation and identification, curation into a repository, and preparation of a report at the conclusion of ground disturbance.

If ground-disturbing activities occur in deposits with high paleontological sensitivity (i.e. Young Alluvial Fan Deposits below a depth of 10 feet), those activities shall be monitored by a qualified paleontological monitor following the PRIMP. If paleontological resources are encountered during the course of ground disturbance, the paleontological monitor shall have the authority to temporarily redirect construction away from the area of the find in order to assess its significance. Once soils have been monitored during the excavation stage and determined to lack the presence of paleontological resources,

monitoring of these soils would no longer be necessary for the remainder of grading activities. In the event that paleontological resources are encountered when a paleontological monitor is not present, work in the immediate area of the find shall be redirected and the paleontologist or paleontological monitor shall be contacted to assess the find for scientific significance. If determined to be scientifically significant, the fossil shall be collected from the field.

Collected resources shall be prepared to the point of identification, identified to the lowest taxonomic level possible, cataloged, and curated into the permanent collections of a museum repository. At the conclusion of the monitoring program, a report of findings shall be prepared to document the results of the monitoring program.

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ATTACHMENT A

RESULTS OF THE FOSSIL LOCALITY SEARCH AT THE NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Research & Collections

e-mail: paleorecords@nhm.org

November 3, 2024

LSA
Attn: Kelly Vreeland

re: Paleontological resources records search for the Orange County Juvenile Hall Youth Transition Center Redevelopment Project (LSA Proj. # OCY2001.48)

Dear Kelly:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Orange County Juvenile Hall Youth Transition Center Redevelopment Project area as outlined on the portion of the Anaheim USGS topographic quadrangle map that you sent to me via e-mail on October 28, 2024. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that may occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County (NHMLA).

Locality Number	Location	Formation	Taxa	Depth
LACM VP 1652	Rio Vista Avenue south of Lincoln Avenue	Alluvium (Pleistocene)	Sheep (*Ovis*)	Unknown (excavations for housing project)
LACM VP 3292	Richfield, CA (south of Yorba Linda)	Terrace deposits (Pleistocene)	Elephant clade (Proboscidae)	Unknown
LACM VP 7867	Former El Toro Marine Base	Unknown formation (Pleistocene)	Rodent (Rodentia)	25 feet bgs
LACM VP 4185-4201	Coyote Creek, adjacent to Ralph B Clark Regional Park in West Coyote Hills	La Habra Formation (Pleistocene; sandy silt shot through with caliche)	Bison (*Bison*), camel (*Camelops*), horse (*Equus*), mammoth (*Mammuthus*), mastodon (*Mamut*), elephant clade (Proboscidea), dire wolf (*Canis dirus*), Coyote (*C. latrans*), deer (*Odocoileus*), dwarf pronghorn (*Capromeryx*), unidentified artiodactyl; sea duck (*Chendytes*)	Surface, in creek bed

VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface

This records search covers only the records of the NHMLA. It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Federal (43 Code of Federal Regulations Part 49.110) or Society of Vertebrate Paleontology standards.

Sincerely,

Alyssa Bell, Ph.D.
Natural History Museum of Los Angeles County

enclosure: invoice

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APPENDIX G

HAZARDOUS MATERIALS REPORTS

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CLIENT COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 1

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 18, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 1

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: April 1, 2024 to April 1, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: None
Additional AHERA Certified Building Inspector Number: None

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3593696
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 2,500

Structure Frame: Wood
If other, describe: None

Structure Foundation: Wood (Elevated)
If other, describe: None

Number of Floors: 1

Building Occupied: No

SUSPECT MATERIALS OBSERVED

Suspect Materials Observed During the Asbestos Survey Conducted

- Yellow Fiberglass Insulation
- Pink HVAC Fiberglass Insulation w/ Wrap
- 2'x4' Fissured Ceiling Tile
- Sprayed on Acoustic Ceiling Material
- Unfinished Drywall
- 2'x4' Textured Ceiling Tile
- Blue Sheet Vinyl
- Cove Base Glue
- Tan Sheet Vinyl
- Finished Drywall
- 12'x12' Tan Vinyl Floor Tile
- Concrete Sidewalk and Asphalt

Inaccessible Materials Presumed to be Asbestos Content:

- Sherrif's Office
- Roofing Materials

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material* Description	***Location****	***Sample #***	***Approximate Quantity*****	***AHERA Rank*****	***Friability/ Material Type***	***Damage Category***	***Quantity of Contamination (If any) *****	***Asbestos Content***
Roofing Material	Roof	--	3,000	---	Inaccessible	---	Inaccessible	Assumed
Note: The roof was inaccessible at the time of the inspection due to the absence of ladder access. Roofing materials are assumed to contain asbestos until further testing can be determined otherwise.								
Note: The Sheriff's office was locked at the time of the inspection. In the event suspect asbestos containing materials are discovered during demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.								

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
Fiberglass insulation	1,2,3
Fiberglass insulation w/ wrap and tape	4,5,6
Fissured ceiling tile	7,8,9
Sprayed on Acoustic ceiling	10,11,12
Unfinished drywall	13,14,15
Fiberglass textured ceiling tile	16,17,18
Blue sheet vinyl	19,21
Cove base adhesive	22,23,24
Tan sheet vinyl	25,26,27
Finished drywall	28,29,30
12”x12” Tan vinyl tile floor	31,32,33
Concrete sidewalk	34,35,36
Asphalt	37,38,39

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the San Diego County Air Pollution Control District (APCD) Rule 1206 Section (h)(1)(i), composite analysis is not allowed on joint compound used as a skim coat for texturing and shall be treated as a separate material.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as “Trace Asbestos”. These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this limited asbestos survey, materials observed and tested for asbestos were negative for asbestos content.

The roof was inaccessible at the time of the inspection. Roofing materials are assumed to contain asbestos until further testing can be determined otherwise.

The Sheriff's office was locked at the time of the inspection. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection.

All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B1
EML ID: 3593696

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-03-2024 and 04-04-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B1

Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	39
Total Samples Analyzed:	38
Total Samples with Layer Asbestos Content > 1%:	0

Location: 1, Fiberglass Insulation

Lab ID-Version‡: 17574430-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 2, Fiberglass Insulation

Lab ID-Version‡: 17574431-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 3, Fiberglass Insulation

Lab ID-Version‡: 17574432-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 4, Fiberglass Ins w/Wrap and Tape

Lab ID-Version‡: 17574433-1

Sample Layers	Asbestos Content
Silver Wrap	ND
Tan Adhesive	ND
Gray Tape	ND
Pink Insulation	ND
Composite Non-Asbestos Content:	70% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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Date of Sampling: 04-01-2024
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Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 5, Fiberglass Ins w/Wrap and Tape

Lab ID-Version‡: 17574434-1

Sample Layers	Asbestos Content
Silver Wrap	ND
Tan Adhesive	ND
Gray Tape	ND
Pink Insulation	ND
Composite Non-Asbestos Content:	70% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 6, Fiberglass Ins w/Wrap and Tape

Lab ID-Version‡: 17574435-1

Sample Layers	Asbestos Content
Silver Wrap	ND
Tan Adhesive	ND
Gray Tape	ND
Pink Insulation	ND
Composite Non-Asbestos Content:	70% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 7, Fissured Ceiling

Lab ID-Version‡: 17574436-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 8, Fissured Ceiling

Lab ID-Version‡: 17574437-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Good

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 9, Fissured Ceiling

Lab ID-Version‡: 17574438-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 10, Sprayed on Acoustic Ceiling

Lab ID-Version‡: 17574439-1

Sample Layers	Asbestos Content
White Acoustic Ceiling Material	ND
Sample Composite Homogeneity:	Good

Location: 11, Sprayed on Acoustic Ceiling

Lab ID-Version‡: 17574440-1

Sample Layers	Asbestos Content
White Acoustic Ceiling Material	ND
Sample Composite Homogeneity:	Good

Location: 12, Sprayed on Acoustic Ceiling

Lab ID-Version‡: 17574441-1

Sample Layers	Asbestos Content
White Acoustic Ceiling Material	ND
Sample Composite Homogeneity:	Good

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 13, Unfinished Drywall

Lab ID-Version‡: 17574442-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose < 1% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 14, Unfinished Drywall

Lab ID-Version‡: 17574443-1

Sample Layers	Asbestos Content
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose < 1% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 15, Unfinished Drywall

Lab ID-Version‡: 17574444-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose < 1% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 16, Textured Ceiling Tile

Lab ID-Version‡: 17574445-1

Sample Layers	Asbestos Content
Yellow Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 17, Textured Ceiling Tile

Lab ID-Version‡: 17574446-1

Sample Layers	Asbestos Content
Yellow Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 18, Textured Ceiling Tile

Lab ID-Version‡: 17574447-1

Sample Layers	Asbestos Content
Yellow Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 19, Blue Sheet Vinyl

Lab ID-Version‡: 17574448-1

Sample Layers	Asbestos Content
Blue Sheet Flooring	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: 21, Blue Sheet Vinyl

Lab ID-Version‡: 17574450-1

Sample Layers	Asbestos Content
Blue Sheet Flooring	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

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Date of Sampling: 04-01-2024
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ASBESTOS PLM REPORT

Location: 22, Cove Base Glue

Lab ID-Version‡: 17574451-1

Sample Layers	Asbestos Content
Beige Glue	ND
Sample Composite Homogeneity:	Good

Location: 23, Cove Base Glue

Lab ID-Version‡: 17574452-1

Sample Layers	Asbestos Content
Beige Glue	ND
Sample Composite Homogeneity:	Good

Location: 24, Cove Base Glue

Lab ID-Version‡: 17574453-1

Sample Layers	Asbestos Content
Beige Glue	ND
Sample Composite Homogeneity:	Good

Location: 25, Tan Sheet Vinyl

Lab ID-Version‡: 17574454-1

Sample Layers	Asbestos Content
Tan Sheet Flooring with Fibrous Backing	ND
Tan Mastic	ND
Composite Non-Asbestos Content:	15% Cellulose 2% Synthetic Fibers < 1% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 26, Tan Sheet Vinyl

Lab ID-Version‡: 17574455-1

Sample Layers	Asbestos Content
Tan Sheet Flooring with Fibrous Backing	ND
Tan Mastic	ND
Composite Non-Asbestos Content:	15% Cellulose 2% Synthetic Fibers < 1% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 27, Tan Sheet Vinyl

Lab ID-Version‡: 17574456-1

Sample Layers	Asbestos Content
Tan Sheet Flooring with Fibrous Backing	ND
Tan Mastic	ND
Composite Non-Asbestos Content:	15% Cellulose 2% Synthetic Fibers < 1% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 28, Finished Drywall

Lab ID-Version‡: 17574457-1

Sample Layers	Asbestos Content
White Paint	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 29, Finished Drywall

Lab ID-Version‡: 17574458-1

Sample Layers	Asbestos Content
White Paint	ND
White Joint Compound	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 30, Finished Drywall

Lab ID-Version‡: 17574459-1

Sample Layers	Asbestos Content
White Paint	ND
White Joint Compound (Trace)	ND
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 31, 12"x12" Tan Vinyl Floor Tile

Lab ID-Version‡: 17574460-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Tan Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: 32, 12"x12" Tan Vinyl Floor Tile

Lab ID-Version‡: 17574461-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Tan Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: 33, 12"x12" Tan Vinyl Floor Tile

Lab ID-Version‡: 17574462-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Tan Mastic	ND
Sample Composite Homogeneity:	Moderate

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 34, Concrete Sidewalk Lab ID-Version‡: 17574463-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 35, Concrete Sidewalk Lab ID-Version‡: 17574464-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 36, Concrete Sidewalk Lab ID-Version‡: 17574465-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 37, Asphalt Lab ID-Version‡: 17574466-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

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Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 38, Asphalt

Lab ID-Version‡: 17574467-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

Location: 39, Asphalt

Lab ID-Version‡: 17574468-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003593696

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL Tuckel
Phone: 619-454-7851

Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions: * 1st positive stop 7170

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange Bldg 1
Project Zip Code: 92868
Sampling Date/Time: 5-4-1-24
PO Number: SDPE-24-061.1CT
Sampled By: DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	fiberglass insulation	B	STD	~1 sq in	yellow
2					
3					
4	fiberglass ins w/wrap+tape				Pink HVAC
5					
6					
7	fissured ceiling				2'x4'
8					
9					
10	Sprayed on Acoustic Ceiling				
11					
12					
13	Unfinished drywall				
14					
15					

Non-Culturable: Spore Trap | Tape, Swab, Bulk | BioC Swa

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Darla Beery	4/1/24

RECEIVED BY	DATE & TIME
	4/1/24 1550

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER: Fog | Rain | Snow | Wind | Clear
LEVEL: None | Light | Moderate | Hea

RE

003593696

Non.Culturable: Spore Trap | Tape Swab | Bulk | BioC Swat

CONTACT INFORMATION

Company: IMTGL, Inc.
Contact: CARL TUCKER
Phone: 619-464-7851
Address / Special Instructions: 7742 ARJONS DR., San Diego, CA 92126

PROJECT INFORMATION

Project ID / Project Description: Vanir Const. - OC Juvenile Hall 331 The City of Orange Bldg
Project Zip Code: 92868
PO Number: SDRE24-061.1CA
Sampling Date/Time Sampled: 3-4-1-24
By: DB

TURN AROUND TIME CODES - (TAT)

STD Standard (Default)
ND Next Business Day
SD Same Business Day
Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend or rush service needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
16	Textured ceiling tile	B	STD	~1sqin	2'x4'fiberglass
17	↓				
18	Blue Sheet Vinyl				
19	↓				
20	Cove Base Glue				
21	↓				
22	Tan Sheet Vinyl				
23	↓				
24	Finished Drywall				
25	↓				
26					
27					
28					
29					
30					

Asbestos in Air PCM Airborne Fiber Count (NIOSH 7400)
Asbestos Bulk PLM
Lead (Pb) Flame AA
PCR (please specify test)
Allergens (please specify test)

SAMPLE TYPE CODES

BC - Bi Cassette | CP Contact Plate | T - Tape | O - Other
A1S - Andersen | ST - Spore Trap | SW Swab
SAS Surface Air Sampler | B Bulk | SO - Soil
NP - Non potable Water | P Potable Water | D Dust

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
RELINQUISHED BY: Daniel Beery / Daniel Beery	4/1/24	C 2-	4/1/24 1550

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL: None					
Light					
Moderate					
Heavy					

REQUES

Non-Culturable		Cu
Spore Trap	Tape Swab, Bulk	BioCassette Swab, Wate Cor

003593696

CONTACT INFORMATION

Company: IMTGL, Inc.
Contact: Carl Tucker
Phone: 619-454-7851

Address: 7742 Arjons Dr., San Diego, CA 92126
Special Instructions:

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B-1
Project Zip Code: 92868
Sampling Date/Time: 5-4-1-24
PO Number: SDPE-24-061.1CT
Sampled By: DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)	Spore Trap Analysis	Other Biological particles - Supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	i-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	Quant Tray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (pls see specify test)	Allergens (please specify test)
31	12"x12" Tan Vinyl Floor Tile	B	STD	~1sqin														X				
32	↓																					
33																						
34	Concrete sidewalk																					
35	↓																					
36																						
37	Asphalt																					
38	↓																					
39																						

SAMPLE TYPE CODES

BC - BioCassette®	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
Darla Beery	4/1/24		4/1/24 1550

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

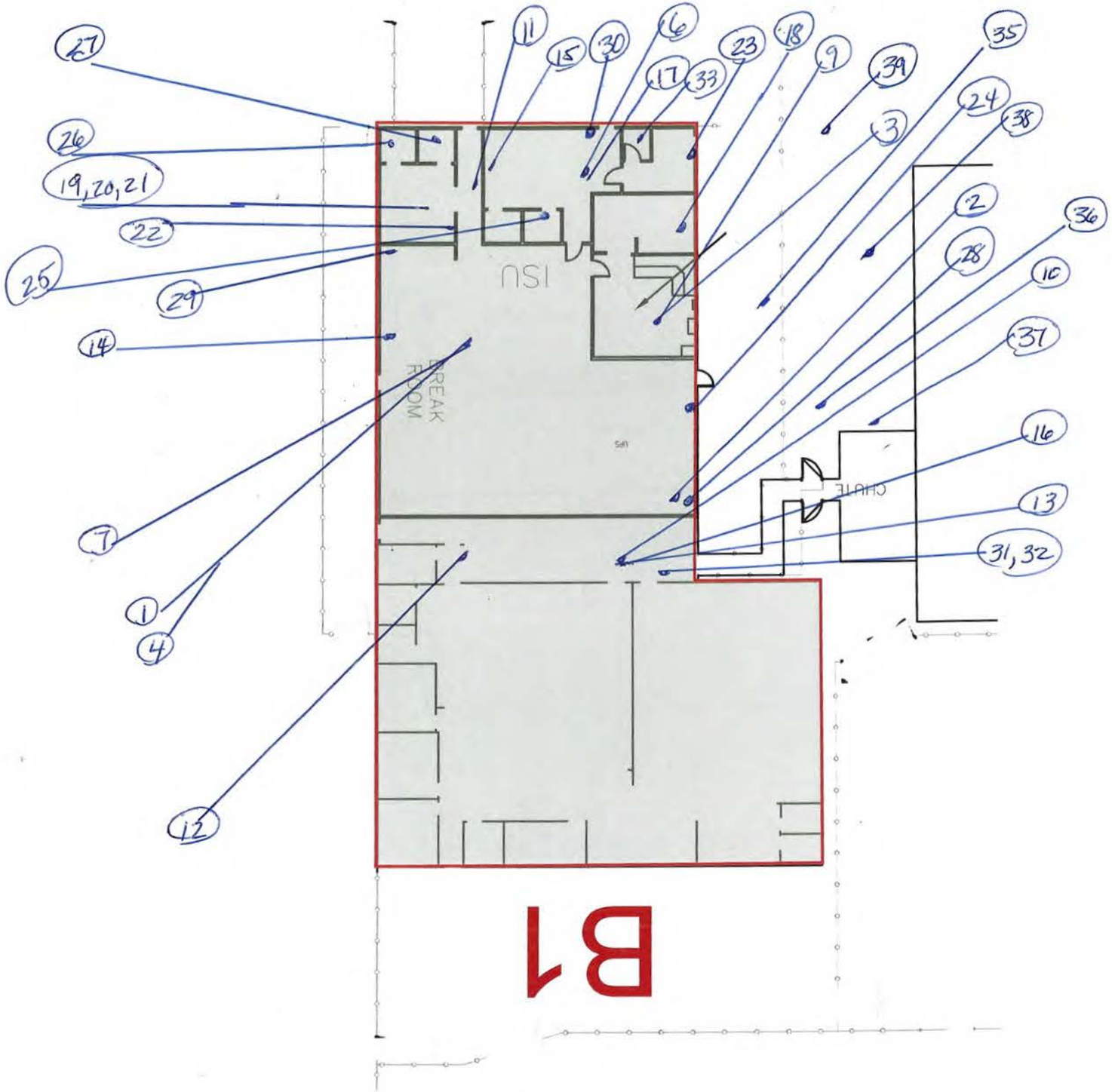
Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

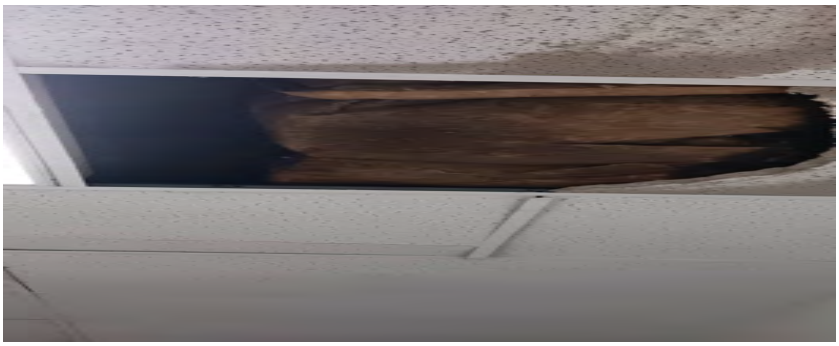
APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)


27
26
19,20,21
22
25
29
14
7
1
4
12
11
15
30
6
17
33
23
18
9
39
3
35
24
38
2
36
28
10
37
16
13
31,32
BREAK ROOM
B1

APPENDIX 3

PHOTO DOCUMENTATION

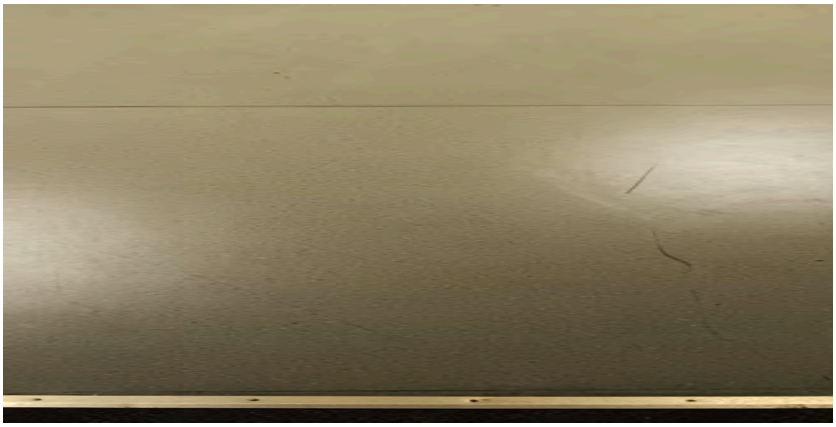


1. Fiberglass insulation and fissured ceiling tile.

2. Fiberglass insulation w/wrap and tape.

3. Sprayed on acoustic ceiling.

4. Unfinished drywall.



5. Blue sheet vinyl.

6. Tan sheet vinyl.

7. Finished drywall.

8. 12”x12” Tan vinyl floor tile.

9. Asphalt.

10. Concrete sidewalk.

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Asbestos • Lead • Mold • HAZWOPER
PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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BAAQMD: Ph# (415) 749-4762

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 1
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 18, 2024

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SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 1 (Single story modular with wood frame on a raised foundation.)

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on April 1, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Trim, Windows and Doors

The following is a summary of lead based painted components identified that contain lead 1.0 $mg/cm^{2 \text{ or greater}}$ * (Please see attachment I for a detail report of findings.)

- No lead-based paint was identified in the components tested.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

Deteriorated lead-based paint was not identified on the accessible components tested.

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.

Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered "lead-based". The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 $mg/cm^{2,}$ 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.
It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.
Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of "Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 1, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1	Bldg. 1		Calibration						Red NIST	1.0	
2	Bldg. 1		Calibration						Red NIST	1.1	
3	Bldg. 1		Calibration						Red NIST	1.0	
4	Bldg. 1	A	Entry	Door	Door		Intact	Metal	Brown	<LOD	Negative
5	Bldg. 1	A	Entry	Door	Door	Frame	Intact	Metal	Brown	<LOD	Negative
6	Bldg. 1	A	Entry	Wall			Intact	Drywall	Tan	<LOD	Negative
7	Bldg. 1	B	Entry	Wall			Intact	Drywall	Tan	<LOD	Negative
8	Bldg. 1	C	Entry	Wall			Intact	Drywall	Tan	<LOD	Negative
9	Bldg. 1	D	Entry	Wall			Intact	Drywall	Tan	<LOD	Negative
10	Bldg. 1	B	Entry	Window	Frame		Intact	Metal	Brown	<LOD	Negative
11	Bldg. 1	B	Entry	Window	Casing		Intact	Wood	Tan	<LOD	Negative
12	Bldg. 1	D	Women's RR	Door	Door		Intact	Metal	Brown	<LOD	Negative
13	Bldg. 1	A	Women's RR	Door	Frame		Intact	Wood	Tan	<LOD	Negative
14	Bldg. 1	B	Women's RR	Wall			Intact	Drywall	Tan	<LOD	Negative
15	Bldg. 1	C	Women's RR	Wall			Intact	Drywall	Tan	<LOD	Negative
16	Bldg. 1	D	Women's RR	Wall			Intact	Drywall	Tan	<LOD	Negative
17	Bldg. 1	D	Waiting rm	Door	Door		Intact	Metal	Brown	<LOD	Negative
18	Bldg. 1	D	Waiting rm	Door	Frame		Intact	Wood	Brown	<LOD	Negative
19	Bldg. 1	D	Waiting rm	Window	Frame		Intact	Wood	White	<LOD	Negative
20	Bldg. 1	B	Guard rm	Door	Door		Intact	Wood	Brown	<LOD	Negative
21	Bldg. 1	B	Guard rm	Door	Frame		Intact	Metal	Brown	<LOD	Negative
22	Bldg. 1	B	Guard rm	Wall	Cabinet	Casing	Intact	Wood	Tan	.12	Negative
23	Bldg. 1	B	Guard rm	Wall	Cabinet	Door	Intact	Wood	Tan	.12	Negative

Lead Based Paint XRF Data Sheet

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(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
24	Bldg. 1	A	Guard rm	Window	Frame		Intact	Wood	Tan	<LOD	Negative
25	Bldg. 1	A	Guard rm	Window	Casing		Intact		Tan	<LOD	Negative
26	Bldg. 1	A	Server rm	Wall			Intact	Drywall	White	<LOD	Negative
27	Bldg. 1	B	Server rm	Wall			Intact	Drywall	White	<LOD	Negative
28	Bldg. 1	C	Server rm	Wall			Intact	Drywall	White	<LOD	Negative
29	Bldg. 1	D	Server rm	Wall			Intact	Drywall	White	<LOD	Negative
30	Bldg. 1	A	Server rm	Wall	ISUI	Panel	Intact	Metal	Gray	<LOD	Negative
31	Bldg. 1	A	Server rm	Wall	ISUI	Panel	Intact	Metal	Gray	<LOD	Negative
32	Bldg. 1	C	Server rm	Door	Door		Intact	Wood	Brown	<LOD	Negative
33	Bldg. 1	C	Server rm	Door	Frame		Intact	Metal	Brown	<LOD	Negative
34	Bldg. 1	C	Breakroom	Door	Door		Intact	Wood	Brown	<LOD	Negative
35	Bldg. 1	C	Breakroom	Door	Frame		Intact	Metal	Brown	<LOD	Negative
36	Bldg. 1	A	Breakroom	Wall			Intact	Drywall	White	<LOD	Negative
37	Bldg. 1	B	Breakroom	Wall			Intact	Drywall	White	<LOD	Negative
38	Bldg. 1	C	Breakroom	Wall			Intact	Drywall	White	<LOD	Negative
39	Bldg. 1	D	Breakroom	Wall			Intact	Drywall	White	<LOD	Negative
40	Bldg. 1	D	Kitchen	Wall	Cabinet	Door	Intact	Wood	Tan	<LOD	Negative
41	Bldg. 1	D	Kitchen	Wall	Cabinet	Casing	Intact	Wood	Tan	<LOD	Negative
42	Bldg. 1	B	Staff WRR	Door	Door		Intact	Wood	Brown	<LOD	Negative
43	Bldg. 1	B	Staff WRR	Door	Frame		Intact	Metal	Brown	<LOD	Negative
44	Bldg. 1	A	Staff WRR	Wall	Sink		Intact	Porcelain	White	<LOD	Negative
45	Bldg. 1	B	Office 1	Door	Door		Intact	Wood	Brown	<LOD	Negative
46	Bldg. 1	B	Office 1	Door	Frame		Intact	Wood	Brown	<LOD	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 1, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
47	Bldg. 1	A	Office 1	Wall			Intact	Drywall	White	<LOD	Negative
48	Bldg. 1	B	Office 1	Wall			Intact	Drywall	White	<LOD	Negative
49	Bldg. 1	C	Office 1	Wall			Intact	Drywall	White	<LOD	Negative
50	Bldg. 1	D	Exterior	Wall			Intact	Drywall	White	<LOD	Negative
51	Bldg. 1	A	Exterior	Ramp	Handrail		Poor	Metal	Gray	.10	Negative
52	Bldg. 1	A	Exterior	Wall	Panel		Intact	Wood	Tan	<LOD	Negative
53	Bldg. 1	A	Exterior	Wall	Trim		Poor	Wood	Tan	<LOD	Negative
54	Bldg. 1	A	Exterior	Door 2	Door		Poor	Metal	Brown	.10	Negative
55	Bldg. 1	A	Exterior	Door 2	Frame		Poor	Metal	Brown	.11	Negative
56	Bldg. 1	A	Exterior	Air handler	Casing		Fair	Metal	Tan	<LOD	Negative
57	Bldg. 1	A	Exterior	Wall	Gutter		Intact	Metal	Tan	<LOD	Negative
58	Bldg. 1	D	Exterior	Window 1	Frame		Intact	Metal	Tan	<LOD	Negative
59	Bldg. 1	D	Exterior	Window 1	Casing		Poor	Wood	Tan	<LOD	Negative
60	Bldg. 1	D	Exterior	Wall			Poor	Wood	Tan	<LOD	Negative
61	Bldg. 1	D	Exterior	Wall	Trim		Poor	Wood	Tan	<LOD	Negative
62	Bldg. 1	A	Exterior	Window 1	Frame		Fair	Metal	Tan	.08	Negative
63	Bldg. 1	A	Exterior	Window 1	Casing		Poor	Wood	Tan	.06	Negative
64	Bldg. 1	A	Calibration	Wall	Foundation		Intact	Concrete	Tan	<LOD	Negative
65	Bldg. 1		Calibration							1.0	

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

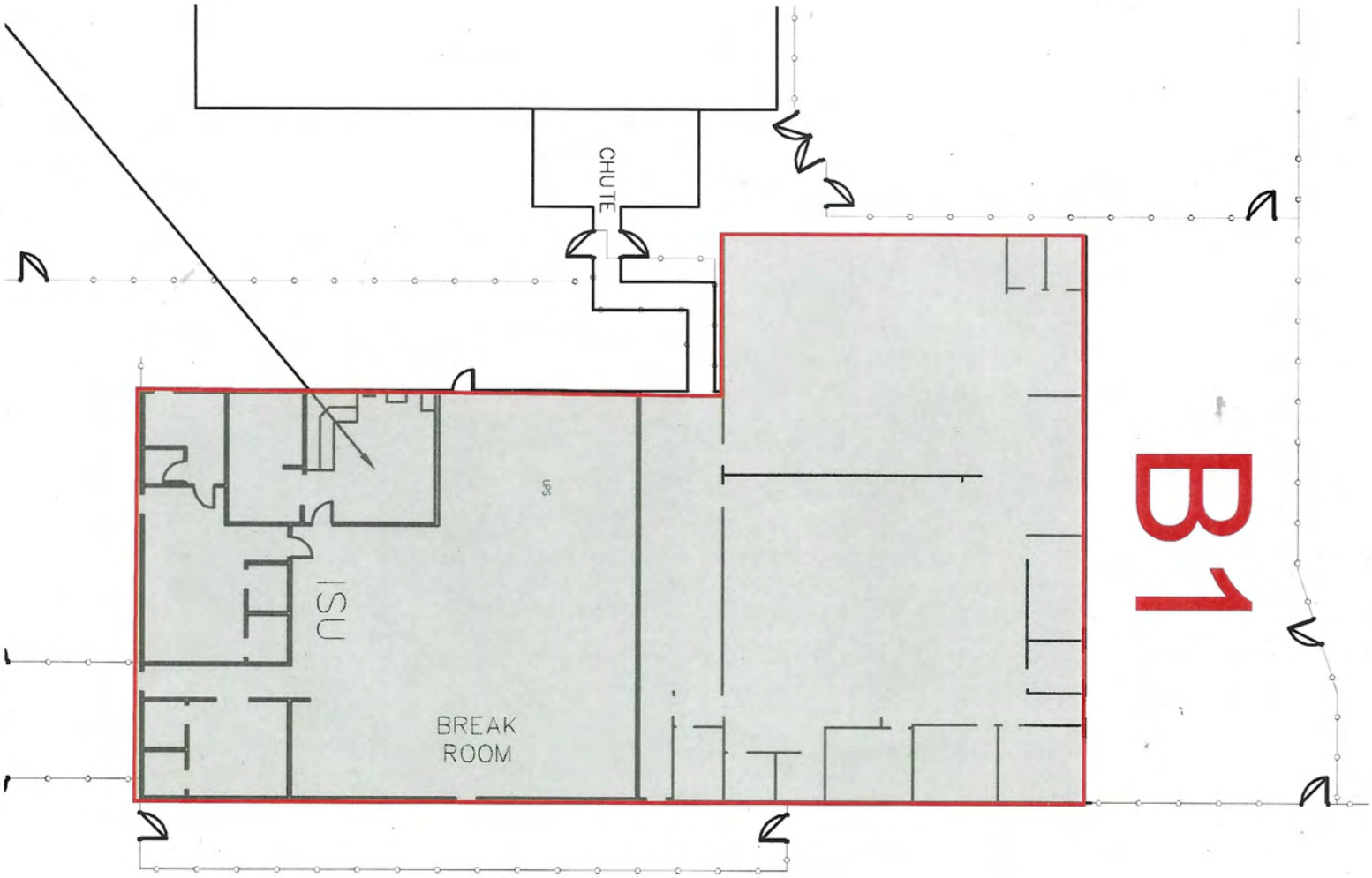
A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING

No lead based paint reported.



Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Michelle Ehresman

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 4/1/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 1)	Orange	Orange	92868

Construction date (year) of structure	Type of structure	Children living in structure?
Unknown	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other _____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other _____

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/1/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO RENOVATE RIGHT

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

Important lead hazard information for families, child care providers and schools.

EPA

LEAD-SAFE EPA CERTIFIED FIRM

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

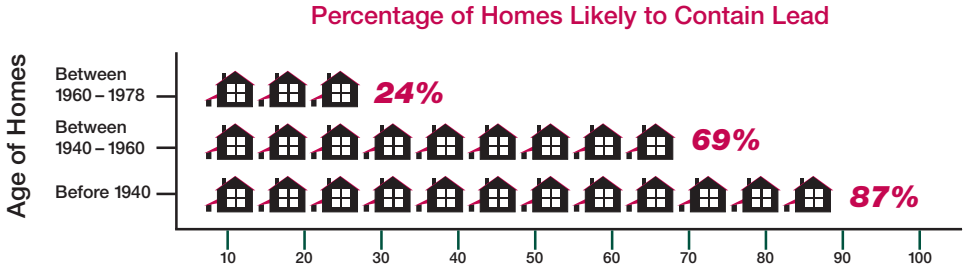
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 2

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 18, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

Buildings 2, 5, 7 and 9 shared the same homogeneous silver rolled roofing system and black roofing mastic. Samples collected were representative of the shared roofing materials.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 5 (ROOMS 19-20)

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: April1, 2024 to April 2, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were

performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3592267/3609732
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 12,000

Structure Frame: Wood
If other, describe: None

Structure Foundation: Concrete Slab On Grade
If other, describe: None

Number of Floors: 1

Building Occupied: Yes

SUSPECT MATERIALS OBSERVED

Suspect Materials Observed During the Asbestos Survey Conducted

- Fissured ceiling tile (2'x4')
- Fiberglass insulation
- Epoxy floor
- Stone & mortar(fireplace)
- Pipe insulation w/wrap
- Ceramic tile w/mortar (wall)
- Ceramic tile w/mortar (floor)
- Concrete block/
- Concrete ceiling
- Carpet adhesive
- Cove base mastic
- Wall plaster
- Fire safety board
- Concrete floor/ Concrete slab
- Window putty

- Exterior brick and mortar
- Exterior concrete block
- HVAC seam caulk
- Rolled roofing and mastic
- Vinyl Cap Shet

Inaccessible Materials Presumed to be Asbestos Content:

- None

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material Description*	*Location**	*Sample #*	*Approximate Quantity***	*AHERA Rank****	*Friability/ Material Type*	*Damage Category*	*Quantity of Contamination (If any) *****	*Asbestos Content*
Roof Mastic (See below note.)	Building 2 (Under Vinyl Cap Sheet on North End)	R-14	1,800	X	Non-Friable	1	None	4%
Note: Sample R14 (roof mastic) pertains only to the North end of Building 2 under vinyl cap sheet. Sample is included with report as it is a part of the same Chain of Custody (COC) and lab report as the remainder of the samples for Bldgs. 2, 5, 7 and 9.								

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
Fiberglass insulation	1,2,3
Fissured ceiling tile	4,5,6
Epoxy flooring	7,8,9
Carpet adhesive	10,11,12
Ceramic tile & mortar	13,14,15,16,17,18,40,41,42
Wall plaster	19,20,21
Pipe insulation	22,23,24
Cove base mastic	25,26,27
Concrete block	28,29,30
Stone & mortar	31,32,33
Concrete floor	34,35,36
Fire safety board	37,38,39
Window putty	43,44,45
Brick & mortar	46,47,48
Concrete slab	49,50,51
Concrete block	52,53,54
Samples R-1 through R-13 are Homogeneous to the shared roofing systems for Building 2, 5, 7 and 9.	
Silver Rolled Roofing over Insulation	R-1, R2, R3, R-4, R-5
Roof Mastic	R-6, R-7, R-8, R-9, R-10
HVAC Caulk	R-11. R12, R-13

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402 paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this asbestos survey, materials observed and tested for asbestos were positive for asbestos content.

While the silver coated rolled roofing and roofing mastic is negative for asbestos on Building 2, sample R14 (roof mastic) pertains only to North end of Building 2 under vinyl cap sheet. The sample is a part of the same Chain of Custody (COC) and lab report as the remainder of the samples for Buildings 2, 5, 7 and 9.

RECOMMENDATIONS

If during renovation/demolition activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection.

All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2
EML ID: 3592267

Approved by:

Approved Signatory
Roshanak Kalantari

Dates of Analysis:
Asbestos PLM: 04-03-2024 and 04-04-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 200945-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
1010 N Central Avenue, Suite 460, Glendale, CA 91202
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	54
Total Samples Analyzed:	54
Total Samples with Layer Asbestos Content > 1%:	0

Location: 1, Fiberglass Insulation

Lab ID-Version‡: 17567486-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	95% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 2, Fiberglass Insulation

Lab ID-Version‡: 17567487-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	95% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 3, Fiberglass Insulation

Lab ID-Version‡: 17567488-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	95% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 4, Fissured Ceiling Tile

Lab ID-Version‡: 17567489-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	< 1% Amosite
Composite Non-Asbestos Content:	60% Glass Fibers
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 5, Fissured Ceiling Tile

Lab ID-Version‡: 17567490-1

Sample Layers	Asbestos Content
Brown Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Glass Fibers 20% Cellulose
Sample Composite Homogeneity:	Good

Location: 6, Fissured Ceiling Tile

Lab ID-Version‡: 17567491-1

Sample Layers	Asbestos Content
Brown Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Glass Fibers 20% Cellulose
Sample Composite Homogeneity:	Good

Location: 7, Apoxy Flooring

Lab ID-Version‡: 17567492-1

Sample Layers	Asbestos Content
Brown Flooring	ND
Sample Composite Homogeneity:	Moderate

Location: 8, Apoxy Flooring

Lab ID-Version‡: 17567493-1

Sample Layers	Asbestos Content
Brown Flooring	ND
Sample Composite Homogeneity:	Moderate

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Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 9, Apoxy Flooring

Lab ID-Version‡: 17567494-1

Sample Layers	Asbestos Content
Brown Flooring	ND
Sample Composite Homogeneity:	Moderate

Location: 10, Carpet Adhesive

Lab ID-Version‡: 17567495-1

Sample Layers	Asbestos Content
Tan Adhesive	ND
Sample Composite Homogeneity:	Good

Location: 11, Carpet Adhesive

Lab ID-Version‡: 17567496-1

Sample Layers	Asbestos Content
Tan Adhesive	ND
Sample Composite Homogeneity:	Good

Location: 12, Carpet Adhesive

Lab ID-Version‡: 17567497-1

Sample Layers	Asbestos Content
Tan Adhesive	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Date of Sampling: 03-29-2024
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ASBESTOS PLM REPORT

Location: 13, Ceramic Tile and Mortar

Lab ID-Version‡: 17567498-1

Sample Layers	Asbestos Content
Multicolored Mortar	ND
Pink Ceramic Tile	ND
Transparent Adhesive	ND
Sample Composite Homogeneity:	Moderate

Location: 14, Ceramic Tile and Mortar

Lab ID-Version‡: 17567499-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Pink Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 15, Ceramic Tile and Mortar

Lab ID-Version‡: 17567500-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Yellow Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 16, 2'x2' Ceramic Tile and Grout

Lab ID-Version‡: 17567501-1

Sample Layers	Asbestos Content
Brown Grout	ND
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 17, 2'x2' Ceramic Tile and Grout

Lab ID-Version‡: 17567502-1

Sample Layers	Asbestos Content
Brown Grout	ND
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 18, 2'x2' Ceramic Tile and Grout

Lab ID-Version‡: 17567503-1

Sample Layers	Asbestos Content
Brown Grout	ND
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 19, Wall Plaster

Lab ID-Version‡: 17567504-1

Sample Layers	Asbestos Content
White Compound 2	ND
Cream Tape	ND
White Compound 1	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 20, Wall Plaster

Lab ID-Version‡: 17567505-1

Sample Layers	Asbestos Content
White Compound 2	ND
Cream Tape	ND
White Compound 1	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

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Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 21, Wall Plaster

Lab ID-Version‡: 17567506-1

Sample Layers	Asbestos Content
White Compound 2	ND
Cream Tape	ND
White Compound 1	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 22, Pipe Insulation

Lab ID-Version‡: 17567507-1

Sample Layers	Asbestos Content
Yellow Insulation with Silver Backing	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 23, Pipe Insulation

Lab ID-Version‡: 17567508-1

Sample Layers	Asbestos Content
Yellow Insulation with Silver Backing	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 24, Pipe Insulation

Lab ID-Version‡: 17567509-1

Sample Layers	Asbestos Content
Yellow Insulation with Silver Backing	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Good

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Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 25, Cove Base Mastic Lab ID-Version‡: 17567510-1

Sample Layers	Asbestos Content
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: 26, Cove Base Mastic Lab ID-Version‡: 17567511-1

Sample Layers	Asbestos Content
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: 27, Cove Base Mastic Lab ID-Version‡: 17567512-1

Sample Layers	Asbestos Content
Beige Mastic	ND
Sample Composite Homogeneity:	Good

Location: 28, Concrete Block Lab ID-Version‡: 17567513-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 29, Concrete Block

Lab ID-Version‡: 17567514-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 30, Concrete Block

Lab ID-Version‡: 17567515-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 31, Stone and Mortar

Lab ID-Version‡: 17567516-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Beige Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 32, Stone and Mortar

Lab ID-Version‡: 17567517-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Beige Tile	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
1010 N Central Avenue, Suite 460, Glendale, CA 91202
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 33, Stone and Mortar

Lab ID-Version‡: 17567518-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Beige Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 34, Concrete Floor

Lab ID-Version‡: 17567519-1

Sample Layers	Asbestos Content
Brown Concrete	ND
Sample Composite Homogeneity:	Good

Location: 35, Concrete Floor

Lab ID-Version‡: 17567520-1

Sample Layers	Asbestos Content
Brown Concrete	ND
Sample Composite Homogeneity:	Good

Location: 36, Concrete Floor

Lab ID-Version‡: 17567521-1

Sample Layers	Asbestos Content
Brown Concrete	ND
Sample Composite Homogeneity:	Good

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 37, Fire Safety Board

Lab ID-Version‡: 17567522-1

Sample Layers	Asbestos Content
Beige Mastic	ND
White Fiberglass Reinforced Plastic	ND
Composite Non-Asbestos Content:	15% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 38, Fire Safety Board

Lab ID-Version‡: 17567523-1

Sample Layers	Asbestos Content
Beige Mastic	ND
White Fiberglass Reinforced Plastic	ND
Composite Non-Asbestos Content:	15% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 39, Fire Safety Board

Lab ID-Version‡: 17567524-1

Sample Layers	Asbestos Content
Beige Mastic	ND
White Fiberglass Reinforced Plastic	ND
Composite Non-Asbestos Content:	15% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 40, 1"x1" Ceramic Tile and Mortar

Lab ID-Version‡: 17567525-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
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Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 41, 1"x1" Ceramic Tile and Mortar

Lab ID-Version‡: 17567526-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 42, 1"x1" Ceramic Tile and Mortar

Lab ID-Version‡: 17567527-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 43, Window Putty

Lab ID-Version‡: 17567528-1

Sample Layers	Asbestos Content
Black Window Putty	ND
Sample Composite Homogeneity:	Good

Location: 44, Window Putty

Lab ID-Version‡: 17567529-1

Sample Layers	Asbestos Content
Black Window Putty	ND
Sample Composite Homogeneity:	Good

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 45, Window Putty

Lab ID-Version‡: 17567530-1

Sample Layers	Asbestos Content
Black Window Putty	ND
Sample Composite Homogeneity:	Good

Location: 46, Brick and Mortar

Lab ID-Version‡: 17567531-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

Location: 47, Brick and Mortar

Lab ID-Version‡: 17567532-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

Location: 48, Brick and Mortar

Lab ID-Version‡: 17567533-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 49, Concrete Slab Lab ID-Version‡: 17567534-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 50, Concrete Slab Lab ID-Version‡: 17567535-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 51, Concrete Slab Lab ID-Version‡: 17567536-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 52, Concrete Block Lab ID-Version‡: 17567537-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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Eurofins EPK Built Environment Testing, LLC
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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 53, Concrete Block

Lab ID-Version‡: 17567538-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 54, Concrete Block

Lab ID-Version‡: 17567539-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUE

003592267

Non-Culturable			
Spore Trap	Tape, Swab, Bulk	BioCasset Swab, Wa C	

CONTACT INFORMATION

Company:	MTGL, Inc.	Address: Special Instructions:	7742 Arjons DR., San Diego, CA 92126
Contact:	Carl Tuckel		
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange B2		
Project Zip Code:	92868	Sampling Date/Time:	3-29-24
PO Number:	SDRE-24-061.1CT	Sampled By:	DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	fiberglass insulation,	B	STD	1 sq in	yellow
2	↓				↓
3					~~4'x4'~~ DB 4'x4'
4	fissured ceiling tile				↓
5	↓				
6					
7	Apoxy flooring				
8	↓				
9					
10	Carpet Adhesive				
11	↓				
12					
13	ceramic tile & mortar				
14	↓				
15					

Spore Trap Analysis	Other Biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuantiTray Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				
												↓				

SAMPLE TYPE CODES

BC - BioCassette	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Darla Beery	3/29/24

RECEIVED BY	DATE & TIME
Carl Tuckel	3/30/24 10:42a

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CHAIN OF CUSTODY eurofins

Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

RE

003592267

CONTACT INFORMATION

Company:	MTGL, Inc.	Address: Special Instructions	7742 Arjons DR., San Diego, CA 92126
Contact:	CARL TUCKER		
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - B2		
Project Zip Code:	92868	Sampling Date/Time:	3-29-24
PO Number:	SDPE-24-061.1CT	Sampled By:	DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
16	2'x2' ceramic tile + grout	B	STD	~1 sq in	floor
17	↓				
18					
19	wall plaster				
20	↓				
21					
22	Pipe insulation				
23	↓				
24					
25	cove base mastic				
26	↓				
27					
28	concrete block				
29	↓				
30					

Non-Culturable

Spore Trap	Tape, Swab, Bulk	BioCassette Swab	Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuantiTray Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
															X				

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
Dayle Beery	3/29/24		3/30/24 1:42a

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Built Environment Testing

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER		Fog	Rain	Snow	Wind	Clear
LEVEL	None					
	Light					
	Moderate					
	Heavy					

003592267

CONTACT INFORMATION			
Company:	MTGL, Inc.	Address:	7742 Arjons Dr., San Diego, CA 92126
Contact:	Carl Tuckel	Special Instructions:	
Phone:	619-454-7851		

PROJECT INFORMATION			
Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange B2		
Project Zip Code:	92868	Sampling Date/Time:	3-29-24
PO Number:	SDRE-24-061.1CT	Sampled By	DB

TURN AROUND TIME CODES - (TAT)	
STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
31	Stone + mortar	B	STD	1 sqm	fireplace
32	↓				↓
33					
34	concrete floor				
35	↓				
36					
37	fire safety Board				
38	↓				
39					
40	1"x1" ceramic tile + mortar				floor
41	↓				↓
42					
43	window putty				Exterior
44	↓				↓
45		↓	↓	↓	

Non-Culturable

Spore Trap	Tape, Swab, Bulk	BioCassette Swab	Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1 Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bact	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuantiTray Sewage Screen	OTHER (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
															X				

SAMPLE TYPE CODES			
BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
Darla Beery	3/29/24		3/30/24 10:42a

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Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
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WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003592267

REQUE

| Non-Culturable | | | | |

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9
EML ID: 3600732

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-11-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	16
Total Samples Analyzed:	16
Total Samples with Layer Asbestos Content > 1%:	1

Location: R-1, Silver Rolled Roofing Over Insulation - 7

Lab ID-Version‡: 17610976-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Felt 3	ND
Black Roofing Felt 2	ND
Black Roofing Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-2, Silver Rolled Roofing Over Insulation - 9

Lab ID-Version‡: 17610977-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt	ND
Black Roofing Felt	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-3, Silver Rolled Roofing Over Insulation - 5

Lab ID-Version‡: 17610978-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 3	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-4, Silver Rolled Roofing Over Insulation - 2

Lab ID-Version‡: 17610979-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-5, Silver Rolled Roofing Over Insulation - 2

Lab ID-Version‡: 17610980-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 3	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-6, Roof Mastic - 9

Lab ID-Version‡: 17610981-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-7, Roof Mastic - 7

Lab ID-Version‡: 17610982-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-8, Roof Mastic - 5

Lab ID-Version‡: 17610983-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-9, Roof Mastic - 5

Lab ID-Version‡: 17610984-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-10, Roof Mastic - 2

Lab ID-Version‡: 17610985-1

Sample Layers	Asbestos Content
Black/White Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R-11, HVAC Caulk/Tape - 7

Lab ID-Version‡: 17610986-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material	ND
Gray/White Caulk	ND
Sample Composite Homogeneity:	Poor

Location: R-12, HVAC Caulk/Tape - 5

Lab ID-Version‡: 17610987-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-13, HVAC Caulk/Tape - 2

Lab ID-Version‡: 17610988-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: R-14, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610989-1

Sample Layers	Asbestos Content
Green Mastic	ND
Gray Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: R-15, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610990-1

Sample Layers	Asbestos Content
White Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: R-16, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610991-1

Sample Layers	Asbestos Content
Black Mastic	4% Chrysotile
Green Mastic	ND
White Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQU

Non-Culturable

003600732

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions: A 1st positive stop 7070

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B-2, 5, 7 and 9
Project Zip Code: 92868
Sampling Date/Time: 5 4-2-24
PO Number: SDRE-24-061.1CT
Sampled By: ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
R-1	Silver Rolled roofing over insulation	B	STD	~ 1 sq in	7
R-2					9
R 3					5
R 4					2
R 5					DB
R 6	Roof mastic				9
R 7					7
R 8					5
R 9					5
R 10					DB 2
R 11	HVAC Caulk/Tape				7
R 12					5
R 13					2
R 14					
R 15	VOID DB 4-2-24				

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	Quant/Tray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thurgood Michelle Christian	4/5/24

RECEIVED BY	DATE & TIME
CS	4/8/24 0604

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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CHAIN OF CUSTODY eurofins

www.eurofinsus.com/Built

Built Environment Testing

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUESTI

003600732

CONTACT INFORMATION

Company:	MTGL, Inc.	Address: Special Instructions:	7742 Arjons DR., San Diego, CA 92126
Contact:	CARL TUCKER		
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - B2		
Project Zip Code:	92868	Sampling Date/Time:	4/2/24
PO Number:	SDRE-24-061.1CT	Sampled By:	CR

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
R14 ~~R16~~ (R17)	Vinyl cap sheet	B	STD		B - 2
R15 (R17)					B - 2
R16 ~~R17~~					B - 2

| Non-Culturable | | | Cultu | | | | |

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

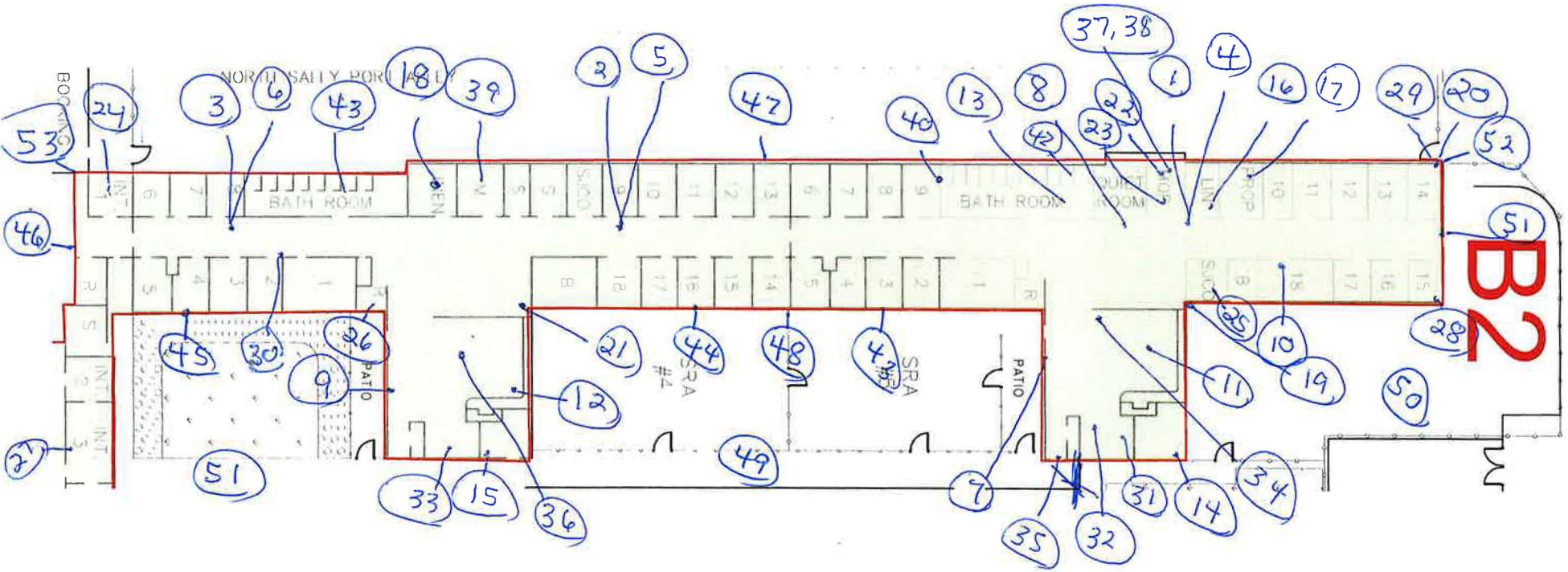
Bulk Asbestos Analysis

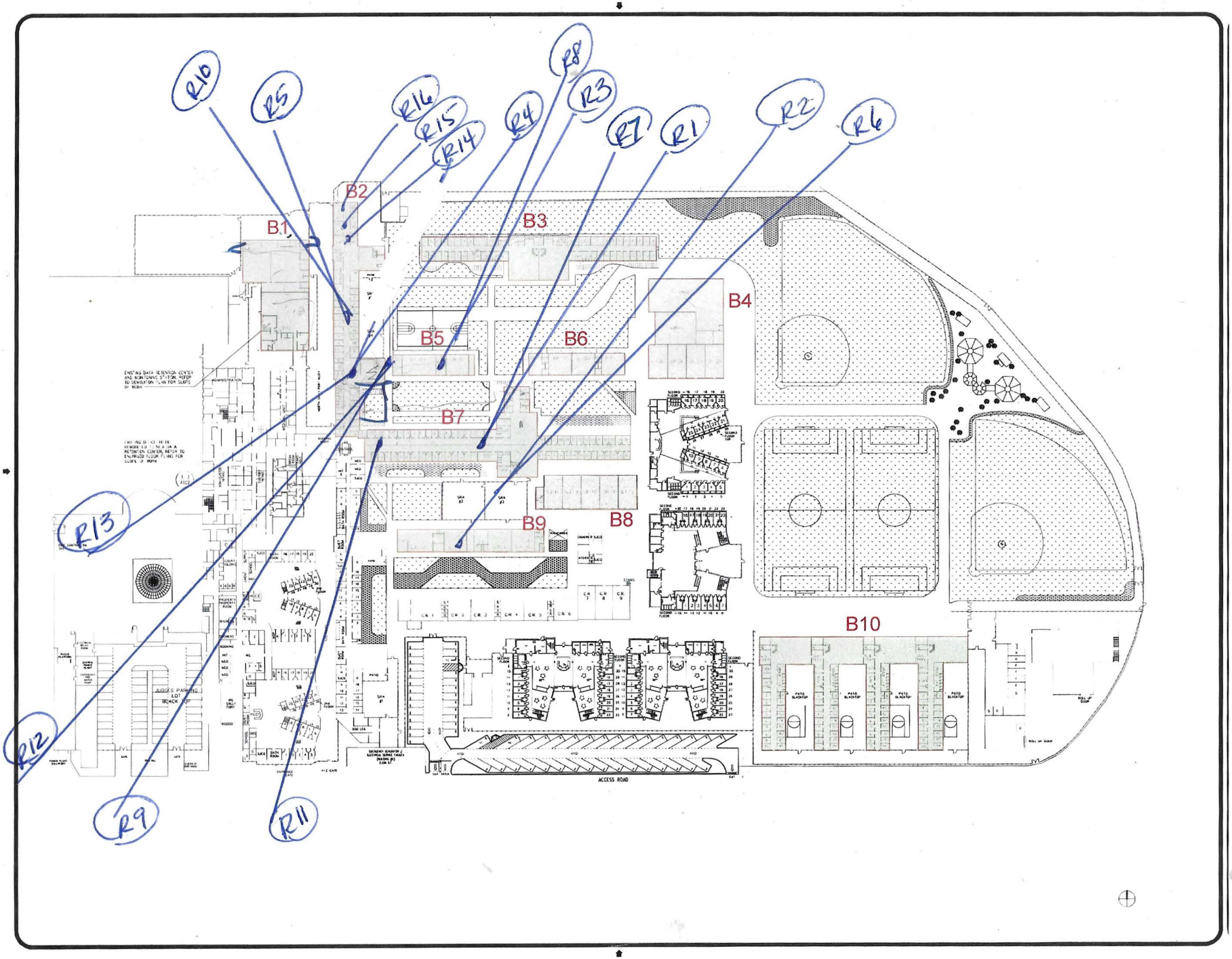
Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)

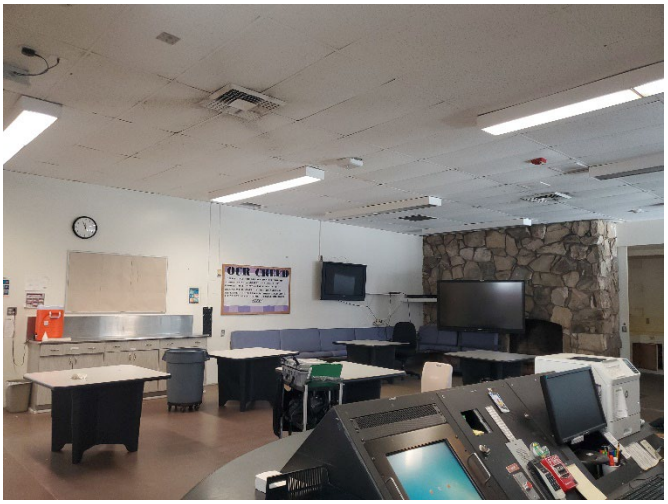

B2
BATH ROOM
BATH ROOM
PATIO
PATIO
SRA #4
SRA
NORTH SALLY PORT
BOOKING


R10
R5
R16
R15
R14
R4
R8
R3
R7
R1
R2
R6
R13
R12
R9
R11
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
ACCESS ROAD

APPENDIX 3

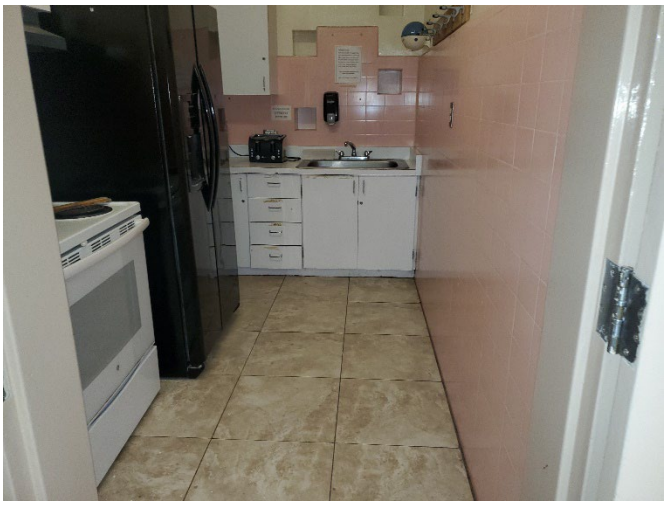
PHOTO DOCUMENTATION

Building 2

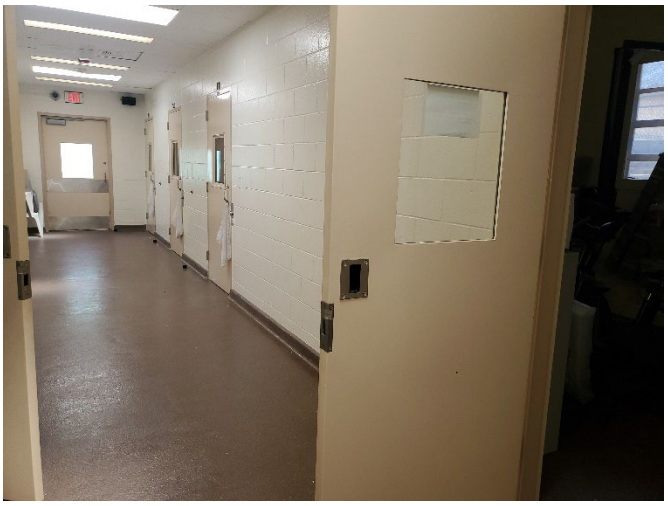


1. Typical view of common areas.

2. Typical view of bathrooms.



3. View of kitchen.



4. View of hallways and cells.

5. Typical view of cell.

6. View of north end of Building 2. ACM mastic under vinyl cap sheet.

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director:_____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

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National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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National Association of Training and Environmental Consulting

Asbestos • Lead • Mold • HAZWOPER

PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting

*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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National Association of Training and Environmental Consulting
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(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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Important Industry Contacts

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(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

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SCAQMD: Ph# (909) 396-3739
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BAAQMD: Ph# (415) 749-4762

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 2
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 22, 2024

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SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 2 (Single story, wood frame with brick and grout on a concrete slab.)

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on April 1, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows, and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 $mg/cm^{2\ or\ greater}$ * (Please see attachment I for a detail report of findings.)

- No lead-based paint greater than 1.0 mg/cm2 was identified on the components tested.

- **Intact lead containing (<1.0 mg/cm2) pink ceramic wall, base tile was identified in the bathrooms and staff bathrooms.**

- **Intact lead containing (<1.0 mg/cm2) pink countertop and wall tile was identified in the kitchen.**

- **Intact lead containing (<1.0 mg/cm2) porcelain sink was identified in the Room 122.**

- **Intact lead containing (<1.0 mg/cm2) yellow countertop and wall tile was identified in the kitchenette.**

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

Deteriorated lead-based paint was not identified on the accessible components tested however, lead containing, ceramic walls, base tile, countertop tile and a white porcelain sink was identified and Title 8, CCR Section 1532.1 will apply to minimize a lead dust hazard and work protection during demolition.

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the

substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.
Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered "lead-based". The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 mg/cm^{2,} 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified

Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of "Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 2, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1	B 2-M		Calibration						Red NIST	1.0	
2	B 2-M		Calibration						Red NIST	1.0	
3	B 2-M		Calibration						Red NIST	1.0	
4	B 2-M	A	Common Rm	Wall			Intact	Concrete	White	.17	Negative
5	B 2-M	B	Common Rm	Wall			Intact	Concrete	White	.11	Negative
6	B 2-M	C	Common Rm	Wall			Intact	Concrete	White	.21	Negative
7	B 2-M	D	Common Rm	Wall			Intact	Concrete	White	.15	Negative
8	B 2-M	B	Common Rm	Door			Intact	Metal	Blue	0.07	Negative
9	B 2-M	B	Common Rm	Door	Frame		Intact	Metal	Blue	.013	Negative
10	B 2-M	B	Common Rm	Floor			Intact	Concrete	Brown	<LOD	Negative
11	B 2-M	D	Common Rm	Wall	Cabinet		Intact	Wood	Brown	<LOD	Negative
12	B 2-M	A	Common Rm	Wall	Cabinet		Intact	Wood	Brown	<LOD	Negative
13	B 2-M	C	Common Rm	Ceiling	Conduit		Intact	Metal	White	.03	Negative
14	B 2-M	A	Room 123	Door			Intact	Metal	Blue	.19	Negative
15	B 2-M	A	Room 123	Door	Frame		Intact	Metal	Blue	0.06	Negative
16	B 2-M	A	Room 123	Floor	Tile		Intact	Ceramic	Pink	<LOD	Negative
17	B 2-M	A	Room 123	Wall	Tile		Intact	Ceramic	Pink	10.1	Positive
18	B 2-M	C	Room 123	Counter	Tile		Intact	Ceramic	Pink	7.8	Positive
19	B 2-M	A	Bathroom	Door			Intact	Metal	Blue	0.17	Negative
20	B 2-M	A	Bathroom	Door	Frame		Intact	Metal	Blue	. 09	Negative
21	B 2-M	C	Bathroom	Floor	Tile		Intact	Ceramic	Pink	<LOD	Negative
22	B 2-M	C	Bathroom	Wall	Tile		Intact	Ceramic	Pink	9.7	Positive
23	B 2-M	A	Bathroom	Window	Frame		Intact	Metal	Blue	.17	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 2, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
24	B 2-M	A	Bathroom	Ceiling			Intact	Concrete	White	0.08	
25	B 2-M	C	Cell 2	Door			Intact	Metal	Blue	<LOD	Negative
26	B 2-M	C	Cell 2	Door	Frame		Intact	Metal	Blue	.15	Negative
27	B 2-M	A	Cell 2	Window	Screen		Intact	Metal	White	.21	Negative
28	B 2-M	A	Cell 2	Window	Casing		Intact	Concrete	White	0.02	Negative
29	B 2-M	A	Cell 2	Wall			Intact	Concrete	White	.02	Negative
30	B 2-M	B	Cell 2	Wall			Intact	Concrete	White	0.10	Negative
31	B 2-M	C	Cell 2	Wall			Intact	Concrete	White	0.07	Negative
32	B 2-M	D	Cell 2	Wall			Intact	Concrete	White	0.07	Negative
33	B 2-M	C	Cell 4	Door			Intact	Metal	Blue	<LOD	Negative
34	B 2-M	C	Cell 4	Door	Frame		Intact	Metal	Blue	.12	Negative
35	B 2-M	A	Cell 4	Window	Screen		Intact	Metal	White	.11	Negative
36	B 2-M	A	Cell 4	Window	Casing		Intact	Concrete	White	0.11	Negative
37	B 2-M	A	Cell 4	Wall			Intact	Concrete	White	.10	Negative
38	B 2-M	B	Cell 4	Wall			Intact	Concrete	White	0.07	Negative
39	B 2-M	C	Cell 4	Wall			Intact	Concrete	White	0.12	Negative
40	B 2-M	D	Cell 4	Wall			Intact	Concrete	White	0.10	Negative
41	B 2-M	A	Cell 9	Door			Intact	Metal	Blue	<LOD	Negative
42	B 2-M	A	Cell 9	Door	Frame		Intact	Metal	Blue	.17	Negative
43	B 2-M	C	Cell 9	Window	Screen		Intact	Metal	White	.14	Negative
44	B 2-M	C	Cell 9	Window	Casing		Intact	Concrete	White	0.12	Negative
45	B 2-M	A	Cell 9	Wall			Intact	Concrete	White	.11	Negative
46	B 2-M	B	Cell 9	Wall			Intact	Concrete	White	0.19	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 2, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
47	B 2-M	B	Room 122	Wall	Sink		Intact	Porcelain	White	6.6	Positive
48	B 2-M	C	Room 120	Window	Screen	Frame	Intact	Metal	White	.07	Negative
49	B 2-M	C	Room 120	Wall			Intact	Concrete	White	<LOD	Negative
50	B 2-M	A	Room 120	Door			Intact	Metal	Blue	0.1	Negative
51	B 2-M	A	Room 120	Door	Frame		Intact	Metal	Blue	0.11	Negative
52	B 2-M	A	Staff RR	Wall	Base	Tile	Intact	Ceramic	Pink	4.9	Positive
53	B 2-M	A	Staff RR	Floor	Tile		Intact	Ceramic	Pink	<LOD	Negative
54	B 2-M	B	Staff RR	Wall	Sink		Intact	Porcelain	White	<LOD	Negative
55	B 2-M	A	Room 100	A/H	Frame		Fair	Metal	Red	0.07	Negative
56	B 2-M	A	Room 100	Floor			Poor	Concrete	Red	<LOD	Negative
57	B 2-O	A	Common Rm	Door			Intact	Metal	Tan	0.07	Negative
58	B 2-O	A	Common Rm	Door	Frame		Intact	Metal	Tan	.021	Negative
59	B 2-O	A	Common Rm	Wall			Intact	Concrete	White	.10	Negative
60	B 2-O	B	Common Rm	Wall			Intact	Concrete	White	.17	Negative
61	B 2-O	C	Common Rm	Wall			Intact	Concrete	White	.12	Negative
62	B 2-O	D	Common Rm	Wall			Intact	Concrete	White	.09	Negative
63	B 2-O	C	Common Rm	Floor			Intact	Concrete	Brown	<LOD	Negative
64	B 2-O	A	Common Rm	Wall	Tile		Intact	Ceramic	Yellow	5.6	Positive
65	B 2-O	A	Common Rm	Counter	Tile		Intact	Ceramic	Yellow	6.1	Positive
66	B 2-O	A	Common Rm	Wall	Cabinet	Door	Intact	Wood	White	<LOD	Negative
67	B 2-O	A	Common Rm	Wall	Cabinet	Casing	Intact	Wood	White	<LOD	Negative
68	B 2-O	B	Common Rm	Door			Intact	Metal	Tan	<LOD	Negative
69	B 2-O	B	Common Rm	Door	Frame		Intact	Metal	Tan	.04	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 2, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
70	B 2-M	B	Common Rm	Window 1	Frame		Intact	Metal	Brown	<LOD	Negative
71	B 2-M	B	Common Rm	Window 1	Sill		Intact	Metal	Brown	.12	Negative
72	B 2-M	B	Common Rm	Wall	Fire Box		Intact	Metal	Red	<LOD	Negative
73	B 2-M	C	Room 122	Wall	Tile		Intact	Ceramic	Pink	8.7	Positive
74	B 2-M	C	Room 122	Wall	Cabinet	Door	Intact	Wood	White	<LOD	Negative
75	B 2-M	C	Room 122	Wall	Cabinet	Casing	Intact	Wood	White	<LOD	Negative
76	B 2-M	A	Room 122	Floor	Tile		Intact	Ceramic	Tan	LOD	Negative
77	B 2-M	A	Room 122	Door	Frame		Intact	Metal	White	0.10	Negative
78	B 2-M	A	Room 109	Window	Frame		Intact	Metal	White	0.13	Negative
79	B 2-M	A	Room 109	Wall			Intact	Concrete	White	0.09	Negative
80	B 2-O	C	Room 109	Wall			Intact	Concrete	White	0.12	Negative
81	B 2-O	B	Room 109	Wall			Intact	Concrete	White	0.03	Negative
82	B 2-O	C	Room 109	Door			Intact	Metal	Tan	0.02	Negative
83	B 2-O	C	Room 109	Door	Frame		Intact	Metal	Tan	.16	Negative
84	B 2-O	A	Staff RR	Wall	Base	Tile	Intact	Ceramic	Pink	3.9	Positive
85	B 2-O	A	Staff RR	Floor	Tile		Intact	Ceramic	Pink	<LOD	Negative
86	B 2-O	B	Staff RR	Wall	Sink		Intact	Porcelain	White	<LOD	Negative
87	B 2-O	C	Staff RR	Door			Intact	Metal	Tan	<LOD	Negative
88	B 2-O	C	Staff RR	Door	Frame		Intact	Metal	Tan	0.13	Negative
89	B 2-O	A	Bathroom	Door			Intact	Metal	Blue	0.17	Negative
90	B 2-O	A	Bathroom	Door	Frame		Intact	Metal	Blue	. 09	Negative
91	B 2-O	C	Bathroom	Floor	Tile		Intact	Ceramic	Pink	<LOD	Negative
92	B 2-O	C	Bathroom	Wall	Tile		Intact	Ceramic	Pink	7.9	Positive

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 2, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
93	B 2-O	A	Bathroom	Ceiling			Intact	Concrete	White	<LOD	Negative
94	B 2-O	C	Bathroom	Window	Frame		Intact	Metal	Black	<OD	Negative
95	B 2-O	C	Cell 15	Door	Frame		Intact	Metal	Tan	<LOD	Negative
96	B 2-O	C	Cell 15	Door			Intact	Metal	Tan	0.27	Negative
97	B 2-O	C	Cell 15	Wall			Intact	Concrete	White	0.28	Negative
98	B 2-O	C	Cell 15	Floor			Intact	Concrete	Brown	<LOD	Negative
99	B 2-O	A	Cell 15	Window	Screen		Intact	Metal	White	0.14	Negative
100	B 2-O	A	Cell 15	Window	Frame		Intact	Metal	White	0.12	Negative
101	B 2-O	C	Cell 17	Door	Frame		Intact	Metal	Tan	<LOD	Negative
102	B 2-O	C	Cell 17	Door			Intact	Metal	Tan	0.17	Negative
103	B 2-O	C	Cell 17	Wall			Intact	Concrete	White	0.21	Negative
104	B 2-O	C	Cell 17	Floor			Intact	Concrete	Brown	<LOD	Negative
105	B 2-O	A	Cell 17	Window	Screen		Intact	Metal	White	0.11	Negative
106	B 2-O	A	Cell 17	Window	Frame		Intact	Metal	White	0.12	Negative
107	B 2-O	A	Cell 12	Door	Frame		Intact	Metal	Tan	<LOD	Negative
108	B 2-O	A	Cell 12	Door			Intact	Metal	Tan	0.23	Negative
109	B 2-O	A	Cell 12	Wall			Intact	Concrete	White	0.19	Negative
110	B 2-O	A	Cell 12	Floor			Intact	Concrete	Brown	<LOD	Negative
111	B 2-O	C	Cell 12	Window	Screen		Intact	Metal	White	0.09	Negative
112	B 2-O	C	Cell 12	Window	Frame		Intact	Metal	White	0.11	Negative
113	B 2-O	D	Hall	Door	Frame		Intact	Metal	Tan	0.12	Negative
114	B 2-O	D	Hall	Door			Intact	Metal	Tan	0.21	Negative
115	B 2-O	D	Hall	Floor			Intact	Concrete	Brown	<LOD	Negative
116	B 2-O	D	Hall	Ceiling			Intact	Concrete	White	0.07	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 2, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
117	B2	A	Exterior	Door 1	Door		Intact	Metal	Green	0.08	Negative
118	B2	A	Exterior	Door 1	Frame		Intact	Metal	Green	0.17	Negative
119	B2	A	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
120	B2	A	Exterior	Door 3	Door		Intact	Metal	Green	0.11	Negative
121	B2	A	Exterior	Door 3	Frame		Intact	Metal	Green	0.23	Negative
122	B2	A	Exterior	Wall	Facia		Fair	Metal	Grey	<LOD	Negative
123	B2	A	Exterior	Wall, North			Intact	Concrete	White	<LOD	Negative
124	B2	C	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
125	B2	C	Exterior	Window 3	Frame		Intact	Metal	Black	0.05	Negative
126	B2	C	Exterior	Window 5	Frame		Intact	Metal	Black	0.11	Negative
127	B2	C	Exterior	Window 7	Frame		Intact	Metal	Black	0.07	Negative
128	B2	A	Exterior	Window 3	Frame		Intact	Metal	Black	0.12	Negative
129	B2	A	Exterior	Window 5	Frame		Intact	Metal	Black	0.09	Negative
130	B2	A	Exterior	Window 7	Frame		Intact	Metal	Black	0.17	Negative
131	B2	C	Exterior	Door	Door		Intact	Metal	Green	0.14	Negative
132	B2	C	Exterior	Door	Frame		Intact	Metal	Green	0.19	Negative
133	B2	D	Exterior	Door 1	Door		Intact	Metal	Green	0.12	Negative
134	B2	D	Exterior	Door 1	Frame		Intact	Metal	Green	0.21	Negative
135	B2	D	Exterior	Door 2	Door		Intact	Metal	Green	0.09	Negative
136	B2	D	Exterior	Door 2	Frame		Intact	Metal	Green	0.19	Negative
137			Calibration						Red NIST	0.9	Calibration

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING

B
C
D
52
22
41
17 18
84
92
104 105
73
PATIO
SRA #4
SRA #5
PATIO
BATH ROOM
QUIET ROOM
B2

Side A

Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Michelle Ehresman

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 4/1/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 2)	Orange	Orange	92868

Construction date (year) of structure	Type of structure	Children living in structure?
Unknown	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other _____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☑ Other Lead containing ceramic til

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/22/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO RENOVATE RIGHT

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

Important lead hazard information for families, child care providers and schools.

EPA

LEAD-SAFE EPA CERTIFIED FIRM

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

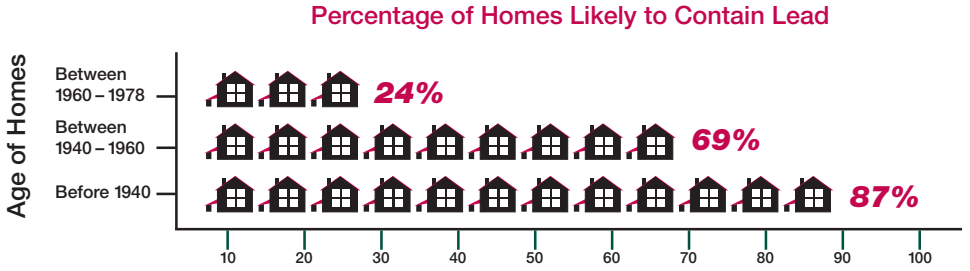
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 3

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 22, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Full Comrehensive

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 10

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: March 29, 2024 to April 2, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3592263/3600730
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 10,000

Structure Frame: Wood
If other, describe: None

Structure Foundation: Concrete Slab On Grade
If other, describe: None

Number of Floors: 1

Building Occupied: No

SUSPECT MATERIALS OBSERVED

Suspect Materials Observed During the Asbestos Survey Conducted

- 12”x12” Acoustic Ceiling Tile w/Mastic and 2’x4’ Fissured Ceiling Tiles
- Epoxy Flooring
- Concrete Block Wall and Concrete Floor
- Carpet Glue
- Ceiling Plaster
- Concrete Wall
- Ceramic Wall Tile and Ceramic Floor Tile
- Pipe Elbow Insulation and Fiberglass Pipe Wrap
- Concrete Texture Coat (Soffit)
- Asphalt
- Exterior Concrete Block
- Exterior Stone Wall
- Concrete Sidewalk
- Silver Coated Rolled Roofing and Roof Mastic
- HVAC Seam Caulk

Inaccessible Materials Presumed to be Asbestos Content: None

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material* Description	***Location****	***Sample #***	***Approximate Quantity*****	***AHERA Rank*****	***Friability/ Material Type***	***Damage Category***	***Quantity of Contamination (If any) *****	***Asbestos Content***
Pipe Elbow Insulation	Throughout	31	Undetermined as elbows may run behind walls or inside soffits.	7	Friable	1	None	**Tan Powder Material w/Mesh and Tape 15%**
Note: Samples 32 and 33 not analyzed as part of progressive set.								

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

****MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable)**

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
12”x12” Acoustic Ceiling Tile (Wall)	1, 2, 3
Epoxy Flooring	4, 5, 6
Concrete Block Wall	7, 8, 9
Concrete Floor	10, 11, 12
2’x4’ Fissured Ceiling Tile	13, 14, 15
Carpet Glue	16, 17, 18
Ceiling Plaster	19, 20, 21
Concrete Wall	22, 23, 24
Ceramic Wall tile	25, 26, 27
Ceramic Floor Tile	28, 29, 30
Fiberglass Pipe Wrap	34, 35, 36
Concrete Texture Coat (Ext. Soffit)	37, 38, 39
Asphalt	40, 41, 42
Exterior Concrete Block	43, 44, 45
Stone Wall	46, 47, 48
Concrete Sidewalk	49, 50 51
Silver Coated Rolled Roofing	53, 54, 55
Silver Coated Roof Mastic	56, 57, 58
HVAC Seam Caulk	59, 60, 61

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this asbestos survey, materials observed and tested for asbestos were positive for asbestos content.

The pipe elbow insulation was reported to contain >1% asbestos.

RECOMMENDATIONS

If during renovation or demolition activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection.

All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B3
EML ID: 3592263

Approved by:

Technical Manager
Ryan Talaski-Brown

Dates of Analysis:
Asbestos PLM: 04-03-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 200741-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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4321 S. Corbett Ave. Suite A, Portland, OR 97239
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B3

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	51
Total Samples Analyzed:	49
Total Samples with Layer Asbestos Content > 1%:	1

Location: 1, 12"x12" Ceiling Tile/Mastic

Lab ID-Version‡: 17567576-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Orange Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	70% Cellulose < 1% Talc
Sample Composite Homogeneity:	Moderate

Location: 2, 12"x12" Ceiling Tile/Mastic

Lab ID-Version‡: 17567577-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Orange Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	70% Cellulose < 1% Talc
Sample Composite Homogeneity:	Moderate

Location: 3, 12"x12" Ceiling Tile/Mastic

Lab ID-Version‡: 17567578-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Orange Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	70% Cellulose < 1% Talc
Sample Composite Homogeneity:	Moderate

Location: 4, Epoxy Flooring

Lab ID-Version‡: 17567579-1

Sample Layers	Asbestos Content
Semi-Transparent Flooring	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 5, Epoxy Flooring

Lab ID-Version‡: 17567580-1

Sample Layers	Asbestos Content
Semi-Transparent Flooring	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 6, Epoxy Flooring

Lab ID-Version‡: 17567581-1

Sample Layers	Asbestos Content
Semi-Transparent Flooring	ND
Sample Composite Homogeneity:	Moderate

Location: 7, Concrete Block Wall

Lab ID-Version‡: 17567582-1

Sample Layers	Asbestos Content
Gray Concrete with Paint	ND
Sample Composite Homogeneity:	Poor

Location: 8, Concrete Block Wall

Lab ID-Version‡: 17567583-1

Sample Layers	Asbestos Content
Gray Concrete with Paint	ND
Sample Composite Homogeneity:	Poor

Location: 9, Concrete Block Wall

Lab ID-Version‡: 17567584-1

Sample Layers	Asbestos Content
Gray Concrete with Paint	ND
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 10, Concrete Floor

Lab ID-Version‡: 17567585-1

Sample Layers	Asbestos Content
Tan Concrete	ND
Sample Composite Homogeneity:	Poor

Location: 11, Concrete Floor

Lab ID-Version‡: 17567586-1

Sample Layers	Asbestos Content
Tan Concrete	ND
Sample Composite Homogeneity:	Poor

Location: 12, Concrete Floor

Lab ID-Version‡: 17567587-1

Sample Layers	Asbestos Content
Tan Concrete	ND
Sample Composite Homogeneity:	Poor

Location: 13, 2"x4" Fissured Ceiling Tile

Lab ID-Version‡: 17567588-1

Sample Layers	Asbestos Content
Light Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 14, 2"x4" Fissured Ceiling Tile

Lab ID-Version‡: 17567589-1

Sample Layers	Asbestos Content
Light Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 15, 2"x4" Fissured Ceiling Tile

Lab ID-Version‡: 17567590-1

Sample Layers	Asbestos Content
Light Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 16, Carpet Glue

Lab ID-Version‡: 17567591-1

Sample Layers	Asbestos Content
Tan Glue	ND
Composite Non-Asbestos Content:	5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 17, Carpet Glue

Lab ID-Version‡: 17567592-1

Sample Layers	Asbestos Content
Tan Glue	ND
Composite Non-Asbestos Content:	5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 18, Carpet Glue

Lab ID-Version‡: 17567593-1

Sample Layers	Asbestos Content
Tan Glue	ND
Composite Non-Asbestos Content:	5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 19, Ceiling Plaster

Lab ID-Version‡: 17567594-1

Sample Layers	Asbestos Content
Beige Plaster	ND
White Skim Coat with Paint	ND
Sample Composite Homogeneity:	Poor

Location: 20, Ceiling Plaster

Lab ID-Version‡: 17567595-1

Sample Layers	Asbestos Content
Beige Plaster	ND
White Skim Coat with Paint	ND
Sample Composite Homogeneity:	Poor

Location: 21, Ceiling Plaster

Lab ID-Version‡: 17567596-1

Sample Layers	Asbestos Content
Beige Plaster	ND
White Skim Coat with Paint	ND
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 22, Concrete Wall Lab ID-Version‡: 17567597-1

Sample Layers	Asbestos Content
Gray Concrete with Paint	ND
Sample Composite Homogeneity:	Poor

Location: 23, Concrete Wall Lab ID-Version‡: 17567598-1

Sample Layers	Asbestos Content
Gray Concrete with Paint	ND
Sample Composite Homogeneity:	Poor

Location: 24, Concrete Wall Lab ID-Version‡: 17567599-1

Sample Layers	Asbestos Content
Gray Concrete with Paint	ND
Sample Composite Homogeneity:	Poor

Location: 25, Ceramic Wall Tile Lab ID-Version‡: 17567600-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Yellow Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 26, Ceramic Wall Tile Lab ID-Version‡: 17567601-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Yellow Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 27, Ceramic Wall Tile Lab ID-Version‡: 17567602-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Yellow Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 28, Ceramic Floor Tile Lab ID-Version‡: 17567603-1

Sample Layers	Asbestos Content
Gray Mortar	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 29, Ceramic Floor Tile Lab ID-Version‡: 17567604-1

Sample Layers	Asbestos Content
Gray Mortar	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 30, Ceramic Floor Tile

Lab ID-Version‡: 17567605-1

Sample Layers	Asbestos Content
Gray Mortar	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 31, Pipe Elbow Insulation

Lab ID-Version‡: 17567606-1

Sample Layers	Asbestos Content
Tan Powdery Material with tan mesh and paint	15% Chrysotile
Sample Composite Homogeneity:	Poor

Comments: Samples 32 and 33 not analyzed as part of progressive set.

Location: 34, Fiberglass Pipe Wrap

Lab ID-Version‡: 17567609-1

Sample Layers	Asbestos Content
Yellow Insulation with off-white mesh	ND
Composite Non-Asbestos Content:	50% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 35, Fiberglass Pipe Wrap

Lab ID-Version‡: 17567610-1

Sample Layers	Asbestos Content
Yellow Insulation with off-white mesh	ND
Composite Non-Asbestos Content:	50% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 36, Fiberglass Pipe Wrap

Lab ID-Version‡: 17567611-1

Sample Layers	Asbestos Content
Yellow Insulation with off-white mesh	ND
Composite Non-Asbestos Content:	50% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 37, Concrete Texture Coat

Lab ID-Version‡: 17567612-1

Sample Layers	Asbestos Content
Gray Powdery Material with gray paint	ND
Sample Composite Homogeneity:	Good

Location: 38, Concrete Texture Coat

Lab ID-Version‡: 17567613-1

Sample Layers	Asbestos Content
Gray Powdery Material with gray paint	ND
Sample Composite Homogeneity:	Good

Location: 39, Concrete Texture Coat

Lab ID-Version‡: 17567614-1

Sample Layers	Asbestos Content
Gray Powdery Material with gray paint	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 40, Asphalt Lab ID-Version‡: 17567615-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

Location: 41, Asphalt Lab ID-Version‡: 17567616-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

Location: 42, Asphalt Lab ID-Version‡: 17567617-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

Location: 43, Exterior Concrete Block Lab ID-Version‡: 17567618-1

Sample Layers	Asbestos Content
Gray Concrete with gray paint	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 44, Exterior Concrete Block Lab ID-Version‡: 17567619-1

Sample Layers	Asbestos Content
Gray Concrete with gray paint	ND
Sample Composite Homogeneity:	Good

Location: 45, Exterior Concrete Block Lab ID-Version‡: 17567620-1

Sample Layers	Asbestos Content
Gray Concrete with gray paint	ND
Sample Composite Homogeneity:	Good

Location: 46, Stone Wall Lab ID-Version‡: 17567621-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 47, Stone Wall Lab ID-Version‡: 17567622-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
4321 S. Corbett Ave. Suite A, Portland, OR 97239
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B3

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 48, Stone Wall Lab ID-Version‡: 17567623-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 49, Concrete Sidewalk Lab ID-Version‡: 17567624-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 50, Concrete Sidewalk Lab ID-Version‡: 17567625-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 51, Concrete Sidewalk Lab ID-Version‡: 17567626-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003592263

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL Tuckel
Phone: 619-454-7851

Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions: *1st positive Stop 71%

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B3
Project Zip Code: 92868
Sampling Date/Time: 3/29/24
Sampled By: S
PO Number: SDPE-24-061.1CT

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

REQUE

Non-Culturable | C

Spore Trap | Tape, Swab, Bulk | BioCassett Swab, Wal Co

Spore Trap Analysis | Other biological particles - supplement | Direct Microscopic Exam (Qualitative) | Quantitative spore count direct exam | Dust Characterization | 1-Media Surface Fungi (Genus ID + Asp. spp.) | Culturable Air Fungi (Genus ID + Asp. spp.) | Gram Stain and Counts (Culturable Air and Surface Bacteria) | Legionella culture | Total Coliform, E.coli (Presence/Absence) | QuantiTray Sewage Screen | OTHER: (please specify test) | Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400) | Asbestos Bulk - PLM | Lead (Pb) - Flame AA | PCR (please specify test) | Allergens (please specify test)

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	12"x12" Ceiling Tile/Mastic	B	STD	~1-2	
2	↓				
3	Epoxy Flooring				
4	↓				
5					
6	Concrete Block Wall				
7	↓				
8					
9	Concrete Floor				
10	↓				
11					
12	2"x4" Fissured Ceiling Tile				
13	↓				
14					
15					

SAMPLE TYPE CODES

BC - BioCassette®	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Christensen Michelle Christensen	3/29/24

RECEIVED BY	DATE & TIME
Chris Cheng	3/30/24 1014a

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER		Fog	Rain	Snow	Wind	Clear
LEVEL	None					
	Light					
	Moderate					
	Heavy					

R

003592263

Non-Culturable		
Spore Trap	Tape, Swab, Bulk	BioC Swa

CONTACT INFORMATION

Company:	MTGL, Inc.	Address:	7742 Arjons DR., San Diego, CA 92126
Contact:	CARL TUCKER	Special Instructions:	
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange 33 B4C		
Project Zip Code:	92868	Sampling Date/Time:	3/29/24
PO Number:	SDRE-24-061.1CT	Sampled By:	

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
16	Carpet Glue	B	STD	~1" ø	
17	↓				
18	Ceiling Plaster				
19	↓				
20					
21					
22	Concrete Wall				
23	↓				
24					
25	Ceramic Wall Tile				
26	↓				
27					
28	Ceramic Floor Tile				
29	↓				
30					

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
Michelle Thesman Michelle Thesman	3/29/24		3/30/24 10:45

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Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003592263

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions:

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B3
Project Zip Code: 92868
Sampling Date/Time: 3/29/24 (W)
PO Number: SDPE-24-061.10
Sampled By:

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
31	Pipe Elbow Insulation	B	STD	~1" 2	
32	↓	↓	↓	↓	
33	Fiberglass Pipe Wrap	↓	↓	↓	
34	↓	↓	↓	↓	
35	Concrete Texture Coat	↓	↓	↓	Ext. Soffit
36	↓	↓	↓	↓	↓
37	Asphalt	↓	↓	↓	
38	↓	↓	↓	↓	
39	& Exterior Concrete Block	↓	↓	↓	
40	↓	↓	↓	↓	
41	↓	↓	↓	↓	
42	↓	↓	↓	↓	
43	↓	↓	↓	↓	
44	↓	↓	↓	↓	
45	↓	↓	↓	↓	

RE

Non-Culturable

Spore Trap	Tape, Swab, Bulk	BioCa Swab

Spore Trap Analysis
Other biological particles - supplement
Direct Microscopic Exam (Qualitative)
Quantitative spore count direct exam
Dust Characterization
1-Media Surface Fungi (Genus ID + Asp. spp.)
Culturable Air Fungi (Genus ID + Asp. spp.)
Gram Stain and Counts (Culturable Air and Surface Bacteria)
Legionella culture
Total Coliform, E.coli (Presence/Absence)
QuantiTray-Sewage Screen
OTHER: (please specify test)
Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)
Asbestos Bulk - PLM
Lead (Pb) - Flame AA
PCR (please specify test)
Allergens (please specify test)

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Ehresman	3/29/24

RECEIVED BY	DATE & TIME
	3/30/24 10:42a

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East: (866) 871-1984
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West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

RE

003592263

Non-Culturable

Spore Trap | Tape, Swab, Bulk | BioC Swa

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions:

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B3
Project Zip Code: 92868
Sampling Date/Time: S 3/29/24 W
PO Number: SDRE-24-061.1CT
Sampled By:

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
46	Stone Wall	B	STD	2 1"2	Exterior
47	↓	↓	↓	↓	↓
48	Concrete Sidewalk				
49	↓				
50					
51					

Spore Trap Analysis | Other biological particles - supplement | Direct Microscopic Exam (Qualitative) | Quantitative spore count direct exam | Dust Characterization | 1-Media Surface Fungi (Genus ID + Asp. spp.) | Culturable Air Fungi (Genus ID + Asp. spp.) | Gram Stain and Counts (Culturable Air and Surface Bacteria) | Legionella culture | Total Coliform, E coli (Presence/Absence) | QuantiTray-Sewage Screen | OTHER (please specify test) | Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400) | Asbestos Bulk - PLM | Lead (Pb) - Flame AA | PCR (please specify test) | Allergens (please specify test)

SAMPLE TYPE CODES

BC - BioCassette	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Ehresman Michelle Ehresman	3/29/24

RECEIVED BY	DATE & TIME
	3/30/24 10:42a

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Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B3
EML ID: 3600730

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-11-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B3

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	9
Total Samples Analyzed:	9
Total Samples with Layer Asbestos Content > 1%:	0

Location: 53, Rolled Roofing

Lab ID-Version‡: 17611025-1

Sample Layers	Asbestos Content
Silver Coating (Trace)	ND
Black Roofing Shingle	ND
Black Roofing Tar and Felt	ND
Brown Insulation	ND
Composite Non-Asbestos Content:	15% Cellulose 8% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 54, Rolled Roofing

Lab ID-Version‡: 17611026-1

Sample Layers	Asbestos Content
Silver Coating (Trace)	ND
Black Roofing Shingle	ND
Black Roofing Tar and Felt	ND
Black Roofing Tar and Felt 2	ND
Brown Insulation	ND
Composite Non-Asbestos Content:	20% Cellulose 14% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 55, Rolled Roofing

Lab ID-Version‡: 17611027-1

Sample Layers	Asbestos Content
Silver Coating (Trace)	ND
Black Roofing Shingle	ND
Black Roofing Tar and Felt 2	ND
Brown Insulation	ND
Composite Non-Asbestos Content:	15% Cellulose 14% Glass Fibers
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B3

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: 56, Roof Mastic Lab ID-Version‡: 17611028-1

Sample Layers	Asbestos Content
Silver Coating (Trace)	ND
Black Roofing Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: 57, Roof Mastic Lab ID-Version‡: 17611029-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Silver Coating (Trace)	ND
Black Roofing Mastic	ND
Sample Composite Homogeneity:	Poor

Location: 58, Roof Mastic Lab ID-Version‡: 17611030-1

Sample Layers	Asbestos Content
Silver Coating (Trace)	ND
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	7% Glass Fibers
Sample Composite Homogeneity:	Moderate

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‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B3

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: 59, HVAC Seam Lab ID-Version‡: 17611031-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material (HVAC Seam)	ND
Sample Composite Homogeneity:	Good

Location: 60, HVAC Seam Lab ID-Version‡: 17611032-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material (HVAC Seam)	ND
Sample Composite Homogeneity:	Good

Location: 61, HVAC Seam Lab ID-Version‡: 17611033-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material (HVAC Seam)	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

Roof

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQU

003600730

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL Tuckel
Phone: 619-454-7851

Address: 7742 Arjons DR., San Diego, CA 92126
Special Instructions: * 1st positive strip > 1%

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B3
Project Zip Code: 92868
Sampling Date/Time: 5 4/2/24
PO Number: SDRE-24-061.1CT
Sampled By: DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
53	Rolled Roofing.	B	STD		w/ Silver paint
X 54	+				
55	Roof Mastic				
56	+				
X 57	HVAC Seam				
58					
59					
60					
61					

Non-Cultureable

Spore Trap	Tape, Swab, Bulk	BioCasse Swab, Wa C	Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Culturable Air and Surface Bacteria	Gram Stain and Counts	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
																X				
																X				

SAMPLE TYPE CODES

BC - BioCassette	CP - Contact Plate	T - Tape	O - Other
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Sherman / Michelle Sherman	4/5/24

RECEIVED BY	DATE & TIME
	4/8/24 0804

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

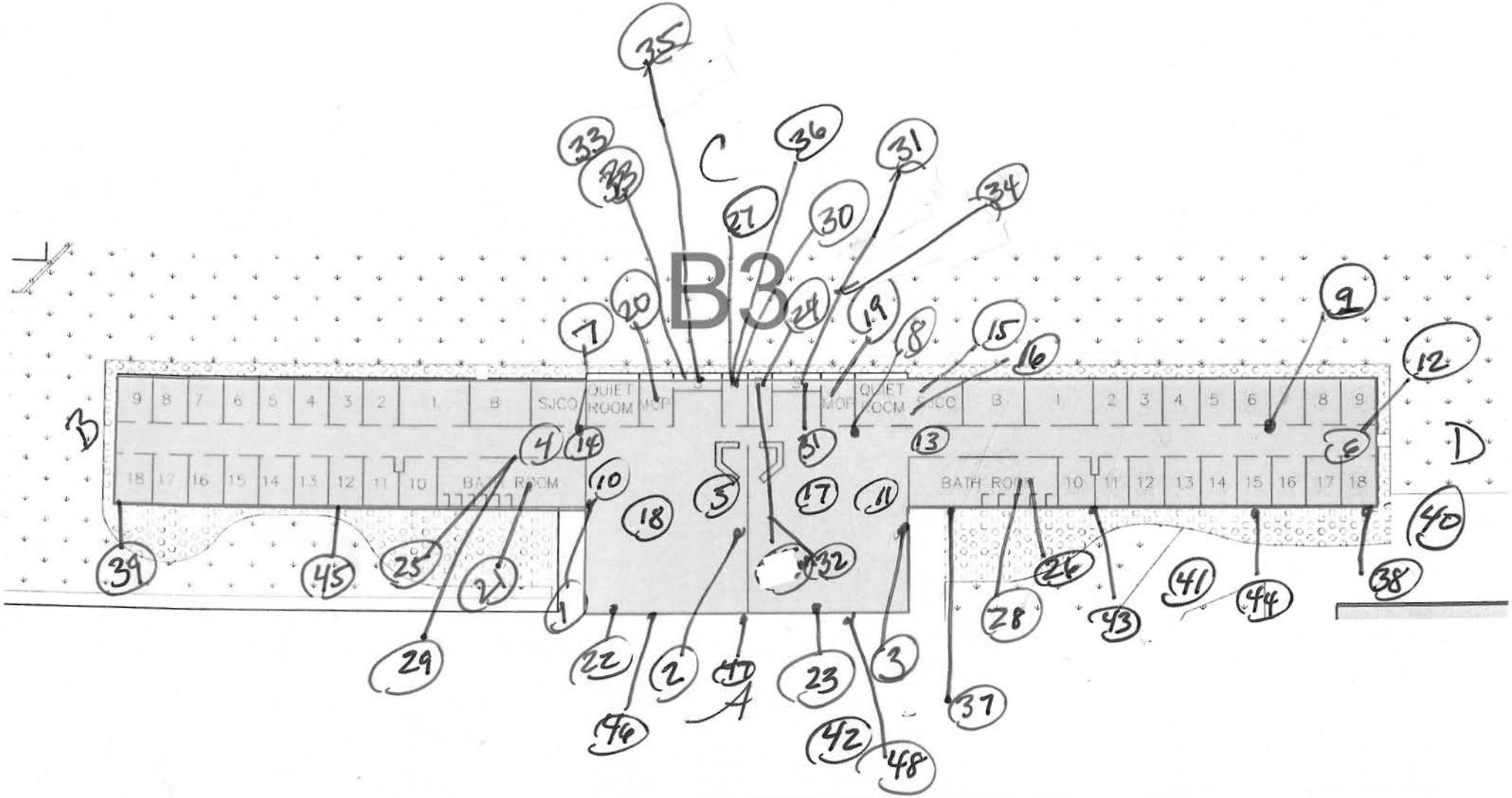
Bulk Asbestos Analysis

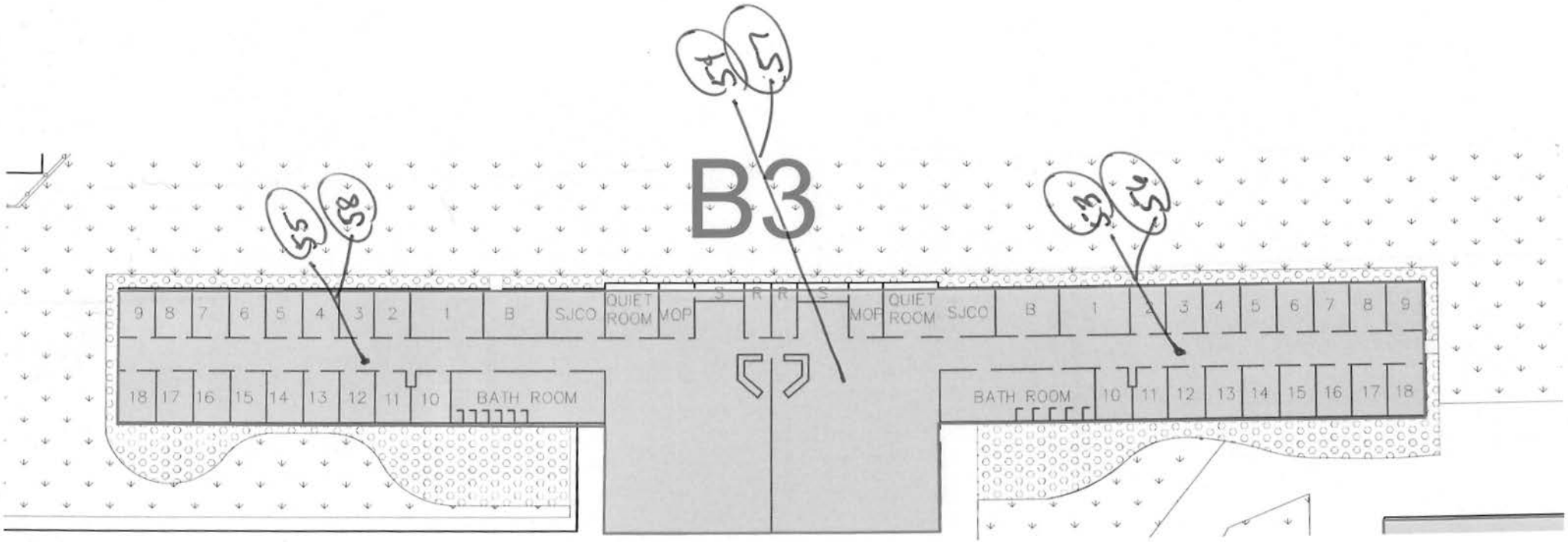
Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)


B3
QUIET ROOM
SJCO
MOP
BATH ROOM
B
C
D
A


B3
55
55
55
58
54
53
9 8 7 6 5 4 3 2 1 B SJCO
QUIET ROOM
MOP
S R R S
MOP
QUIET ROOM
SJCO B 1 2 3 4 5 6 7 8 9
18 17 16 15 14 13 12 11 10
BATH ROOM
BATH ROOM
10 11 12 13 14 15 16 17 18

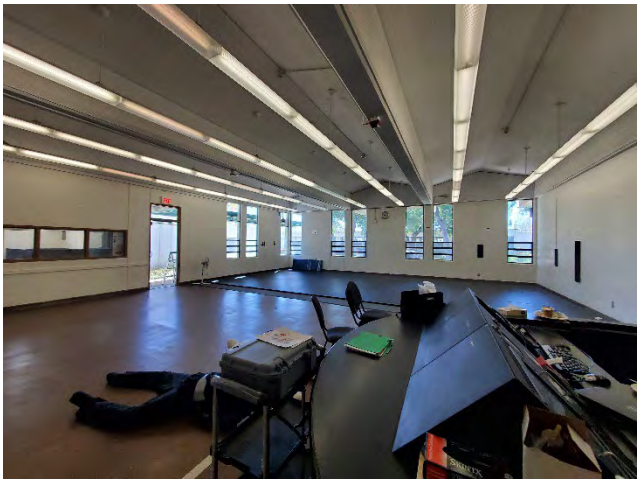
APPENDIX 3

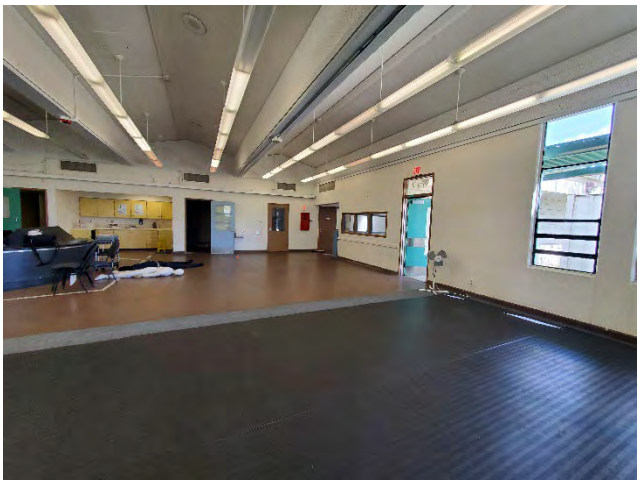
PHOTO DOCUMENTATION

Building 3

1. View of Exterior

2. View of Exterior

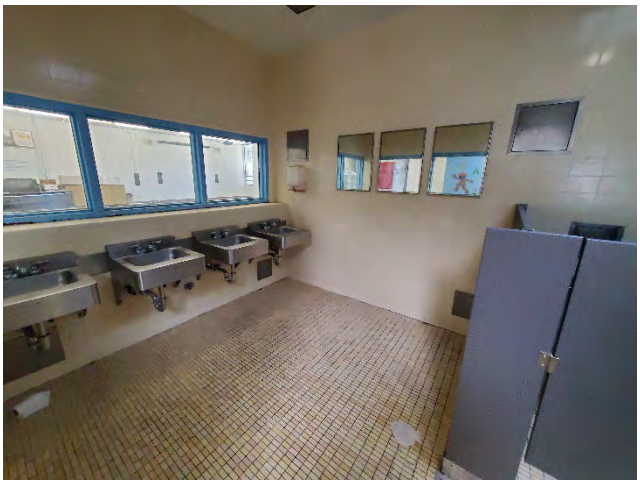

3. Typical View of Common Room



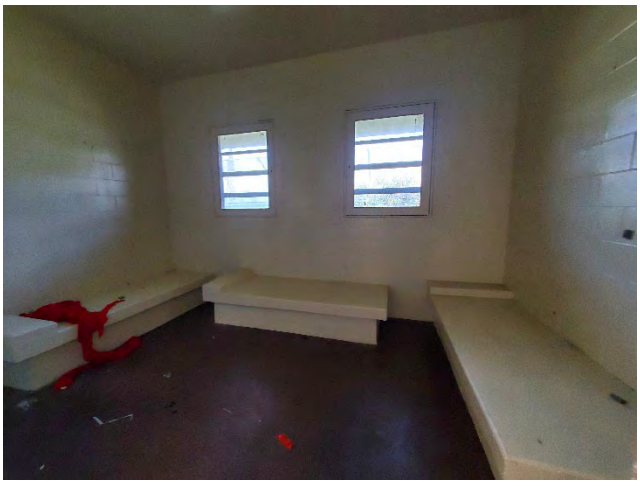
4. Typical View of Common Room

5. Common Area Ceiling

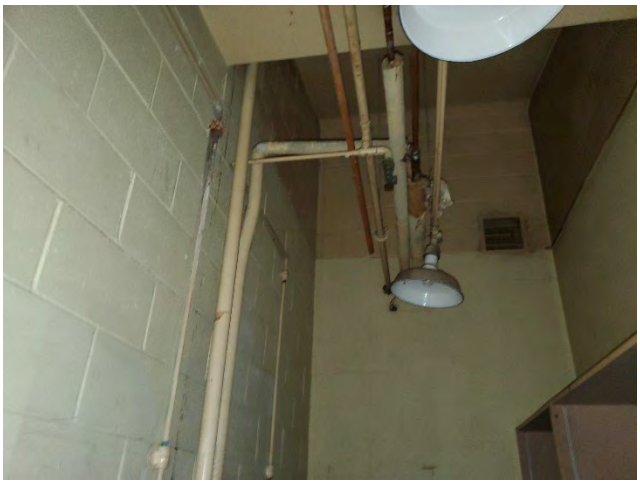
6. Typical View of Hallways


7. Typical View of Bathrooms

8. Typical View of Staff Bathrooms


9. Typical View of Cell.

10. Typical View of Pipe Chase in Hallways



11. View of Fiberglass Pipe and ACM Elbows.

12. ACM Pipe Elbow (Staff Bathroom)

13. Another Exterior View

14. Exterior Canopy

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Asbestos • Lead • Mold • HAZWOPER
PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

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CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

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NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 3
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 27, 2024

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SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 3 (Single story, wood frame with concrete block on a concrete slab.)

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on March 29, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows, and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 $mg/cm^{2\ or\ greater}$ * (Please see attachment I for a detail report of findings.)

- **Intact lead-based paint greater than 1.0 mg/cm2 was identified on the green exterior, metal canopy and frame.**

- **Intact lead containing (>1.0 mg/cm2) yellow ceramic wall, base tile was identified in the staff bathrooms.**

- **Intact lead containing (>1.0 mg/cm2) yellow countertop and wall tile was identified in the kitchenettes.**

- **Deteriorated lead containing (>1.0 mg/cm2) porcelain sinks were identified in the mop/storage rooms.**

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

Intact lead-based paint was identified on the accessible components tested as well as lead containing, ceramic walls, base tile, countertop tile and white porcelain sinks were identified and Title 8, CCR Section 1532.1 will apply to minimize a lead dust hazard and work protection during demolition.

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the

substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.
Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered "lead-based". The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 mg/cm^{2,} 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified

Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of "Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet -Positive Locations

Project: Vanir- Juvenile Hall-Building 3, 331 The City Drive, Orange, CA 92868

Inspection Date: March 29, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1			Calibration						Red NIST	1.0	
2			Calibration						Red NIST	0.9	
3			Calibration						Red NIST	0.9	
4	B3-R	C	Common Rm	Kitchen	Counter	Tile	Intact	Ceramic	Yellow	7.1	Positive
5	B3-R	C	Common Rm	Kitchen	Wall	Backsplash	Intact	Ceramic	Yellow	6.9	Positive
6	B3-R	C	Staff RR	Wall	Base	Tile	Intact	Ceramic	Yellow	6.7	Positive
7	B3-R		Mop Room	Wall	Sink		Poor	Porcelain	White	9.1	Positive
8	B3-S	C	Common Rm	Kitchen	Counter	Tile	Intact	Ceramic	Yellow	5.9	Positive
9	B3-S	C	Common Rm	Kitchen	Wall	Backsplash	Intact	Ceramic	Yellow	6.1	Positive
10	B3-S	C	Staff RR	Wall	Base	Tile	Intact	Ceramic	Yellow	4.8	Positive
11	B3-S		Mop Room	Wall	Sink		Poor	Porcelain	White	6.0	Positive
12	B3		Exterior	Canopy	Lid		Intact	Metal	Green	9.3	Positive
13	B3		Exterior	Canopy	Frame		Intact	Metal	Green	4.2	Positive
			Calibration						Red NIST	0.9	Calibration

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

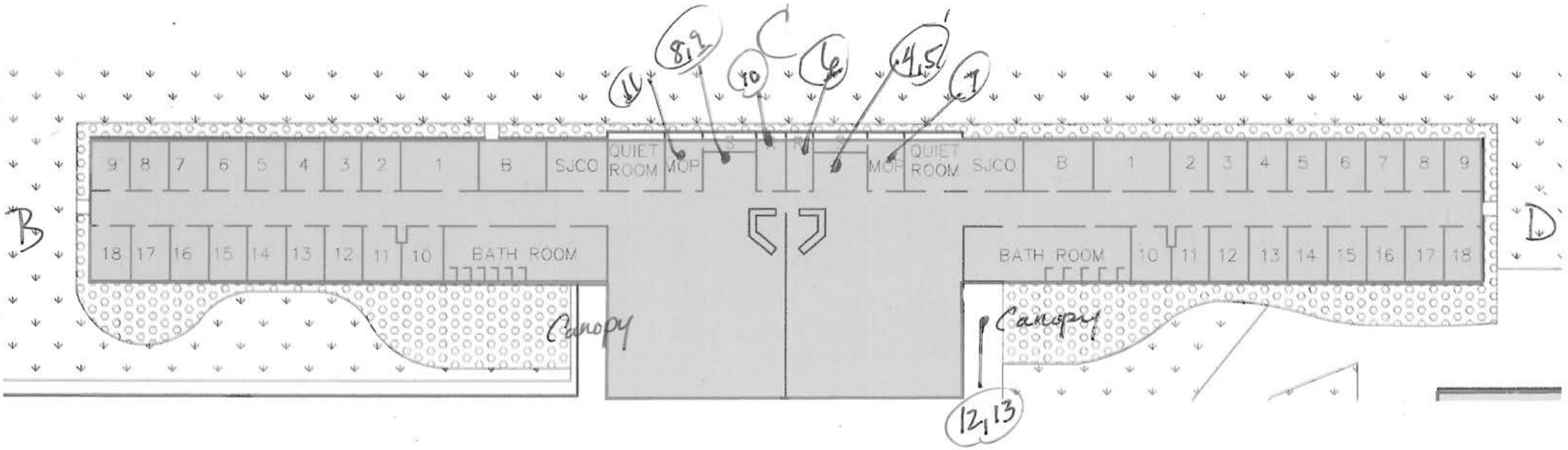
A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING

Positive Sample Location
71.0 mg/cm²



Side A

Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

Appendix 5

CDPH 8552 Inspection Form

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Michelle Ehresman

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 3/29/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 3)	Orange	Orange	92868

Construction date (year) of structure	Type of structure	Children living in structure?
Unknown	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other_____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☐ No lead-based paint detected ☒ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☑ Other Lead containing ceramic tile

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/27/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO RENOVATE RIGHT

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

Important lead hazard information for families, child care providers and schools.

EPA

LEAD-SAFE EPA CERTIFIED FIRM

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

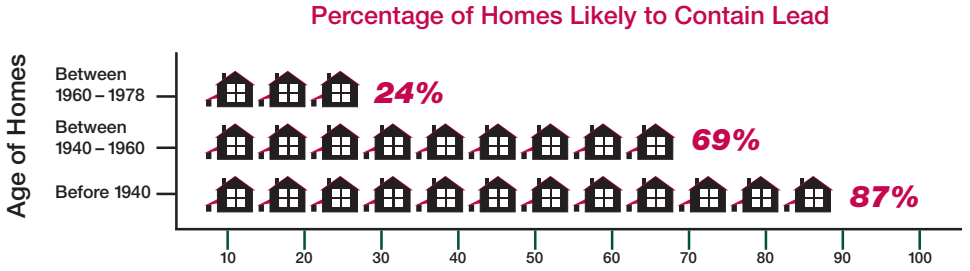
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

CLIENT COMPREHESIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 4

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 22, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 1

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: March 28, 2024 to March 28, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3593696
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 10,000

Structure Frame: Wood
If other, describe: None

Structure Foundation: Wood (Elevated)
If other, describe: None

Number of Floors: 1

Building Occupied: Yes

SUSPECT MATERIALS OBSERVED

Suspect Materials Observed During the Asbestos Survey Conducted

- Grey Sheet Vinyl
- 2'x2' Dotted Ceiling tile
- Structural Fireproofing
- HVAC Insulation
- Finished Drywall
- Cove Base Glue
- Pipe Insulation
- HVAC Seam Caulk
- Carpet Glue
- FSB Board
- Expansion Caulking
- Concrete Sidewalk and Asphalt
- Exterior Concrete Block and Textured Coating (Soffit)

Inaccessible Materials Presumed to be Asbestos Content:

- Roofing Materials

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material* Description	***Location****	***Sample #***	***Approximate Quantity*****	***AHERA Rank*****	***Friability/ Material Type***	***Damage Category***	***Quantity of Contamination (If any) *****	***Asbestos Content***
Roofing Material	Roof	--	10,000	---	Inaccessible	---	Inaccessible	Assumed
Note: The roof materials were not tested at the time of the inspection due to compromising the warranty on the roof. Roofing materials are assumed to contain asbestos until further testing can be determined otherwise.								

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
Grey Sheet Vinyl	1,2,3
2'x2' Dotted Ceiling Tile	4,5,6
Structural Fireproofing	7,8,9, 10, 11
HVAC Insulation	12, 13, 14
Finished Drywall	15, 16, 17
Cove Base Glue	18, 19, 20
Pipe Insulation	21, 22, 23
HVAC Seam Caulk	24, 25, 26
Carpet Glue	27, 28, 29
FSB Board	30, 31, 32
Expansion Caulk	E1, E2, E3
Concrete Sidewalk	E4, E5, E6
Exterior Concrete Block	E7, E8, E9
Exterior Texture Coating	E10, E11, E12
Asphalt	E13, E14, E15

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this limited asbestos survey, materials observed and tested for asbestos were negative for asbestos content.

The roof materials were not tested at the time of the inspection due to compromising the warranty on the roof. All roofing materials are assumed to contain asbestos until further testing can be determined otherwise.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection.

All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4
EML ID: 3592270

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-03-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	32
Total Samples Analyzed:	32
Total Samples with Layer Asbestos Content > 1%:	0

Location: 1, Grey Sheet Vinyl

Lab ID-Version‡: 17567382-1

Sample Layers	Asbestos Content
Brown Woven Material (Mesh)	ND
Gray Cove Base	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 2, Grey Sheet Vinyl

Lab ID-Version‡: 17567383-1

Sample Layers	Asbestos Content
Brown Woven Material (Mesh)	ND
Gray Cove Base	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 3, Grey Sheet Vinyl

Lab ID-Version‡: 17567384-1

Sample Layers	Asbestos Content
Brown Woven Material (Mesh)	ND
Gray Cove Base	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 4, 2'x2' Dotted Ceiling Tile

Lab ID-Version‡: 17567385-1

Sample Layers	Asbestos Content
Gray Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 5, 2'x2' Dotted Ceiling Tile

Lab ID-Version‡: 17567386-1

Sample Layers	Asbestos Content
Gray Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 6, 2'x2' Dotted Ceiling Tile

Lab ID-Version‡: 17567387-1

Sample Layers	Asbestos Content
Gray Ceiling Tile	ND
Composite Non-Asbestos Content:	60% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 7, Structured Fireproofing

Lab ID-Version‡: 17567388-1

Sample Layers	Asbestos Content
Gray Fireproofing	ND
Composite Non-Asbestos Content:	40% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 8, Structured Fireproofing

Lab ID-Version‡: 17567389-1

Sample Layers	Asbestos Content
Gray Fireproofing	ND
Composite Non-Asbestos Content:	40% Cellulose
Sample Composite Homogeneity:	Moderate

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C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 9, Structured Fireproofing

Lab ID-Version‡: 17567390-1

Sample Layers	Asbestos Content
Gray Fireproofing	ND
Composite Non-Asbestos Content:	40% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 10, Structured Fireproofing

Lab ID-Version‡: 17567391-1

Sample Layers	Asbestos Content
Gray Fireproofing	ND
Composite Non-Asbestos Content:	40% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 11, Structured Fireproofing

Lab ID-Version‡: 17567392-1

Sample Layers	Asbestos Content
Gray Fireproofing	ND
Composite Non-Asbestos Content:	40% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 12, HVAC Insulation

Lab ID-Version‡: 17567393-1

Sample Layers	Asbestos Content
White Insulation	ND
Brown Paper	ND
Tan Woven Material (Mesh)	ND
Silver Wrap	ND
Composite Non-Asbestos Content:	70% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 13, HVAC Insulation

Lab ID-Version‡: 17567394-1

Sample Layers	Asbestos Content
Brown Paper	ND
Tan Woven Material (Mesh)	ND
Silver Wrap	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 14, HVAC Insulation

Lab ID-Version‡: 17567395-1

Sample Layers	Asbestos Content
White Insulation	ND
Brown Paper	ND
Silver Wrap	ND
Composite Non-Asbestos Content:	70% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 15, Finished Drywall

Lab ID-Version‡: 17567396-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Compound	ND
White Paint	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 16, Finished Drywall

Lab ID-Version‡: 17567397-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
White Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

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Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 17, Finished Drywall

Lab ID-Version‡: 17567398-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
White Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 18, Cove Base Glue

Lab ID-Version‡: 17567399-1

Sample Layers	Asbestos Content
White Cove Base Glue	ND
White Paint	ND
White Joint Compound (Trace)	ND
Sample Composite Homogeneity:	Poor

Location: 19, Cove Base Glue

Lab ID-Version‡: 17567400-1

Sample Layers	Asbestos Content
White Cove Base Glue	ND
White Paint	ND
White Joint Compound (Trace)	ND
Sample Composite Homogeneity:	Poor

Location: 20, Cove Base Glue

Lab ID-Version‡: 17567401-1

Sample Layers	Asbestos Content
White Cove Base Glue	ND
White Paint	ND
White Joint Compound (Trace)	ND
Sample Composite Homogeneity:	Poor

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Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 21, Pipe Insulation

Lab ID-Version‡: 17567402-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
White Insulation	ND
White Woven Material (Mesh)	ND
Composite Non-Asbestos Content:	50% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 22, Pipe Insulation

Lab ID-Version‡: 17567403-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
White Insulation	ND
Silver Wrap	ND
Composite Non-Asbestos Content:	50% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 23, Pipe Insulation

Lab ID-Version‡: 17567404-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
White Insulation	ND
Yellow Paint	ND
White Woven Material (Mesh)	ND
Silver Wrap	ND
Composite Non-Asbestos Content:	50% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 24, HVAC Seam Caulk

Lab ID-Version‡: 17567405-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Moderate

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 25, HVAC Seam Caulk

Lab ID-Version‡: 17567406-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: 26, HVAC Seam Caulk

Lab ID-Version‡: 17567407-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: 27, Carpet Glue

Lab ID-Version‡: 17567408-1

Sample Layers	Asbestos Content
Gray Carpet Glue	ND
Sample Composite Homogeneity:	Moderate

Location: 28, Carpet Glue

Lab ID-Version‡: 17567409-1

Sample Layers	Asbestos Content
Gray Carpet Glue	ND
Sample Composite Homogeneity:	Moderate

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-29-2024
Date of Receipt: 03-30-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 29, Carpet Glue

Lab ID-Version‡: 17567410-1

Sample Layers	Asbestos Content
Gray Carpet Glue	ND
Sample Composite Homogeneity:	Moderate

Location: 30, FSB

Lab ID-Version‡: 17567411-1

Sample Layers	Asbestos Content
White Semi-Fibrous Material	ND
Composite Non-Asbestos Content:	10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 31, FSB

Lab ID-Version‡: 17567412-1

Sample Layers	Asbestos Content
White Semi-Fibrous Material	ND
Composite Non-Asbestos Content:	10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 32, FSB

Lab ID-Version‡: 17567413-1

Sample Layers	Asbestos Content
White Semi-Fibrous Material	ND
Composite Non-Asbestos Content:	10% Glass Fibers
Sample Composite Homogeneity:	Moderate

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CHAIN OF CUSTODY eurofins

Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQU

003592270

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851

Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions:

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B4
Project Zip Code: 92868
Sampling Date/Time: 3/29/23
PO Number: SDRE-24-061.1CT
Sampled By:

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	Grey Sheet Vinyl	B	STD	~1 1/2	RM. 28
2	↓				27
3	2'42' Dotted Ceiling Tile				25
4	↓				28
5	Structural Fireproofing				27
6	↓				25
7					28
8					27
9					25
10					
11					
12	HVAC Insulation				28
13	↓				27
14					25

Non-Culturable

Spore Trap	Tape, Swab, Bulk	BioCasse Swab, W C

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp spp.)	Culturable Air Fungi (Genus ID + Asp spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Chapman	3/29/24

RECEIVED BY	DATE & TIME
	3/30/24 10:42

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CHAIN OF CUSTODY eurofins

Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003592270

CONTACT INFORMATION

Company:	MTGL, Inc.
Contact:	CARL TUCKER
Phone:	619-454-7851
Address:	7742 ARJONS DR., San Diego, CA 92126
Special Instructions:	

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall
Project Description:	331 The City of Orange B4
Project Zip Code:	92868
Sampling Date/Time:	3/29/24
PO Number:	SDRE-24-061.1CT
Sampled By:	

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

REQUE

Non-Culturable

Spore Trap | Tape, Swab, Bulk | BioCasse Swab, W Co...

Spore Trap Analysis | Other biological particles - supplement | Direct Microscopic Exam (Qualitative) | Quantitative spore count direct exam | Dust Characterization | 1-Media Surface Fungi (Genus ID + Asp. spp.) | Culturable Air Fungi (Genus ID + Asp. spp.) | Gram Stain and Counts (Culturable Air and Surface Bacteria) | Legionella culture | Total Coliform, E.coli (Presence/Absence) | Quanti-Tray-Sewage Screen | OTHER: (please specify test) | Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400) | Asbestos Bulk - PLM | Lead (Pb) - Flame AA | PCR (please specify test) | Allergens (please specify test)

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
15	Finished Drywall	B	STD	1 1/2	Rm. 28
16	↓				27
17					25
18	Cove Base Glue				
19	↓				
20					
21	Pipe Insulation				
22	↓				
23					
24	HVAC Seam Caulk				
25	↓				
26					
27	Carpet Glue				
28	↓				
29					

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Chesna / Michelle Chesna	3/29/24

RECEIVED BY	DATE & TIME
[signature]	3/30/24 10:42 a

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUESTE

003592270

CONTACT INFORMATION

Company:	MTGL, Inc.
Contact:	CARL TUCKER
Phone:	619-454-7851

Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions:

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall
Project Description:	331 The City of Orange B4
Project Zip Code:	92868
Sampling Date/Time:	3/29/24
PO Number:	SDPE-24-061.1CT
Sampled By:	

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
30	FSB	B	STD		
31	"	"	"		
32	"	"	"		

Non-Culturable: Spore Trap; Tape, Swab, Bulk
Culture: BioCassette™ Ar; Swab, Water, Bu; Contact

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuantiTray Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												2				

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Ekvegren	3/29/24

RECEIVED BY	DATE & TIME
	3/30/24 10:42 C

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4
EML ID: 3592271

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-04-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-28-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	15
Total Samples Analyzed:	15
Total Samples with Layer Asbestos Content > 1%:	0

Location: E-1, Expansion Caulk

Lab ID-Version‡: 17567314-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: E-2, Expansion Caulk

Lab ID-Version‡: 17567315-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: E-3, Expansion Caulk

Lab ID-Version‡: 17567316-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: E-4, Concrete Sidewalk

Lab ID-Version‡: 17567317-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-28-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: E-5, Concrete Sidewalk

Lab ID-Version‡: 17567318-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: E-6, Concrete Sidewalk

Lab ID-Version‡: 17567319-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: E-7, Ext Concrete Block

Lab ID-Version‡: 17567320-1

Sample Layers	Asbestos Content
Beige Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: E-8, Ext Concrete Block

Lab ID-Version‡: 17567321-1

Sample Layers	Asbestos Content
Beige Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-28-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: E-9, Ext Concrete Block

Lab ID-Version‡: 17567322-1

Sample Layers	Asbestos Content
Beige Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: E-10, Ext Textured Coating

Lab ID-Version‡: 17567323-1

Sample Layers	Asbestos Content
Gray Coating	ND
Gray Paint	ND
Sample Composite Homogeneity:	Moderate

Location: E-11, Ext Textured Coating

Lab ID-Version‡: 17567324-1

Sample Layers	Asbestos Content
Gray Coating	ND
Gray Paint	ND
Sample Composite Homogeneity:	Moderate

Location: E-12, Ext Textured Coating

Lab ID-Version‡: 17567325-1

Sample Layers	Asbestos Content
Gray Coating	ND
Gray Paint	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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Eurofins EPK Built Environment Testing, LLC
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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B4

Date of Sampling: 03-28-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: E-13, Asphalt Lab ID-Version‡: 17567326-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Moderate

Location: E-14, Asphalt Lab ID-Version‡: 17567327-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Moderate

Location: E-15, Asphalt Lab ID-Version‡: 17567328-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

www.eurofinsus.com/Built

Built Environment Testing

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL: None					
Light					
Moderate					
Heavy					

003592271

CONTACT INFORMATION

Company:	MTGL, Inc.	Address:	7742 Arjons Dr., San Diego, CA 92126
Contact:	Carl Tuckel	Special Instructions:	
Phone	619-454-7851		Bldg 4

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange B4		
Project Zip Code:	92868	Sampling Date/Time:	3/28/24
PO Number:	SDRE-24-061.1CT	Sampled By:	DB/ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
E-1	Expantion caulk	B	STD	4 sq in	
E-2					
3					
4	Concrete sidewalk				
5					
6					
7	Ext concrete block				
8					
9					
10	Ext textured coating				
11					
12					
13	Asphalt				
14					
15					

REQU

Non-Culturable

Spore Trap	Tape, Swab, Bulk	BioCass Swab, T

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence-Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCM (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Paresma Michelle Paresma	3/29/24

RECEIVED BY	DATE & TIME
	3/30/24 1042

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

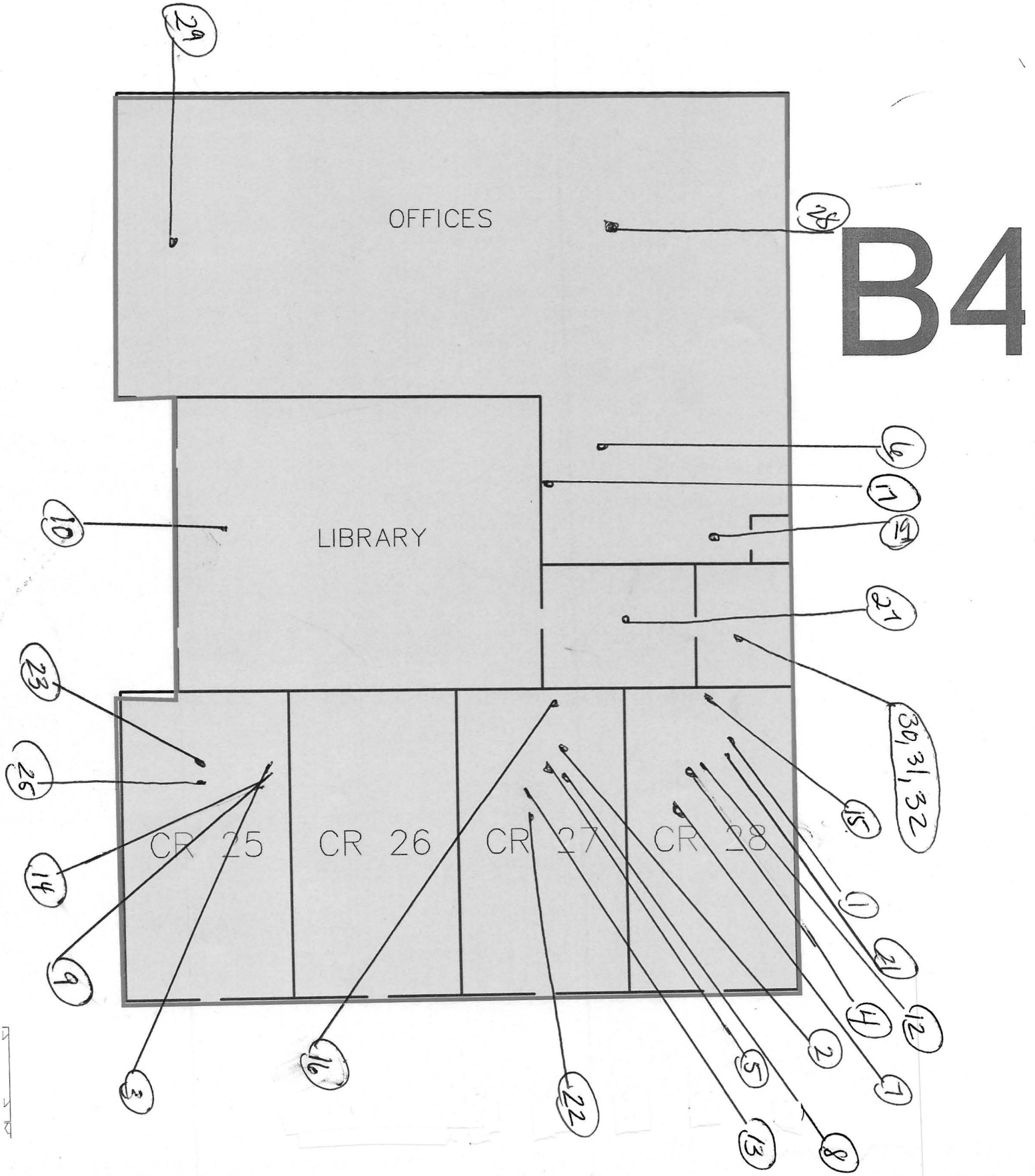
Bulk Asbestos Analysis

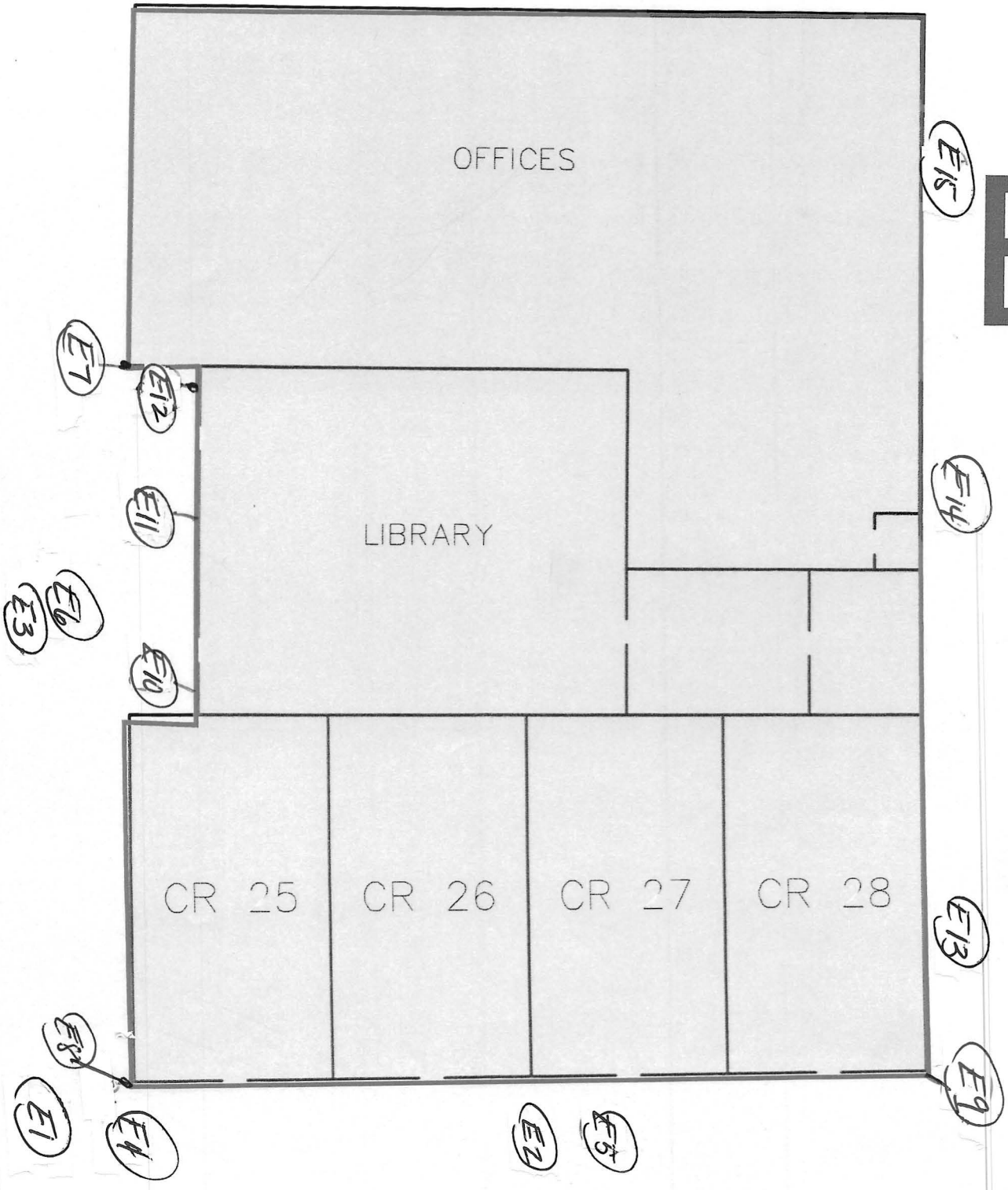
Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)


B4
OFFICES
LIBRARY
CR 25
CR 26
CR 27
CR 28
29
28
6
17
19
10
27
23
30, 31, 32
25
15
14
1
21
12
9
4
2
7
5
16
22
13
8
3


OFFICES
LIBRARY
CR 25
CR 26
CR 27
CR 28
E1
E2
E3
E4
E5
E6
E7
E8
E9
E10
E11
E12
E13
E14
E15
SECOND → 16 17 18 19 20

B4

APPENDIX 3

PHOTO DOCUMENTATION

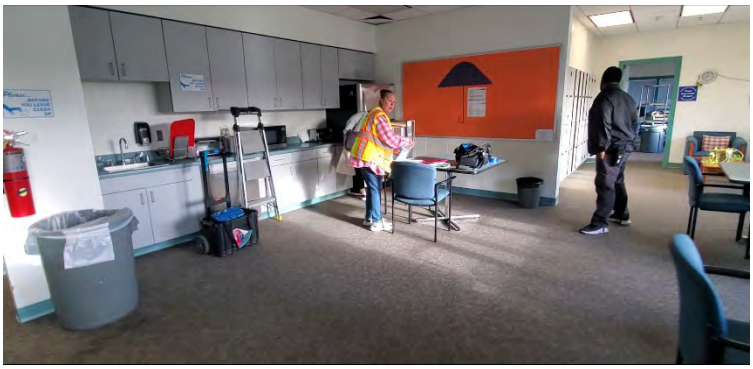
Building 4

1. Typical view of classroom.

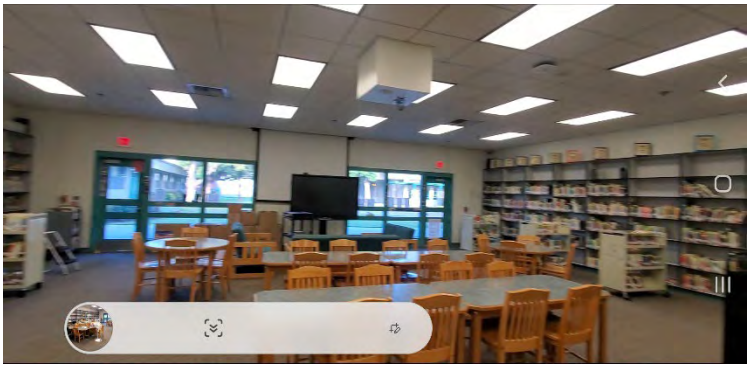
2. Classroom Bathroom/Kitchen

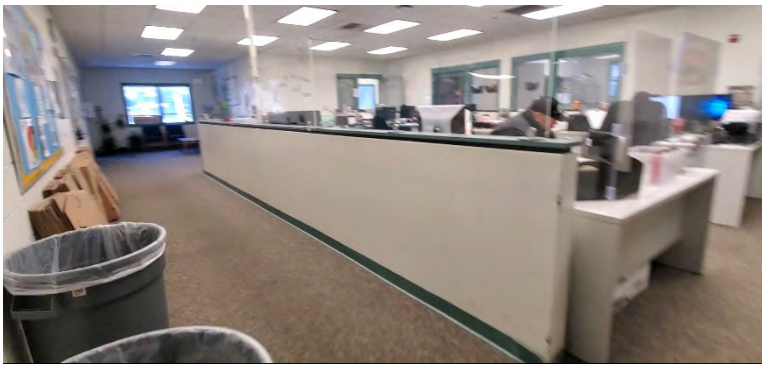
3. Interstitial above ceiling tiles.

4. Fiberglass Pipe Insulation.

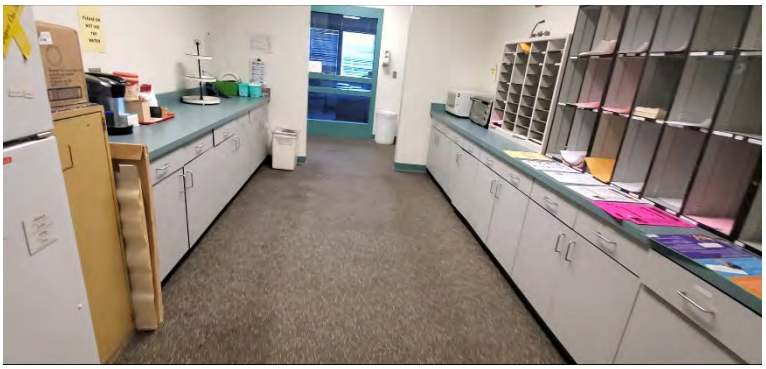

5. Library Break Room

6. Library Bathroom


7. Library



8. Office Spaces



9. Copy Room

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Asbestos • Lead • Mold • HAZWOPER
PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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National Association of Training and Environmental Consulting
Asbestos • Lead • Mold • HAZWOPER

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NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

Geotechnical Engineering
Construction Inspection
Materials Testing
Environmental

Office Locations

Orange County
Corporate Branch
2992 E. La Palma Avenue
Suite A
Anaheim, CA 92806
Tel: 714.632.2999
Fax: 714.632.2974

San Diego
Imperial County
7742 Arjons Drive
San Diego, CA 92126
Tel: 858.537.3999
Fax: 858.537.3990

Inland Empire
14467 Meridian Pkwy.
Building 2A
Riverside, CA 92553
Tel: 951.653.4999
Fax: 951.653.4666

Central Dispatch
888.844.5060

www.mtglinc.com

Mr. Scott Battles
Vanir Construction Management, Inc.
4540 Duckhorn Drive, Suite 300
Sacramento, CA 95834

June 21, 2024

Subject: Addendum to Asbestos Survey Report: Orange County Juvenile Hall Building 4
Dated April 22, 2024

Re: Orange County Juvenile Hall-Building 4-Roof Inspection
331 The City Drive, S
Orange, California 92868

Dear Mr. Battles:

On June 6, 2024, MTGL conducted an inspection of suspect roofing materials that were noted to be inaccessible in the Asbestos Survey Report, dated April 22, 2024. Michelle Ehresman, an AHERA Building Inspector (#ABIR0727230010N35227) and Certified Asbestos Consultant (#14-5323) collected a total of six (6) bulk samples and submitted the material to Eurofins EMLab P&K, San Diego, California for analysis and evaluation of asbestos content using EPA Method 600/R-93/116, Polarized Light Microscopy.

The material was in good condition at the time of the inspection.

SUMMARY OF SAMPLING & ANALYTIC RESULTS. The following table summarizes the laboratory's analytical results:

Asbestos:

Sample ID	Sample Matrix	Location	Analytic Result*
1, 2, 3	Vinyl Capped Roof (Multi-layer)	Roof	No Asbestos Detected
4, 5, 6	Roof Mastic	Roof	No Asbestos Detected

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402 paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

CONCLUSIONS

The roofing materials and pipe coating material observed and tested for asbestos was negative for asbestos content.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

MTGL, Inc. appreciates the opportunity to be of service. If you have any questions or require additional information, please contact us at (858) 537-3999.

Sincerely,
MTGL, INC

Michelle Ehresman, CAC 14-5323
Industrial Hygiene Services

Attachments:

Attachment 1: Laboratory Report and Chain of Custody
Attachment 2: Sample Location Map
Attachment 3: Inspector Certifications

Attachment 1

Laboratory Report
&
Chain of Custody

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: VANIR-OC Juvenile Hall; Bldg. 4 - Roof
EML ID: 3669869

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 06-12-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(833) 465-5857 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: VANIR-OC Juvenile Hall; Bldg. 4 - Roof

Date of Sampling: 06-06-2024
Date of Receipt: 06-07-2024
Date of Report: 06-12-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	6
Total Samples Analyzed:	6
Total Samples with Layer Asbestos Content > 1%:	0

Location: 1, Vinyl Capped Roof

Lab ID-Version‡: 17982592-1

Sample Layers	Asbestos Content
White Semi-Fibrous Material	ND
Gray Non-Fibrous Material	ND
White Woven Material (Mesh)	ND
White Paint	ND
Yellow Foam	ND
Black Roofing Felt	ND
White Foam	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 2, Vinyl Capped Roof

Lab ID-Version‡: 17982593-1

Sample Layers	Asbestos Content
White Woven Material (Mesh)	ND
White Paint	ND
Black Roofing Felt 2	ND
Black Roofing Felt 1	ND
White Foam	ND
Yellow Paint	ND
White Semi-Fibrous Material	ND
Gray Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(833) 465-5857 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: VANIR-OC Juvenile Hall; Bldg. 4 - Roof

Date of Sampling: 06-06-2024
Date of Receipt: 06-07-2024
Date of Report: 06-12-2024

ASBESTOS PLM REPORT

Location: 3, Vinyl Capped Roof

Lab ID-Version‡: 17982594-1

Sample Layers	Asbestos Content
Brown Paper 2	ND
White Foam	ND
Brown Paper 1	ND
Yellow Foam	ND
Black Roofing Felt 2	ND
Black Roofing Felt 1	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(833) 465-5857 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: VANIR-OC Juvenile Hall; Bldg. 4 - Roof

Date of Sampling: 06-06-2024
Date of Receipt: 06-07-2024
Date of Report: 06-12-2024

ASBESTOS PLM REPORT

Location: 4, Mastic

Lab ID-Version‡: 17982595-1

Sample Layers	Asbestos Content
White Mastic	ND
Gray Paint	ND
White Woven Material (Mesh)	ND
Black/White Mastic	ND
Composite Non-Asbestos Content:	5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: 5, Mastic

Lab ID-Version‡: 17982596-1

Sample Layers	Asbestos Content
White Mastic	ND
Gray Paint	ND
Black/White Mastic	ND
Sample Composite Homogeneity:	Poor

Location: 6, Mastic

Lab ID-Version‡: 17982597-1

Sample Layers	Asbestos Content
White Mastic	ND
Gray Paint	ND
White Woven Material (Mesh)	ND
Black Mastic	ND
Composite Non-Asbestos Content:	5% Synthetic Fibers
Sample Composite Homogeneity:	Poor

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins | Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003669869

CONTACT INFORMATION

Company:	MTGI, Inc.	Address:	7742 Agnes Dr. San Diego, CA 92126
Contact:	Carl Tucker	Special Instructions:	
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	VANIR- OC Juvenile Hall		
Project Description:	Bldg. 4 - Roof		
Project Zip Code:	92868	Sampling Date/Time:	6/6/24
PO Number:	—	Sampled By:	CW

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	Vinyl Capped Roof	B	STD		SE
2	+	↓	↓		Coating
3					NW
4	Mastic				Flue Pipe
5	+				+
6		↓	↓		

REQUESTED SERVICES

Non-Culturable

Spore Trap	Tape, Swab, Bulk	BioCassette Swab,	Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + *Asp. spp.*)	Culturable Air Fungi (Genus ID + *Asp. spp.*)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	*Legionella* culture	Total Coliform, *E.coli* (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 74	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
																✓			
																↓			
																✓			

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thexton	6/7/24 12:50

RECEIVED BY	DATE & TIME
	6/7/24 1259

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

Bulk Asbestos Analysis

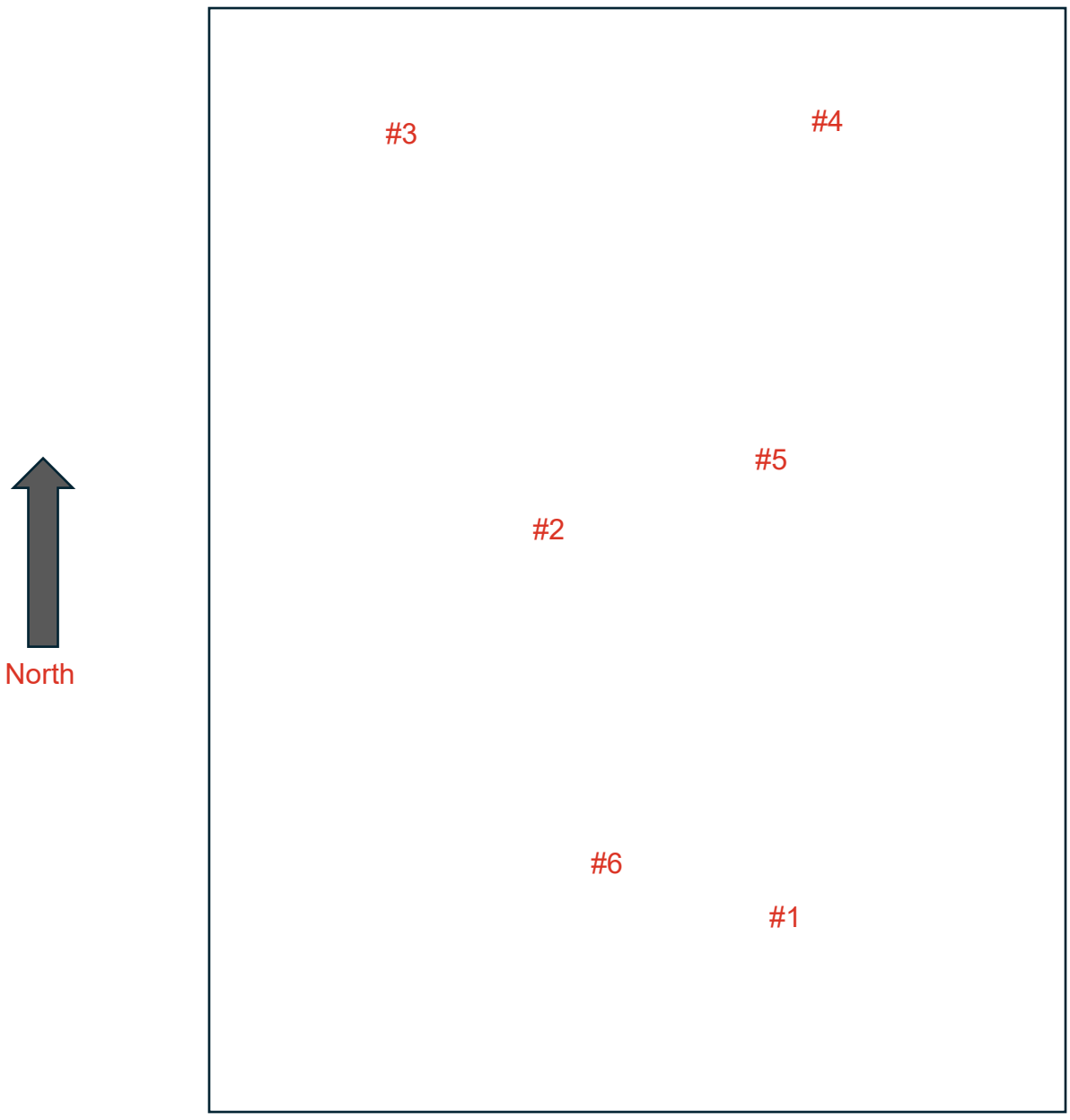
Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)

Building 4 Roof



APPENDIX 3

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By

Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____

Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting

Asbestos • Lead • Mold • HAZWOPER

PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting

*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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BAAQMD: Ph# (415) 749-4762

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NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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SCAQMD: Ph# (909) 396-3739
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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 4
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 27, 2024

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Appendix 2 – Site Drawing

Appendix 3 – Glossary

Appendix 4 – Inspector Certification

Appendix 5 – CDPH 8552 Form

Appendix 6 – Renovate Right

SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 4 (Single story, wood frame with concrete on a concrete slab.)

MTGL was informed the building has been fully renovated in recent years.

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on March 28, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 mg/cm$^{2 \text{ or greater}}$ * (Please see attachment I for a detail report of findings.)

- No lead-based paint or lead containing components were identified.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.

Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered "lead-based". The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 mg/cm^{2,} 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of "Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this

requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

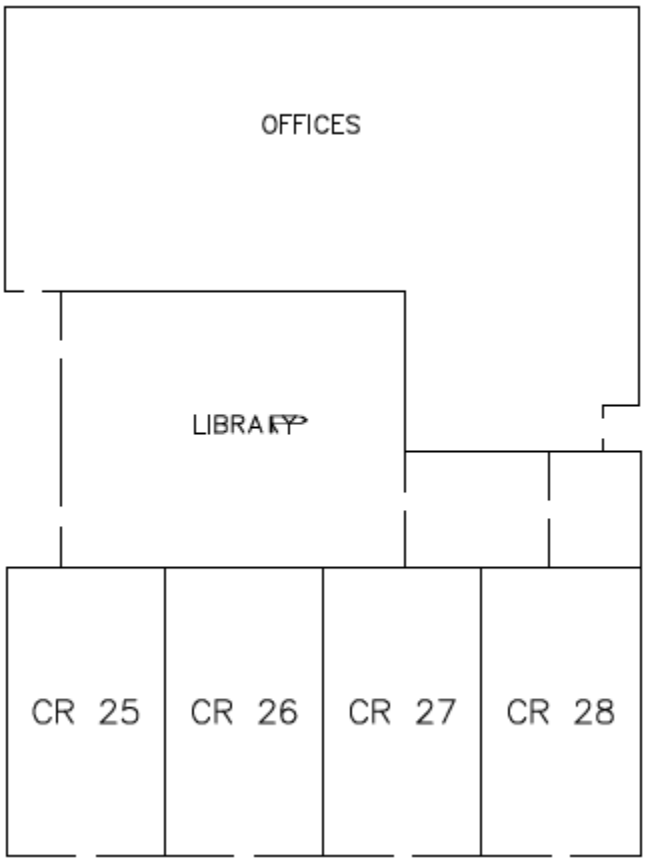
DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING



Building 4

(No lead based paint or lead containing components reported.)

Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
Michelle Ehresman	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 4/1/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 2)	Orange	Orange	92868

Construction date (year) of structure	Type of structure	Children living in structure?
Unknown	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other_____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/27/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO

RENOVATE RIGHT

Important lead hazard information for families, child care providers and schools.

U.S. Department of Housing and Urban Development

EPA

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

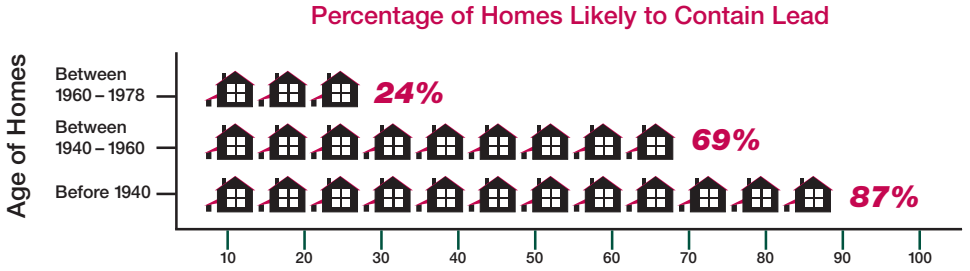
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 5 (ROOMS 19-20)

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 18, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

Buildings 2, 5, 7 and 9 shared the same homogeneous silver rolled roofing system and black roofing mastic. Samples collected were representative of the shared roofing materials.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 5 (ROOMS 19-20)

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: March 27, 2024 to April 2, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were

performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3590834/3600732/3600738
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 2,000

Structure Frame: Wood
If other, describe: None

Structure Foundation: Concrete Slab On Grade
If other, describe: None

Number of Floors: 1

Building Occupied: Yes

SUSPECT MATERIALS OBSERVED

Suspect Materials Observed During the Asbestos Survey Conducted

- Concrete Floor
- Concrete Wall
- 12'x12' Dotted Ceiling Tile and Ceiling Tile Mastic
- Unfinished Drywall (Ceiling)
- Ceramic Wall Tile & Mortar
- Exterior Brick & Grout
- Exterior Window Putty
- Exterior Concrete Slab and Expansion Caulk
- Pipe Elbow Insulation
- Rolled Roofing and Roof Mastic
- HVAC Seam Caulking

Inaccessible Materials Presumed to be Asbestos Content:

- None

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material* Description	***Location****	***Sample #***	***Approximate Quantity*****	***AHERA Rank*****	***Friability/ Material Type***	***Damage Category***	***Quantity of Contamination (If any) *****	***Asbestos Content***
Pipe Elbow Insulation	Throughout	29, 30	10 sf	7	Friable	1	None	15%
Roof Mastic (See below note.)	*Building 2 (Under Vinyl Cap Sheet on North End)*	*R-14*	*1,800*	*X*	*Non-Friable*	*1*	*None*	*4%*
Note: Sample R14 (roof mastic) pertains only to the North end of Building 2 under vinyl cap sheet. Sample is included with report as it is a part of the same Chain of Custody (COC) and lab report as the remainder of the samples for Bldgs. 2, 5, 7 and 9.								

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
Concrete Floor	1, 2, 3
Concrete Wall	4, 5, 6
12”x12” Dotted Ceiling Tile	7, 8, 9
Unfinished Drywall (Ceiling)	10, 11, 12
Ceramic Wall Tile & Mortar	13, 14,15
Exterior Brick & Grout	16, 17, 18
Exterior Window Putty	19, 20, 21
Exterior Concrete Slab	22, 23, 24
Expansion Caulk	25, 26, 27
Ceiling Tile Mastic	Report ID 3590834 31, 32, 33
HVAC Seam Caulk	Report ID 3600738 31, 32, 33
Samples R-1 through R-13 are Homogeneous to the shared roofing systems for Building 2, 5, 7 and 9.	
Silver Rolled Roofing over Insulation	R-1, R2, R3, R-4, R-5
Roof Mastic	R-6, R-7, R-8, R-9, R-10
HVAC Caulk	R-11. R12, R-13

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District’s Rule 1402 paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1%

asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as “Trace Asbestos”. These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this asbestos survey, materials observed and tested for asbestos were positive for asbestos content.

The pipe elbow insulation was reported to contain >1% asbestos.

While the silver coated rolled roofing and roofing mastic is negative for asbestos on Building 5, sample R14 (roof mastic) pertains only to North end of Building 2 under vinyl cap sheet. The sample is included with report as it is a part of the same Chain of Custody (COC) and lab report as the remainder of the samples for Buildings 2, 5, 7 and 9.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection.

All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange - B5
EML ID: 3590834

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-03-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange - B5

Date of Sampling: 03-27-2024
Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	32
Total Samples Analyzed:	31
Total Samples with Layer Asbestos Content > 1%:	2

Location: 1, Concrete Floor

Lab ID-Version‡: 17559050-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Green Concrete	ND
Sample Composite Homogeneity:	Moderate

Location: 2, Concrete Floor

Lab ID-Version‡: 17559051-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Green Concrete	ND
Sample Composite Homogeneity:	Moderate

Location: 3, Concrete Floor

Lab ID-Version‡: 17559052-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Green Concrete	ND
Sample Composite Homogeneity:	Moderate

Location: 4, Concrete Wall

Lab ID-Version‡: 17559053-1

Sample Layers	Asbestos Content
Gray Plaster	ND
White Skim Coat	ND
Beige Paint	ND
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Date of Sampling: 03-27-2024
Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 5, Concrete Wall

Lab ID-Version‡: 17559054-1

Sample Layers	Asbestos Content
Gray Plaster	ND
White Skim Coat	ND
Beige Paint	ND
Sample Composite Homogeneity:	Poor

Location: 6, Concrete Wall

Lab ID-Version‡: 17559055-1

Sample Layers	Asbestos Content
Gray Plaster	ND
White Skim Coat	ND
Beige Paint	ND
Sample Composite Homogeneity:	Poor

Location: 7, 12"x12" Dotted Ceiling Tile

Lab ID-Version‡: 17559056-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 8, 12"x12" Dotted Ceiling Tile

Lab ID-Version‡: 17559057-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

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Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 9, 12"x12" Dotted Ceiling Tile

Lab ID-Version‡: 17559058-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 10, Unfinished Drywall

Lab ID-Version‡: 17559059-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose 3% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 11, Unfinished Drywall

Lab ID-Version‡: 17559060-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose 3% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 12, Unfinished Drywall

Lab ID-Version‡: 17559061-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose 3% Glass Fibers
Sample Composite Homogeneity:	Good

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Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 13, Ceramic Wall Tile and Mortar

Lab ID-Version‡: 17559062-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Pink Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 14, Ceramic Wall Tile and Mortar

Lab ID-Version‡: 17559063-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Pink Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 16, Exterior Brick and Grout

Lab ID-Version‡: 17559065-1

Sample Layers	Asbestos Content
Gray Grout	ND
Red-Brown Brick	ND
Sample Composite Homogeneity:	Moderate

Location: 17, Exterior Brick and Grout

Lab ID-Version‡: 17559066-1

Sample Layers	Asbestos Content
Gray Grout	ND
Red-Brown Brick	ND
Sample Composite Homogeneity:	Moderate

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Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 18, Exterior Brick and Grout

Lab ID-Version‡: 17559067-1

Sample Layers	Asbestos Content
Gray Grout	ND
Red-Brown Brick	ND
Sample Composite Homogeneity:	Moderate

Location: 19, Exterior Window Putty

Lab ID-Version‡: 17559068-1

Sample Layers	Asbestos Content
Gray Window Putty	ND
Sample Composite Homogeneity:	Good

Location: 20, Exterior Window Putty

Lab ID-Version‡: 17559069-1

Sample Layers	Asbestos Content
Gray Window Putty	ND
Sample Composite Homogeneity:	Good

Location: 21, Exterior Window Putty

Lab ID-Version‡: 17559070-1

Sample Layers	Asbestos Content
Gray Window Putty	ND
Sample Composite Homogeneity:	Good

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Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 22, Exterior Concrete Slab Lab ID-Version‡: 17559071-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 23, Exterior Concrete Slab Lab ID-Version‡: 17559072-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 24, Exterior Concrete Slab Lab ID-Version‡: 17559073-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 25, Expansion Caulk Lab ID-Version‡: 17559074-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange - B5

Date of Sampling: 03-27-2024
Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 26, Expansion Caulk

Lab ID-Version‡: 17559075-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 28, Pipe Elbow Insulation

Lab ID-Version‡: 17559077-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Beige Woven Material	ND
Composite Non-Asbestos Content:	75% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 29, Pipe Elbow Insulation

Lab ID-Version‡: 17559078-1

Sample Layers	Asbestos Content
Beige Fibrous Material	15% Chrysotile
Yellow Insulation	ND
Beige Woven Material	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 30, Pipe Elbow Insulation

Lab ID-Version‡: 17559079-1

Sample Layers	Asbestos Content
Beige Fibrous Material	15% Chrysotile
Sample Composite Homogeneity:	Good

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange - B5

Date of Sampling: 03-27-2024
Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 31, Ceiling Tile Mastic

Lab ID-Version‡: 17559080-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Brown Mastic	ND
Yellow Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 32, Ceiling Tile Mastic

Lab ID-Version‡: 17559081-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

Location: 33, Ceiling Tile Mastic

Lab ID-Version‡: 17559082-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Sample Composite Homogeneity:	Good

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQ

003590834

CONTACT INFORMATION		
Company:	IMTGL, Inc.	Address: 7742 Arjons DR., San Diego, CA 92126
Contact:	Carl Tuckel	Special Instructions:
Phone:	619-454-7851	

PROJECT INFORMATION			
Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - B5		
Project Zip Code:	92868	Sampling Date/Time:	3/27/24
PO Number:	SDPE-24-061.1CT	Sampled By	

TURN AROUND TIME CODES - (TAT)	
STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	Concrete Floor	B	STD	Approx 12	
2	↓				
3	Concrete Wall				
4	↓				
5					
6	12"x12" Dotted Ceiling Tile				
7	↓				
8					
9	Unfinished Drywall				Ceiling
10	↓				↓
11					
12	Ceramic Wall Tile & Mortar				
13	↓				
14					
15	VOID				

| Non-Culturable | | | | |

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003590834

CONTACT INFORMATION

Company: IMTGL, Inc.
Contact: Carl Tucker
Phone: 619-454-7851
Address: 7742 Arjons Dr., San Diego, CA 92126
Special Instructions: ⁂ 1st positive Step > 1070

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange - BS
Project Zip Code: 92868
Sampling Date/Time: 3/27/24
PO Number: SDPE-24-061.10
Sampled By:

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

REQUE

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
(MT 16 18 17) 18	Exterior Brick & Grout +	SDB	STD	Approx 2	
19	Exterior Window Putty +				
20 21 22	Exterior Concrete Slab +				
23 24 25	Expansion Caulk +				Sidewalk
26 27 28	Pipe Elbow Insulation +				Mech. Rm +
29 30					

Non-Culturable

| Spore Trap | Tape, Swab, Bulk | BioCassette Swab, Wa... | Contact Plate | | | | |

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9
EML ID: 3600732

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-11-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	16
Total Samples Analyzed:	16
Total Samples with Layer Asbestos Content > 1%:	1

Location: R-1, Silver Rolled Roofing Over Insulation - 7

Lab ID-Version‡: 17610976-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Felt 3	ND
Black Roofing Felt 2	ND
Black Roofing Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-2, Silver Rolled Roofing Over Insulation - 9

Lab ID-Version‡: 17610977-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt	ND
Black Roofing Felt	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-3, Silver Rolled Roofing Over Insulation - 5

Lab ID-Version‡: 17610978-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 3	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-4, Silver Rolled Roofing Over Insulation - 2

Lab ID-Version‡: 17610979-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-5, Silver Rolled Roofing Over Insulation - 2

Lab ID-Version‡: 17610980-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 3	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-6, Roof Mastic - 9

Lab ID-Version‡: 17610981-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-7, Roof Mastic - 7

Lab ID-Version‡: 17610982-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-8, Roof Mastic - 5

Lab ID-Version‡: 17610983-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-9, Roof Mastic - 5

Lab ID-Version‡: 17610984-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-10, Roof Mastic - 2

Lab ID-Version‡: 17610985-1

Sample Layers	Asbestos Content
Black/White Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R-11, HVAC Caulk/Tape - 7

Lab ID-Version‡: 17610986-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material	ND
Gray/White Caulk	ND
Sample Composite Homogeneity:	Poor

Location: R-12, HVAC Caulk/Tape - 5

Lab ID-Version‡: 17610987-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Sample Composite Homogeneity:	Moderate

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9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-13, HVAC Caulk/Tape - 2

Lab ID-Version‡: 17610988-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: R-14, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610989-1

Sample Layers	Asbestos Content
Green Mastic	ND
Gray Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: R-15, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610990-1

Sample Layers	Asbestos Content
White Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: R-16, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610991-1

Sample Layers	Asbestos Content
Black Mastic	4% Chrysotile
Green Mastic	ND
White Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQU

Non-Culturable

003600732

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions: A 1st positive stop 7070

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B-2, 5, 7 and 9
Project Zip Code: 92868
Sampling Date/Time: 5 4-2-24
PO Number: SDRE-24-061.1CT
Sampled By: ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
R-1	Silver Rolled roofing over insulation	B	STD	~ 1 sq in	7
R-2					9
R 3					5
R 4					2
R 5					DB
R 6	Roof mastic				9
R 7					7
R 8					5
R 9					5
R 10					DB 2
R 11	HVAC Caulk/Tape				7
R 12					5
R 13					2
R 14					
R 15	VOID DB 4-2-24				

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	Quant/Tray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thurgood Michelle Christian	4/5/24

RECEIVED BY	DATE & TIME
CS	4/8/24 0604

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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CHAIN OF CUSTODY eurofins

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Built Environment Testing

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUESTI

003600732

CONTACT INFORMATION

Company:	MTGL, Inc.	Address: Special Instructions:	7742 Arjons DR., San Diego, CA 92126
Contact:	CARL TUCKER		
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - B2		
Project Zip Code:	92868	Sampling Date/Time:	4/2/24
PO Number:	SDRE-24-061.1CT	Sampled By:	CR

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
R14 ~~R16~~ (R17)	Vinyl cap sheet	B	STD		B - 2
R15 (R17)					B - 2
R16 ~~R17~~					B - 2

| Non-Culturable | | | Cultu | | | | |

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B5
EML ID: 3600738

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-11-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B5

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	3
Total Samples Analyzed:	3
Total Samples with Layer Asbestos Content > 1%:	0

Location: 31, HVAC Seam Caulk

Lab ID-Version‡: 17610923-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 32, HVAC Seam Caulk

Lab ID-Version‡: 17610924-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 33, HVAC Seam Caulk

Lab ID-Version‡: 17610925-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUE

Non-Culturable | C

003600738

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851

Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions:

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange BS
Project Zip Code: 92868
Sampling Date/Time Sampled: 5 4/2/24
PO Number: SDRE-24-061.1CT
By:

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
31	HVAC Stagn Canada	B	ST		
32					
33					

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) Flame AA	PCR (please specify test)	Allergens (please specify test)
													✓			
													✓			
													✓			

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Shesgreen Michelle Shesta	4/5/24

RECEIVED BY	DATE & TIME
	4/5/24 @ 804

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

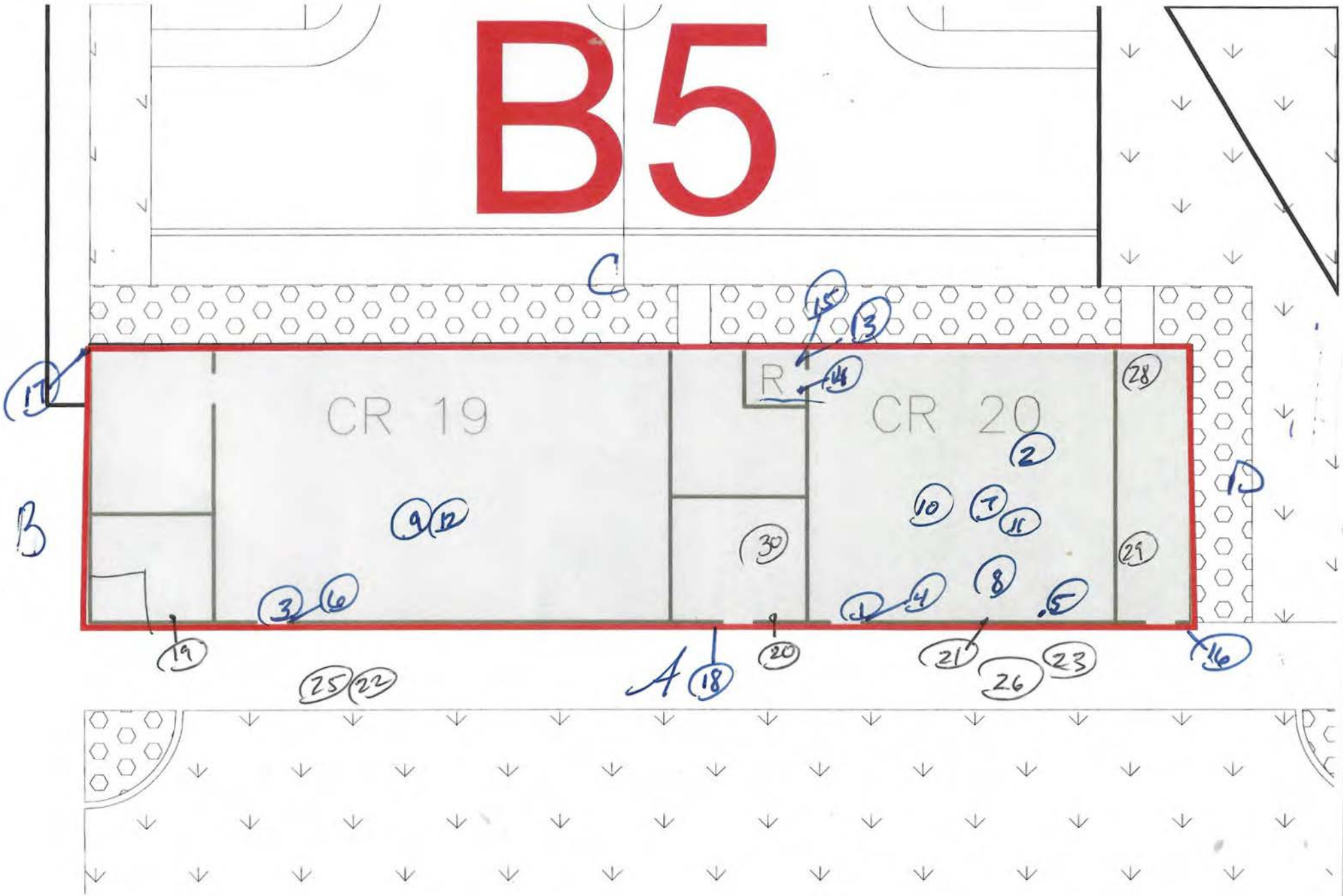
Bulk Asbestos Analysis

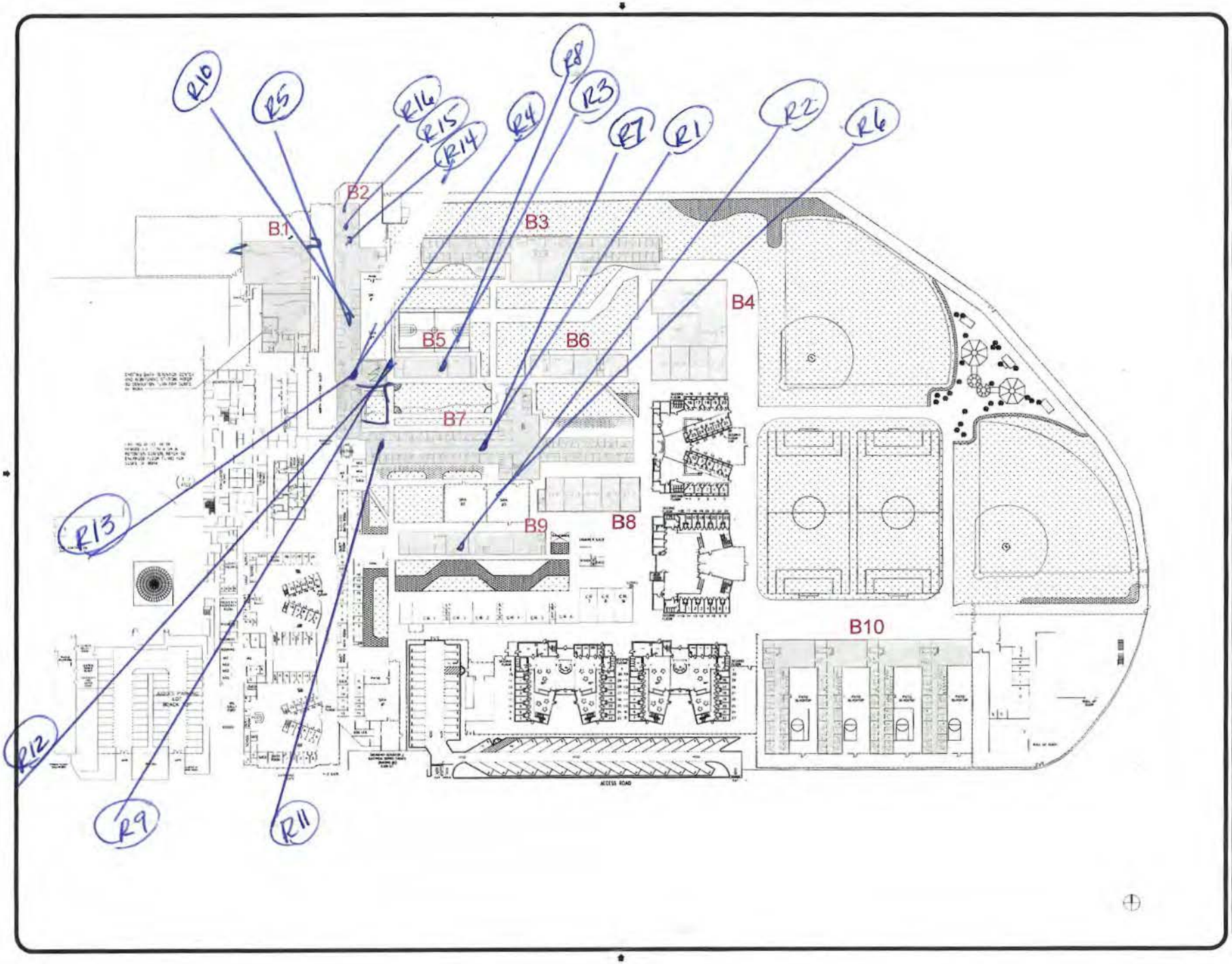
Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)

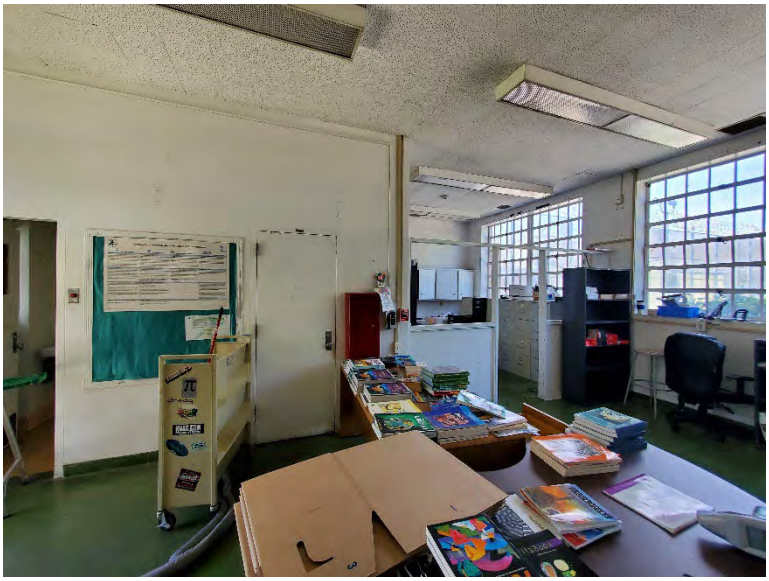

B5
CR 19
R
CR 20
C
A
B
D


R10
R5
R16
R15
R14
R8
R4
R3
R7
R1
R2
R6
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
R13
R12
R9
R11
ACCESS ROAD

APPENDIX 3

PHOTO DOCUMENTATION

Building 5


1. Typical view of classroom.

2. View of Classroom.

3. View of kitchenette with ceramic tile.

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
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PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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SCAQMD: Ph# (909) 396-3739
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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 5-Classrooms 19-20
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 18, 2024

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SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 5 (Single story, wood frame with brick and grout on a concrete slab.)
  - Classrooms 19, 20

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on March 27, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows, and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 $mg/cm^{2\ or\ greater}$ * (Please see attachment I for a detail report of findings.)

- No lead-based paint greater than 1.0 mg/cm2 was identified on the components tested.
- **Intact lead containing (<1.0 mg/cm2) pink ceramic wall, base tile was identified in the bathrooms of Classrooms 19, 20.**
- **Intact lead containing (<1.0 mg/cm2) tan countertop and wall tile was identified in the kitchen area of Classrooms 19.**
- **Intact lead containing (<1.0 mg/cm2) porcelain sink was identified in the kitchen area of Classrooms 19.**
- **Deteriorated lead containing (<1.0 mg/cm2) painted entry door/frames and window frames were identified.**

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

Deteriorated lead-based paint was not identified on the accessible components tested however, lead containing, ceramic wall base tile, countertop tile and a white porcelain sink was identified and Title 8, CCR Section 1532.1 will apply to minimize a lead dust hazard and work protection during demolition.

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.

Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered "lead-based". The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 mg/cm^{2,} 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This

certification supplements but does not replace the EPA RRP certification. CDPH State Certified Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of "Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 5, 331 The City Drive, Orange, CA 92868

Inspection Date: March 27, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1	Bldg. 5		Calibration						Red NIST	1.0	
2	Bldg. 5		Calibration						Red NIST	1.0	
3	Bldg. 5		Calibration						Red NIST	0.9	
4	Bldg. 5	A	Room 20	Door	Door		Poor	Metal	Green	.4	Negative
5	Bldg. 5	A	Room 20	Door	Frame		Poor	Metal	Green	.6	Negative
6	Bldg. 5	A	Room 20	Wall			Intact	Concrete	White	.08	Negative
7	Bldg. 5	B	Room 20	Wall			Intact	Concrete	White	.13	Negative
8	Bldg. 5	C	Room 20	Wall			Intact	Concrete	White	.06	Negative
9	Bldg. 5	D	Room 20	Wall			Intact	Concrete	White	.13	Negative
10	Bldg. 5	A	Room 20	Window	Frame		Fair	Metal	White	.06	Negative
11	Bldg. 5	A	Room 20	Floor			Intact	Concrete	Green	<LOD	Negative
12	Bldg. 5	B	Rm 20 bath	Door	Door		Fair	Metal	White	.30	Negative
13	Bldg. 5	B	Rm 20 bath	Door	Frame		Fair	Metal	White	.30	Negative
14	Bldg. 5	C	Rm 20 bath	Window	Frame		Intact	Metal	White	.07	Negative
15	Bldg. 5	C	Rm 20 bath	Wall	Base	Tile	Intact	Ceramic	Peach	**9.5**	Positive
16	Bldg. 5	C	Rm 20 bath	Floor	Tile		Intact	Ceramic	Tan	<LOD	Negative
17	Bldg. 5	A	Rm 20 bath	Wall			Intact	Plaster	White	.01	Negative
18	Bldg. 5	B	Rm 20 bath	Wall			Intact	Plaster	White	.03	Negative
19	Bldg. 5	C	Rm 20 bath	Wall			Intact	Plaster	White	<LOD	Negative
20	Bldg. 5	D	Rm 20 bath	Wall			Intact	Plaster	White	.02	Negative
21	Bldg. 5	D	Rm 20 bath	Ceiling			Intact	Plaster	White	.02	Negative
22	Bldg. 5	B	Room 20	Wall	Cabinet	Door	Intact	Wood	Blue	<LOD	Negative
23	Bldg. 5	B	Room 20	Wall	Cabinet	Casing	Intact	Wood	Blue	<LOD	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 5, 331 The City Drive, Orange, CA 92868

Inspection Date: March 27, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
24	Bldg. 5	B	Room 20	Counter	Door		Intact	Wood	Blue	<LOD	Negative
25	Bldg. 5	B	Room 20		Door	Casing	Intact	Wood	Blue	<LOD	Negative
26	Bldg. 5	D	Rm 19 bath	Door	Door		Fair	Metal	White	.29	Negative
27	Bldg. 5	D	Rm 19 bath	Door	Frame		Fair	Metal	Green	.11	Negative
28	Bldg. 5	C	Rm 19 bath	Window	Frame		Intact	Metal	Green	.06	Negative
29	Bldg. 5	C	Rm 19 bath	Wall	Base	Tile	Intact	Ceramic	Pink	**7.1**	Positive
30	Bldg. 5	A	Room 19	Door	Door		Fair	Metal	White	.31	Negative
31	Bldg. 5	A	Room 19	Door	Frame		Fair	Metal	White	.35	Negative
32	Bldg. 5	A	Room 19	Wall			Intact	Concrete	White	.06	Negative
33	Bldg. 5	B	Room 19	Wall			Intact	Concrete	White	.11	Negative
34	Bldg. 5	C	Room 19	Wall			Intact	Concrete	White	.10	Negative
35	Bldg. 5	D	Room 19	Wall			Intact	Concrete	White	.04	Negative
36	Bldg. 5	D	Room 19	Floor			Intact	Concrete	Green	<LOD	Negative
37	Bldg. 5	D	Room 19	Counter	Tile		Intact	Ceramic	Tan	**8.4**	Positive
38	Bldg. 5	D	Room 19	Wall	Tile		Intact	Ceramic	Tan	**5.5**	Positive
39	Bldg. 5	D	Room 19	Wall	Sink		Intact	Porcelain	White	**5.6**	Positive
40	Bldg. 5	A	Exterior	Wall	Fire box		Intact	Metal	Red	.05	Negative
41	Bldg. 5	A	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
42	Bldg. 5	A	Exterior	Wall	Overhang		Intact	Concrete	White	<LOD	Negative
43	Bldg. 5	A	Exterior	Window 1	Frame		Intact	Metal	Brown	.20	Negative
44	Bldg. 5	B	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
45	Bldg. 5	A	Exterior	Wall	Facia		Fair	Metal	Gray	<LOD	Negative
46	Bldg. 5	D	Exterior	Wall	Ladder		Intact	Metal	Green	<LOD	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 5, 331 The City Drive, Orange, CA 92868

Inspection Date: March 27, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
47	Bldg. 5	C	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
48	Bldg. 5	C	Exterior	Window 1	Frame		Intact	Metal	Brown	.17	Negative
49	Bldg. 5	B	Room 19	Wall	Partition		Intact	Wood	White	<LOD	Negative
50	Bldg. 5	D	Exterior	Roof	Air Han	Frame	Intact	Metal	Grey	<LOD	Negative
51	Bldg. 5		Calibration						Red NIST	1.0	Bldg. 5

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

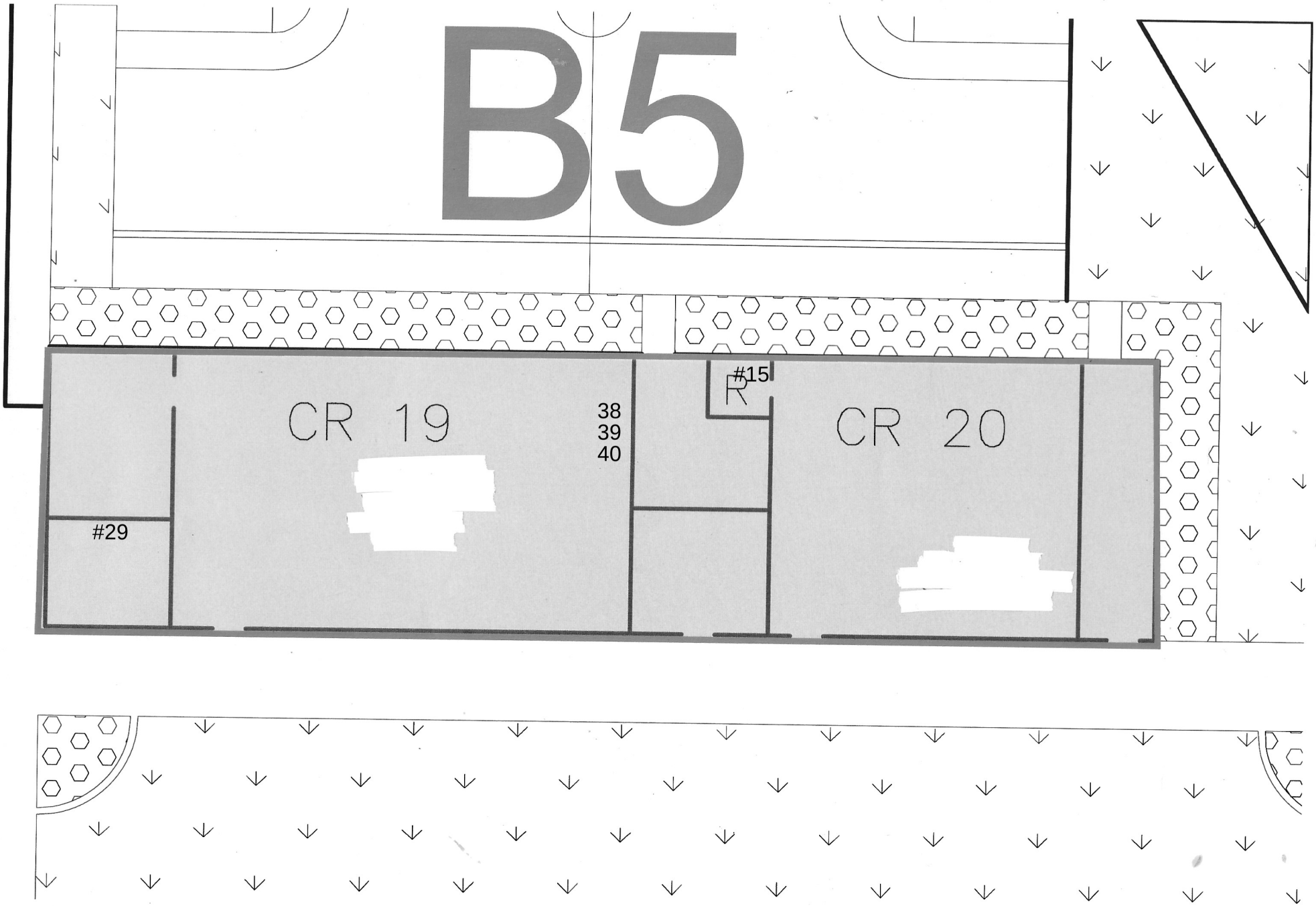
DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING


B5
CR 19
38
39
40
#15
CR 20
#29

Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Michelle Ehresman

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 3/27/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 5)	Orange	Orange	92868

Construction date (year) of structure	Type of structure	Children living in structure?
Unknown	☐ Multi-unit building ☑ School or daycare ☐ Single family dwelling ☐ Other_____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☑ Other Lead containing ceramic til
lead containg door/frames
lead containing porcelain sink

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/18/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO RENOVATE RIGHT

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

Important lead hazard information for families, child care providers and schools.

EPA

LEAD-SAFE EPA CERTIFIED FIRM

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

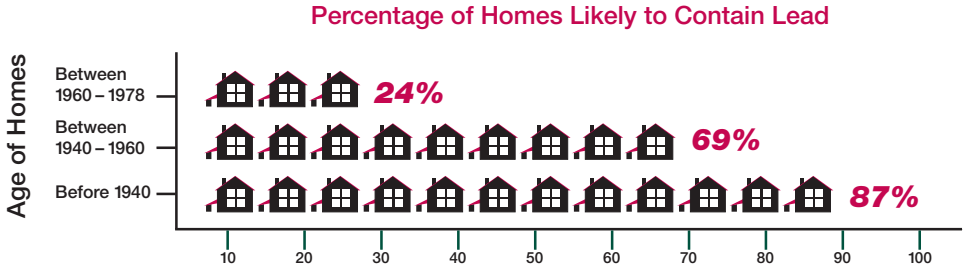
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 6

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 18, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 6

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: March 27, 2024 to April 2, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3592262/3600734
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 2,500

Structure Frame: Wood
If other, describe: None

Structure Foundation: Concrete Slab On Grade
If other, describe: None

Number of Floors: 1

Building Occupied: Yes

SUSPECT MATERIALS OBSERVED

Suspect Materials Observed During the Asbestos Survey Conducted

- 2'x4' Fissured Ceiling Tile
- Fiberglass Insulation
- Concrete Block
- 6"x6" Ceramic Tile
- Ceramic Tile Grout
- Concrete Ceiling
- Concrete Flooring
- HVAC Caulk
- Carpet Adhesive
- Cove Base Adhesive
- Exterior Concrete Walls
- Textured Concrete (Exterior Soffit)
- Rolled Roofing and Roof Mastic

Inaccessible Materials Presumed to be Asbestos Content:

- None

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material* Description	***Location****	***Sample #***	***Approximate Quantity*****	***AHERA Rank*****	***Friability/ Material Type***	***Damage Category***	***Quantity of Contamination (If any) *****	***Asbestos Content***
2'x4' Fissured Ceiling Tile	Throughout	1, 2	2,000	7	Friable	1	None	**2-3%**
Cove Base Adhesive	Throughout	28, 29, 30	100	X	Non-Friable	1	None	Tan Adhesive None Detect
								Brown Mastic <1%
								Brown Cove Base None Detect

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
Fiberglass Insulation	4,5,6
Concrete Block	7,8,9
6”x6” Ceramic Tile and Mortar and Grout	10,11,12
Ceramic Tile and Grout	13,14,15
Concrete Ceiling	16,17,18
Concrete Floor	19,20, 21
HVAC Caulk	22,23,24 47, 48, 49
Carpet Adhesive	25,26,27
Exterior Concrete Block	31,32,33
Exterior Concrete Wall	34,35,36
Textured Concrete (Soffit)	37,38,39
Silver Coated Rolled Roofing	41, 42, 43
Siver Coated Roof Mastic	44, 45, 46

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District’s Rule 1402paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as “Trace Asbestos”. These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this asbestos survey, materials observed and tested for asbestos were positive for asbestos content.

The 2'x4' fissured ceiling tiles throughout is greater than 1% asbestos and is considered a regulated asbestos containing material. The cove base mastic throughout is less than 1% asbestos and is considered an asbestos containing construction material.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection.

All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B6
EML ID: 3592262

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-04-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B6

Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	39
Total Samples Analyzed:	39
Total Samples with Layer Asbestos Content > 1%:	2

Location: 1, 2'x4' Fissured Ceiling Tile

Lab ID-Version‡: 17567690-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	3% Amosite
Composite Non-Asbestos Content:	70% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 2, 2'x4' Fissured Ceiling Tile

Lab ID-Version‡: 17567691-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	2% Amosite
Composite Non-Asbestos Content:	70% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 3, 2'x4' Fissured Ceiling Tile

Lab ID-Version‡: 17567692-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	80% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 4, Fiberglass Ins

Lab ID-Version‡: 17567693-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 5, Fiberglass Ins

Lab ID-Version‡: 17567694-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 6, Fiberglass Ins

Lab ID-Version‡: 17567695-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 7, Concrete Block

Lab ID-Version‡: 17567696-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Good

Location: 8, Concrete Block

Lab ID-Version‡: 17567697-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Tan Paint	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 9, Concrete Block

Lab ID-Version‡: 17567698-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Good

Location: 10, 6"x6" Ceramic Tile and Mortar

Lab ID-Version‡: 17567699-1

Sample Layers	Asbestos Content
Light Gray Cementitious Material	ND
Dark Gray Mortar	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 11, 6"x6" Ceramic Tile and Mortar

Lab ID-Version‡: 17567700-1

Sample Layers	Asbestos Content
Light Gray Cementitious Material	ND
Dark Gray Mortar	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 12, 6"x6" Ceramic Tile and Mortar

Lab ID-Version‡: 17567701-1

Sample Layers	Asbestos Content
White Grout	ND
Light Gray Cementitious Material	ND
Dark Gray Mortar	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 13, Ceramic Tile and Grout

Lab ID-Version‡: 17567702-1

Sample Layers	Asbestos Content
Light Gray Cementitious Material	ND
Dark Gray Grout	ND
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 14, Ceramic Tile and Grout

Lab ID-Version‡: 17567703-1

Sample Layers	Asbestos Content
Light Gray Cementitious Material	ND
Dark Gray Grout	ND
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 15, Ceramic Tile and Grout

Lab ID-Version‡: 17567704-1

Sample Layers	Asbestos Content
Light Gray Cementitious Material	ND
Dark Gray Grout	ND
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 16, Concrete Ceiling

Lab ID-Version‡: 17567705-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 17, Concrete Ceiling

Lab ID-Version‡: 17567706-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Good

Location: 18, Concrete Ceiling

Lab ID-Version‡: 17567707-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Good

Location: 19, Interior Concrete Floor

Lab ID-Version‡: 17567708-1

Sample Layers	Asbestos Content
Tan Concrete	ND
Sample Composite Homogeneity:	Good

Location: 20, Interior Concrete Floor

Lab ID-Version‡: 17567709-1

Sample Layers	Asbestos Content
Tan Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 21, Interior Concrete Floor

Lab ID-Version‡: 17567710-1

Sample Layers	Asbestos Content
Tan Concrete	ND
Sample Composite Homogeneity:	Good

Location: 22, HVAC Caulk

Lab ID-Version‡: 17567711-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 23, HVAC Caulk

Lab ID-Version‡: 17567712-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 24, HVAC Caulk

Lab ID-Version‡: 17567713-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 25, Carpet Adhesive

Lab ID-Version‡: 17567714-1

Sample Layers	Asbestos Content
Tan Carpet Adhesive	ND
Sample Composite Homogeneity:	Good

Location: 26, Carpet Adhesive

Lab ID-Version‡: 17567715-1

Sample Layers	Asbestos Content
Tan Carpet Adhesive	ND
Sample Composite Homogeneity:	Good

Location: 27, Carpet Adhesive

Lab ID-Version‡: 17567716-1

Sample Layers	Asbestos Content
Tan Carpet Adhesive	ND
Sample Composite Homogeneity:	Good

Location: 28, Cove Base Adhesive

Lab ID-Version‡: 17567717-1

Sample Layers	Asbestos Content
Brown Mastic	< 1% Anthophyllite
Tan Cove Base Adhesive	ND
Composite Non-Asbestos Content:	3% Talc
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
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ASBESTOS PLM REPORT

Location: 29, Cove Base Adhesive

Lab ID-Version‡: 17567718-1

Sample Layers	Asbestos Content
Brown Mastic	< 1% Anthophyllite
Tan Cove Base Adhesive	ND
Composite Non-Asbestos Content:	3% Talc
Sample Composite Homogeneity:	Moderate

Location: 30, Cove Base Adhesive

Lab ID-Version‡: 17567719-1

Sample Layers	Asbestos Content
Brown Mastic	< 1% Anthophyllite
Tan Cove Base Adhesive	ND
Brown Cove Base (Trace)	ND
Composite Non-Asbestos Content:	3% Talc
Sample Composite Homogeneity:	Moderate

Location: 31, Ext Concrete Block

Lab ID-Version‡: 17567720-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Good

Location: 32, Ext Concrete Block

Lab ID-Version‡: 17567721-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Good

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B6

Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 33, Ext Concrete Block Lab ID-Version‡: 17567722-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Good

Location: 34, Ext Concrete Wall Lab ID-Version‡: 17567723-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 35, Ext Concrete Wall Lab ID-Version‡: 17567724-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 36, Ext Concrete Wall Lab ID-Version‡: 17567725-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B6

Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 37, Textured Concrete Lab ID-Version‡: 17567726-1

Sample Layers	Asbestos Content
Light Gray Concrete	ND
Gray Paint	ND
Sample Composite Homogeneity:	Good

Location: 38, Textured Concrete Lab ID-Version‡: 17567727-1

Sample Layers	Asbestos Content
Light Gray Concrete	ND
Gray Paint	ND
Sample Composite Homogeneity:	Good

Location: 39, Textured Concrete Lab ID-Version‡: 17567728-1

Sample Layers	Asbestos Content
Light Gray Concrete	ND
Gray Paint	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Built Environment Testing

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East: (866) 871-1984
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003592262

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUE

Non-Culturable | C

Spore Trap | Tape, Swab, Bulk | BioCassette Swab, Water, Bulk, Dust, Soil, Contact Plate | Other Requests

CONTACT INFORMATION

Company:	MTGL, Inc.	Address:	7742 Arjons DR., San Diego, CA 92126
Contact:	Carl Tuckel	Special Instructions:	Bldg 6
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange-B6		
Project Zip Code:	92868	Sampling Date/Time:	3-27-24
PO Number:	SDPE-24-061.1CT	Sampled By:	DB/ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)	Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
1	2'x4' fissured ceiling tile	B		~1sq.in														X				
2	↓																					
3																						
4	fiberglass ins																					
5	↓																					
6																						
7	Concrete block																					
8	↓																					
9																						
10	6"x6" ceramic tile + mortar				Wall																	
11	↓				↓																	
12																						
13	ceramic tile + grout				floor																	
14					↓																	
15																						

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Chretien / Michelle Chretien	3/29/24

RECEIVED BY	DATE & TIME
[signature]	3/30/24 10:42a

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Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER		Fog	Rain	Snow	Wind	Clear
LEVEL	None					
	Light					
	Moderate					
	Heavy					

REQUES

003592262

CONTACT INFORMATION

Company:	MTGL, Inc.
Contact:	Carl Tuckel
Phone:	619-454-7851

Address: 7742 Arjons DR., San Diego, CA 92126
Special Instructions: Bldg 6

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall
Project Description:	331 The City of Orange B6
Project Zip Code:	92868
Sampling Date/Time:	3-27-24
Sampled By:	DB/ME
PO Number:	SDPE-24-061.1CT

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
16	Concrete ceiling	B	SD	~1sq in	
17	↓				
18					
19	Interior concrete floor				
20	↓				
21					
22	HVAC caulk				
23	↓				
24					
25	Carpet Adhesive				
26	↓				
27					
28	Cove base Adhesive				
29	↓				
30					

Non-Culturable: Spore Trap; Tape, Swab, Bulk
Cu: BioCassette, Swab, Wate, Cor

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thelston	3/29/24

RECEIVED BY	DATE & TIME
Chris Lang	3/30/24 1042G

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Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

003592262

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUES

Non-Culturable | Cul

Spore Trap | Tape, Swab, Bulk | BioCassette, Swab, Water, Contact Plate

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL Tuckel
Phone: 619-454-7851

Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions: Bldg 6

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange Blg
Project Zip Code: 92868
Sampling Date/Time: 3-28-24
PO Number: SDPE-24-061.14
Sampled By: DB / ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
31	Ext concrete block	B	STD	~1 sqin	
32	↳				
33					
34	Ext concrete wall				
35	↳				
36					
37	Textured concrete				Soffet
38	↳				
39					

Spore Trap Analysis | Other biological particles - supplement | Direct Microscopic Exam (Qualitative) | Quantitative spore count direct exam | Dust Characterization | 1-Media Surface Fungi (Genus ID + Asp. spp.) | Culturable Air Fungi (Genus ID + Asp. spp.) | Gram Stain and Counts (Culturable Air and Surface Bacteria) | Legionella culture | Total Coliform, E coli (Presence/Absence) | QuantiTray-Sewage Screen | OTHER: (please specify test) | Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400) | Asbestos Bulk - PLM | Lead (Pb) - Flame AA | PCR (please specify test) | Allergens (please specify test)

X

X

SAMPLE TYPE CODES

BC - BioCassette	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Christm	3/29/24

RECEIVED BY	DATE & TIME
	3/30/24 10:42a

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Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B6
EML ID: 3600734

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-11-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B6

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	9
Total Samples Analyzed:	9
Total Samples with Layer Asbestos Content > 1%:	0

Location: 41, Rolled Roofing

Lab ID-Version‡: 17610942-1

Sample Layers	Asbestos Content
Silver Coating	ND
Black Roofing Mastic	ND
Black Roofing Mastic 2	ND
Brown Insulation	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 42, Rolled Roofing

Lab ID-Version‡: 17610943-1

Sample Layers	Asbestos Content
Silver Coating	ND
Black Roofing Shingle	ND
Black Roofing Tar	ND
Black Roofing Shingle 2	ND
Black Roofing Tar 2	ND
Composite Non-Asbestos Content:	8% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 43, Rolled Roofing

Lab ID-Version‡: 17610944-1

Sample Layers	Asbestos Content
Silver Coating	ND
Black Roofing Shingle	ND
Black Roofing Tar and Felt	ND
Black Roofing Tar and Felt 2	ND
Brown Insulation	ND
Composite Non-Asbestos Content:	15% Cellulose 12% Glass Fibers
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B6

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: 44, Roof Mastic

Lab ID-Version‡: 17610945-1

Sample Layers	Asbestos Content
Silver Coating	ND
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	3% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 45, Roof Mastic

Lab ID-Version‡: 17610946-1

Sample Layers	Asbestos Content
White Paint	ND
Silver Coating	ND
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	5% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 46, Roof Mastic

Lab ID-Version‡: 17610947-1

Sample Layers	Asbestos Content
Silver Coating	ND
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	3% Glass Fibers
Sample Composite Homogeneity:	Moderate

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‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B6

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: 47, HVAC Seam Caulk Lab ID-Version‡: 17610948-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material (HVAC Seam)	ND
Sample Composite Homogeneity:	Good

Location: 48, HVAC Seam Caulk Lab ID-Version‡: 17610949-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material (HVAC Seam)	ND
Sample Composite Homogeneity:	Good

Location: 49, HVAC Seam Caulk Lab ID-Version‡: 17610950-1

Sample Layers	Asbestos Content
Gray Non-Fibrous Material (HVAC Seam)	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUI

003600734

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 AIRJORS DR., San Diego, CA 92126
Special Instructions: * 1st positive Stop 71%

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B6
Project Zip Code: 92868
Sampling Date/Time: 5 4/2/24
PO Number: SDRE-24-061.1CT
Sampled By:

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
41	Rolled Roofing	B	STD		
42	+				
43	Roof Mastic				
44	+				
45	HVAC Seam Caulk				
46	+				
47					
48					
49					

Non-Culturable

Spore Trap	Tape, Swab, Bulk	BioCassette Swab, Wa C

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	*Legionella* culture	Total Coliform, *E. coli* (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette®	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thomas Michelle Thomas	4/5/24

RECEIVED BY	DATE & TIME
	4/8/24 1604

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

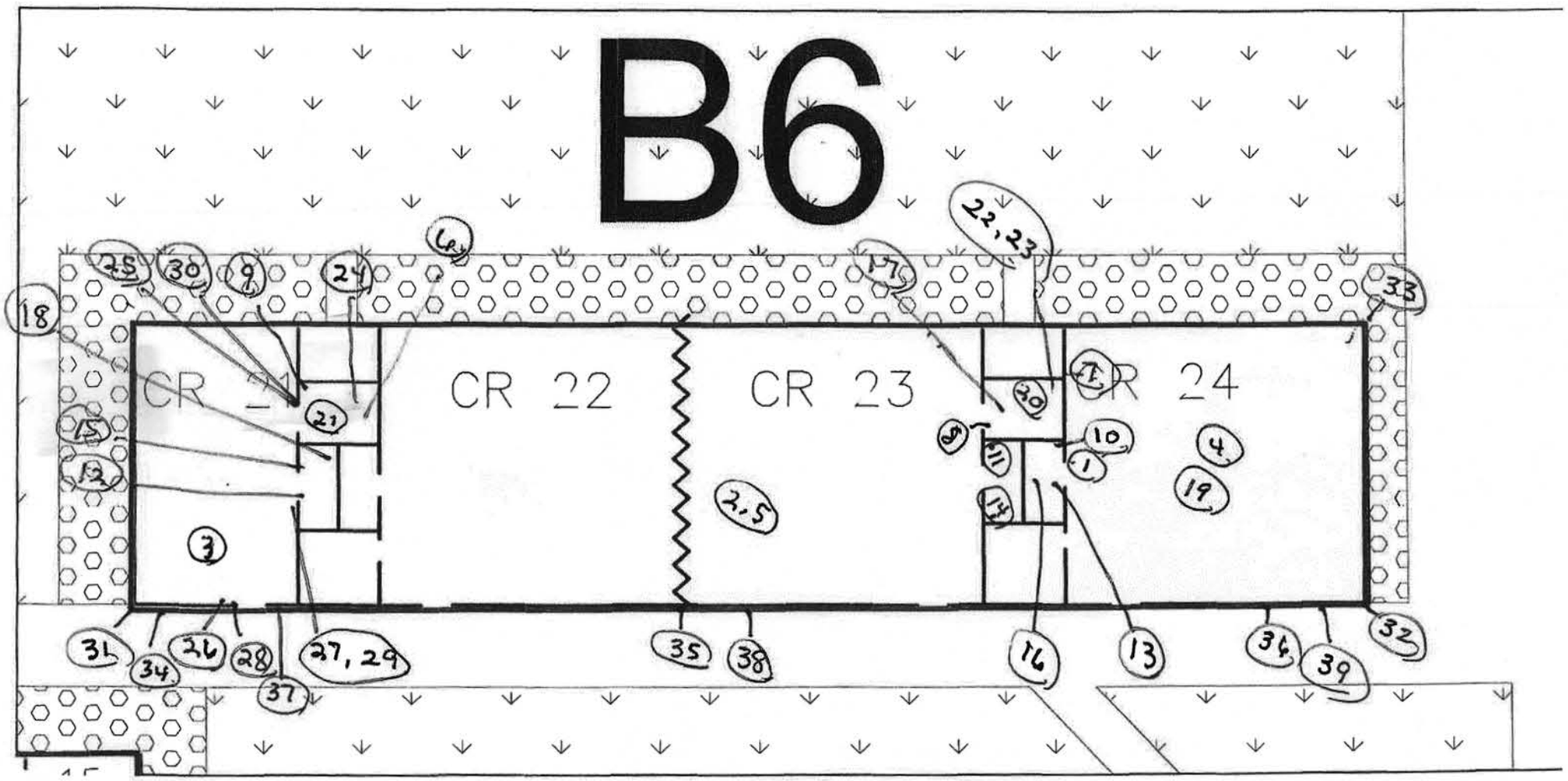
Bulk Asbestos Analysis

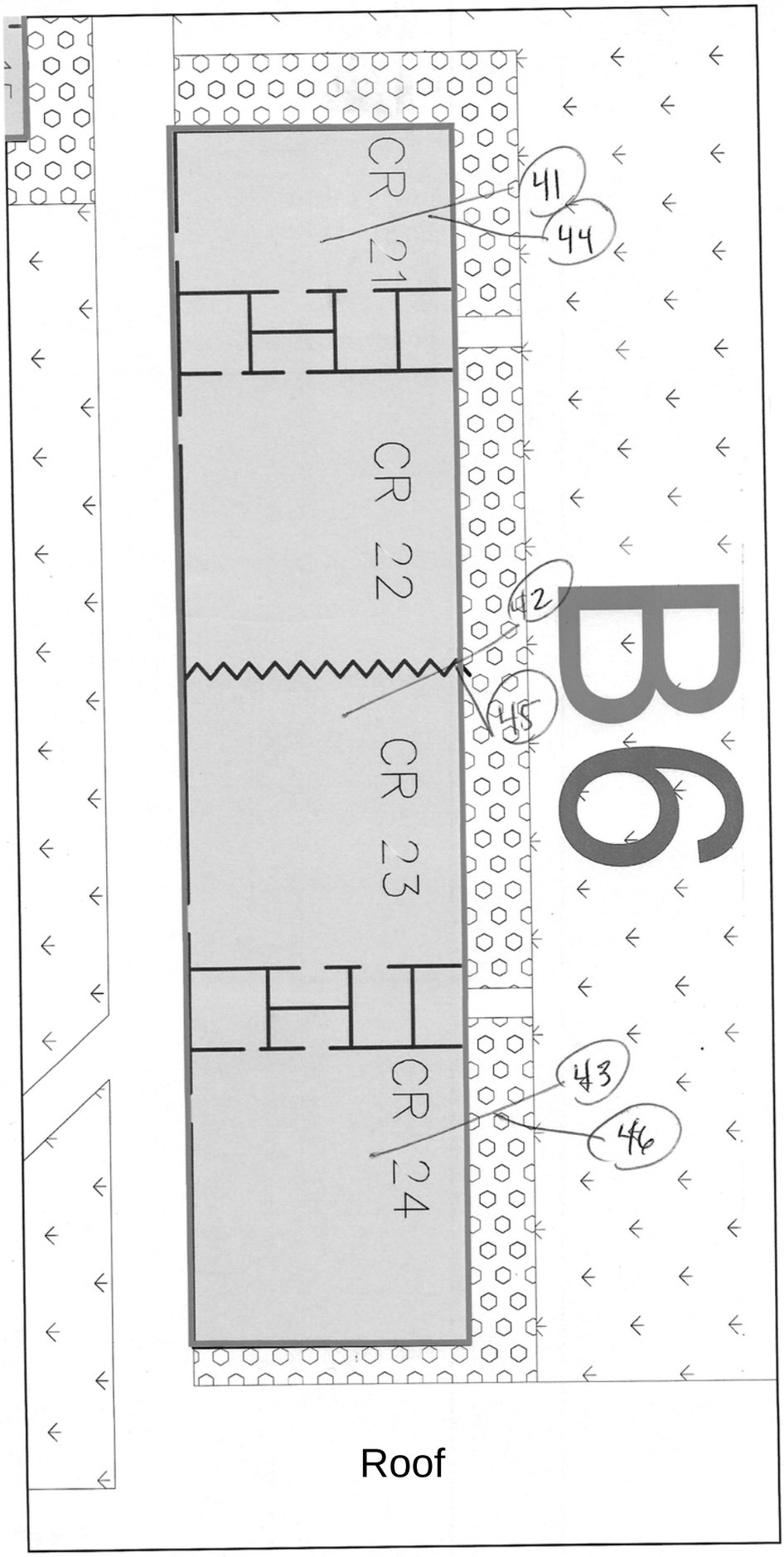
Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)


B6
CR 22
CR 23
CR 24
22, 23
2, 5
27, 29



Roof

APPENDIX 3

PHOTO DOCUMENTATION

1. Brick & mortar, concrete block, and texture coat (Soffit).

2. HVAC seam caulk.

3. Ceramic floor and wall tile & mortar, carpet adhesive, wall block, and concrete floor

4. Concrete ceiling.

5. Fissured ceiling tile, fiberglass insulation.

6. Typical view of classroom.

7. Typical View of Classroom

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Asbestos • Lead • Mold • HAZWOPER
PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

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CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

Geotechnical Engineering
Construction Inspection
Materials Testing
Environmental

Office Locations

Orange County
Corporate Branch
2992 E. La Palma Avenue
Suite A
Anaheim, CA 92806
Tel: 714.632.2999
Fax: 714.632.2974

San Diego
Imperial County
6295 Ferris Square
Suite C
San Diego, CA 92121
Tel: 858.537.3999
Fax: 858.537.3990

Inland Empire
14467 Meridian Pkwy.
Building 2A
Riverside, CA 92553
Tel: 951.653.4999
Fax: 951.653.4666

Central Dispatch
888.844.5060

www.mtglinc.com

Mr. Scott Battles
Vanir Construction Management, Inc.
4540 Duckhorn Drive, Suite 300
Sacramento, CA 95834

September 26, 2024

Subject: Addendum to Asbestos Survey Report: Orange County Juvenile Hall Building 6
Dated April 18, 2024

Re: Orange County Juvenile Hall-Building 6-Additional Testing
331 The City Drive, S (Building 6, Room 21)
Orange, California 92868

Dear Mr. Battles:

On September 12, 2024, MTGL collected additional samples of the cove base adhesive in Room 21 that was reported to contain <1% asbestos in the Asbestos Survey Report, dated April 18, 2024. The purpose of the testing was to try and duplicate the original results in order to point count the material to determine if asbestos less than 0.1% was reported by 1,000 point count analysis.

During the inspection MTGL's Inspector noted vinyl flooring underneath the carpeting that was not sampled during the initial visit. Homam Alfalahi, an AHERA Building Inspector (#ABII0513240002N39722) under the direction of Michelle Ehresman, an AHERA Building Inspector (#ABIR0718240013N39757) and Certified Asbestos Consultant (#14-5323) collected a total of six (6) bulk samples and submitted the material to Eurofins EMLab P&K, San Diego, California for analysis and evaluation of asbestos content using EPA Method 600/R-93/116, Polarized Light Microscopy.

The materials were in good condition at the time of the inspection.

SUMMARY OF SAMPLING & ANALYTIC RESULTS. The following table summarizes the laboratory's analytical results:

Asbestos:

Sample ID	Sample Matrix	Location	Asbestos Analytic Result*
1, 2, 3	Cove Base Glue	Classroom 21	No Asbestos Detected
4, 5, 6	9"x9" Vinyl Floor Tile	Classroom 21	Yellow Mastic-ND
			Tan Floor Tile-3%
			Black Mastic-2%
Note: The floor tile and mastic (approximately 365 square feet) is considered Category II-Non-Friable and was in good condition at the time of the inspection.			

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402 paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

CONCLUSIONS

MTGL was unable to duplicate the same results for the cove base adhesive and therefore, the material shall remain to be considered an Asbestos Containing Construction Material (ACCM) as stated in the original survey report dated April 18, 2024.

In addition, the floor tile and mastic discovered underneath the carpeting material observed and tested for asbestos is positive for asbestos content greater than 1% asbestos by weight and is considered to an Asbestos Containing Material (ACM).

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the

purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

MTGL, Inc. appreciates the opportunity to be of service. If you have any questions or require additional information, please contact us at (858) 537-3999.

Sincerely,
MTGL, INC

Michelle Ehresman, CAC 14-5323
Industrial Hygiene Services

Attachments:

Attachment 1: Laboratory Report and Chain of Custody
Attachment 2: Sample Location Map
Attachment 3: Inspector Certifications

Attachment 1

Laboratory Report
&
Chain of Custody

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Cons-331 The City Drive, CR21; Asbestos Testing
EML ID: 3779280

Approved by:

Approved Signatory
Danny Li

Dates of Analysis:
Asbestos PLM: 09-17-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 200757-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Cons-331 The City Drive, CR21; Asbestos Testing

Date of Sampling: 09-12-2024
Date of Receipt: 09-12-2024
Date of Report: 09-17-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	6
Total Samples Analyzed:	6
Total Samples with Layer Asbestos Content > 1%:	3

Location: 1, Cove Base Glue

Lab ID-Version‡: 18631715-1

Sample Layers	Asbestos Content
Light Brown Glue	ND
Dark Brown Glue	ND
Composite Non-Asbestos Content:	2% Talc
Sample Composite Homogeneity:	Moderate

Location: 2, Cove Base Glue

Lab ID-Version‡: 18631716-1

Sample Layers	Asbestos Content
Light Brown Glue	ND
Dark Brown Glue	ND
Composite Non-Asbestos Content:	2% Talc
Sample Composite Homogeneity:	Moderate

Location: 3, Cove Base Glue

Lab ID-Version‡: 18631717-1

Sample Layers	Asbestos Content
Light Brown Glue	ND
Dark Brown Glue	ND
Composite Non-Asbestos Content:	2% Talc
Sample Composite Homogeneity:	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
2841 Dow Avenue, Suite 300, Tustin, CA 92780
(833) 465-5857 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Cons-331 The City Drive, CR21; Asbestos Testing

Date of Sampling: 09-12-2024
Date of Receipt: 09-12-2024
Date of Report: 09-17-2024

ASBESTOS PLM REPORT

Location: 4, 9x9 Tan VFT

Lab ID-Version‡: 18631718-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Tan Floor Tile	3% Chrysotile
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: 5, 9x9 Tan VFT

Lab ID-Version‡: 18631719-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Tan Floor Tile	3% Chrysotile
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Moderate

Location: 6, 9x9 Tan VFT

Lab ID-Version‡: 18631720-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Tan Floor Tile	3% Chrysotile
Black Mastic	2% Chrysotile
Sample Composite Homogeneity:	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

All components not quantified as asbestos content and non-asbestos content are considered to be non-fibrous matrix components. Matrix components may include, but are not limited to, gypsum, paint, silicate minerals, vinyl, binder, calcium carbonate, tar, and foam.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003779280

CONTACT INFORMATION

Company:	MTGL INC	Address:	7742 Arjons Dr, San Diego, CA 92126
Contact:	Carl Tucker	Special Instructions:	
Phone:	(619) 454-7851		

PROJECT INFORMATION

Project ID:	Vanir Cons-331 The City Drive, CR21		
Project Description:	Asbestos testing		
Project Zip Code:	92868	Sampling Date/Time:	9/12/24 11:10AM
PO Number:	—	Sampled By:	H.A

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

REQUESTED SERVICES

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	Cove Base Glue	B	STD	~1"	
2	"	"	"	"	
3	"	"	"	"	
4	9x9 Tan VFT	"	"	"	
5	"	"	"	"	
6	"	"	"	"	

Non-Culturable

Spore Trap	Tape, Swab, Bulk
Spore Trap Analysis	
Other biological particles - supplement	
	Direct Microscopic Exam (Qualitative)
	Quantitative spore count direct exam
	Dust Characterization

Culturable

BioCassette™: Andersen, SAS, Swab, Water, Bulk, Dust, Soil, Contact Plate

- 1-Media Surface Fungi (Genus ID + Asp. spp.)
- Culturable Air Fungi (Genus ID + Asp. spp.)
- Gram Stain and Counts (Culturable Air and Surface Bacteria)
- *Legionella* culture
- Total Coliform, *E.coli* (Presence/Absence)
- QuantiTray-Sewage Screen
- OTHER: (please specify test)

Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)

SAMPLE ID	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
1	X			
2	X			
3	X			
4	X			
5	X			
6	X			

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Homam Alfaiaki	9/12/24 12:08PM

RECEIVED BY	DATE & TIME
STEVEN CASTILLO	9/12/24 12:10pm

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200757-0

Eurofins EMLab P&K

Tustin, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
2841 Dow Avenue, Suite 300
Tustin, CA 92780
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
www.eurofinsus.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 200757-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

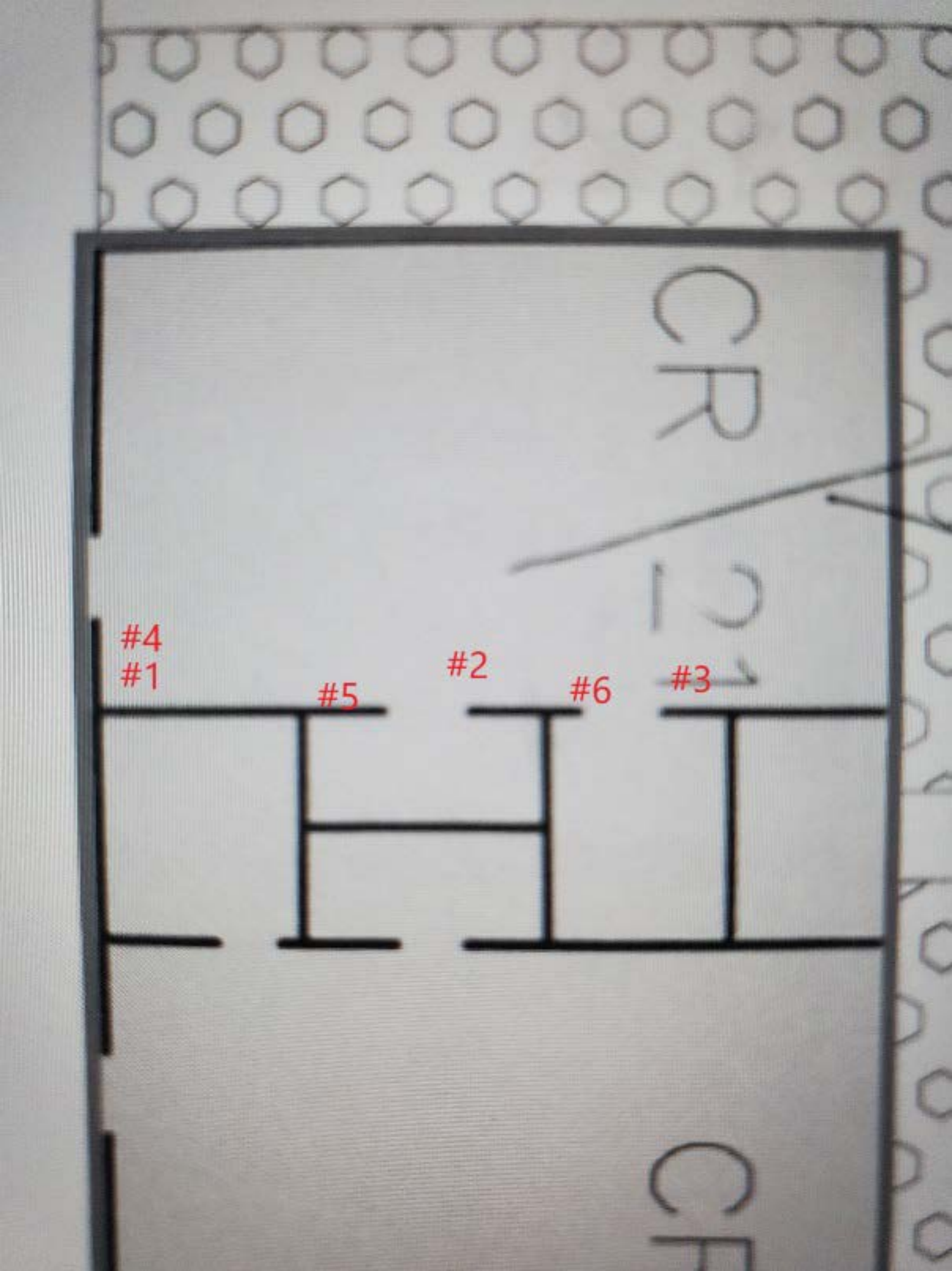
Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)


#4
#1
#5
#2
#6
#3

APPENDIX 3

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6.29.25
- AHERA Building Inspector Refresher Certification Exp. 7/18/25
- AHERA Management Planner Refresher Certification Exp. 7/18/25
- AHERA Project Designer Refresher Certification Exp. 7/31/25

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By

Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-29-2024
Exam Date: n/a
Expiration Date: 06-29-2025
Certification Number: 0624ABCA179303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0718240013N39757

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/18/2024	7/18/2024	7/18/2024	7/18/2025
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

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(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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www.natecintl.com

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National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Training Date 7/18/2024
Certificate No. ABIR0718240013N39757

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0718240004N39808

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/18/2024	7/18/2024	7/18/2024	7/18/2025
Course Start Date	Course End Date	Exam Date	Expiration Date

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This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Training Date 7/18/2024
Certificate No. AMPR0718240004N39808

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0731240015N39853

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/31/2024	7/31/2024	7/31/2024	7/31/2025
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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Homam Alfalahi

AHERA Building Inspector Certification

Certificate Of Completion

Asbestos Building Inspector Initial Course

DOSH #:CA-015-05

Homam Alfalahi

ABII0513240002N39722

David Wallach
Principal Instructor

Michael W. Horner
Training Director

5/13/2024	5/15/2024	5/15/2024	5/15/2025
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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SCAQMD: Ph# (909) 396-3739
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NATEC International, Inc.
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*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Homam Alfalahi

Holds Training Certification For
Asbestos Building Inspector Initial Course

Training Date 5/13/2024
Certificate No. ABII0513240002N39722

Michael W. Horner
Training Director

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 6-Classrooms 21, 22, 23, 24
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 18, 2024

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SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 6 (Single story, wood frame with concrete block on a concrete slab.)
  - Classrooms 21, 22, 23, 24

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on March 28, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 mg/cm^{2} or greater * (Please see attachment I for a detail report of findings.)

- No lead-based paint was identified in the components tested.

- **Intact lead containing ceramic wall, base tile was identified in the bathrooms of Classrooms 21, 22, 23 and 24.**

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

Deteriorated lead-based paint was not identified on the accessible components tested however, lead containing yellow, ceramic wall base tile was identified and Title 8, CCR Section 1532.1 will apply.

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.

Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered “lead-based”. The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 mg/cm^{2,} 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of

"Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 6, 331 The City Drive, Orange, CA 92868

Inspection Date: March 28, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1	B-6		Calibration				Intact		Red NIST	1.0	
2	B-6		Calibration				Intact		Red NIST	1.1	
3	B-6		Calibration				Intact		Red NIST	1.0	
4	B-6	A	Room 24	Door	Door		Intact	Metal	Blue	.23	Negative
5	B-6	A	Room 24	Door	Frame		Intact	Metal	Blue	.17	Negative
6	B-6	A	Room 24	Wall			Intact	Concrete	Tan	.11	Negative
7	B-6	B	Room 24	Wall			Intact	Concrete	Tan	.16	Negative
8	B-6	C	Room 24	Wall			Intact	Concrete	Tan	.21	Negative
9	B-6	D	Room 24	Wall			Intact	Concrete	Tan	.11	Negative
10	B-6	B	Room 24	Floor			Intact	Concrete	Brown	<LOD	Negative
11	B-6	B	Room 24		Base		Intact	Concrete	Brown	.12	Negative
12	B-6	D	Rm. 24 bath	Door			Intact	Metal	Blue	.02	Negative
13	B-6	D	Rm. 24 bath	Door			Intact	Metal	Blue	.02	Negative
14	B-6	D	Rm. 24 bath				Intact	Ceramic	Yellow	<LOD	Negative
15	**B-6**	**D**	**Rm. 24 bath**	**Wall**	**Base**	**Tile**	**Intact**	**Ceramic**	**Yellow**	**9.8**	**Positive**
16	B-6	A	Room 23	Door	Door		Intact	Metal	Blue	.11	Negative
17	B-6	A	Room 23	Door	Frame		Intact	Metal	Blue	.17	Negative
18	B-6	A	Room 23	Wall			Intact	Concrete	Tan	.12	Negative
19	B-6	C	Room 23	Wall			Intact	Concrete	Tan	.09	Negative
20	B-6	C	Room 23	Window	Frame		Intact	Metal	Blue	.02	Negative
21	B-6	B	Rm 23 bath	Door	Door		Intact	Metal	Blue	.06	Negative
22	B-6	B	Rm 23 bath	Door	Frame		Intact	Metal	Blue	.06	Negative
23	**B-6**	**B**	**Rm 23 bath**	**Wall**	**Base**	**Tile**	**Intact**	**Ceramic**	**Yellow**	**7.8**	**Positive**

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 6, 331 The City Drive, Orange, CA 92868

Inspection Date: March 28, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
24	B-6	B	Rm 23 bath				Intact	Ceramic	Yellow	<LOD	Negative
25	B-6	A	Room 22	Door	Door		Intact	Metal	Blue	.21	Negative
26	B-6	A	Room 22	Door			Intact	Metal	Blue	.20	Negative
27	B-6	A	Room 22	Wall			Intact	Concrete	Tan	.09	Negative
28	B-6	B	Room 22	Wall			Intact	Concrete	Tan	.11	Negative
29	B-6	C	Room 22	Wall			Intact	Concrete	Tan	.10	Negative
30	B-6	D	Room 22	Wall			Intact	Concrete	Tan	.10	Negative
31	B-6	B	Room 22	Floor			Intact	Concrete	Brown	<LOD	Negative
32	B-6	B	Room 22	Wall	Base		Intact	Concrete	Brown	.02	Negative
33	**B-6**	**B**	**Rm. 22 bath**	**Wall**	**Base**	**Tile**	**Intact**	**Ceramic**	**Yellow**	**6.8**	**Positive**
34	B-6	B	Rm. 22 bath	Floor	Tile		Intact	Ceramic	Yellow	<LOD	Negative
35	B-6	B	Rm. 22 bath	Wall			Intact	Concrete	White	.01	Negative
36	B-6	A	Room 21	Door	Door		Intact	Metal	Blue	.06	Negative
37	B-6	A	Room 21	Door	Frame		Intact	Metal	Blue	.12	Negative
38	B-6	B	Room 21	Wall			Intact	Concrete	Tan	.07	Negative
39	B-6	B	Room 21	Floor			Intact	Concrete	Brown	<LOD	Negative
40	B-6	C	Room 21	Window	Frame		Intact	Metal	Blue	.02	Negative
41	**B-6**	**B**	**Rm. 21 bath**	**Wall**	**Base**	**Tile**	**Intact**	**Ceramic**	**Yellow**	**7.2**	**Positive**
42	B-6	B	Exterior	Wall			Intact	Concrete	Tan	<LOD	Negative
43	B-6	B	Exterior	Wall	Panel		Intact	Metal	Tan	<LOD	Negative
44	B-6	A	Exterior	Wall	Overhang		Intact	Concrete	Tan	<LOD	Negative
45	B-6	A	Exterior	Door	Door		Intact	Metal	Green	.18	Negative
46	B-6	A	Exterior	Door	Frame		Intact	Metal	Green	.07	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 6, 331 The City Drive, Orange, CA 92868

Inspection Date: March 28, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
47	B-6	A	Exterior	Wall C	Fire box		Intact	Metal	Red	.21	Negative
48	B-6	A	Exterior	Door 3	Door		Intact	Metal	Green	.12	Negative
49	B-6	A	Exterior	Door 3	Frame		Intact	Metal	Green	.09	Negative
50	B-6	C	Exterior	Door	Door		Intact	Metal	Green	.15	Negative
51	B-6	C	Exterior	Door	Frame		Intact	Metal	Green	.26	Negative
52	B-6	C	Exterior	Window	Frame		Intact	Metal	Green	.04	Negative
53	B-6	A	Exterior	Wall	Fascia		Intact	Metal	Grey	<LOD	Negative
54	B-6		Calibration				Intact		Red NIST	1.0	3

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

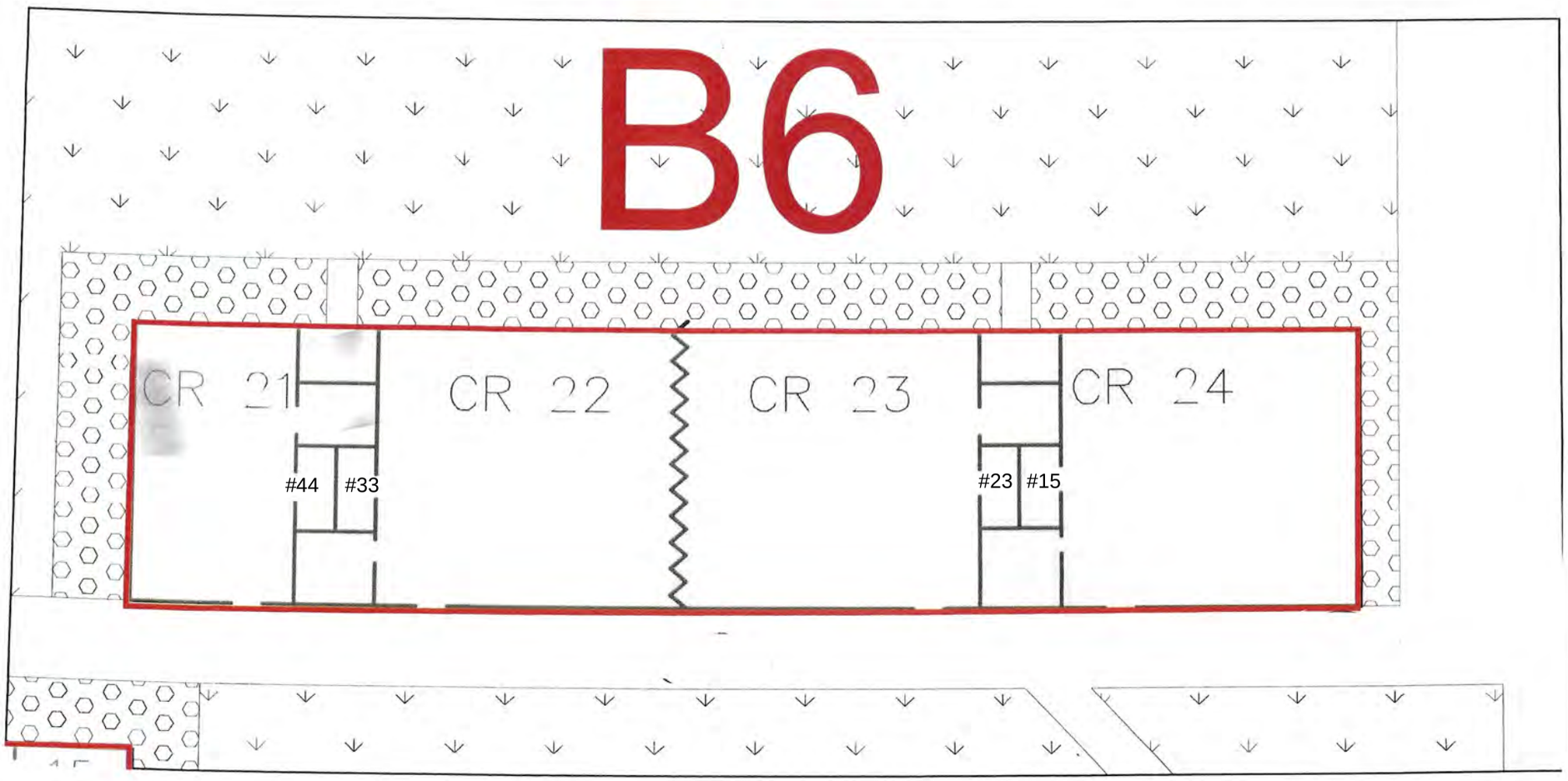
This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING

Positive components greater than 1.0 mg/cm2

(Sample #'s 15, 23, 33, 44: Yellow Ceramic Wall Tile Base



Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Michelle Ehresman

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 3/28/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 6)	Orange	Orange	92868

Construction date (year) of structure: Unknown

Type of structure: ☐ Multi-unit building ☑ School or daycare ☐ Single family dwelling ☐ Other _____

Children living in structure? ☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☑ Other Lead containing ceramic wall base tile.

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	3/28/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO RENOVATE RIGHT

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

Important lead hazard information for families, child care providers and schools.

EPA

LEAD-SAFE EPA CERTIFIED FIRM

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

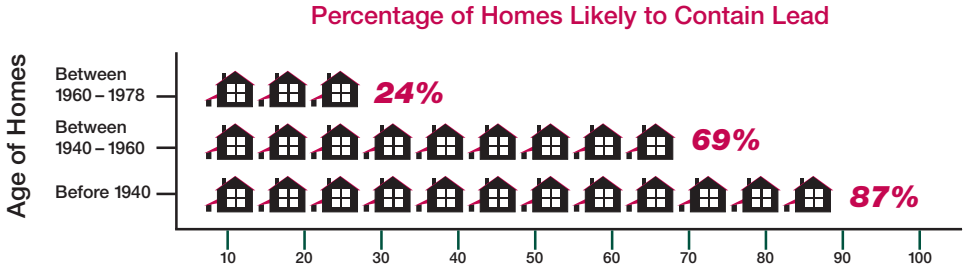
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 7

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 22, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

Buildings 2, 5, 7 and 9 shared the same homogeneous silver rolled roofing system and black roofing mastic. Samples collected were representative of the shared roofing materials.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 7

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: March 28, 2024 to April 2, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were

performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3590829/3600732
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 13,000

Structure Frame: Wood
If other, describe: None

Structure Foundation: Concrete Slab On Grade
If other, describe: None

Number of Floors: 1

Building Occupied: Yes

SUSPECT MATERIALS OBSERVED
Suspect Materials Observed During the Asbestos Survey Conducted

- 1'x1' Acoustic Ceiling Tile and Fissured Ceiling Tile
- Epoxy Floor
- Concrete Wall
- Carpet Glue
- Pipe Insulation and Pipe Elbow Insulation
- Fiberglass Insulation
- Concrete Slab
- Concrete Stone and Concrete Block Wall
- Brick and Mortar
- Concrete Texture Coat (Soffit)
- Window Sealant
- Ceramic Wall and Floor Tile
- Silver Coated Rolled Roofing and Silver Coated Roof Mastic

Inaccessible Materials Presumed to be Asbestos Content: None

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material* Description	***Location****	***Sample #***	***Approximate Quantity*****	***AHERA Rank*****	***Friability/ Material Type***	***Damage Category***	***Quantity of Contamination (If any) *****	***Asbestos Content***
Pipe Elbow Insulation	Throughout	16	Undetermined as wrap may run behind walls or inside soffits.	7	Friable	1	None	15% Gray Insulation White Wrap None Detect
Note: Samples 17, 18 were not analyzed due to prior positive series.								
2'x4' Fissured Ceiling Tile	Hallways	43, 44	4, 000 sf	7	Friable	1	None	3% Amosite
Roof Mastic (See below note.)	***Building 2*** *(Under Vinyl Cap Sheet on North End)*	*R-14*	*1,800 sf*	*X*	*Non-Friable*	*1*	*None*	*4%*
Note: Sample R14 (roof mastic) pertains only to the North end of Building 2 under vinyl cap sheet. Sample is included with report as it is a part of the same Chain of Custody (COC) and lab report as the remainder of the samples for Bldgs. 2, 5, 7 and 9.								

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - “Undamaged” means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - “Damaged” means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -“Significantly Damaged” means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
1’x1’ Acoustic Ceiling Tile	1, 2, 3
Epoxy Floor	4, 5, 6
Concrete Wall	7, 8, 9
Carpet Glue	10, 11, 12
Pipe Insulation	13, 14, 15
Concrete Ceiling	19, 20, 21
Fiberglass Insulation Wrap	22, 23, 24
Concrete Slab	25, 26, 27
Concrete Stone	28, 29, 30
Concrete Block Wall	31, 32, 33
Brick and Mortar	34, 35, 36
Concrete Texture Coat (Soffit)	37, 38, 39
Window Sealant	40, 41, 42
Ceramic Floor Tile	46, 47, 48
Ceramic Wall Tile	49, 50, 51
Ceiling Insulation	52, 53, 54
Fiberglass Pipe Wrap	55, 56, 57

Samples R-1 through R-13 are Homogeneous to the shared roofing systems for Building 2, 5, 7 and 9.	
Silver Rolled Roofing over Insulation	R-1, R2, R3, R-4, R-5
Roof Mastic	R-6, R-7, R-8, R-9, R-10
HVAC Caulk	R-11. R12, R-13

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402 paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this asbestos survey, materials observed and tested for asbestos were positive for asbestos content.

The pipe insulation elbows were reported to contain >1% asbestos.

The 2'x4' fissured ceiling times were reported to contain >1% asbestos.

While the silver coated rolled roofing and roofing mastic is negative for asbestos on Building 7, sample R14 (roof mastic) pertains only to North end of Building 2 under vinyl cap sheet. The sample is included with report as it is a part of the same Chain of Custody (COC) and lab report as the remainder of the samples for Buildings 2, 5, 7 and 9.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection. All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange - B7
EML ID: 3590829

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-03-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange - B7

Date of Sampling: 03-28-2024
Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	57
Total Samples Analyzed:	55
Total Samples with Layer Asbestos Content > 1%:	3

Location: 1, 1'x1' Acoustic Ceiling Tile

Lab ID-Version‡: 17559218-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Brown Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	80% Cellulose 2% Talc
Sample Composite Homogeneity:	Moderate

Location: 2, 1'x1' Acoustic Ceiling Tile

Lab ID-Version‡: 17559219-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Brown Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	80% Cellulose 2% Talc
Sample Composite Homogeneity:	Moderate

Location: 3, 1'x1' Acoustic Ceiling Tile

Lab ID-Version‡: 17559220-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Brown Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	80% Cellulose 2% Talc
Sample Composite Homogeneity:	Moderate

Location: 4, Epoxy Floor

Lab ID-Version‡: 17559221-1

Sample Layers	Asbestos Content
Gray Flooring	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 5, Epoxy Floor

Lab ID-Version‡: 17559222-1

Sample Layers	Asbestos Content
Gray Flooring	ND
Sample Composite Homogeneity:	Good

Location: 6, Epoxy Floor

Lab ID-Version‡: 17559223-1

Sample Layers	Asbestos Content
Gray Flooring	ND
Sample Composite Homogeneity:	Good

Location: 7, Concrete Wall

Lab ID-Version‡: 17559224-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 8, Concrete Wall

Lab ID-Version‡: 17559225-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 9, Concrete Wall

Lab ID-Version‡: 17559226-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 10, Carpet Glue

Lab ID-Version‡: 17559227-1

Sample Layers	Asbestos Content
Yellow Carpet Glue	ND
Sample Composite Homogeneity:	Good

Location: 11, Carpet Glue

Lab ID-Version‡: 17559228-1

Sample Layers	Asbestos Content
Yellow Carpet Glue	ND
Sample Composite Homogeneity:	Good

Location: 12, Carpet Glue

Lab ID-Version‡: 17559229-1

Sample Layers	Asbestos Content
Yellow Carpet Glue	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 13, Pipe Insulation

Lab ID-Version‡: 17559230-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
White Wrap	ND
Composite Non-Asbestos Content:	60% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 14, Pipe Insulation

Lab ID-Version‡: 17559231-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
White Wrap	ND
Composite Non-Asbestos Content:	60% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 15, Pipe Insulation

Lab ID-Version‡: 17559232-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
White Wrap	ND
Composite Non-Asbestos Content:	60% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 16, Pipe Elbow Insulation

Lab ID-Version‡: 17559233-1

Sample Layers	Asbestos Content
Gray Insulation	5% Chrysotile
White Wrap	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Comments: Samples 17-18 were not analyzed due to prior positive series.

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ASBESTOS PLM REPORT

Location: 19, Concrete Ceiling

Lab ID-Version‡: 17559236-1

Sample Layers	Asbestos Content
White Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 20, Concrete Ceiling

Lab ID-Version‡: 17559237-1

Sample Layers	Asbestos Content
White Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 21, Concrete Ceiling

Lab ID-Version‡: 17559238-1

Sample Layers	Asbestos Content
White Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 22, Fiberglass ins w/Wrap and Tape

Lab ID-Version‡: 17559239-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Tan Adhesive	ND
Silver Wrap	ND
Composite Non-Asbestos Content:	80% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 23, Fiberglass ins w/Wrap and Tape

Lab ID-Version‡: 17559240-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Tan Adhesive	ND
Silver Wrap	ND
Composite Non-Asbestos Content:	80% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 24, Fiberglass ins w/Wrap and Tape

Lab ID-Version‡: 17559241-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Tan Adhesive	ND
Silver Wrap	ND
Composite Non-Asbestos Content:	80% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 25, Concrete Slab

Lab ID-Version‡: 17559242-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Moderate

Location: 26, Concrete Slab

Lab ID-Version‡: 17559243-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 27, Concrete Slab Lab ID-Version‡: 17559244-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Moderate

Location: 28, Concrete Stone Lab ID-Version‡: 17559245-1

Sample Layers	Asbestos Content
Tan Concrete	ND
Sample Composite Homogeneity:	Good

Location: 29, Concrete Stone Lab ID-Version‡: 17559246-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 30, Concrete Stone Lab ID-Version‡: 17559247-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 31, Concrete Block Wall

Lab ID-Version‡: 17559248-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Tan Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 32, Concrete Block Wall

Lab ID-Version‡: 17559249-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Tan Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 33, Concrete Block Wall

Lab ID-Version‡: 17559250-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Tan Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 34, Brick and Mortar

Lab ID-Version‡: 17559251-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 35, Brick and Mortar

Lab ID-Version‡: 17559252-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

Location: 36, Brick and Mortar

Lab ID-Version‡: 17559253-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

Location: 37, Concrete Texture Coat

Lab ID-Version‡: 17559254-1

Sample Layers	Asbestos Content
Beige Paint	ND
Gray Texture Coat	ND
Dark Gray Concrete	ND
Sample Composite Homogeneity:	Poor

Location: 38, Concrete Texture Coat

Lab ID-Version‡: 17559255-1

Sample Layers	Asbestos Content
Beige Paint	ND
Gray Texture Coat	ND
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 39, Concrete Texture Coat Lab ID-Version‡: 17559256-1

Sample Layers	Asbestos Content
Beige Paint	ND
Gray Texture Coat	ND
Sample Composite Homogeneity:	Poor

Location: 40, Window Sealant Lab ID-Version‡: 17559257-1

Sample Layers	Asbestos Content
Black Sealant	ND
Sample Composite Homogeneity:	Good

Location: 41, Window Sealant Lab ID-Version‡: 17559258-1

Sample Layers	Asbestos Content
Black Sealant	ND
Sample Composite Homogeneity:	Good

Location: 42, Window Sealant Lab ID-Version‡: 17559259-1

Sample Layers	Asbestos Content
Black Sealant	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 43, Fissured Ceiling Tile

Lab ID-Version‡: 17559260-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	3% Amosite
Composite Non-Asbestos Content:	60% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 44, Fissured Ceiling Tile

Lab ID-Version‡: 17559261-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	3% Amosite
Composite Non-Asbestos Content:	60% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 45, Fissured Ceiling Tile

Lab ID-Version‡: 17559262-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 46, Ceramic Floor Tile

Lab ID-Version‡: 17559263-1

Sample Layers	Asbestos Content
White Thinset	ND
Beige Mastic	ND
Tan Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange - B7

Date of Sampling: 03-28-2024
Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 47, Ceramic Floor Tile

Lab ID-Version‡: 17559264-1

Sample Layers	Asbestos Content
White Paper	ND
Tan Ceramic Tile	ND
Composite Non-Asbestos Content:	2% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 48, Ceramic Floor Tile

Lab ID-Version‡: 17559265-1

Sample Layers	Asbestos Content
White Thinset	ND
Beige Mastic	ND
Tan Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 49, Ceramic Wall Tile

Lab ID-Version‡: 17559266-1

Sample Layers	Asbestos Content
Gray Thinset	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 50, Ceramic Wall Tile

Lab ID-Version‡: 17559267-1

Sample Layers	Asbestos Content
Gray Thinset	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Date of Sampling: 03-28-2024
Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 51, Ceramic Wall Tile

Lab ID-Version‡: 17559268-1

Sample Layers	Asbestos Content
Gray Thinset	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 52, Ceiling Insulation

Lab ID-Version‡: 17559269-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 53, Ceiling Insulation

Lab ID-Version‡: 17559270-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 54, Ceiling Insulation

Lab ID-Version‡: 17559271-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	99% Glass Fibers
Sample Composite Homogeneity:	Good

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Date of Sampling: 03-28-2024
Date of Receipt: 03-29-2024
Date of Report: 04-03-2024

ASBESTOS PLM REPORT

Location: 55, Fiberglass Pipe Wrap

Lab ID-Version‡: 17559272-1

Sample Layers	Asbestos Content
Yellow Wrap	ND
Composite Non-Asbestos Content:	85% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 56, Fiberglass Pipe Wrap

Lab ID-Version‡: 17559273-1

Sample Layers	Asbestos Content
Yellow Wrap	ND
Composite Non-Asbestos Content:	85% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 57, Fiberglass Pipe Wrap

Lab ID-Version‡: 17587987-1

Sample Layers	Asbestos Content
Yellow Wrap	ND
Composite Non-Asbestos Content:	85% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003590829

REQU

Non-Culturable			
Spore Trap	Tape, Swab, Bulk	BioCasse Swab, W.	Contact Plate

CONTACT INFORMATION

Company:	IMTGL, Inc.	Address:	7742 Arjons DR., San Diego, CA 92126
Contact:	Carl Tuckel	Special Instructions:	* 1st positive Step > 10%
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - B7		
Project Zip Code:	92868	Sampling Date/Time:	3-28-24
PO Number:	SDPE-24-061.1CT	Sampled By:	DB / ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	1'x1' Acoustic ceiling tile	B	STP	~1" 2	
2	↓				
3	Epoxy Floor				
4	↓				
5	Concrete wall				
6	↓				
7	Carpet Glue				
8	↓				
9	+				
10	Pipe Insulation				
11	↓				
12					
13					
14					
15					

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuanTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				
												X				

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME	RECEIVED BY	DATE & TIME
Darla Beery Darla Beery	3-28-24		3/29/24 0800

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQU

Non-Culturable

003590829

CONTACT INFORMATION			
Company:	IMTGL, Inc.	Address:	7742 Arjons DR., San Diego, CA 92126
Contact:	CARL Tuckel	Special Instructions:	1st positive Stop @ 1%
Phone:	619-454-7851		

PROJECT INFORMATION				TURN AROUND TIME CODES - (TAT)	
Project ID:	Vanir Const. - OC Juvenile Hall			STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
Project Description:	331 The City of Orange B7			ND - Next Business Day	
Project Zip Code:	92868	Sampling Date/Time:	3/28/24	SD - Same Business Day	
PO Number	SDRE-24-061.1CT	Sampled By	DB	WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
16	Pipe Elbow insulation	B	STD	~1" 2	
17	↓				
18	↓				
19	Concrete Ceiling				
20	↓				
21	↓				
22	fiberglass ins w/wrap + tape				
23	↓				
24	↓				
25	Concrete Slab				
26	↓				
27	↓				
28	Concrete stone				
29	↓				
30	↓				

| Non-Culturable | | | | |

CHAIN OF CUSTODY eurofins | Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003590829

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions:

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange BT
Project Zip Code: 92868
Sampling Date/Time: 3/28/24
PO Number: SDRE-24-061.1CT
Sampled By: DB/KW

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

Non-Culturable: Spore Trap | Tape, Swab, Bulk | BioCass Swab, W

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
31	concrete block wall	B	STD	~1sqin	
32	↓				
33	Brick + mortar				
34	↓				
35					
36	↓				
37	Concrete texture coat				Soffet
38	↓				
39					
40	Window sealant				
41	↓				
42					
43	fissured ceiling tile				
44	↓				
45					

Spore Trap Analysis | Other biological particles - supplement | Direct Microscopic Exam (Qualitative) | Quantitative spore count direct exam | Dust Characterization | 1-Media Surface Fungi (Genus ID + Asp. spp.) | Culturable Air Fungi (Genus ID + Asp. spp.) | Gram Stain and Counts (Culturable Air and Surface Bacteria) | Legionella culture | Total Coliform, E.coli (Presence/Absence) | QuantiTray-Sewage Screen | OTHER (please specify test) | Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400) | Asbestos Bulk - PLM | Lead (Pb) - Flame AA | PCR (please specify test) | Allergens (please specify test)

X

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Darla Beery	3-28-24
Darla Beery	3-28

RECEIVED BY	DATE & TIME
	3/29/24 @ 6:00

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CHAIN OF CUSTODY eurofins | Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUES

003590829

Non-Culturable		Cul
Spore Trap	Tape, Swab, Bulk	BioCassette, Swab, Water Cont.

CONTACT INFORMATION

Company:	IMTGL, Inc.	Address:	7742 Arjons DR., San Diego, CA 92126
Contact:	CARL TUCKER	Special Instructions:	
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - B7		
Project Zip Code:	92868	Sampling Date/Time:	3/28/24
PO Number:	SDPE-24-061.1CT	Sampled By:	DB/CW

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

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SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
46	Ceramic Floor Tile	B	STD		RE
47	↓	↓	↓		↓
48	Ceramic Wall Tile				
49	↓				
50	Ceiling Insulation				
51	↓				
52	Fiberglass Pipe Wrap				
53	↓				
54					
55					
56					

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuantiTray Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												↓				

SAMPLE TYPE CODES

BC - BioCassette	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Darla Beery	3-28-24

RECEIVED BY	DATE & TIME
	3/29/24 0800

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eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9
EML ID: 3600732

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-11-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	16
Total Samples Analyzed:	16
Total Samples with Layer Asbestos Content > 1%:	1

Location: R-1, Silver Rolled Roofing Over Insulation - 7

Lab ID-Version‡: 17610976-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Felt 3	ND
Black Roofing Felt 2	ND
Black Roofing Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-2, Silver Rolled Roofing Over Insulation - 9

Lab ID-Version‡: 17610977-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt	ND
Black Roofing Felt	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-3, Silver Rolled Roofing Over Insulation - 5

Lab ID-Version‡: 17610978-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 3	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-4, Silver Rolled Roofing Over Insulation - 2

Lab ID-Version‡: 17610979-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-5, Silver Rolled Roofing Over Insulation - 2

Lab ID-Version‡: 17610980-1

Sample Layers	Asbestos Content
Brown Fibrous Material	ND
Black Roofing Tar and Felt 3	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 1	ND
Black/White Roofing Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-6, Roof Mastic - 9

Lab ID-Version‡: 17610981-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-7, Roof Mastic - 7

Lab ID-Version‡: 17610982-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-8, Roof Mastic - 5

Lab ID-Version‡: 17610983-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

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C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-9, Roof Mastic - 5

Lab ID-Version‡: 17610984-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-10, Roof Mastic - 2

Lab ID-Version‡: 17610985-1

Sample Layers	Asbestos Content
Black/White Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R-11, HVAC Caulk/Tape - 7

Lab ID-Version‡: 17610986-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material	ND
Gray/White Caulk	ND
Sample Composite Homogeneity:	Poor

Location: R-12, HVAC Caulk/Tape - 5

Lab ID-Version‡: 17610987-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Sample Composite Homogeneity:	Moderate

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C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-13, HVAC Caulk/Tape - 2

Lab ID-Version‡: 17610988-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: R-14, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610989-1

Sample Layers	Asbestos Content
Green Mastic	ND
Gray Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: R-15, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610990-1

Sample Layers	Asbestos Content
White Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: R-16, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610991-1

Sample Layers	Asbestos Content
Black Mastic	4% Chrysotile
Green Mastic	ND
White Fibrous Material	ND
White Non-Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQU

Non-Culturable

003600732

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions: A 1st positive stop 7070

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B-2, 5, 7 and 9
Project Zip Code: 92868
Sampling Date/Time: 5 4-2-24
PO Number: SDRE-24-061.1CT
Sampled By: ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
R-1	Silver Rolled roofing over insulation	B	STD	~ 1 sq in	7
R-2					9
R 3					5
R 4					2
R 5					DB
R 6	Roof mastic				9
R 7					7
R 8					5
R 9					5
R 10					DB 2
R 11	HVAC Caulk/Tape				7
R 12					5
R 13					2
R 14					
R 15	VOID DB 4-2-24				

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	Quant/Tray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thurgood Michelle Christian	4/5/24

RECEIVED BY	DATE & TIME
CS	4/8/24 0604

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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CHAIN OF CUSTODY eurofins

www.eurofinsus.com/Built

Built Environment Testing

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUESTI

003600732

CONTACT INFORMATION

Company:	MTGL, Inc.	Address: Special Instructions:	7742 Arjons DR., San Diego, CA 92126
Contact:	CARL TUCKER		
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - B2		
Project Zip Code:	92868	Sampling Date/Time:	4/2/24
PO Number:	SDRE-24-061.1CT	Sampled By:	CR

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
R14 ~~R16~~ (R17)	Vinyl cap sheet	B	STD		B - 2
R15 (R17)					B - 2
R16 ~~R17~~					B - 2

| Non-Culturable | | | Cultu | | | | |

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

Bulk Asbestos Analysis

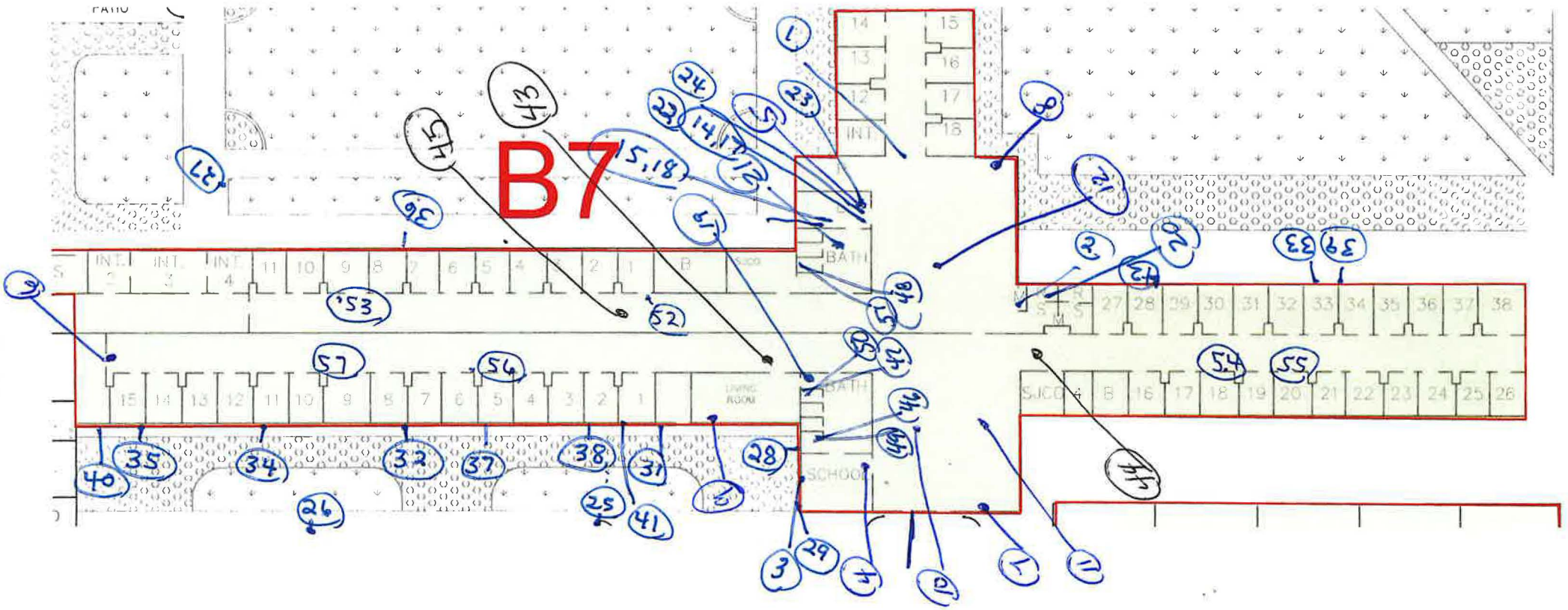
Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

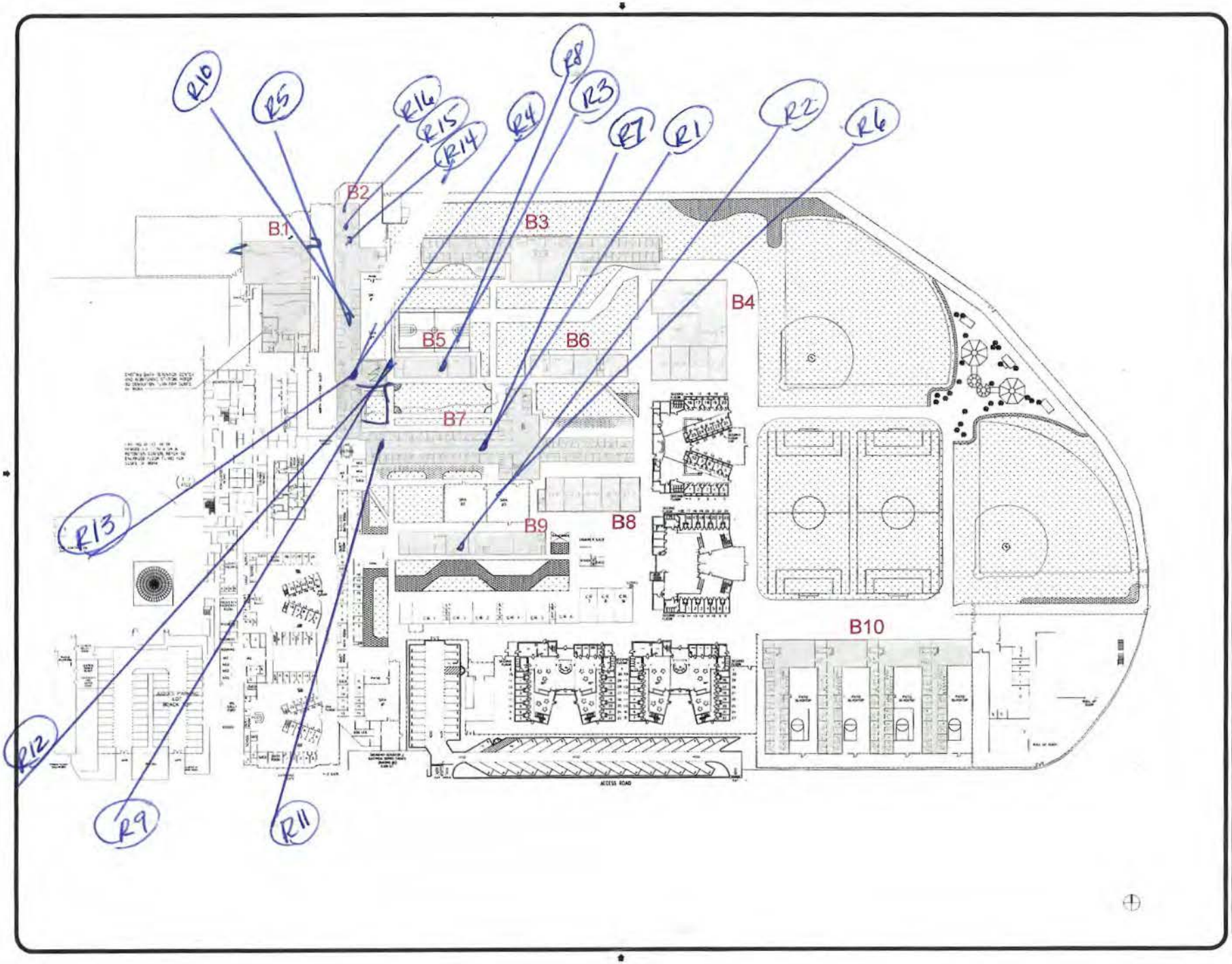
For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)

13 Photos



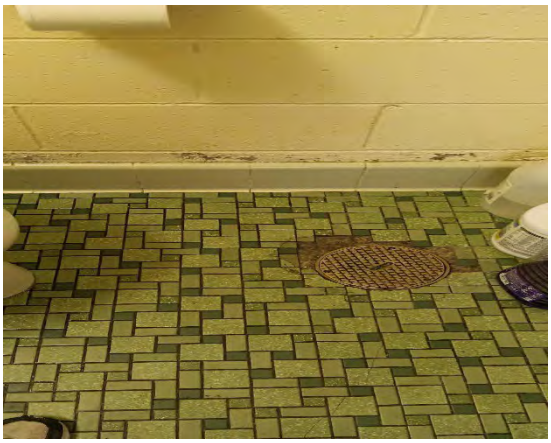

R10
R5
R16
R15
R14
R8
R4
R3
R7
R1
R2
R6
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
R13
R12
R9
R11
ACCESS ROAD

APPENDIX 3

PHOTO DOCUMENTATION

1. Epoxy floor and carpet adhesive.

2. Concrete ceiling.



3. Ceramic wall and floor tile, wall block.

4. Fissured ceiling tile.

5. Brick & mortar.

6. Block wall.

7. Fiberglass insulation wrap w/ tape, Pipe insulation, and Block wall.

8. Pink fiberglass insulation

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

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National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

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SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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www.natecintl.com

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National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 7
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 27, 2024

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SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 7 (Single story, wood frame with concrete and brick on a concrete slab.)

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on March 28, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 $mg/cm^{2\ or\ greater}$ * (Please see attachment I for a detail report of findings.)

- No lead-based paint was identified in the components tested.

- **Intact lead containing green and yello ceramic wall was identified in the staff restrooms.**

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

Deteriorated lead-based paint was not identified on the accessible components tested however, lead containing green and yellow, ceramic wall tile was identified and Title 8, CCR Section 1532.1 will apply.

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.

Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered “lead-based”. The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 mg/cm^{2,} 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of

"Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 7, 331 The City Drive, Orange, CA 92868

Inspection Date: March 28, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm^2)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1			Calibration						Red NIST	1.0	
2			Calibration						Red NIST	1.0	
3			Calibration						Red NIST	1.0	
4	B7-A	A	Common Rm	Door	Door		Intact	Metal	Blue	0.06	Negative
5	B7-A	A	Common Rm	Door	Frame		Intact	Metal	Blue	0.08	Negative
6	B7-A	A	Common Rm	Wall			Intact	Concrete	White	0.04	Negative
7	B7-A	B	Common Rm	Wall			Intact	Concrete	White	0.02	Negative
8	B7-A	C	Common Rm	Wall			Intact	Concrete	White	0.07	Negative
9	B7-A	D	Common Rm	Wall			Intact	Concrete	White	0.1	Negative
10	B7-A	A	Common Rm	Floor			Intact	Concrete	Brown	0.06	Negative
11	B7-A	A	Common Rm	Window	Frame		Intact	Metal	Black	0.12	Negative
12	B7-A	D	Break Room	Door	Frame		Intact	Metal	Blue	0.05	Negative
13	B7-A	B	Break Room	Wall	Cabinet	Door	Fair	Wood	White	<LOD	Negative
14	B7-A	B	Break Room	Wall	Cabinet	Casing	Fair	Wood	White	<LOD	Negative
15	B7-A	A	Break Room	Window 1	Frame		Intact	Metal	White	<LOD	Negative
16	B7-A	C	Break Room	Wall			Intact	Concrete	White	<LOD	Negative
17	B7-A	D	Break Room	Wall			Intact	Concrete	White	<LOD	Negative
18	B7-A	D	Break Room	Ceiling	HVAC	Vent	Intact	Metal	White	<LOD	Negative
19	B7-A	C	Break Room	Wall	Pipe		Intact	Metal	White	0.22	Negative
20	B7-A	C	Bathroom	Door			Fair	Metal	Blue	0.08	Negative
21	B7-A	C	Bathroom	Door	Frame		Fair	Metal	Blue	0.11	Negative
22	B7-A	C	Bathroom	Wall	Tile		Intact	Ceramic	White	<LOD	Negative
23	B7-A	C	Bathroom	Wall	Floor	Tile	Intact	Ceramic	White	<LOD	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 7, 331 The City Drive, Orange, CA 92868

Inspection Date: March 28, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
((<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
24	B7-A	C	Bathroom	Window	Frame		Intact	Metal	Blue	0.02	Negative
25	B7-A	C	Bathroom	Window	Sill		Intact	Metal	Blue	0.06	Negative
26	B7-A	C	Linen Room	Door			Fair	Metal	Tan	0.17	Negative
27	B7-A	C	Linen Room	Door	Frame		Fair	Metal	Blue	0.20	Negative
28	B7-A	D	Linen Room	Door			Fair	Metal	Tan	0.08	Negative
29	B7-A	D	Linen Room	Door	Frame		Fair	Metal	Blue	0.22	Negative
30	B7-A	D	Linen Room	Wall			Poor	Concrete	White	0.04	Negative
31	B7-A	A	Hallway	Wall			Intact	Concrete	White	0.04	Negative
32	B7-A	C	Hallway	Wall			Intact	Concrete	White	0.01	Negative
33	B7-A	C	Hallway	Ceiling			Intact	Concrete	White	0.09	Negative
34	B7-A	C	Hallway	Bench			Poor	Wood	Blue	<LOD	Negative
35	B7-A	C	Hallway	Bench	Support		Poor	Metal	Blue	<LOD	Negative
36	B7-A	C	Room 1	Door			Intact	Metal	Blue	<LOD	Negative
37	B7-A	C	Room 1	Door	Frame		Intact	Metal	Blue	0.5	Negative
38	B7-A	B	Room 1	Wall			Intact	Concrete	White	0.19	Negative
39	B7-A	A	Room 1	Window	Screen	Frame	Intact	Metal	White	0.11	Negative
40	B7-A	C	Room 5	Door			Intact	Metal	Blue	<LOD	Negative
41	B7-A	C	Room 5	Door	Frame		Intact	Metal	Blue	0.3	Negative
42	B7-A	A	Room 5	Wall			Intact	Concrete	White	0.13	Negative
43	B7-A	A	Room 5	Window	Screen	Frame	Intact	Metal	White	0.16	Negative
44	B7-A	C	Room 20	Door			Intact	Metal	Blue	<LOD	Negative
45	B7-A	C	Room 20	Door	Frame		Intact	Metal	Blue	0.5	Negative
46	B7-A	C	Room 20	Wall			Intact	Concrete	White	0.11	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 7, 331 The City Drive, Orange, CA 92868

Inspection Date: March 28, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
47	B7-A	A	Room 20	Window	Screen	Frame	Intact	Metal	White	0.09	Negative
48	B7-A	C	Hallway	Pipe Chase	Door		Intact	Metal	Blue	0.15	Negative
49	B7-A	C	Hallway	Pipe Chase	Door	Frame	Intact	Metal	Blue	0.30	Negative
50	B7-A	A	Mop Closet	Door			Intact	Metal	Blue	0.17	Negative
51	B7-A	A	Mop Closet	Door	Frame		Intact	Metal	Blue	0.21	Negative
52	B7-A		Mop Closet	Wall	Sink		Poor	Porcelain	White	7.5	Positive
53	B7-A	A	Staff Restroom	Door			Fair	Metal	Purple	.<LOD	Negative
54	B7-A	A	Staff Restroom	Door	Frame		Fair	Metal	Purple	0.10	Negative
55	B7-A	C	Staff Restroom	Wall	Tile		Intact	Ceramic	Green	6.5	Positive
56	B7-A	C	Staff Restroom	Floor	Tile		Intact	Ceramic	Green	<LOD	Negative
57	B7-I	A	Staff Restroom	Door			Fair	Metal	Grey	<LOD	Negative
58	B7-I	A	Staff Restroom	Door	Frame		Fair	Metal	Grey	0.12	Negative
59	B7-I	C	Staff Restroom	Wall	Tile		Intact	Ceramic	Green	4.1	Positive
60	B7-I	C	Staff Restroom	Floor	Tile		Intact	Ceramic	Green	<LOD	Negative
61	B7-I	A	Room 3	Door			Intact	Metal	Grey	<LOD	Negative
62	B7-I	A	Room 3	Door	Frame		Intact	Metal	Grey	0.5	Negative
63	B7-I	B	Room 3	Wall			Intact	Concrete	White	0.04	Negative
64	B7-I	C	Room 3	Window	Screen	Frame	Intact	Metal	White	0.07	Negative
65	B7-I	A	Hallway	Wall	Firebox		Intact	Metal	Red	0.04	Metal
66	B7-I	C	Staff Restroom	Wall	Tile		Intact	Ceramic	Yellow	6.1	Positive
67	B7-I	C	Staff Restroom	Floor	Tile		Intact	Ceramic	Yellow	<LOD	Negative
68	B7	A	Exterior	Wall, L			Intact	Brick	Red	<LOD	Negative
69	B-7	A	Exterior	Window 1	Frame		Intact	Metal	Brown	<LOD	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 7, 331 The City Drive, Orange, CA 92868

Inspection Date: March 28, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
70	B-7	A	Exterior	Wall	Overhang		Intact	Concrete	White	<LOD	Negative
71	B-7	A	Exterior	Wall, C			Intact	Concrete	White	<LOD	Negative
72	B-7	A	Exterior	Window 11	Frame		Intact	Metal	Green	0.19	Negative
73	B-7	A	Exterior	Window 11	Sill		Intact	Concrete	White	<LOD	Negative
74	B-7	C	Ext. Mech Rm	Door			Intact	Metal	Grey	0.02	Negative
75	B-7	C	Ext. Mech Rm	Door	Frame		Intact	Metal	Grey	0.03	Negative
76	B-7	C	Ext. Mech Rm	Wall, L			Intact	Concrete	White	<LOD	Negative
77	B-7	C	Exterior	Wall, C			Intact	Brick	Red	<LOD	Negative
78	B-7	C	Exterior	Window	Frame		Intact	Metal	Green	<LOD	Negative
79	B-7	C	Exterior	Window	Sill		Intact	Metal	Brown	<LOD	Negative
80	B-7	C	Exterior	Shed			Poor	Wood	Green	<LOD	Negative
81	B-7	C	Exterior	Door 3	Door		Intact	Metal	Green	0.03	Negative
82	B-7	C	Exterior	Door 3	Door	Frame	Intact	Metal	Green	<0.06	Negative
83	B-7	C	Exterior	Wall, R	Vent		Intact	Metal	Green	<LOD	Negative
84	B-7	C	Exterior	Wall	Up Trim		Intact	Metal	Frey	<LOD	Negative
85	B-7		Calibration						Red NIST	1.0	Calibration

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

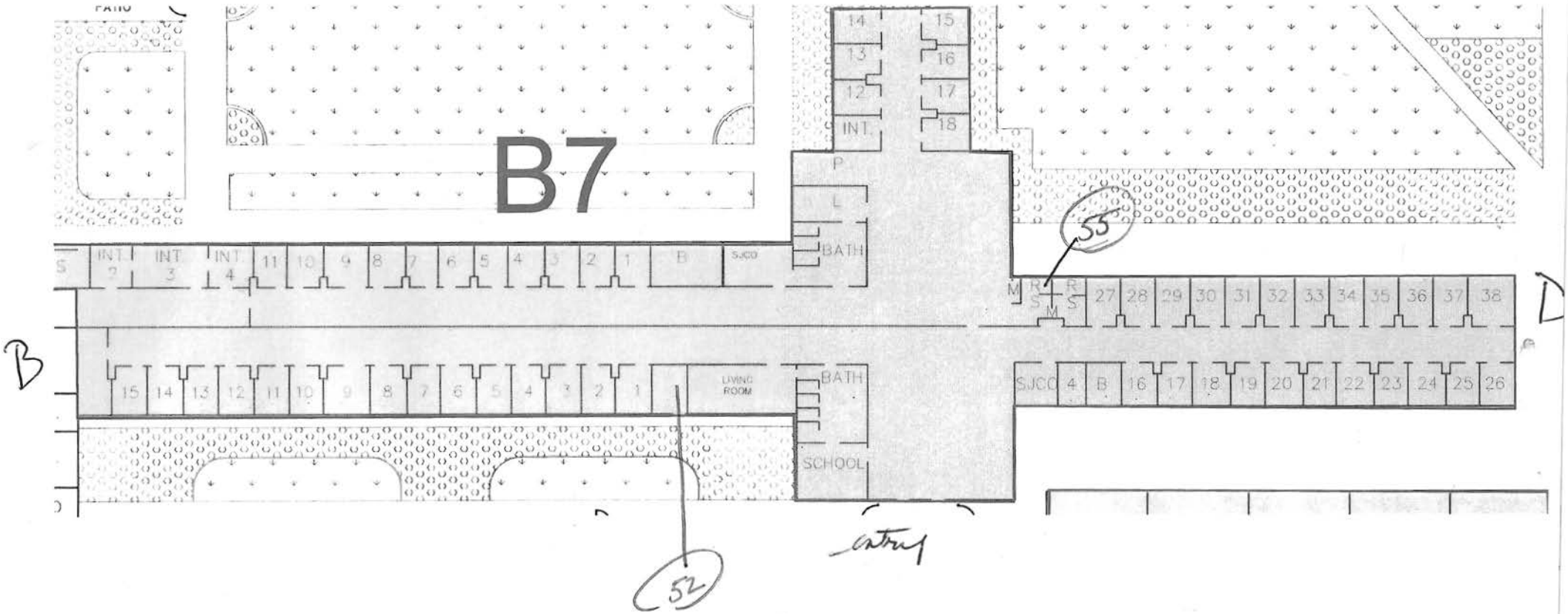
A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING

C


B7
PATIO
INT. 2
INT. 3
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11 10 9 8 7 6 5 4 3 2 1
B
SJCC
14 13 12 INT.
15 16 17 18
P
L
BATH
55
M R S
R S M
27 28 29 30 31 32 33 34 35 36 37 38
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
LIVING ROOM
BATH
SCHOOL
SJCC 4 B 16 17 18 19 20 21 22 23 24 25 26
entry
52

B

D

A

Appendix 3

Glossary

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 3/28/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 7)	Orange	Orange	92868

Construction date (year) of structure	Type of structure	Children living in structure?
Unknown	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other_____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☑ Other Lead containing ceramic tile

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/27/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Michelle Ehresman

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO RENOVATE RIGHT

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

Important lead hazard information for families, child care providers and schools.

EPA

LEAD-SAFE EPA CERTIFIED FIRM

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

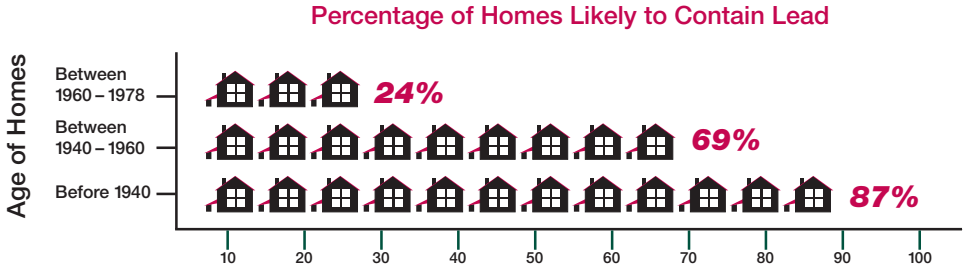
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 8 (ROOMS 10-14)

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 18, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 8 (ROOMS 10-14)

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: April 1, 2024 to April 1, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3592262/3600734
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 2,800

Structure Frame: Wood
If other, describe: None

Structure Foundation: Concrete Slab On Grade
If other, describe: None

Number of Floors: 1

Building Occupied: Yes

SUSPECT MATERIALS OBSERVED

Suspect Materials Observed During the Asbestos Survey Conducted

- Drywall
- Sheet Vinyl over Carpet Glue
- Cove Base Glue
- Concrete Block Wall
- Structural Fireproofing
- 2'x2' Dotted Ceiling Tile
- Fiberglass Pipe Wrap
- HVAC Seam Caulk
- Exterior Stucco
- Concrete Slab
- Asphalt
- Ceramic Wall Tile/Ceramic Floor Tile
- Window Sealant
- Leveling Compound

Inaccessible Materials Presumed to be Asbestos Content:

- Roof (Refer to Table 1 Notes)

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material Description*	*Location**	*Sample #*	*Approximate Quantity***	*AHERA Rank****	*Friability/ Material Type*	*Damage Category*	*Quantity of Contamination (If any) **	*Asbestos Content*
Roofing Material	Roof	--	2,800	X	Non-Friable	1	None	Assumed
Note: All layers of the roof system were inaccessible at the time of the inspection. Roofing materials are assumed to contain asbestos until further testing can be determined otherwise.								

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
Drywall	1, 2, 3
Sheet Vinyl over Carpet Glue	4, 5, 6
Cove Base Glue	7, 8, 9
Concrete Block Wall	10, 11, 12
Structural Fireproofing	13, 14, 15
2'x2'x Dotted Ceiling Tile	16, 17, 18
Fiberglass Pipe Wrap	19, 20, 21
HVAC Seam Caulk	22, 23, 24
Exterior Stucco	25, 26, 27
Concrete Slab	28, 29, 30
Asphalt	31, 32, 33
Ceramic Wall Tile	34, 35, 36
Ceramic Floor Tile	37, 38, 39
Window Sealant	40,41,42
Leveling Compound under Carpet	43,44,45

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1%

asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as “Trace Asbestos”. These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this limited asbestos survey, materials observed and tested for asbestos were negative for asbestos content.

All layers of the roof was inaccessible at the time of the inspection. Roofing materials are assumed to contain asbestos until further testing can be determined otherwise.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection.

All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B8
EML ID: 3593701

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-03-2024 and 04-04-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B8

Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	45
Total Samples Analyzed:	45
Total Samples with Layer Asbestos Content > 1%:	0

Location: 1, Drywall

Lab ID-Version‡: 17574373-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
White Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 2, Drywall

Lab ID-Version‡: 17574374-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
White Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 3, Drywall

Lab ID-Version‡: 17574375-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
White Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 4, Sheet Vinyl Over Carpet Glue

Lab ID-Version‡: 17574376-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Brown Woven Material	ND
Gray Sheet Flooring	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 5, Sheet Vinyl Over Carpet Glue

Lab ID-Version‡: 17574377-1

Sample Layers	Asbestos Content
Yellow Mastic (Trace)	ND
Brown Woven Material	ND
Gray Sheet Flooring	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

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C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B8

Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 6, Sheet Vinyl Over Carpet Glue

Lab ID-Version‡: 17574378-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Brown Woven Material	ND
Gray Sheet Flooring	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 7, Cove Base Glue

Lab ID-Version‡: 17574379-1

Sample Layers	Asbestos Content
White Glue	ND
Sample Composite Homogeneity:	Good

Location: 8, Cove Base Glue

Lab ID-Version‡: 17574380-1

Sample Layers	Asbestos Content
White Glue	ND
Sample Composite Homogeneity:	Good

Location: 9, Cove Base Glue

Lab ID-Version‡: 17574381-1

Sample Layers	Asbestos Content
White Glue	ND
Sample Composite Homogeneity:	Good

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Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B8

Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 10, Concrete Block Wall

Lab ID-Version‡: 17574382-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 11, Concrete Block Wall

Lab ID-Version‡: 17574383-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 12, Concrete Block Wall

Lab ID-Version‡: 17574384-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 13, Structural Fireproofing

Lab ID-Version‡: 17574385-1

Sample Layers	Asbestos Content
Gray Fireproofing	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Good

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 14, Structural Fireproofing

Lab ID-Version‡: 17574386-1

Sample Layers	Asbestos Content
Gray Fireproofing	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Good

Location: 15, Structural Fireproofing

Lab ID-Version‡: 17574387-1

Sample Layers	Asbestos Content
Gray Fireproofing	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Good

Location: 16, 2'x2' Dotted Ceiling Tile

Lab ID-Version‡: 17574388-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 17, 2'x2' Dotted Ceiling Tile

Lab ID-Version‡: 17574389-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

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‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B8

Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 18, 2'x2' Dotted Ceiling Tile

Lab ID-Version‡: 17574390-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	85% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 19, Fiberglass Pipe Wrap

Lab ID-Version‡: 17574391-1

Sample Layers	Asbestos Content
Silver Wrap	ND
Yellow Insulation	ND
Composite Non-Asbestos Content:	50% Glass Fibers 40% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 20, Fiberglass Pipe Wrap

Lab ID-Version‡: 17574392-1

Sample Layers	Asbestos Content
Silver Wrap	ND
Yellow Insulation	ND
Composite Non-Asbestos Content:	50% Glass Fibers 40% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 21, Fiberglass Pipe Wrap

Lab ID-Version‡: 17574393-1

Sample Layers	Asbestos Content
Silver Wrap	ND
Yellow Insulation	ND
Composite Non-Asbestos Content:	50% Glass Fibers 40% Cellulose
Sample Composite Homogeneity:	Moderate

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Client: MTGL, Inc.
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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 22, HVAC Seam Caulk

Lab ID-Version‡: 17574394-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 23, HVAC Seam Caulk

Lab ID-Version‡: 17574395-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 24, HVAC Seam Caulk

Lab ID-Version‡: 17574396-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: 25, Exterior Stucco

Lab ID-Version‡: 17574397-1

Sample Layers	Asbestos Content
Dark Gray Stucco	ND
Light Gray Stucco	ND
Sample Composite Homogeneity:	Moderate

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 26, Exterior Stucco Lab ID-Version‡: 17574398-1

Sample Layers	Asbestos Content
Dark Gray Stucco	ND
Light Gray Stucco	ND
Composite Non-Asbestos Content:	5% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 27, Exterior Stucco Lab ID-Version‡: 17574399-1

Sample Layers	Asbestos Content
Dark Gray Stucco	ND
Light Gray Stucco	ND
Sample Composite Homogeneity:	Moderate

Location: 28, Concrete Slab Lab ID-Version‡: 17574400-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 29, Concrete Slab Lab ID-Version‡: 17574401-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B8

Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 30, Concrete Slab Lab ID-Version‡: 17574402-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 31, Asphalt Lab ID-Version‡: 17574403-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

Location: 32, Asphalt Lab ID-Version‡: 17574404-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

Location: 33, Asphalt Lab ID-Version‡: 17574405-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 34, Ceramic Wall Tile Lab ID-Version‡: 17574406-1

Sample Layers	Asbestos Content
White Ceramic Tile	ND
Sample Composite Homogeneity:	Good

Location: 35, Ceramic Wall Tile Lab ID-Version‡: 17574407-1

Sample Layers	Asbestos Content
Brown Mastic (Trace)	ND
White Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 36, Ceramic Wall Tile Lab ID-Version‡: 17574408-1

Sample Layers	Asbestos Content
White Ceramic Tile	ND
Sample Composite Homogeneity:	Good

Location: 37, Ceramic Floor Tile Lab ID-Version‡: 17574409-1

Sample Layers	Asbestos Content
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Good

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 38, Ceramic Floor Tile Lab ID-Version‡: 17574410-1

Sample Layers	Asbestos Content
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Good

Location: 39, Ceramic Floor Tile Lab ID-Version‡: 17574411-1

Sample Layers	Asbestos Content
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Good

Location: 40, Window Sealant Lab ID-Version‡: 17574412-1

Sample Layers	Asbestos Content
Green Sealant	ND
Sample Composite Homogeneity:	Good

Location: 41, Window Sealant Lab ID-Version‡: 17574413-1

Sample Layers	Asbestos Content
Green Sealant	ND
Sample Composite Homogeneity:	Good

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‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Date of Sampling: 04-01-2024
Date of Receipt: 04-01-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 42, Window Sealant

Lab ID-Version‡: 17574414-1

Sample Layers	Asbestos Content
Green Sealant	ND
Sample Composite Homogeneity:	Good

Location: 43, Leveling Compound

Lab ID-Version‡: 17574415-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Gray Leveling Compound	ND
Sample Composite Homogeneity:	Moderate

Location: 44, Leveling Compound

Lab ID-Version‡: 17574416-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Gray Leveling Compound	ND
Sample Composite Homogeneity:	Moderate

Location: 45, Leveling Compound

Lab ID-Version‡: 17574417-1

Sample Layers	Asbestos Content
Yellow Mastic	ND
Gray Leveling Compound	ND
Sample Composite Homogeneity:	Moderate

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REC

003593701

CONTACT INFORMATION

Company:	MTGL, Inc.
Contact:	CARL TUCKER
Phone:	619-454-7851

Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions: *1st positive Steps 7/10

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall
Project Description:	331 The City of Orange B8
Project Zip Code:	92868
PO Number:	SDRE-24-061.1CT
Sampling Date/Time:	5 4/1/24
Sampled By:	4/1/24

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	Drywall	B	STD	~1" 2	
2					
3	Sheet Vinyl over Carpet Tile				
4					
5					
6	Cove Base Glue				
7					
8					
9	Concrete Block Wall				
10					
11					
12	Structural Fireproofing				
13					
14					
15					

| Non-Culturable | | | | |

CHAIN OF CUSTODY eurofins

Built Environment Testing

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East: (866) 871-1904
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003593701

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions:

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B-8
Project Zip Code: 92868
Sampling Date/Time: 3/4/1/24
PO Number: SDPE-24-061.1CT
Sampled By:

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
16	2'x2' Dotted Ceiling Tile	B	STD	~1"2	
17					
18					
19	Fiberglass Pipe Wrap				
20					
21					
22	HVAC Seam Caulk				
23					
24					
25	Exterior Stucco				
26					
27					
28	Concrete Slab				
29					
30					

REQUESTED ANALYSES

Non-Culturable: Spore Trap; Tape, Swab, Bulk
BioC Swa

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bac	Legionella culture	Total Coliform, E coli (Presence/Absence)	Quant Tray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Chretien / Michelle Chretien	4/1/24

RECEIVED BY	DATE & TIME
C 2	4/1/24 1550

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Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
LEVEL Light					
LEVEL Moderate					
LEVEL Heavy					

003593701

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B8
Project Zip Code: 92868
Sampling Date/Time: 3/4/1/24
PO Number: SDRE-24-061.1CT
Sampled By:

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
31	Asphalt	B	STD	~ 1.2	
32					
33					
34	Ceramic Wall Tile				
35					
36					
37	Ceramic Floor Tile				
38					
39					
40	Window Sealant				
41					
42					
43	Leveling Compound				under carpet
44					
45					

REQUE

Non-Culturable						Culturable											
Spore Trap		Tape, Swab, Bulk				BioCasset Swab, Wa C											
Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization		1-Media Surface Fungi (Genus ID + Asc. sp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuanTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
														X			

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thompson	4/1/24
Michelle Thomson	

RECEIVED BY	DATE & TIME
	4/1/24 1550

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

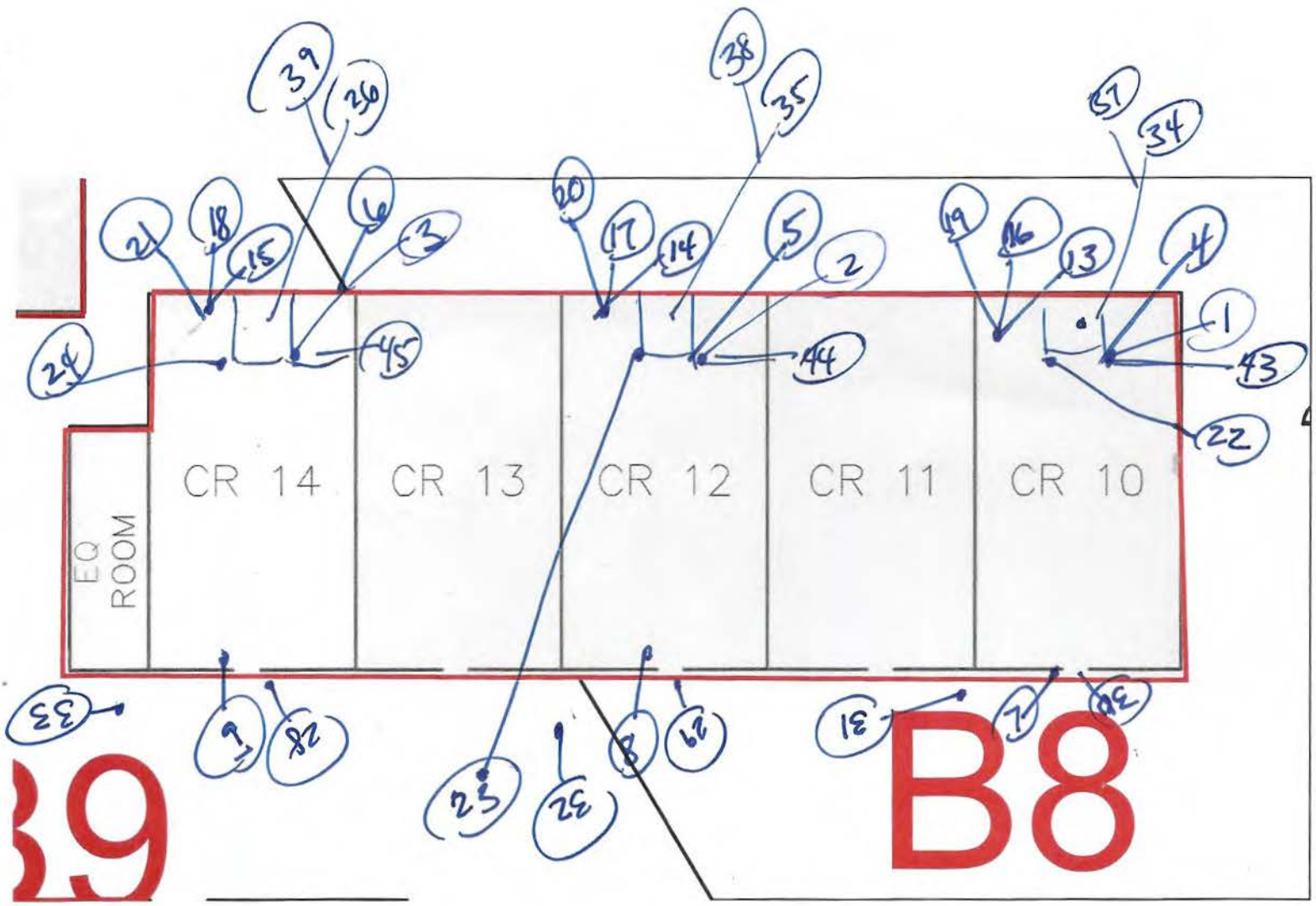
Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)

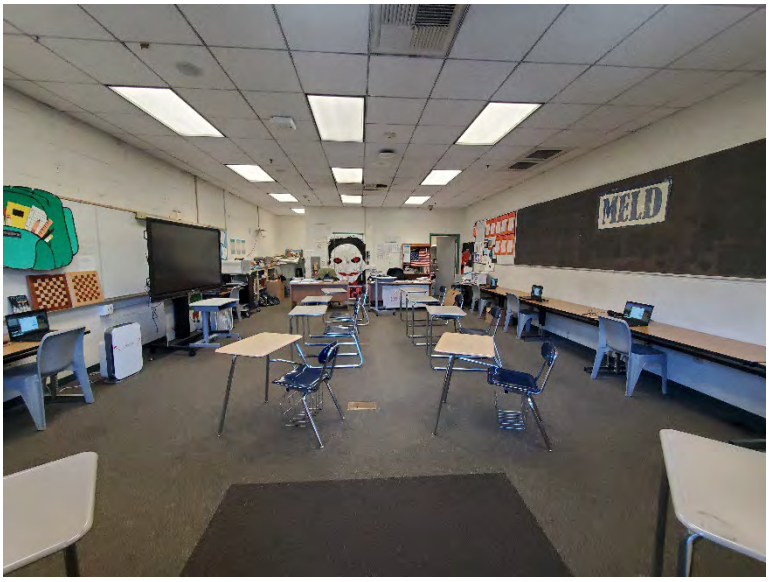

CR 14
CR 13
CR 12
CR 11
CR 10
EQ ROOM
B8

APPENDIX 3

PHOTO DOCUMENTATION

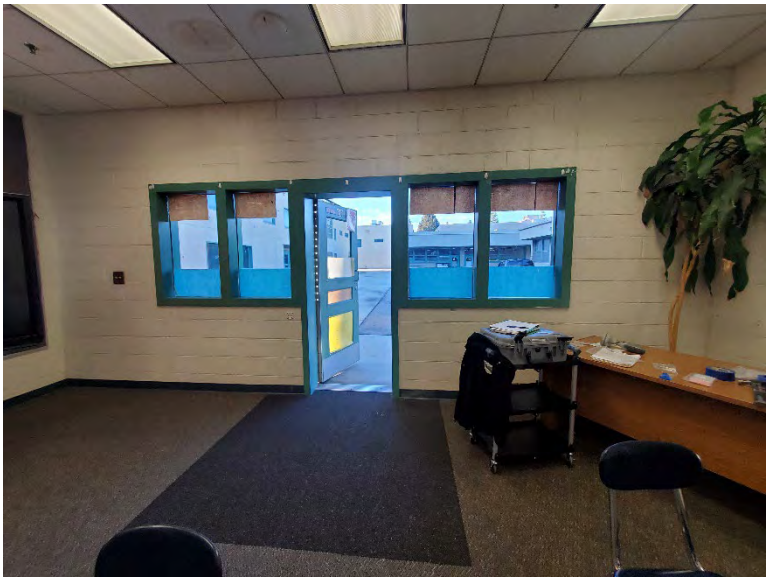
Building 8

1. Exterior

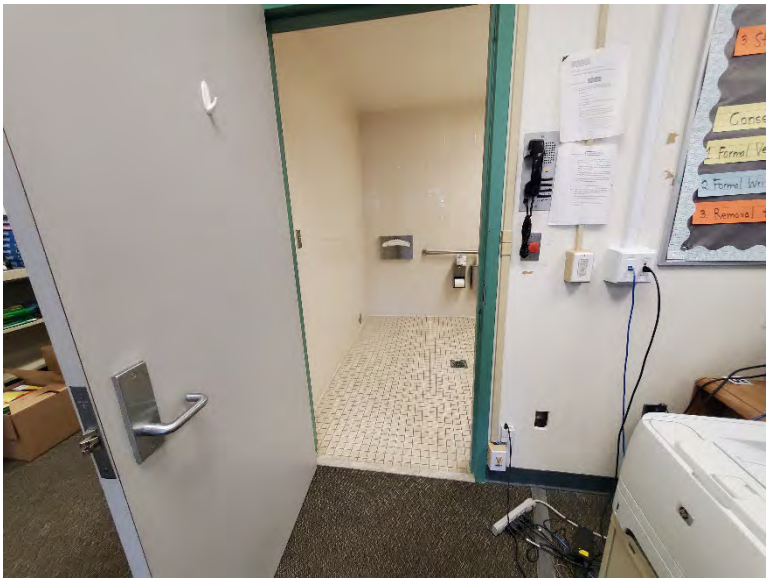


2. Typical View of Classrooms

3. View of Classrooms



4. View of Classrooms Facing Entry



5. Typical View of Restrooms

6. Typical View of Kitchenette

7. View Above Ceiling Tiles

9. View of Roof with vinyl cap, gypsum and approximately 6-8 inches of Styrofoam.

10. View of roof core.

11. View of Roof.

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

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1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

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*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

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Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

Geotechnical Engineering
Construction Inspection
Materials Testing
Environmental

Office Locations

Orange County
Corporate Branch
2992 E. La Palma Avenue
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Anaheim, CA 92806
Tel: 714.632.2999
Fax: 714.632.2974

San Diego
Imperial County
7742 Arjons Drive
San Diego, CA 92126
Tel: 858.537.3999
Fax: 858.537.3990

Inland Empire
14467 Meridian Pkwy.
Building 2A
Riverside, CA 92553
Tel: 951.653.4999
Fax: 951.653.4666

Central Dispatch
888.844.5060

www.mtglinc.com

Mr. Scott Battles
Vanir Construction Management, Inc.
4540 Duckhorn Drive, Suite 300
Sacramento, CA 95834

June 21, 2024

Subject: Addendum to Asbestos Survey Report: Orange County Juvenile Hall Building 8 Dated April 18, 2024

Re: Orange County Juvenile Hall-Building 4-Roof Inspection
331 The City Drive, S
Orange, California 92868

Dear Mr. Battles:

On June 6, 2024, MTGL conducted an inspection of suspect roofing materials that were noted to be inaccessible in the Asbestos Survey Report, dated April 18, 2024. Michelle Ehresman, an AHERA Building Inspector (#ABIR0727230010N35227) and Certified Asbestos Consultant (#14-5323) collected a total of six (6) bulk samples and submitted the material to Eurofins EMLab P&K, San Diego, California for analysis and evaluation of asbestos content using EPA Method 600/R-93/116, Polarized Light Microscopy.

The material was in good condition at the time of the inspection.

SUMMARY OF SAMPLING & ANALYTIC RESULTS. The following table summarizes the laboratory's analytical results:

Asbestos:

Sample ID	Sample Matrix	Location	Analytic Result*
1, 2, 3	Vinyl Capped Roof (Multi-layer)	Roof	No Asbestos Detected

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402 paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored

for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

CONCLUSIONS

The roofing materials and pipe coating material observed and tested for asbestos was negative for asbestos content.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

MTGL, Inc. appreciates the opportunity to be of service. If you have any questions or require additional information, please contact us at (858) 537-3999.

Sincerely,
MTGL, INC

Michelle Ehresman, CAC 14-5323
Industrial Hygiene Services

Attachments:

Attachment 1: Laboratory Report and Chain of Custody
Attachment 2: Sample Location Map
Attachment 3: Inspector Certifications

Attachment 1

Laboratory Report
&
Chain of Custody

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: VANIR - OC Juvenile Hall; Bldg. 8 Roof
EML ID: 3669838

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 06-12-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(833) 465-5857 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: VANIR - OC Juvenile Hall; Bldg. 8 Roof

Date of Sampling: 06-06-2024
Date of Receipt: 06-07-2024
Date of Report: 06-12-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	3
Total Samples Analyzed:	3
Total Samples with Layer Asbestos Content > 1%:	0

Location: 1, Vinyl Capped Roof

Lab ID-Version‡: 17982430-1

Sample Layers	Asbestos Content
White Foam	ND
Off-White Roofing Material	ND
Composite Non-Asbestos Content:	3% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 2, Vinyl Capped Roof

Lab ID-Version‡: 17982431-1

Sample Layers	Asbestos Content
White Foam	ND
Yellow Mastic	ND
Off-White Roofing Material	ND
Composite Non-Asbestos Content:	3% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 3, Vinyl Capped Roof

Lab ID-Version‡: 17982432-1

Sample Layers	Asbestos Content
White Foam	ND
Yellow Mastic	ND
Off-White Roofing Material	ND
Composite Non-Asbestos Content:	3% Glass Fibers
Sample Composite Homogeneity:	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQU

003669838

CONTACT INFORMATION

Company:	MTGI, Inc.	Address:	7742 Arjons DR. San Diego, CA 92126
Contact:	Carl Tucker	Special Instructions:	
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	VANIR - OC Juvenile Hall		
Project Description:	Bldg. 8 Roof		
Project Zip Code:	#92868	Sampling Date/Time:	6/6/24 (W)
PO Number:	—	Sampled By:	

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	Vinyl Capped Roof	B	STD		Vinyl over drywall over Styrofoam
2	"	"	"		
3	"	"	"		

Non-Cultrable | Spore Trap | Tape, Swab, Bulk | BioCass Swab, V

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	*Legionella* culture	Total Coliform, *E.coli* (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X	✓			
												•	✓			
													✓			

SAMPLE TYPE CODES

BC - BioCassette™	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Eriksson	6/7/24 12:45p

RECEIVED BY	DATE & TIME
	6/7/24 2A$

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

Bulk Asbestos Analysis

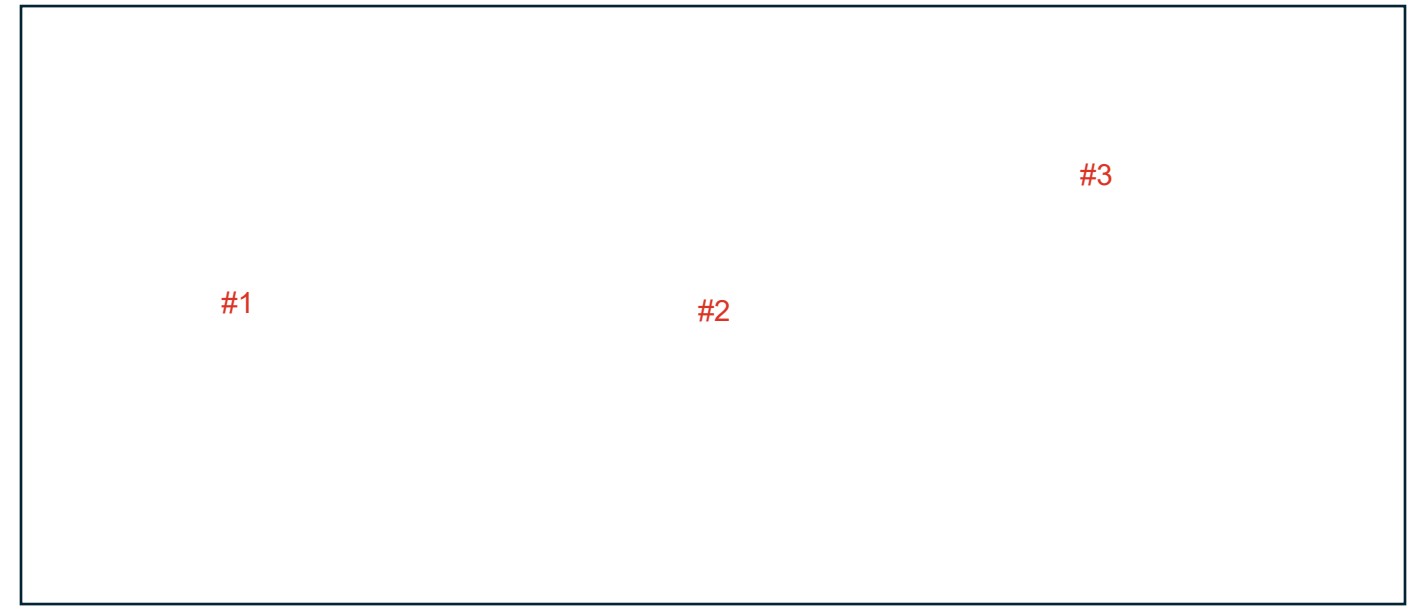
Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)

Building 8 Roof



APPENDIX 3

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director:_____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
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Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

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Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

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This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

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LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 8-Classrooms 10-14
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 18, 2024

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SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 8 (Single story, wood frame with concrete block and stucco on a concrete slab.)
    - Classrooms 10, 11, 12, 13, 14

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on April 1, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm²), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 mg/cm^{2} or greater * (Please see attachment I for a detail report of findings.)

- No lead-based paint was identified in the components tested.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.

Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered "lead-based". The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 $mg/cm^{2,}$ 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of "Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this

requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 8, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1	B-8		Calibration						Red NIST	1.0	
2	B-8		Calibration						Red NIST	1.0	
3	B-8		Calibration						Red NIST	1.0	
4	B-8	A	Room 10	Door	Door		Intact	Metal	Green	<LOD	Negative
5	B-8	A	Room 10	Door	Frame		Intact	Metal	Green	<LOD	Negative
6	B-8	A	Room 10	Wall			Intact	Concrete	White	<LOD	Negative
7	B-8	B	Room 10	Wall			Intact	Concrete	White	<LOD	Negative
8	B-8	C	Room 10	Wall			Intact	Concrete	White	<LOD	Negative
9	B-8	D	Room 10	Wall			Intact	Concrete	White	<LOD	Negative
10	B-8	B	Room 10	Wall	Base		Intact	Vinyl	Gray	<LOD	Negative
11	B-8	A	Room 10	Window	Sill		Intact	Metal	Green	<LOD	Negative
12	B-8	A	Room 10	Window	Frame		Intact	Metal	Green	<LOD	Negative
13	B-8	A	Room 10	Ceiling	Tile		Intact	Drywall	White	<LOD	Negative
14	B-8	A	Room 10	Ceiling	Tile		Intact	Metal	White	<LOD	Negative
15	B-8	D	Room 10	Window	Sill		Intact	Metal	Green	<LOD	Negative
16	B-8	D	Room 10	Window	Frame		Intact	Metal	Green	<LOD	Negative
17	B-8	A	Rm. 10 Storage	Door	Door		Intact	Metal	Gray	<LOD	Negative
18	B-8	A	Rm. 10 Storage	Door	Frame		Intact	Metal	Green	<LOD	Negative
19	B-8	A	Rm. 10 Storage	Wall			Intact	Drywall	White	<LOD	Negative
20	B-8	A	Rm. 10 Storage	Door	Door		Intact	Metal	Gray	<LOD	Negative
21	B-8	A	Rm. 10 Storage	Door	Frame		Intact	Metal	Green	<LOD	Negative
22	B-8	A	Rm 10 Bath	Wall			Intact	Ceramic	Tan	<LOD	Negative
23	B-8	A	Rm 10 Bath	Floor			Intact	Ceramic	Tan	<LOD	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 8, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)

(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
24	B-8	D	Room 10	Wall	Cabinet	Door	Intact	Wood	Tan	<LOD	Negative
25	B-8	D	Room 10	Wall	Cabinet	Casing	Intact	Tan	Tan	<LOD	Negative
26	B-8	A	Room 12	Door	Door		Intact	Metal	Green	<LOD	Negative
27	B-8	A	Room 12	Door	Frame		Intact	Metal	Green	<LOD	Negative
28	B-8	A	Room 12	Wall			Intact	Concrete	White	<LOD	Negative
29	B-8	B	Room 12	Wall			Intact	Concrete	White	<LOD	Negative
30	B-8	C	Room 12	Wall			Intact	Concrete	White	<LOD	Negative
31	B-8	D	Room 12	Wall			Intact	Concrete	White	<LOD	Negative
32	B-8	A	Room 12	Window	Sill		Intact	Metal	Green	<LOD	Negative
33	B-8	A	Room 12	Window	Frame		Intact	Metal	Green	<LOD	Negative
34	B-8	D	Room 12	Wall	Cabinet	Door	Intact	Wood	Tan	<LOD	Negative
35	B-8	D	Room 12	Wall	Cabinet	Casing	Intact	Wood	Tan	<LOD	Negative
36	B-8	A	Rm 12 Storage	Door	Door		Intact	Metal	Green	<LOD	Negative
37	B-8	A	Rm 12 Storage	Door	Frame		Intact	Metal	Green	<LOD	Negative
38	B-8	D	Rm 12 Storage	Wall			Intact	Drywall	White	<LOD	Negative
39	B-8	D	Rm 12 Storage	Ceiling			Intact	Drywall	White	<LOD	Negative
40	B-8	A	Rm 12 bath	Door	Door		Intact	Metal	Green	<LOD	Negative
41	B-8	A	Rm 12 bath	Door	Frame		Intact	Metal	Green	<LOD	Negative
42	B-8	A	Rm 12 bath	Wall	Tile		Intact	Ceramic	Tan	<LOD	Negative
43	B-8	A	Rm 12 bath	Floor	Tile		Intact	Ceramic	Tan	<LOD	Negative
44	B-8	A	Rm 12 bath	Ceiling			Intact	Drywall	White	<LOD	Negative
45	B-8	A	Room 14	Door	Door		Intact	Metal	Green	<LOD	Negative
46	B-8	A	Room 14	Door	Frame		Intact	Metal	Green	<LOD	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 8, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
47	B-8	A	Room 14	Window	Sill		Intact	Metal	Green	<LOD	Negative
48	B-8		Room 14	Window	Frame		Intact	Metal	Green	<LOD	Negative
49	B-8	B	Room 14	Wall			Intact	Concrete	Tan	<LOD	Negative
50	B-8	C	Room 14	Wall			Intact	Concrete	Tan	<LOD	Negative
51	B-8	A	Rm 14 bath	Door	Door		Intact	Metal	Green	<LOD	Negative
52	B-8	A	Rm 14 bath	Door	Frame		Intact	Metal	Green	<LOD	Negative
53	B-8	A	Rm 14 bath	Wall	Tile		Intact	Ceramic	Tan	<LOD	Negative
54	B-8	A	Rm 14 bath	Wall	Tile		Intact	Ceramic	Tan	<LOD	Negative
55	B-8	A	Rm 14 bath	Ceiling			Intact	Drywall	White	<LOD	Negative
56	B-8	A	Rm 14 storage	Door	Door		Intact	Metal	Green	<LOD	Negative
57	B-8	A	Rm 14 storage	Door	Frame		Intact	Metal	Green	<LOD	Negative
58	B-8	A	Rm 14 storage	Wall			Intact	Drywall	White	<LOD	Negative
59	B-8	A	Rm 14 storage	Ceiling			Intact	Drywall	White	<LOD	Negative
60	B-8	A	Rm 14 storage	Floor			Intact	Concrete	Gray	<LOD	Negative
61	B-8	D	Room 14	Wall	Cabinet		Intact	Wood	Tan	<LOD	Negative
62	B-8	D	Room 14	Wall	Cabinet		Intact	Wood	Tan	<LOD	Negative
63	B-8	A	Exterior	Wall			Intact	Stucco	Tan	<LOD	Negative
64	B-8	A	Exterior	Wall	Flashing		Fair	Metal	Green	<LOD	Negative
65	B-8	A	Exterior	Door 1	Door		Intact	Metal	Green	<LOD	Negative
66	B-8	A	Exterior	Door 1	Frame		Intact	Metal	Green	<LOD	Negative
67	B-8	A	Exterior	Wall	Overhang		Intact	Stucco	Tan	<LOD	Negative
68	B-8	A	Exterior	Window	Sill		Intact	Metal	Green	<LOD	Negative
69	B-8	A	Exterior	Window	Frame		Intact	Metal	Green	<LOD	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 8, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
70	B-8	B	Exterior	Wall			Intact	Stucco	Tan	<LOD	Negative
71	B-8	C	Exterior	Wall			Intact	Stucco	Tan	<LOD	Negative
72	B-8	D	Exterior	Wall			Intact	Stucco	Tan	<LOD	Negative
73			Calibration						Red NIST	0.9	Calibration

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

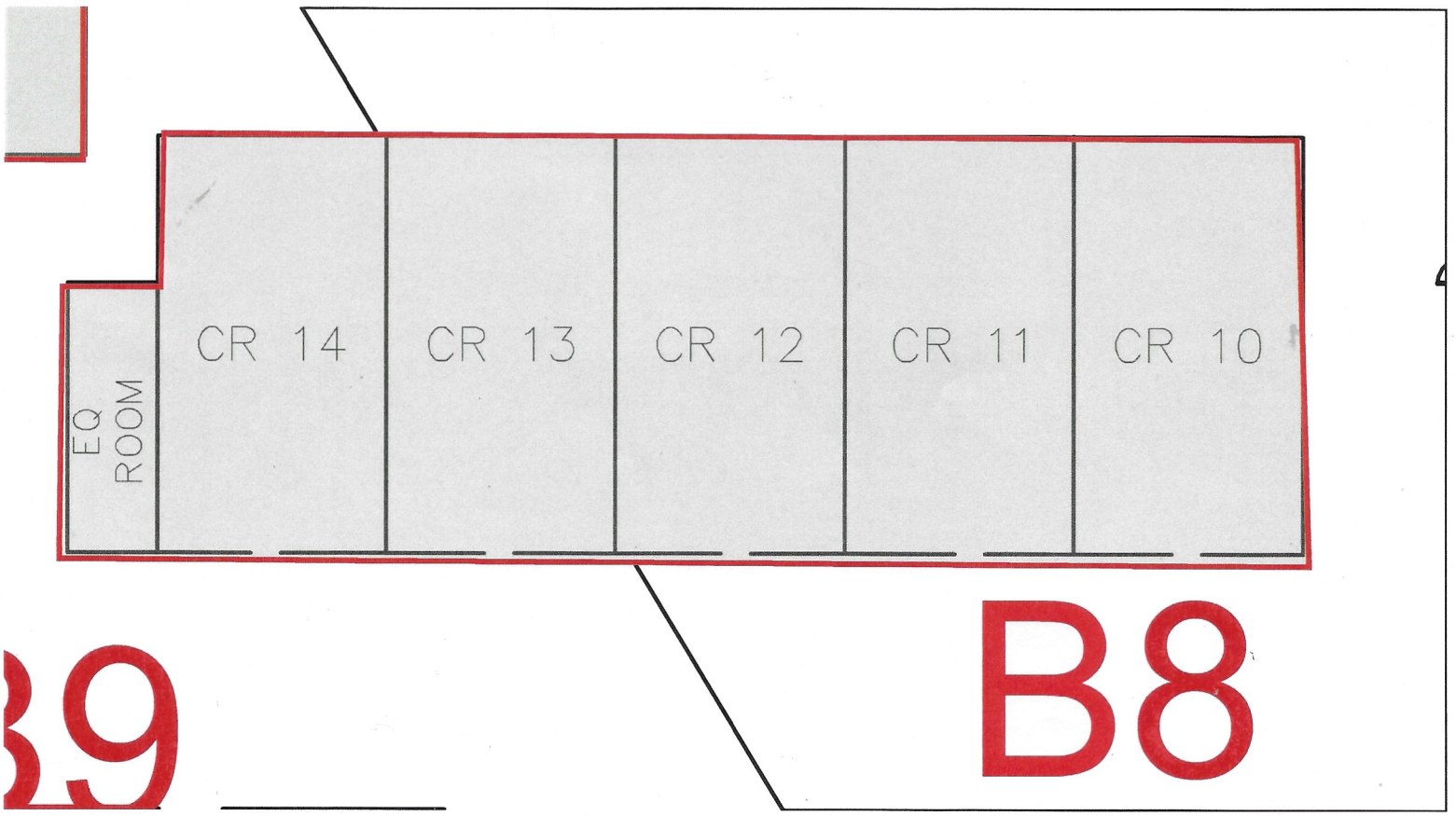
A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING

No lead based paint reported.



Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
Michelle Ehresman	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 4/1/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 8)	Orange	Orange	92868

Construction date (year) of structure	Type of structure	Children living in structure?
Unknown	☐ Multi-unit building ☑ School or daycare ☐ Single family dwelling ☐ Other_____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☐ Other_____

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/18/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO

RENOVATE RIGHT

Important lead hazard information for families, child care providers and schools.

U.S. Department of Housing and Urban Development

EPA

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

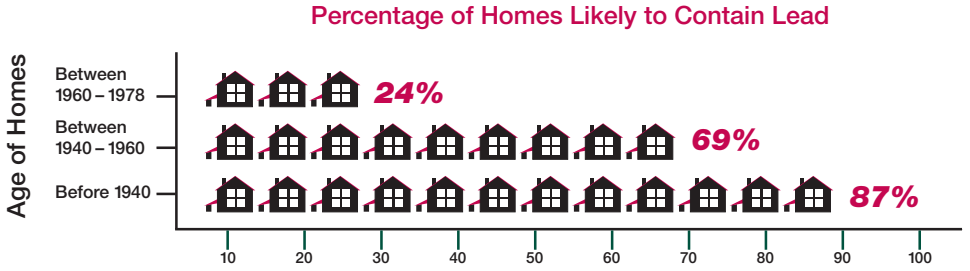
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 9 (ROOMS 15, 16, 17, 18)

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 18, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

Buildings 2, 5, 7 and 9 shared the same homogeneous silver rolled roofing system and black roofing mastic. Samples collected were representative of the shared roofing materials.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 9 (ROOMS 15, 16, 17, 18)

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: April 1, 2024 to April 2, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were

performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3609724/3600732
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 3,500

Structure Frame: Wood
If other, describe: None

Structure Foundation: Concrete Slab On Grade
If other, describe: None

Number of Floors: 1

Building Occupied: Yes

SUSPECT MATERIALS OBSERVED
Suspect Materials Observed During the Asbestos Survey Conducted

- Pipe Insulation w/Wrap and Pipe Elbow Wrap
- Textured Drywall and Unfinished Drywall
- Concrete Block
- Cove Base Glue
- Carpet Adhesive
- Ceramic Floor and Wall Tile
- Wall Plaster
- 1'x1' Pinhole Ceiling Tile and Fissured Ceiling Tile
- Concrete Sidewalk and Concrete Flooring
- 1'x1'Vinyl Floor Tile (Over Sheet Vinyl)
- HVAC Caulk
- Window Putty
- Brick and Mortar
- Rolled Roofing and Roof Mastic

Inaccessible Materials Presumed to be Asbestos Content: None

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material* Description	***Location****	***Sample #***	***Approximate Quantity*****	***AHERA Rank*****	***Friability/ Material Type***	***Damage Category***	***Quantity of Contamination (If any) *****	***Asbestos Content***
Pipe Insulation Wrap	Throughout	3	Undetermined as wrap may run behind walls or inside soffits.	7	Friable	1	None	Yellow Insulation None Detect Black Wrap 7%
Pipe Elbow Insulation	Throughout	55	Undetermined as wrap may run behind walls or inside soffits.	7	Friable	1	None	15% Chrysotile 5% Amosite
Note: Samples 56-57 were not analyzed due to prior positive series.								
Roof Mastic (See below note.)	***Building 2*** *(Under Vinyl Cap Sheet on North End)*	*R-14*	*1,800*	*X*	*Non-Friable*	*1*	*None*	*4%*
Note: Sample R14 (roof mastic) pertains only to the North end of Building 2 under vinyl cap sheet. Sample is included with report as it is a part of the same Chain of Custody (COC) and lab report as the remainder of the samples for Bldgs. 2, 5, 7 and 9.								

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.

(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
Textured Drywall	4, 5, 6
Concrete Block	7, 8, 9
Cove Base Glue	10, 11, 12
Carpet Adhesive	13, 14,15
Tan Ceramic Floor Tile and Mortar	16, 17, 18
Cermic Wall Tile and Mortar	19, 20, 21
Wall Plaster	22, 23, 24
Green Ceramic Floor Tile and Mortar	25, 26, 27
Ceiling Tile w/ Adhesive	28, 29, 30
Concrete Sidewalk	31, 32, 33
Concrete Flooring	34,3 35, 36
1'x1' Vinyl Floor Tile over Gray Sheet Flooring	37, 38, 39
Fissured Ceiling Tile	40, 41, 42
Unfinished Drywall (Ceiling)	43, 44, 45
Brick and Mortar	46, 47, 48
HVAC Caulking	49, 50 ,51

Window Putty	52, 53, 54
Samples R-1 through R-13 are Homogeneous to the shared roofing systems for Building 2, 5, 7 and 9.	
Silver Rolled Roofing over Insulation	R-1, R2, R3, R-4, R-5
Roof Mastic	R-6, R-7, R-8, R-9, R-10
HVAC Caulk	R-11. R12, R-13

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402 paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this asbestos survey, materials observed and tested for asbestos were positive for asbestos content.

The pipe insulation wrap reported to contain >1% asbestos.

The pipe elbow insulation was reported to contain >1% asbestos.

While the silver coated rolled roofing and roofing mastic is negative for asbestos on Building 9, sample R14 (roof mastic) pertains only to North end of Building 2 under vinyl cap sheet. The sample is included with report as it is a part of the same Chain of Custody (COC) and lab report as the remainder of the samples for Buildings 2, 5, 7 and 9.

RECOMMENDATIONS

If during renovation activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection. All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange Bldg 9
EML ID: 3600724

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-12-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange Bldg 9

Date of Sampling: 04-01-2024
Date of Receipt: 04-08-2024
Date of Report: 04-12-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	57
Total Samples Analyzed:	55
Total Samples with Layer Asbestos Content > 1%:	2

Location: 1, Pipe Insulation w/Wrap

Lab ID-Version‡: 17611086-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Black Wrap	ND
Composite Non-Asbestos Content:	80% Glass Fibers 15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 2, Pipe Insulation w/Wrap

Lab ID-Version‡: 17611087-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Black Wrap	ND
Composite Non-Asbestos Content:	80% Glass Fibers 15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 3, Pipe Insulation w/Wrap

Lab ID-Version‡: 17611088-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Black Wrap	7% Chrysotile
Composite Non-Asbestos Content:	80% Glass Fibers 15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 4, Textured Drywall

Lab ID-Version‡: 17611089-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Texture	ND
White Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 5, Textured Drywall

Lab ID-Version‡: 17611090-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Texture	ND
White Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Poor

Location: 6, Textured Drywall

Lab ID-Version‡: 17611091-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 7, Concrete Block

Lab ID-Version‡: 17611092-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 8, Concrete Block

Lab ID-Version‡: 17611093-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 9, Concrete Block Lab ID-Version‡: 17611094-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 10, Cove Base Glue Lab ID-Version‡: 17611095-1

Sample Layers	Asbestos Content
Tan Glue	ND
Sample Composite Homogeneity:	Good

Location: 11, Cove Base Glue Lab ID-Version‡: 17611096-1

Sample Layers	Asbestos Content
Tan Glue	ND
Sample Composite Homogeneity:	Good

Location: 12, Cove Base Glue Lab ID-Version‡: 17611097-1

Sample Layers	Asbestos Content
Tan Glue	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 13, Carpet Adhesive

Lab ID-Version‡: 17611098-1

Sample Layers	Asbestos Content
Tan Adhesive	ND
Sample Composite Homogeneity:	Good

Location: 14, Carpet Adhesive

Lab ID-Version‡: 17611099-1

Sample Layers	Asbestos Content
Tan Adhesive	ND
Sample Composite Homogeneity:	Good

Location: 15, Carpet Adhesive

Lab ID-Version‡: 17611100-1

Sample Layers	Asbestos Content
Tan Adhesive	ND
Sample Composite Homogeneity:	Good

Location: 16, Ceramic Floor Tile w/Mortar

Lab ID-Version‡: 17611101-1

Sample Layers	Asbestos Content
White Mortar	ND
Tan Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 17, Ceramic Floor Tile w/Mortar

Lab ID-Version‡: 17611102-1

Sample Layers	Asbestos Content
White Mortar	ND
Tan Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 18, Ceramic Floor Tile w/Mortar

Lab ID-Version‡: 17611103-1

Sample Layers	Asbestos Content
White Mortar	ND
Tan Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 19, Ceramic Wall Tile w/Mortar

Lab ID-Version‡: 17611104-1

Sample Layers	Asbestos Content
Gray Mortar	ND
White Grout	ND
Beige Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 20, Ceramic Wall Tile w/Mortar

Lab ID-Version‡: 17611105-1

Sample Layers	Asbestos Content
Gray Mortar	ND
White Grout	ND
Green Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

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ASBESTOS PLM REPORT

Location: 21, Ceramic Wall Tile w/Mortar

Lab ID-Version‡: 17611106-1

Sample Layers	Asbestos Content
Gray Mortar	ND
White Grout	ND
Green Ceramic Tile	ND
Sample Composite Homogeneity:	Poor

Location: 22, Wall Plaster

Lab ID-Version‡: 17611107-1

Sample Layers	Asbestos Content
Gray Plaster	ND
Beige Skim Coat	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 23, Wall Plaster

Lab ID-Version‡: 17611108-1

Sample Layers	Asbestos Content
Gray Plaster	ND
Beige Skim Coat	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 24, Wall Plaster

Lab ID-Version‡: 17611109-1

Sample Layers	Asbestos Content
Gray Plaster	ND
Beige Skim Coat	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 25, Ceramic Floor Tile w/Mortar

Lab ID-Version‡: 17611110-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Green Ceramic Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 26, Ceramic Floor Tile w/Mortar

Lab ID-Version‡: 17611111-1

Sample Layers	Asbestos Content
Green Ceramic Tile	ND
Sample Composite Homogeneity:	Good

Location: 27, Ceramic Floor Tile w/Mortar

Lab ID-Version‡: 17611112-1

Sample Layers	Asbestos Content
Green Ceramic Tile	ND
Sample Composite Homogeneity:	Good

Location: 28, Ceiling Tile w/Adhesive

Lab ID-Version‡: 17611113-1

Sample Layers	Asbestos Content
Brown Adhesive	ND
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 29, Ceiling Tile w/Adhesive

Lab ID-Version‡: 17611114-1

Sample Layers	Asbestos Content
Brown Adhesive	ND
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 30, Ceiling Tile w/Adhesive

Lab ID-Version‡: 17611115-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 31, Concrete Sidewalk

Lab ID-Version‡: 17611116-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 32, Concrete Sidewalk

Lab ID-Version‡: 17611117-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 33, Concrete Sidewalk Lab ID-Version‡: 17611118-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 34, Concrete Floor Lab ID-Version‡: 17611119-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 35, Concrete Floor Lab ID-Version‡: 17611120-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 36, Concrete Floor Lab ID-Version‡: 17611121-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 37, Vinyl Tile

Lab ID-Version‡: 17611122-1

Sample Layers	Asbestos Content
Semi-Transparent Adhesive	ND
Gray Sheet Flooring	ND
Sample Composite Homogeneity:	Moderate

Location: 38, Vinyl Tile

Lab ID-Version‡: 17611123-1

Sample Layers	Asbestos Content
Semi-Transparent Adhesive	ND
Gray Sheet Flooring	ND
Sample Composite Homogeneity:	Moderate

Location: 39, Vinyl Tile

Lab ID-Version‡: 17611124-1

Sample Layers	Asbestos Content
Semi-Transparent Adhesive	ND
Gray Sheet Flooring	ND
Sample Composite Homogeneity:	Moderate

Location: 40, Fissured Ceiling Tile

Lab ID-Version‡: 17611125-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 41, Fissured Ceiling Tile

Lab ID-Version‡: 17611126-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 42, Fissured Ceiling Tile

Lab ID-Version‡: 17611127-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 20% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 43, Unfinished Drywall

Lab ID-Version‡: 17611128-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: 44, Unfinished Drywall

Lab ID-Version‡: 17611129-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 45, Unfinished Drywall

Lab ID-Version‡: 17611130-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Good

Location: 46, Brick and Mortar

Lab ID-Version‡: 17611131-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

Location: 47, Brick and Mortar

Lab ID-Version‡: 17611132-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

Location: 48, Brick and Mortar

Lab ID-Version‡: 17611133-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Red Brick	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 49, HVAC Caulk

Lab ID-Version‡: 17611134-1

Sample Layers	Asbestos Content
Black Caulk	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 50, HVAC Caulk

Lab ID-Version‡: 17611135-1

Sample Layers	Asbestos Content
Black Caulk	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 51, HVAC Caulk

Lab ID-Version‡: 17611136-1

Sample Layers	Asbestos Content
Black Caulk	ND
Composite Non-Asbestos Content:	2% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 52, Window Putty

Lab ID-Version‡: 17611137-1

Sample Layers	Asbestos Content
Green Window Putty	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange Bldg 9

Date of Sampling: 04-01-2024
Date of Receipt: 04-08-2024
Date of Report: 04-12-2024

ASBESTOS PLM REPORT

Location: 53, Window Putty Lab ID-Version‡: 17611138-1

Sample Layers	Asbestos Content
Green Window Putty	ND
Sample Composite Homogeneity:	Good

Location: 54, Window Putty Lab ID-Version‡: 17611139-1

Sample Layers	Asbestos Content
Green Window Putty	ND
Sample Composite Homogeneity:	Good

Location: 55, Pipe Elbow Ins w/Wrap Lab ID-Version‡: 17611140-1

Sample Layers	Asbestos Content
Gray Pipe Insulation	15% Chrysotile 5% Amosite
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Comments: Samples 56-57 were not analyzed due to prior positive series.

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CHAIN OF CUSTODY eurofins

Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003600724

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851

Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions: Bldg 9 * 1st Positive S/2P 71070

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange Bldg 9
Project Zip Code: 92868
Sampling Date/Time: 5 4-1-24
PO Number: SDRE-24-061.1CT
Sampled By: DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
1	Pipe insulation w/wrap	B	STD	~1sqin	
2	↓				
3					
4	Textured drywall				
5	↓				
6					
7	Concrete Block				
8	↓				
9					
10	cove base glue				
11	↓				
12					
13	Carpet Adhesive				
14	↓				
15					

Non-Culturable

Spore Trap	Tape, Swab, Bulk	Biol Swa

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												X				

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Darla Beery	4/5/24

RECEIVED BY	DATE & TIME
	4/5/24 0804

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Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQ

003600724

Non-Culturable		
Spore Trap	Tape, Swab, Bulk	BioCass Swab, V

CONTACT INFORMATION

Company:	MTGL, Inc.	Address: 7742 Arjons DR., San Diego, CA 92126	
Contact:	CARL TUCKER	Special Instructions:	
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange Bldg 9		
Project Zip Code:	92868	Sampling Date/Time:	5 4 1 - 24
PO Number:	SDPE-24-061.1CT	Sampled By:	DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
16	Ceramic floor tile w/mortarB	STD	~1sq in	2 x 2'	
17				↓	
18					
19	Ceramic Wall tile w/mortar			4"x 4"	
20					
21					
22	Wall plaster				
23					
24					
25	Ceramic floor tile w/mortar			1"x1"	
26					
27					
28	Ceiling tile w/Adhesive			1"x1" pinhole	
29					
30					

Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	Quant Tray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
													X			

SAMPLE TYPE CODES

BC - BioCassette	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Darla Beery Darla Beery	4/5/24

RECEIVED BY	DATE & TIME
	4/8/24 08CA

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003600724

CONTACT INFORMATION

Company:	MTGL, Inc.	Address: 7742 Arjons DR., San Diego, CA 92126	
Contact:	CARL TUCKER	Special Instructions:	
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange Bldg 9		
Project Zip Code:	92868	Sampling Date/Time:	3-4-1-24
PO Number:	SDFE-24-061.1CT	Sampled By:	DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

	SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
	31	Concrete sidewalk	B	STD	2 sqin	
	32	↓				
	33					
	34	Concrete floor				
	35	↓				
	36					
	37	DB ~~Black mastic~~ Vinyl tile			1'x1'	
	38	↓			↓	
	39				1'x1'	
*	40	fissured ceiling tile			↓	
*	41	↓				
*	42					
*	43	Unfinished drywall				
	44	↓				
	45					

| Non-Culturable | | | | |

CHAIN OF CUSTODY eurofins

Built Environment Testing

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East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUEST

003600724

CONTACT INFORMATION

Company:	IMTGL, Inc.	Address: 7742 Arjons DR., San Diego, CA 92126	
Contact:	Carl Tuckel	Special Instructions:	
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange B 9		
Project Zip Code:	92868	Sampling Date/Time:	4-1-24 5
PO Number:	SDPE-24-061.1CT	Sampled By:	DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
46	Brick & Mortar	B	STD	~1 sq in	
47	↓				
48					
49	HVAC Caulk				
50	↓				
51					
52	Window Putty				
53	↓				
54					
55	Pipe Elbow Ins w/wrap				
56	↓				
57					

X
X

Non-Culturable		Cult
Spore Trap	Tape, Swab, Bulk	BioCassette™ Swab, Water, Conta

Spore Trap Analysis
Other biological particles - supplement
Direct Microscopic Exam (Qualitative)
Quantitative spore count direct exam
Dust Characterization
1-Media Surface Fungi (Genus ID + Asp. spp.)
Culturable Air Fungi (Genus ID + Asp. spp.)
Gram Stain and Counts (Culturable Air and Surface Bacteria)
Legionella culture
Total Coliform, *E.coli* (Presence/Absence)
QuantiTray-Sewage Screen
OTHER: (please specify test)
Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)
Asbestos Bulk - PLM
Lead (Pb) - Flame AA
PCR (please specify test)
Allergens (please specify test)

X

SAMPLE TYPE CODES

BC - BioCassette™	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Darla Beery	4/5/24

RECEIVED BY	DATE & TIME
	4/8/24 0849

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Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9
EML ID: 3600732

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-11-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	16
Total Samples Analyzed:	16
Total Samples with Layer Asbestos Content > 1%:	1

Location: R-1, Silver Rolled Roofing Over Insulation - 7

Lab ID-Version‡: 17610976-1

Sample Layers	Asbestos Content
Black/White Roofing Material	ND
Black Roofing Felt 1	ND
Black Roofing Felt 2	ND
Black Roofing Felt 3	ND
Brown Fibrous Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-2, Silver Rolled Roofing Over Insulation - 9

Lab ID-Version‡: 17610977-1

Sample Layers	Asbestos Content
Black/White Roofing Material	ND
Black Roofing Felt	ND
Black Roofing Tar and Felt	ND
Brown Fibrous Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-3, Silver Rolled Roofing Over Insulation - 5

Lab ID-Version‡: 17610978-1

Sample Layers	Asbestos Content
Black/White Roofing Material	ND
Black Roofing Tar and Felt 1	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 3	ND
Brown Fibrous Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-4, Silver Rolled Roofing Over Insulation - 2

Lab ID-Version‡: 17610979-1

Sample Layers	Asbestos Content
Black/White Roofing Material	ND
Black Roofing Tar and Felt 1	ND
Black Roofing Tar and Felt 2	ND
Brown Fibrous Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-5, Silver Rolled Roofing Over Insulation - 2

Lab ID-Version‡: 17610980-1

Sample Layers	Asbestos Content
Black/White Roofing Material	ND
Black Roofing Tar and Felt 1	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt 3	ND
Brown Fibrous Material	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Poor

Location: R-6, Roof Mastic - 9

Lab ID-Version‡: 17610981-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-7, Roof Mastic - 7

Lab ID-Version‡: 17610982-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-8, Roof Mastic - 5

Lab ID-Version‡: 17610983-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

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‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-9, Roof Mastic - 5

Lab ID-Version‡: 17610984-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: R-10, Roof Mastic - 2

Lab ID-Version‡: 17610985-1

Sample Layers	Asbestos Content
Black/White Roofing Mastic	ND
Composite Non-Asbestos Content:	10% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: R-11, HVAC Caulk/Tape - 7

Lab ID-Version‡: 17610986-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Brown/Black Non-Fibrous Material	ND
Sample Composite Homogeneity:	Poor

Location: R-12, HVAC Caulk/Tape - 5

Lab ID-Version‡: 17610987-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B2, 5, 7, and 9

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: R-13, HVAC Caulk/Tape - 2

Lab ID-Version‡: 17610988-1

Sample Layers	Asbestos Content
Gray/White Caulk	ND
Sample Composite Homogeneity:	Moderate

Location: R-14, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610989-1

Sample Layers	Asbestos Content
White Non-Fibrous Material	ND
Gray Fibrous Material	ND
Green Mastic	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: R-15, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610990-1

Sample Layers	Asbestos Content
White Non-Fibrous Material	ND
White Fibrous Material	ND
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

Location: R-16, Vinyl Cap Sheet - B2

Lab ID-Version‡: 17610991-1

Sample Layers	Asbestos Content
White Non-Fibrous Material	ND
White Fibrous Material	ND
Green Mastic	ND
Black Mastic	4% Chrysotile
Composite Non-Asbestos Content:	15% Synthetic Fibers
Sample Composite Homogeneity:	Poor

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‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Built Environment Testing

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003600732

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 Arjons DR., San Diego, CA 92126
Special Instructions: A 1st positive stop 7070

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B-2, 5, 7 and 9
Project Zip Code: 92868
Sampling Date/Time: 5 4-2-24
PO Number: SDRE-24-061.1CT
Sampled By: ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
R-1	Silver Rolled roofing over insulation	B	STD	~1 sq in	7
R-2					9
R3					5
R4					2
R5					DB
R6	Roof mastic				9
R7					7
R8					5
R9					5
R10					DB 2
R11	HVAC Caulk/Tape				7
R12					5
R13					2
~~R14~~					
~~R15~~	VOID DB 4-2-24				

REQU

Non-Culturable

Spore Trap	Tape, Swab, Bulk	BioCass Swab, V

Spore Trap Analysis
Other biological particles - supplement
Direct Microscopic Exam (Qualitative)
Quantitative spore count direct exam
Dust Characterization
1-Media Surface Fungi (Genus ID + Asp. spp.)
Culturable Air Fungi (Genus ID + Asp. spp.)
Gram Stain and Counts (Culturable Air and Surface Bacteria)
Legionella culture
Total Coliform, E.coli (Presence/Absence)
QuantiTray Sewage Screen
OTHER: (please specify test)
Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400) — X
Asbestos Bulk - PLM
Lead (Pb) - Flame AA
PCR (please specify test)
Allergens (please specify test)

SAMPLE TYPE CODES

BC - BioCassette®	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thurgood / Michelle Christen	4/5/24

RECEIVED BY	DATE & TIME
CS	4/8/24 0604

By submitting this Chain of Custody, you agree to be bound by the terms and conditions set forth at: https://www.eurofinsus.com/environment-testing/built-environment/resources/sampling-guides-and-forms

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CHAIN OF CUSTODY eurofins

www.eurofinsus.com/Built

Built Environment Testing

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQUESTI

003600732

CONTACT INFORMATION

Company:	MTGL, Inc.	Address: Special Instructions:	7742 Arjons DR., San Diego, CA 92126
Contact:	CARL TUCKER		
Phone:	619-454-7851		

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - B2		
Project Zip Code:	92868	Sampling Date/Time:	4/2/24
PO Number:	SDRE-24-061.1CT	Sampled By:	CR

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
R14 ~~R16~~ (R17)	Vinyl cap sheet	B	STD		B - 2
R15 (R17)					B - 2
R16 ~~R17~~					B - 2

| Non-Culturable | | | Cultu | | | | |

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

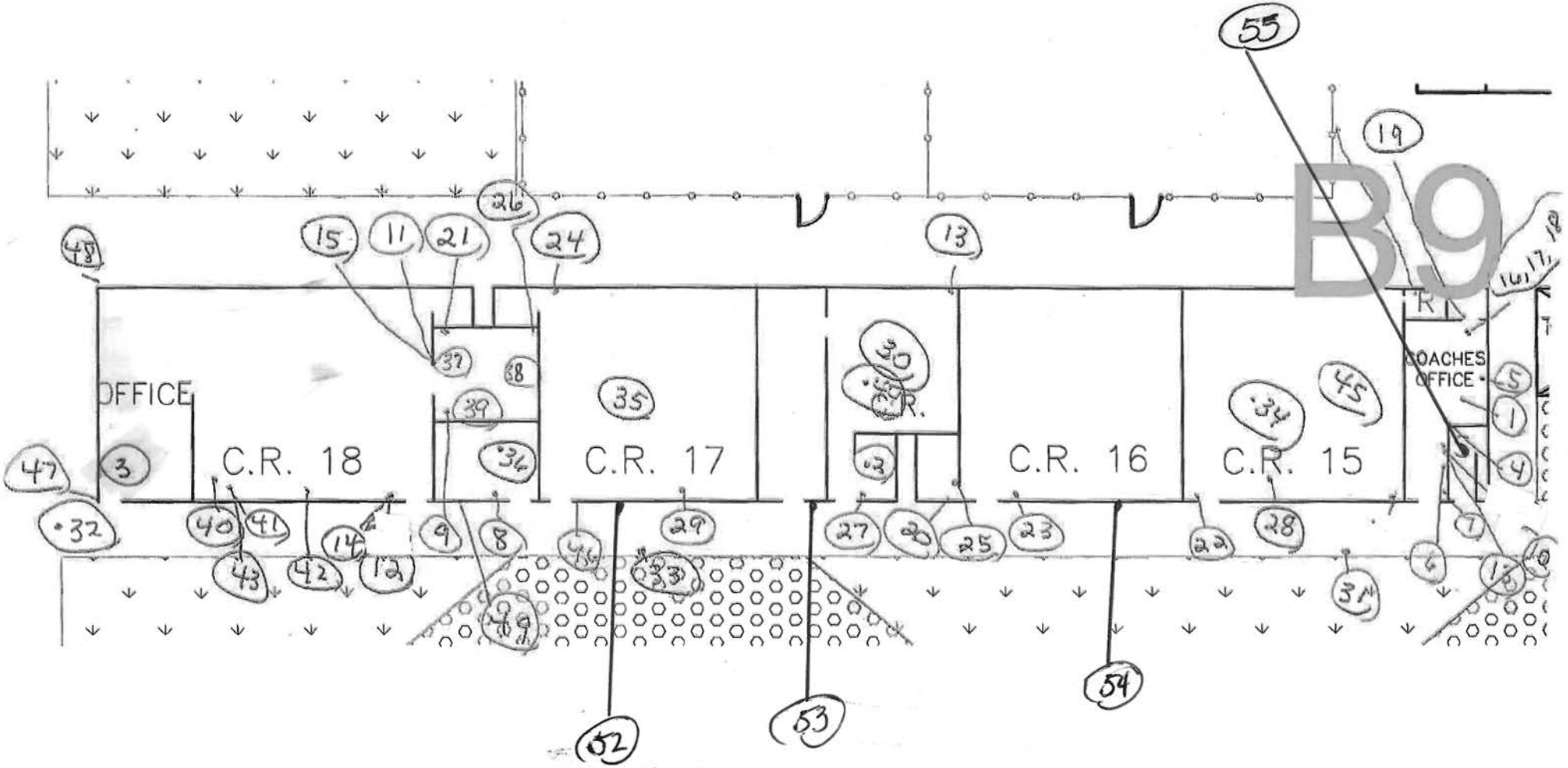
Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)


OFFICE
C.R. 18
C.R. 17
C.R. 16
C.R. 15
COACHES OFFICE
55
19
26
15
11
21
24
13
37
38
39
35
30
34
45
3
36
29
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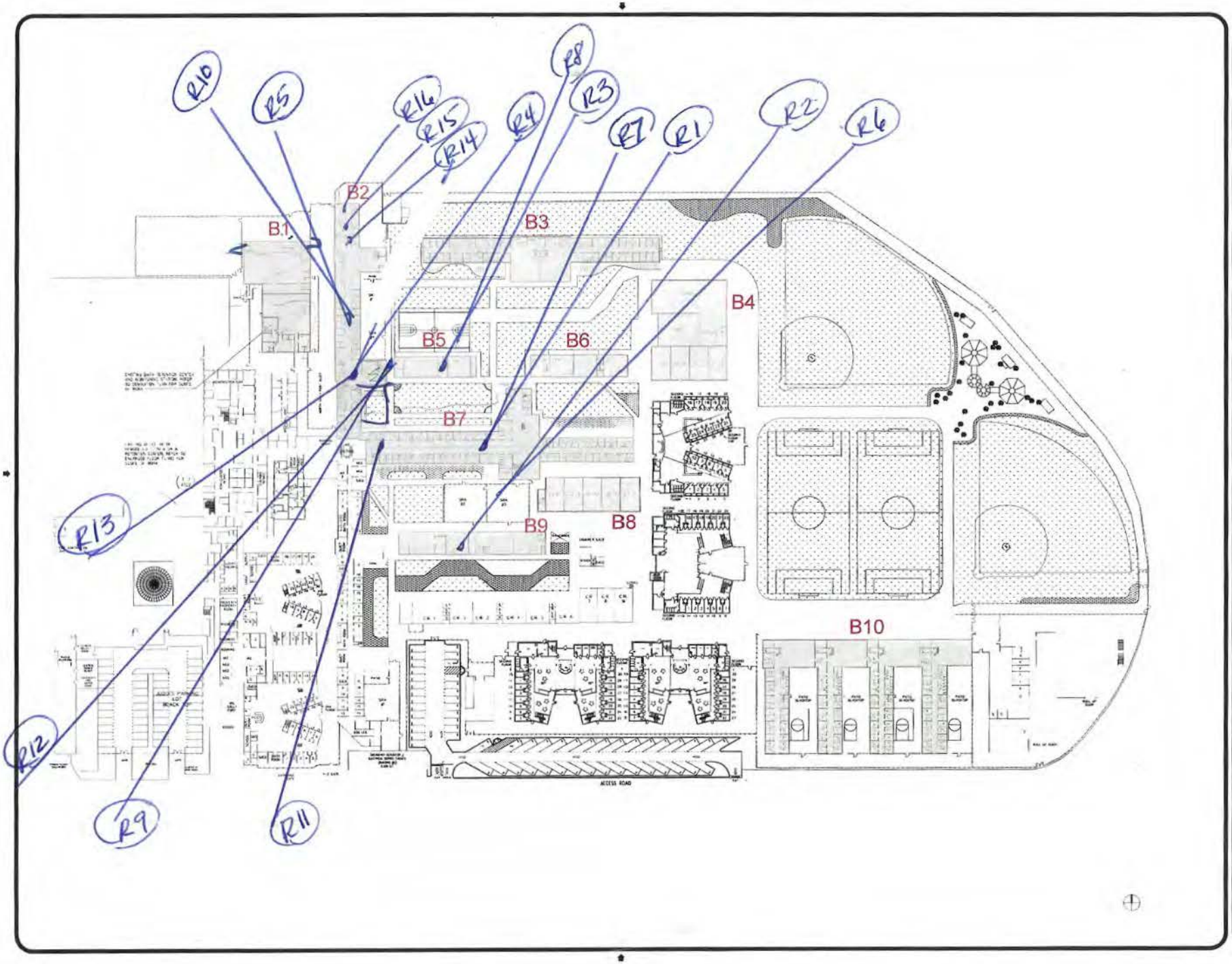

R10
R5
R16
R15
R14
R8
R4
R3
R7
R1
R2
R6
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
R13
R12
R9
R11
ACCESS ROAD

APPENDIX 3

PHOTO DOCUMENTATION

1. Pipe insulation w/wrap, Brick & mortar, and Concrete block.

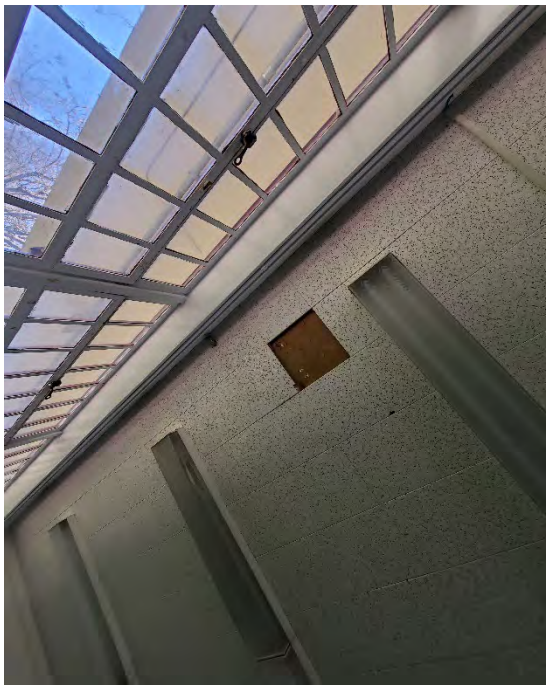
2. Textured drywall, Cove base, and Carpet.

3. Ceramic floor tile.

4. Concrete floor and sidewalk.

5. Ceiling tile and Unfinished drywall.

6. Pinhole ceiling tile.



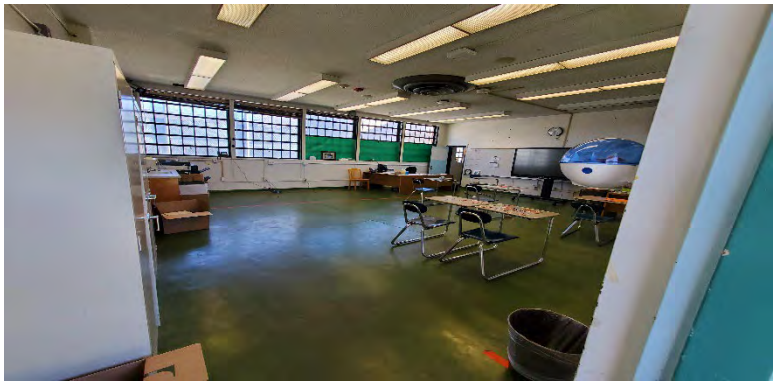
7. View of ceiling tile and unfinished drywall.

8. Ceramic wall and floor tile.

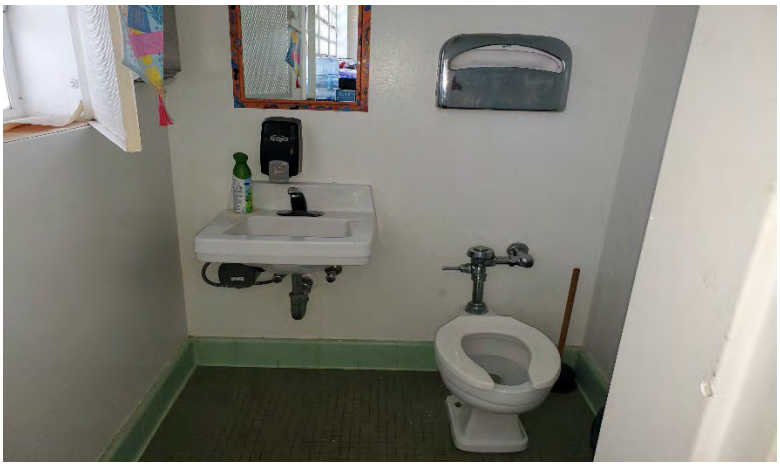
9. HVAC Caulking

10. View of Exterior

11. View of Classroom.



12. View of Classroom.



13. View of bathroom.

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Asbestos • Lead • Mold • HAZWOPER
PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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BAAQMD: Ph# (415) 749-4762

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

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NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 9-Classrooms 15-18
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 26, 2024

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SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 9 (Single story, wood frame with brick and concrete on a concrete slab.)
  - Classrooms 15, 16, 17, 18

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on April 1, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm²), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 mg/cm$^{2 \text{ or greater}}$ * (Please see attachment I for a detail report of findings.)

- No lead-based paint was identified in the components tested.

- **Intact lead containing (<1.0 mg/cm2) green ceramic wall, base tile was identified in the in all bathrooms**

- **One deteriorated lead containing (<1.0 mg/cm2) porcelain sink was identified in the electrical room, 104.**

- **Lead containing (<1.0 mg/cm2) painted entry door/frames were identified.**

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.

Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered “lead-based”. The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 mg/cm^{2,} 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed

receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of "Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 9, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm^2)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1	B-9		Calibration						Red NIST	1.0	
2	B-9		Calibration						Red NIST	0.9	
3	B-9		Calibration						Red NIST	1.0	Negative
4	B-9	A	Mech Rm. 115	Door			Intact	Metal	Green	0.8	Negative
5	B-9	A	Mech Rm. 115	Door	Frame		Intact	Metal	Green	0.5	Negative
6	B-9	C	Mech Rm. 115	Wall			Intact	Plaster	Tan	0.13	Negative
7	B-9	C	Mech Rm. 115	Wall	Base		Intact	Ceramic	Green	6.1	Positive
8	B-9	C	Mech Rm. 115	Floor	Tile		Intact	Ceramic	Brown	<LOD	Negative
9	B-9	A	Classroom 15	Door			Intact	Metal	Blue	0.9	Negative
10	B-9	A	Classroom 15	Door	Frame		Intact	Metal	Green	0.13	Negative
11	B-9	A	Classroom 15	Wall			Intact	Concrete	White	0.11	Negative
12	B-9	B	Classroom 15	Wall			Intact	Concrete	White	0.09	Negative
13	B-9	C	Classroom 15	Wall			Intact	Concrete	White	.10	Negative
14	B-9	D	Classroom 15	Wall			Intact	Concrete	White	0.07	Negative
15	B-9	D	Classroom 15	Ceiling	Tile			Intact	Drywall	<LOD	Negative
16	B-9	B	CR15, Bath	Door			Intact	Metal	Blue	0.6	Negative
17	B-9	B	CR15, Bath	Door	Frame		Intact	Metal	Black	0.19	Negative
18	B-9	C	CR15, Bath	Window	Frame		Intact	Metal	White	0.05	Negative
19	B-9	C	CR15, Bath	Wall			Intact	Concrete	White	0.02	Negative
20	B-9	C	CR15, Bath	Wall	Base	Tile	Intact	Ceramic	Green	4.2	Positive
21	B-9	C	CR15, Bath	Wall	Floor	Tile	Intact	Ceramic	Green	<LOD	Negative
22	B-9	D	CR15, Bath	Wall	sink		Intact	Porcelain	White	<LOD	Negative
23	B-9	C	CR15, Bath	Ceiling			Intact	Concrete	White	0.02	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 9, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm^2)

(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
24	B-9	A	Classroom 16	Door			Intact	Metal	Blue	0.7	Negative
25	B-9	A	Classroom 16	Door	Frame		Intact	Metal	Green	0.21	Negative
26	B-9	A	Classroom 16	Wall			Intact	Concrete	White	0.11	Negative
27	B-9	B	Classroom 16	Wall			Intact	Concrete	White	0.09	Negative
28	B-9	C	Classroom 16	Wall			Intact	Concrete	White	.10	Negative
29	B-9	D	Classroom 16	Wall			Intact	Concrete	White	0.07	Negative
30	B-9	A	Classroom 16	Window	Frame		Intact	Metal	Black	0.06	Negative
31	B-9	C	Classroom 16	Window	Frame		Intact	Metal	Black	0.07	Negative
32	B-9	C	Classroom 16	Floor			Intact	Concrete	Green	>LOD	Negative
33	B-9	D	CR16 Bath	Door			Intact	Metal	Tan	0.21	Negative
34	B-9	D	CR16 Bath	Door	Frame		Intact	Metal	Tan	0.14	Negative
35	B-9	B	CR16 Bath	Wall	Base	Tile	Intact	Ceramic	Green	5.9	Positive
36	B-9	B	CR16 Bath	Floor		Tile	Intact	Ceramic	Green	<LOD	Negative
37	B-9		CR16 Bath	Window		Frame	Intact	Metal	Tan	0.14	Negative
38	B-9	D	CR 17 Bath	Door			Intact	Metal	Tan	0.17	Negative
39	B-9	D	CR 17 Bath	Door	Frame		Intact	Metal	Tan	0.13	Negative
40	B-9	B	CR 17 Bath	Wall	Base	Tile	Intact	Ceramic	Green	7.2	Positive
41	B-9	B	CR 17 Bath	Floor		Tile	Intact	Ceramic	Green	<LOD	Negative
42	B-9	A	Classroom 18	Door			Intact	Metal	White	0..4	Negative
43	B-9	A	Classroom 18	Door	Frame		Intact	Metal	White	0.16	Negative
44	B-9	A	Classroom 18	Wall			Intact	Concrete	White	0.07	Negative
45	B-9	B	Classroom 18	Wall			Intact	Concrete	White	0.02	Negative
46	B-9	C	Classroom 18	Wall			Intact	Concrete	White	.09	Negative

Lead Based Paint XRF Data Sheet

Project: Vanir- Juvenile Hall-Building 9, 331 The City Drive, Orange, CA 92868

Inspection Date: April 1, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
47		A	Classroom 18	Window	Frame		Intact	Metal	White	0.11	Negative
48		C	Classroom 18	Window	Frame		Intact	Metal	White	0.07	Negative
49		B	CR18 Bath	Door			Intact	Metal	White	0.5	Negative
50		B		Door	Frame		Intact	Metal	White	0.17	Negative
51		B		Wall	Base	Tile	Intact	Ceramic	Green	5.9	Positive
52		C		Window	Cage		Intact	Metal	White	<LOD	Negative
53		C		Window	Frame		Intact	Metal	White	0.13	Negative
54		A	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
55		B	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
56		C	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
57		D	Exterior	Wall			Intact	Brick	Red	<LOD	Negative
58		A		Wall	Fire Box		Intact	Metal	Red	0.3	Negative
59		A		Wall	Overhang		Intact	Concrete	Tan	<LOD	Negative
60		A		Window	Frame		Intact	Metal	Red	0.10	Negative
61		C		Window	Frame		Intact	Metal	Red	0.08	Negative
62		A		Wall	Fascia		Intact	Window	Frame	<LOD	Negative
63		C	Rm 104 Elec	Wall	sink		Poor	Porcelain	White	4.7	Positive
			Calibration						Red	1.0	

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

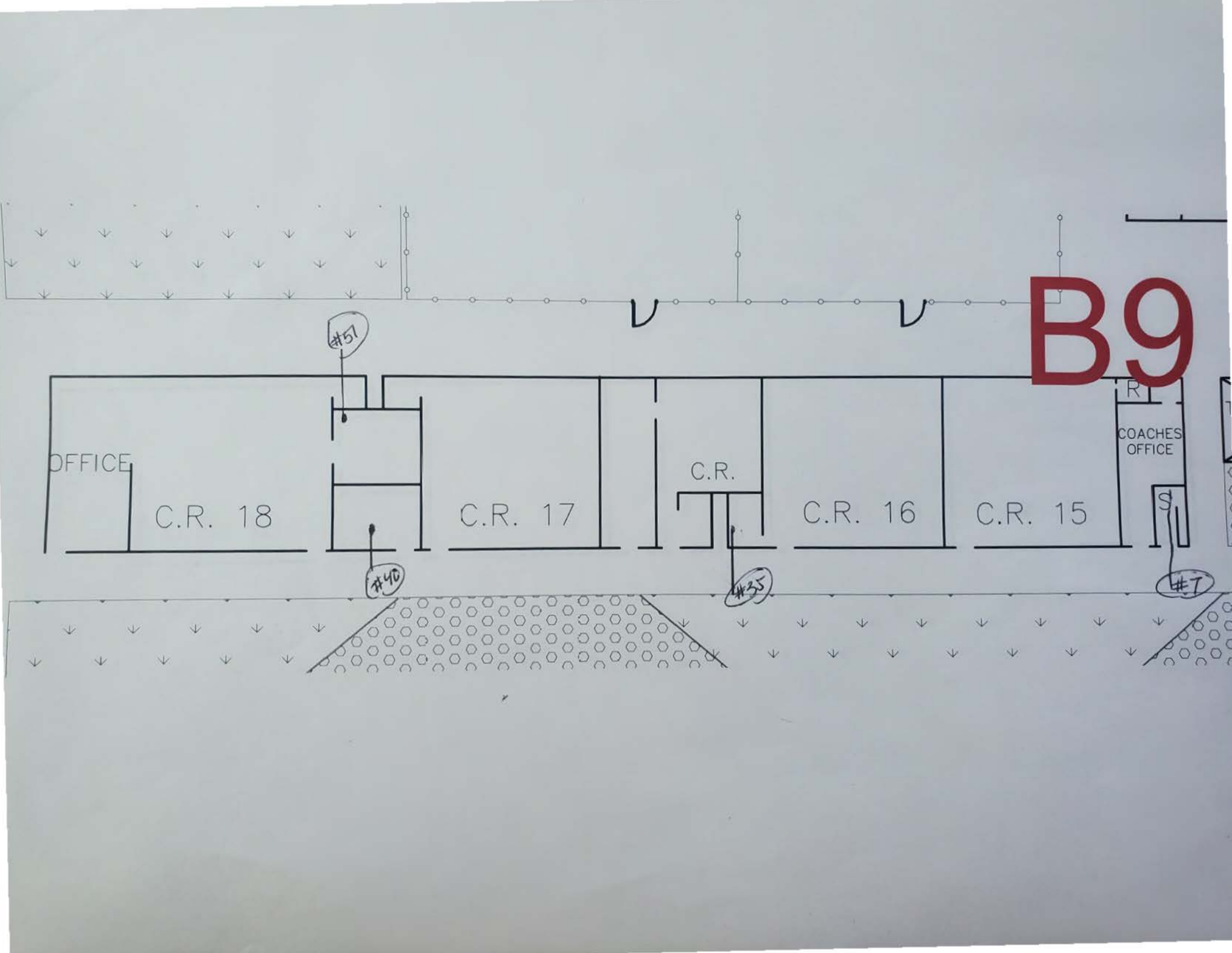
DOCUMENTATION:

A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING


B9
#51
OFFICE
C.R. 18
C.R. 17
C.R.
C.R. 16
C.R. 15
R
COACHES
OFFICE
S
#40
#35
#7

Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Michelle Ehresman

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 4/1/24

Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 9	Orange	Orange	92868

Construction date (year) of structure: Unknown

Type of structure: ☐ Multi-unit building ☑ School or daycare ☐ Single family dwelling ☐ Other_____

Children living in structure? ☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found X Other lead containing ceramic tile, Lead containing porcelain sink, Lead containing door/frames

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/26/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO RENOVATE RIGHT

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

Important lead hazard information for families, child care providers and schools.

EPA

LEAD-SAFE EPA CERTIFIED FIRM

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

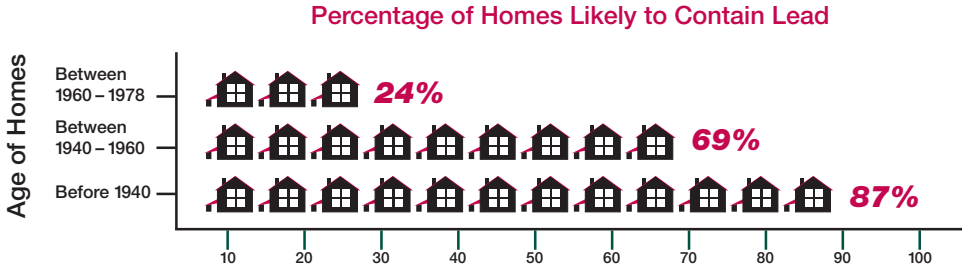
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

COMPREHENSIVE ASBESTOS SURVEY REPORT FOR DEMOLITION

PROJECT NAME:

ORANGE COUNTY JUVENILE HALL- BUILDING 10

PROJECT ADDRESS:

331 The City Drive, S.
Orange, California 92868

Prepared for:

Mr. Scott L. Battles
Vanir Construction Management, Inc
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Dr.
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Report By:

Michelle Ehresman, CAC
CAC Certification Number: 14-5323
CAC Expiration Date: November 19, 20204

Date of Report:

April 18, 2024

Version 1.0

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SECTION 1
INTRODUCTION

GENERAL INFORMATION

MTGL, Inc. was retained to conduct a survey for suspect asbestos containing materials. The intent of this survey is to pre-determine the presence of EPA/OSHA regulated Asbestos Containing Materials and Asbestos Containing Construction Materials (ACCM) that may need to be addressed prior to scheduled demolition and/or renovation activities.

MTGL's scope of work was limited to the following:

- Review of project drawings.
- Conduct a pre-construction asbestos inspection limited to Client specified locations in accordance with NESHAP Regulations and the collection of bulk samples of suspect ACM.
- Submit samples to a NVLAP accredited laboratory for analysis of asbestos fiber content using polarized-light microscopy.
- Prepare report with material description, sampling locations, analytical results, and recommendations for proper handling/abatement prior to demolition and/or renovation activities.

PROJECT INFORMATION

Survey Requested/Authorized By: Mr. Scott L. Battles

Type of Survey Requested: Limited (Restricted to Client Specified Locations Only)

Destructive Sampling Allowed by Client: Yes

Project Name: ORANGE COUNTY JUVENILE HALL BUILDING 10

Project Address: 331 The City of Orange Dr. S in the city of Orange in the State of California.

Date of Inspection: March 27, 2024 to April 2, 2024

AHERA Certified Building Inspector Name: Darla Beery
AHERA Certified Building Inspector Number: 2023ABCA171101

Additional AHERA Certified Building Inspector Name: Michelle Ehresman
Additional AHERA Certified Building Inspector Number: ABIR0727230010N35227

Local Air District: South Coast Air Quality Management District (Sampling method, lab qualifications, lab analytical procedures, and lab method of analysis were performed in compliance with Rule 1403 (d)(1)(A) and 40 CFR Part 763 - Asbestos. requirments)

Laboratory: EMLab P&K, LLC – ID#: 3592262/3600734
9445 Farnham St, Suite 103, San Diego, CA 92123
(866) 888-6653 Fax (623) 780-7695 www.emlab.com

Laboratory Sample Analysis Method: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267**)**

Sampling Protocols: EPA 40CFR 763.86 Methods

SITE/BUILDING DESCRIPTION

Structure Type: Commercial Facility

Year Built: Unknown

Date of known additions: Unknown

Building Structural Damage (If Any): None Observed

Approximate Square Feet of Surveyed Area: 25,000

Structure Frame: Wood
If other, describe: None

Structure Foundation: Concrete Slab On Grade
If other, describe: None

Number of Floors: 1

Building Occupied: Yes

SUSPECT MATERIALS OBSERVED

Suspect Materials Observed During the Asbestos Survey Conducted

- Acoustic ceiling tile (12" x12")
- Fissured ceiling tile (2'x4')
- Fiberglass insulation
- Pipe insulation
- Pipe elbow wrap
- Ceramic tile w/mortar (wall)
- Ceramic tile w/mortar (floor)
- Brick
- Concrete Block and Concrete ceiling
- Carpet glue
- Concrete floor
- Asphalt and Concrete Sidewalk
- Exterior concrete wall and Exterior concrete block
- HVAC seam caulk
- Texture coat exterior soffit
- Pipe Insulation Wrap
- Rolled Roofing and Roofing Mastic

Inaccessible Materials Presumed to be Asbestos Content: None

SECTION 2
INVESTIGATION LIMITATIONS & WARRANTY

Per the agreement between The Client and MTGL, Inc., the scope of services was performed as described in this report.

The intent of this survey is to pre-determine the presence of EPA/OSHA regulated asbestos containing building materials that may need to be addressed prior to scheduled demolition and/or renovation activities.

INVESTIGATION LIMITATIONS

MTGL, Inc. did not conduct testing within interstitial wall cavities, ceiling plenums, HVAC ventilation systems or crawlspaces or other locations of the facility, outside of the Client specified areas.

The findings of this report are valid as of the date of the survey and sample collection. Changes in the condition of the property can occur with passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in the state-of-art technology and/or government codes may occur. Due to such changes, the findings of this report may be invalidated wholly or in part by conditions beyond our control. Due to changes that can occur over time, submittals of this report to Regulatory Agencies may require additional site visits and assessment to document current conditions.

The final assessment of the potential for the existence of hazardous contaminants at the site should be considered a professional opinion based on the data obtained during the investigation and should not be considered a definitive statement that a hazardous contaminant or conditions are, or is not, present in the area of study. These opinions have been derived in accordance with current standards of practice.

This report is intended solely for use by the parties to whom it is addressed. This report is not intended for and may not contain sufficient information for purposes other than qualitative evaluation of asbestos or conditions at the time of our evaluation. Reliance on this report for other purposes or by other parties shall be at the user's sole risk.

WARRANTY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform asbestos inspections and assessments pursuant to the scope of work required on this project. MTGL's Asbestos Survey Reports are prepared by trained certified professionals without a conflict of interest in the demolition(s) or renovation project(s) as per the Business and Professions Code 7180 (BP7180).

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included inspection of visible and accessible materials. MTGL did not inspect or sample inaccessible areas and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL's inspectors shall be assumed to be asbestos containing. No other warranty is expressed, or implied.

SECTION 3
ASBESTOS SURVEY METHODOLOGY

GENERAL REFERENCES

The asbestos survey consisted of two major activities: visual inspection and sampling. Although these activities are listed separately, they are integrated tasks.

VISUAL INSPECTION

The visual inspection was performed by an AHERA Certified Building Inspector under the direction of a California Certified Asbestos Consultant. An initial building walkthrough was conducted to determine the presence of suspect materials that were accessible or exposed. Materials that were similar in general appearance were grouped into homogeneous sampling areas.

HOMOGENEOUS MATERIAL CLASSIFICATIONS

A preliminary walkthrough of the building was conducted to determine areas of materials that were visually similar in color, texture, and general appearance and that appeared to have been installed at the same time. Such materials are termed "homogeneous materials" by the EPA. During this walkthrough, the approximate locations of these homogeneous materials were noted. Only materials that were accessible or exposed and suspected to contain asbestos were identified.

Following the EPA protocols, each identified suspect homogeneous material is placed in one of the following EPA classifications:

- Surfacing Materials (spray or trowel applied materials)
- Thermal System Insulation (materials applied to various mechanical systems)
- Miscellaneous Materials (any material which do not fit either of the above categories, such as floor tiles, etc.)

SAMPLING PROCEDURES

Following the walkthrough, the inspector collected selected samples of exposed or accessible materials identified as suspect material. Sampling was limited to accessi1ble materials not involving destruction of walls, other building elements, physical barriers, or the structural integrity of the item being tested.

EPA guidelines were used to determine the sampling protocol. Sampling locations that were chosen to be representative of the homogeneous sampling area. While an effort was made to collect samples randomly, samples were taken preferentially from damaged areas or areas which were the least visible to minimize disturbance of the material.

Samples of surfacing material were collected in general accordance with the EPA random sampling protocol outlined in the EPA publication, "Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials" (EPA 560/5-85-030a, October 1985).

Samples of miscellaneous materials were also taken as randomly as possible, while attempting to sample already damaged areas so as to minimize disturbance of the material.

A minimum of three samples were collected of each homogeneous material. Depending on the quantity of homogeneous material, additional samples may be collected to avoid the possibility of false negative results.

LABORATORY PROCEDURES

Method of Analysis

Analysis was performed by visually observing the bulk sample and preparing slides for microscopic examination and identification. The samples were mounted on slides and then analyzed for asbestos (chrysotile, amosite, crocidolite, anthophyllite, and actinolite/tremolite), fibrous non-asbestos constituents (mineral wool, paper, etc.) and nonfibrous constituents. Asbestos was identified by refractive indices, morphology, color, pleochroism, birefringence, extinction characteristics, and signs of elongation. The same characteristics were used to identify the non-asbestos constituents.

The microscopist used a stereoscope to visually estimate relative amounts of each constituent using a stereoscope to determine the volume of each constituent in proportion to the total volume of the sample.

All bulk samples were analyzed by Polarized Light Microscopy (PLM) with dispersion staining as described by the Interim Method of the Determination of Asbestos in Bulk Insulation, Federal Register, 40 CFR Ch. 1 Pt. 763, App. A to Subpart. F, July 1, 1987. This is a standard method of analysis in optical mineralogy and the currently accepted method for the determination of asbestos in bulk samples. A suspect material is immersed in a solution of known refractive index and subjected to illumination by polarized light. The characteristic color displays that result enable mineral identification. It should be noted that some ACM may not be accurately identified or quantified by PLM. As an example, the original fabrication of vinyl floor tiles routinely involved milling of asbestos fibers to extremely small sizes. As a result, these fibers may go undetected under the standard polarized light microscopy method. Transmission Electron Microscopy (TEM) is recommended for a more definitive analysis of these materials. MTGL, Inc. has no control over how the laboratory describes materials or layers of materials being analyzed. Although a minimum of three samples are collected of suspect building materials, first positive stops may be requested of the laboratory and the results of the one positive sample will be reported. All other homogeneous materials will be assumed to be positive for asbestos content.

Laboratory Quality Control Program

MTGL, Inc. only uses laboratories that maintain an in-house quality control program. This program involves blind reanalysis of ten percent of all samples, precision and accuracy controls, and use of standard bulk reference materials.

SECTION 4
ASBESTOS OBSERVATIONS AND FINDINGS

SUMMARY

Table 1: Positively Identified Materials that Contain Asbestos (ACM and ACCM) and Assessment of Material Condition (as of the date the survey was conducted). Laboratory Results can be found in Appendix 1.

Material* Description	***Location****	***Sample #***	***Approximate Quantity*****	***AHERA Rank*****	***Friability/ Material Type***	***Damage Category***	***Quantity of Contamination (If any) *****	***Asbestos Content***
2'x4' Fissured Ceiling Tile	Hallway Ceilings	4, 5	3,850 sf	7	Friable	1	None	**<1%-5% Amosite**
Pipe Elbow Wrap	Throughout	13, 14, 15	Undetermined as wrap may run behind walls or inside soffits.	7	Friable	1	None	White Wrap None Detect **White Fibrous Elbow 12%**

*Positively identified ACM and ACCM that are similar in color and texture in other locations throughout the structure and facility shall be considered as asbestos containing until further sampling/analysis determines otherwise. In the event suspect asbestos containing materials are discovered during maintenance, renovation and/or demolition that are not identified in this report, disturbance of the materials should be stopped until further assessment of the material for asbestos content can be conducted.

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors measure and calculate quantities for estimated abatement costs and notifications. (sf= square foot; NA= not applicable))

***Each homogeneous area of friable and non-friable asbestos-containing material (ACM) was classified into one of the following seven categories, as specified in EPA's AHERA regulations (40 CFR 763.88):

(1) Damaged or significantly damaged thermal system insulation ACM.
(2) Damaged friable surfacing ACM.
(3) Significantly damaged friable surfacing ACM.
(4) Damaged or significantly damaged friable miscellaneous ACM.
(5) ACBM with potential for damage.
(6) ACBM with potential for significant damage.
(7) Any remaining friable ACBM or friable suspected ACBM.
(X) Not applicable (material is non-friable surfacing or miscellaneous material).

The damage categories are defined as follows:

Category 1 - "Undamaged" means the material had no visible damage, or extremely minor damage or surface marring (i.e., a room full of floor tile with only two or three small corners chipped off on the tile).

Category 2 - "Damaged" means the material had visible damage evenly distributed over less than 10% of its surface, or localized over less than 25% of its surface.

Category 3 -"Significantly Damaged" means the material had visible damage that is evenly distributed over 10% or more of its surface, or localized over 25% or more if its surface.

Table 2: Materials found to be Negative for Asbestos (as of the date the survey was conducted). Laboratory results can be found in Appendix 1.

Material* Description	***Sample #***
12”x12” Acoustic Ceiling Tile (Wall)	1, 2, 4
Fiberglass Insulation	7, 8, 9
Pipe Insulation	10, 11, 12, 56
Ceramic Wall Tile and Mortar	16
Ceramic Floor Tile and Morar	17, 19, 20, 21
Brick	18
Concrete Block (Brick)	22, 23, 24
Concrete Ceiling	25, 26, 27
Carpet Glue	28, 29, 30
Concrete Floor	31, 32, 33
Samples 34, 35, 36, 37 Voided from Report	
Asphalt	38, 39, 40
Concrete Sidewalk	41, 42, 43
Exterior Concrete Wall	44, 45, 46
Exterior Concrete Block	47, 48, 49
HVAC Seam Caulk	50, 51, 52
Texture Coat, Exterior Soffit	53, 54, 55
Silver Coated Rolled Roofing	58, 59, 60
Silver Coated Roof Mastic	61, 62, 63

GENERAL INFORMATION

Environmental Protection Agency (EPA)

According to the South Coast Air Quality Management District's Rule 1402paragraph (H)(2)(C), the analysis of composite samples of multi-layered material including, but not limited to, stucco (base and scratch coat) and wall systems is prohibited for the quantification of asbestos content. All separable layers shall be analyzed and reported separately for asbestos content.

These materials are eligible for analyzed using 1,000 Point Count with Gravimetric Reduction methods. Analysis would be conducted per strata and materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal. Materials greater than 1% are regulated by EPA/APCD and would require disposal as asbestos containing material.

A material is considered by the EPA and the State of California to be asbestos-containing if at least one sample collected from the area shows asbestos present in an amount greater than one percent (> 1%).

California Occupational Safety & Health Agency (Cal/OSHA)

Title 8, California Code of Regulation 1529 defines asbestos-containing construction materials as materials containing greater than one-tenth of one percent (0.1%) asbestos by weight. Under this code, materials containing between 0.1% and 1% asbestos are regulated as other regulated operations. Although operations involving materials containing between 0.1% and 1% asbestos are not considered Class I, II, or III work, several sections of the standard are applicable, including negative exposure assessments and the use of regulated areas.

Laboratory analysis may report materials as "Trace Asbestos". These materials are assumed to be greater than 0.1%. Upon client request, these materials can be analyzed using 1,000 Point Count with Gravimetric Reduction methods. Materials found to be greater than 0.1% asbestos are regulated by OSHA and handled as asbestos containing until packaged and stored for disposal.

Please refer to the laboratory analysis for a more detailed description of the microscopic analysis of these samples.

Asbestos-containing materials (ACM) are regulated by federal, state, and local agencies, which include but may not be limited to the following:

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) requires an inspection for asbestos be done on facilities that are to undergo demolition or renovation work. Materials found to contain asbestos may need to be removed prior to the start of such demolition/renovation work.

NESHAP defines Category I non-friable asbestos-containing materials as gaskets, resilient floor covering, and asphalt roofing products that contain more than one percent asbestos, and Category II non-friable as any materials, except for Category I non-friable, that contain more than one percent asbestos and cannot be reduced to a powder by hand pressure when dry. NESHAP defines a Regulated Asbestos-Containing Material (RACM) as: (a) friable ACM, (b) Category I non-friable that has become friable, (c) Category I non-friable that has or may be subject to sanding, grinding, cutting, or abrading, and (d) Category II non-friable that may or has become friable during demolition or renovation.

SECTION 5
CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

On this asbestos survey, materials observed and tested for asbestos were positive for asbestos content.

The 2'x4' fissured ceiling tiles were reported to contain >1% asbestos.

The pipe elbow insulation was reported to contain >1% asbestos.

RECOMMENDATIONS

If during renovation or demolition activities, materials other than the ones discussed in this report are observed, the materials should be tested for asbestos content prior to disturbance.

General

MTGL recommends that all asbestos containing materials be removed prior to any renovation and/or demolition activities, which may impact the materials. A Licensed Abatement Contractor in the State of California should perform the removal activities.

Removal of ACM/ACCM should be conducted in accordance with EPA and OSHA requirements for Federal, State and Local rules and regulations. All asbestos removal should be conducted using wet methods and engineering controls to reduce airborne fiber concentrations. OSHA required personal protective equipment must be used for worker protection.

All activities that may disturb or disrupt asbestos containing material must be conducted in properly demarcated regulated areas using wet removal methods.

Proper decontamination methods must be used by all workers entering and leaving regulated work areas where asbestos containing materials are being removed.

In the event ACM or ACCM materials are observed to be damaged and/or visible contamination is present, isolate the immediate area, turn off HVAC systems. Only properly trained and certified workers may enter the work area to conducted clean-up activities using wet methods.

If renovation and/or demolition activities do not impact the asbestos containing materials, then the materials can be managed in place. Periodic surveillance is recommended. An Operations & Maintenance (O&M) program should be established and conducted by properly trained personnel. Minimum training for each type of material that has been identified should be given as required by Cal/OSHA. Additionally, postings would be required in all publicly accessible areas warning of the potential hazard to satisfy the Proposition 65 & Hazard Communication regulations.

SECTION 6
APPENDICES

APPENDIX 1

ASBESTOS LABORATORY RESULTS
&
CHAIN OF CUSTODY

eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B10
EML ID: 3592261

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-01-2024 to 04-04-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EPK Built Environment Testing, LLC ("the Company"), a member of the Eurofins Built Environment Testing group of companies, shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

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9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B10

Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	52
Total Samples Analyzed:	52
Total Samples with Layer Asbestos Content > 1%:	4

Location: 1, Acoustic Ceiling Tile

Lab ID-Version‡: 17567800-1

Sample Layers	Asbestos Content
Brown Ceiling Tile	ND
White Paint	ND
Composite Non-Asbestos Content:	80% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Moderate

Location: 2, Acoustic Ceiling Tile

Lab ID-Version‡: 17567801-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Brown Ceiling Tile	ND
Gray Fibrous Material	ND
White Paint	ND
Composite Non-Asbestos Content:	80% Cellulose 10% Glass Fibers 3% Talc
Sample Composite Homogeneity:	Poor

Location: 3, Acoustic Ceiling Tile

Lab ID-Version‡: 17567802-1

Sample Layers	Asbestos Content
Brown Mastic	ND
Brown Ceiling Tile	ND
White Paint	ND
Composite Non-Asbestos Content:	80% Cellulose 10% Glass Fibers 3% Talc
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 4, Fissured Ceiling Tile

Lab ID-Version‡: 17567803-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	< 1% Amosite
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 5, Fissured Ceiling Tile

Lab ID-Version‡: 17567804-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	3% Amosite
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 6, Fissured Ceiling Tile

Lab ID-Version‡: 17567805-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	20% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 7, Fiberglass Insulation

Lab ID-Version‡: 17567806-1

Sample Layers	Asbestos Content
Beige Insulation	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 8, Fiberglass Insulation

Lab ID-Version‡: 17567807-1

Sample Layers	Asbestos Content
Beige Insulation	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 9, Fiberglass Insulation

Lab ID-Version‡: 17567808-1

Sample Layers	Asbestos Content
Beige Insulation	ND
Composite Non-Asbestos Content:	85% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 10, Pipe Insulation

Lab ID-Version‡: 17567809-1

Sample Layers	Asbestos Content
White Tape (Mesh)	ND
Beige Insulation	ND
Composite Non-Asbestos Content:	85% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 11, Pipe Insulation

Lab ID-Version‡: 17567810-1

Sample Layers	Asbestos Content
White Tape (Mesh)	ND
Beige Insulation	ND
Composite Non-Asbestos Content:	85% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 12, Pipe Insulation

Lab ID-Version‡: 17567811-1

Sample Layers	Asbestos Content
White Tape (Mesh)	ND
Beige Insulation	ND
Composite Non-Asbestos Content:	85% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 13, Pipe Elbow Wrap

Lab ID-Version‡: 17567812-1

Sample Layers	Asbestos Content
White Wrap	ND
White Fibrous Material	12% Chrysotile
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 14, Pipe Elbow Wrap

Lab ID-Version‡: 17567813-1

Sample Layers	Asbestos Content
White Wrap	ND
White Fibrous Material	12% Chrysotile
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 15, Pipe Elbow Wrap

Lab ID-Version‡: 17567814-1

Sample Layers	Asbestos Content
White Wrap	ND
White Fibrous Material	12% Chrysotile
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 16, Tile and Mortar/Wall

Lab ID-Version‡: 17567815-1

Sample Layers	Asbestos Content
Gray Mortar	ND
White Tile	ND
Sample Composite Homogeneity:	Moderate

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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 17, Tile and Mortar/Floor Lab ID-Version‡: 17567816-1

Sample Layers	Asbestos Content
Gray Mortar	ND
White Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 18, Brick and Mortar Lab ID-Version‡: 17567817-1

Sample Layers	Asbestos Content
Green/Black Brick	ND
Sample Composite Homogeneity:	Good

Location: 19, Tile and Mortar/Floor Lab ID-Version‡: 17567818-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Green Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 20, Tile and Mortar/Floor Lab ID-Version‡: 17567819-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Green Tile	ND
Sample Composite Homogeneity:	Moderate

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Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B10

Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 21, Tile and Mortar/Floor

Lab ID-Version‡: 17567820-1

Sample Layers	Asbestos Content
Gray Mortar	ND
Green Tile	ND
Sample Composite Homogeneity:	Moderate

Location: 22, Concrete Block

Lab ID-Version‡: 17567821-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 23, Concrete Block

Lab ID-Version‡: 17567822-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 24, Concrete Block

Lab ID-Version‡: 17567823-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B10

Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 25, Concrete Ceiling

Lab ID-Version‡: 17567824-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Skim Coat	ND
White Paint	ND
Sample Composite Homogeneity:	Poor

Location: 26, Concrete Ceiling

Lab ID-Version‡: 17567825-1

Sample Layers	Asbestos Content
Gray Concrete	ND
White Skim Coat	ND
White Paint	ND
Sample Composite Homogeneity:	Poor

Location: 27, Concrete Ceiling

Lab ID-Version‡: 17567826-1

Sample Layers	Asbestos Content
White Skim Coat	ND
White Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 28, Carpet Glue

Lab ID-Version‡: 17567827-1

Sample Layers	Asbestos Content
Brown Glue	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 29, Carpet Glue

Lab ID-Version‡: 17567828-1

Sample Layers	Asbestos Content
Brown Glue	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

Location: 30, Carpet Glue

Lab ID-Version‡: 17567829-1

Sample Layers	Asbestos Content
Brown Glue	ND
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Good

Location: 31, Concrete Floor

Lab ID-Version‡: 17567830-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 32, Concrete Floor

Lab ID-Version‡: 17567831-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 33, Concrete Floor Lab ID-Version‡: 17567832-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 38, Asphalt Lab ID-Version‡: 17567837-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

Location: 39, Asphalt Lab ID-Version‡: 17567838-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

Location: 40, Asphalt Lab ID-Version‡: 17567839-1

Sample Layers	Asbestos Content
Black Asphalt	ND
Sample Composite Homogeneity:	Good

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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 41, Concrete Sidewalk

Lab ID-Version‡: 17567840-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 42, Concrete Sidewalk

Lab ID-Version‡: 17567841-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 43, Concrete Sidewalk

Lab ID-Version‡: 17567842-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 44, Ext Concrete Wall

Lab ID-Version‡: 17567843-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

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C/O: Mr. Carl Tucker
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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 45, Ext Concrete Wall

Lab ID-Version‡: 17567844-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 46, Ext Concrete Wall

Lab ID-Version‡: 17567845-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Sample Composite Homogeneity:	Good

Location: 47, Ext Concrete Block

Lab ID-Version‡: 17567846-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 48, Ext Concrete Block

Lab ID-Version‡: 17567847-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 49, Ext Concrete Block Lab ID-Version‡: 17567848-1

Sample Layers	Asbestos Content
Gray Concrete	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 50, HVAC Seam Caulk Lab ID-Version‡: 17567849-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: 51, HVAC Seam Caulk Lab ID-Version‡: 17567850-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: 52, HVAC Seam Caulk Lab ID-Version‡: 17567851-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

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Date of Sampling: 03-27-2024
Date of Receipt: 03-30-2024
Date of Report: 04-04-2024

ASBESTOS PLM REPORT

Location: 53, Texture Coat Ext Soffit

Lab ID-Version‡: 17567852-1

Sample Layers	Asbestos Content
White Texture	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 54, Texture Coat Ext Soffit

Lab ID-Version‡: 17567853-1

Sample Layers	Asbestos Content
White Texture	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 55, Texture Coat Ext Soffit

Lab ID-Version‡: 17567854-1

Sample Layers	Asbestos Content
White Texture	ND
Beige Paint	ND
Sample Composite Homogeneity:	Moderate

Location: 56, Pipe Insulation Wrap

Lab ID-Version‡: 17567855-1

Sample Layers	Asbestos Content
White Tape (Mesh)	ND
Beige Insulation	ND
Composite Non-Asbestos Content:	45% Glass Fibers 15% Cellulose
Sample Composite Homogeneity:	Moderate

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER		Fog	Rain	Snow	Wind	Clear
LEVEL	None					
	Light					
	Moderate					
	Heavy					

REQ

003592261

Non-Culturable

Spore Trap | Tape, Swab, Bulk | BioCas Swab, V | Contact Plate

CONTACT INFORMATION

Company:	MTGL, Inc.
Contact:	Carl Tuckel
Phone:	619-454-7851
Address:	7742 Arjons DR., San Diego, CA 92126
Special Instructions:	

PROJECT INFORMATION

Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - BIO		
Project Zip Code:	92868	Sampling Date/Time:	3/27/24
PO Number:	SDRE-24-061.1CT	Sampled By:	DB

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)	Spore Trap Analysis	Other biological particles - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuantiTray Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
1	Acoustic ceiling tile	B	STD	~1sq in	12" x 12"													X				
2	↓				↓																	
3	↓				↓																	
4	fissured ceiling tile				2'x 4'																	
5	↓				↓																	
6	↓				Ceiling																	
7	Fiberglass insulation				↓ K																	
8	↓				↓																	
9	↓				Bm 124																	
10	Pipe insulation				↓																	
11	↓				↓																	
12	↓				↓																	
13	Pipe Elbow wrap				↓																	
14	↓				↓																	
15	↓				↓																	

SAMPLE TYPE CODES

BC - BioCassette®	**CP** - Contact Plate	**T** - Tape	**O** - Other:
A1S - Andersen	**ST** - Spore Trap	**SW** - Swab	
SAS - Surface Air Sampler	**B** - Bulk	**SO** - Soil	
NP - Non-potable Water	**P** - Potable Water	**D** - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Espinosa / Michelle Espinosa	3/29/24

RECEIVED BY	DATE & TIME
Chris Wang	3/30/24 10:42a

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

R

003592261

| Non-Culturable | | | Contact Plate | | | | |

CHAIN OF CUSTODY eurofins

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Built Environment Testing

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REC

003592261

Non-Culturable			
Spore Trap	Tape, Swab, Bulk	BioCas Swab	

CONTACT INFORMATION			
Company:	IMTGL, Inc.	Address: Special Instructions:	7742 Arjons DR., San Diego, CA 92126
Contact:	Carl Tuckel		
Phone:	619-454-7851		

PROJECT INFORMATION			
Project ID:	Vanir Const. - OC Juvenile Hall		
Project Description:	331 The City of Orange - BIO		
Project Zip Code:	92868	Sampling Date/Time:	3/27/24
PO Number:	SDRE-24-061.1CT	Sampled By:	DB

TURN AROUND TIME CODES - (TAT)	
STD - Standard (Default)	Rushes received after 2pm or on weekends, will be considered received the next business day. Please alert us in advance of weekend analysis needs.
ND - Next Business Day	
SD - Same Business Day	
WH - Weekend/Holiday/ASAP	

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
31	Concrete Floor	B	STD		Epoxy - K
32	↓				
33	↓				
~~34~~	~~Pipe insulation~~				K
~~35~~	~~Elb~~				
~~36~~	~~Elbow pipe insulation~~				K
~~37~~					
38	Asphalt				
39	↓				
40	↓				
41	concrete sidewalk				
42	↓				
43	↓				
44	Ext concrete wall				
45	↓				

VOID (KP 3/28/24)

Spore Trap Analysis	Other biological particles + supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
												↓				

SAMPLE TYPE CODES			
BC - BioCassette®	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Christensen / Michelle Christensen	3/29/24

RECEIVED BY	DATE & TIME
	3/30/24 10:42a

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CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

003592261

CONTACT INFORMATION

Company: MTGL, Inc.
Contact: CARL TUCKER
Phone: 619-454-7851
Address: 7742 ARJONS DR., San Diego, CA 92126
Special Instructions

PROJECT INFORMATION

Project ID: Vanir Const. - OC Juvenile Hall
Project Description: 331 The City of Orange B10
Project Zip Code: 92868
Sampling Date/Time: 3-27-24
PO Number: SDPE-24-061.1CT
Sampled By: DB / ME

TURN AROUND TIME CODES - (TAT)

STD - Standard (Default)
ND - Next Business Day
SD - Same Business Day
WH - Weekend/Holiday/ASAP

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REQ

Non-Culturable

SAMPLE ID	DESCRIPTION	Sample Type (Below)	TAT (Above)	Total Volume/Area (as applicable)	NOTES (Time of day, Temp, RH, etc.)
46	Ext concrete wall	B	STD	n/sq ft	
47	Ext concrete block				
48	↓				
49	↓				
50	HVAC seam caulk				
51	↓				
52	↓				
53	texture coat ext soffit				
54	↓				
55	↓				
56	Pipe insulation wrap	↓	d	↓	

Spore Trap	Other biological pathogens - supplement	Direct Microscopic Exam (Qualitative)	Quantitative spore count direct exam	Dust Characterization	1-Media Surface Fungi (Genus ID + Asp. spp.)	Culturable Air Fungi (Genus ID + Asp. spp.)	Gram Stain and Counts (Culturable Air and Surface Bacteria)	Legionella culture	Total Coliform, E.coli (Presence/Absence)	QuantiTray-Sewage Screen	OTHER: (please specify test)	Asbestos in Air - PCM Airborne Fiber Count (NIOSH 7400)	Asbestos Bulk - PLM	Lead (Pb) - Flame AA	PCR (please specify test)	Allergens (please specify test)
Spore Trap	Tape, Swab, Bulk	BioCass Swab, V										X				
													X			

SAMPLE TYPE CODES

BC - BioCassette	CP - Contact Plate	T - Tape	O - Other:
A1S - Andersen	ST - Spore Trap	SW - Swab	
SAS - Surface Air Sampler	B - Bulk	SO - Soil	
NP - Non-potable Water	P - Potable Water	D - Dust	

RELINQUISHED BY	DATE & TIME
Michelle Thompson / Michelle Chrestman	3/29/24

RECEIVED BY	DATE & TIME
[signature]	3/30/24 1:42

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eurofins | Built Environment Testing

Report for:

Mr. Carl Tucker
MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126

Regarding: Eurofins EPK Built Environment Testing, LLC
Project: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B10
EML ID: 3600728

Approved by:

Approved Signatory
Carlos Rivadeneyra

Dates of Analysis:
Asbestos PLM: 04-11-2024

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500034-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

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Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B10

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Total Samples Submitted:	6
Total Samples Analyzed:	6
Total Samples with Layer Asbestos Content > 1%:	0

Location: 58, Rolled Roofing

Lab ID-Version‡: 17611048-1

Sample Layers	Asbestos Content
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt	ND
Black Roofing Shingle	ND
Silver Coating (Trace)	ND
Composite Non-Asbestos Content:	15% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 59, Rolled Roofing

Lab ID-Version‡: 17611049-1

Sample Layers	Asbestos Content
Brown Insulation	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt	ND
Black Roofing Shingle	ND
Silver Coating (Trace)	ND
Composite Non-Asbestos Content:	20% Cellulose 15% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 60, Rolled Roofing

Lab ID-Version‡: 17611050-1

Sample Layers	Asbestos Content
Brown Insulation	ND
Black Roofing Tar and Felt 2	ND
Black Roofing Tar and Felt	ND
Black Roofing Shingle	ND
Silver Coating (Trace)	ND
Composite Non-Asbestos Content:	40% Cellulose 15% Glass Fibers
Sample Composite Homogeneity:	Poor

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC
9445 Farnham Street, Suite 103, San Diego, CA 92123
(800) 651-4802 www.eurofinsus.com/Built

Client: MTGL, Inc.
C/O: Mr. Carl Tucker
Re: Vanir Const. - OC Juvenile Hall; 331 The City of Orange B10

Date of Sampling: 04-02-2024
Date of Receipt: 04-08-2024
Date of Report: 04-11-2024

ASBESTOS PLM REPORT

Location: 61, Roof Mastic

Lab ID-Version‡: 17611051-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Silver Coating (Trace)	ND
Composite Non-Asbestos Content:	2% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 62, Roof Mastic

Lab ID-Version‡: 17611052-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Silver Coating (Trace)	ND
Composite Non-Asbestos Content:	2% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 63, Roof Mastic

Lab ID-Version‡: 17611053-1

Sample Layers	Asbestos Content
Black Roofing Mastic	ND
Silver Coating (Trace)	ND
Composite Non-Asbestos Content:	2% Cellulose
Sample Composite Homogeneity:	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. The Company reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.
‡ A "Version" indicated by -"x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

CHAIN OF CUSTODY eurofins

Built Environment Testing

www.eurofinsus.com/Built

East: (866) 871-1984
Central: (800) 651-4802
West: (866) 888-6653

WEATHER	Fog	Rain	Snow	Wind	Clear
LEVEL None					
Light					
Moderate					
Heavy					

REQU

003600728

| Non-Culturable | | | | |

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 500034-0

Eurofins EMLab P&K

San Diego, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2024-01-01 through 2024-12-31

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

Eurofins EMLab P&K
9445 Farnham St #103
San Diego, CA 92123
Quynh Nguyen
Phone: 800-651-4802
Email: quynh.nguyen@et.eurofinsus.com
https://www.eurofinsus.com/environment-testing/

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 500034-0

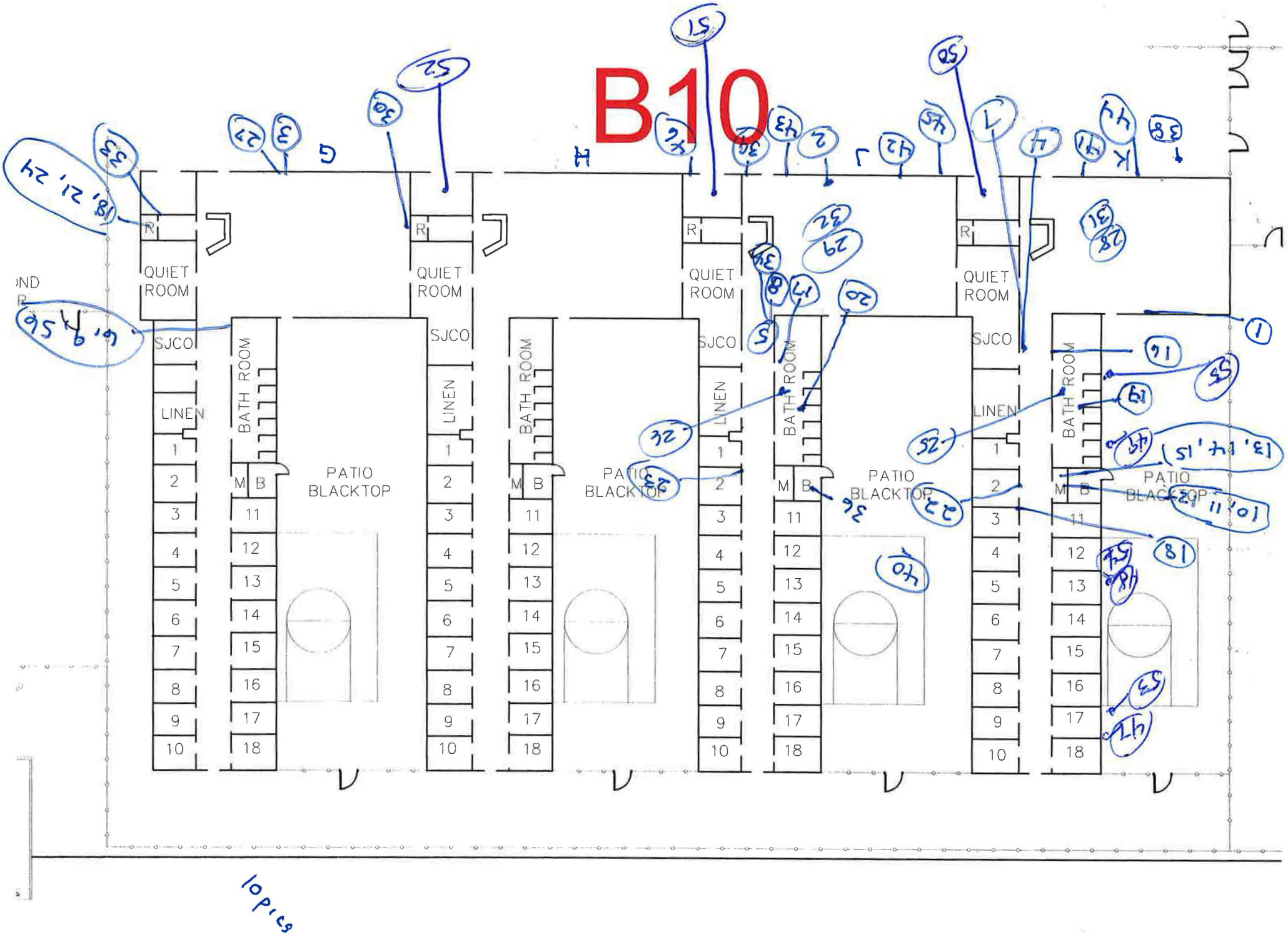
Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

For the National Voluntary Laboratory Accreditation Program

APPENDIX 2

SAMPLE LOCATION MAP
(NOT TO SCALE)


B10
QUIET ROOM
SJCO
LINEN
BATH ROOM
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PATIO BLACKTOP
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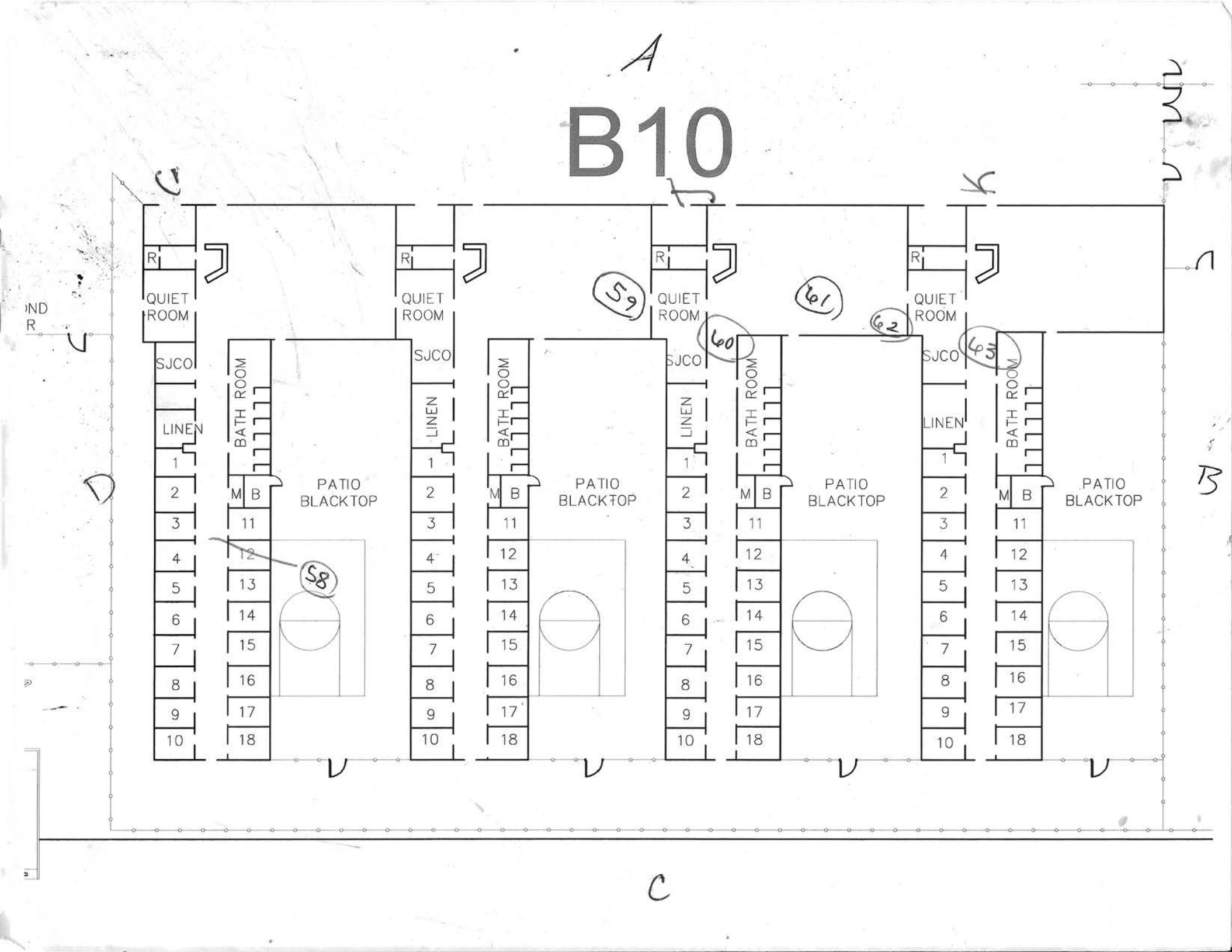
topics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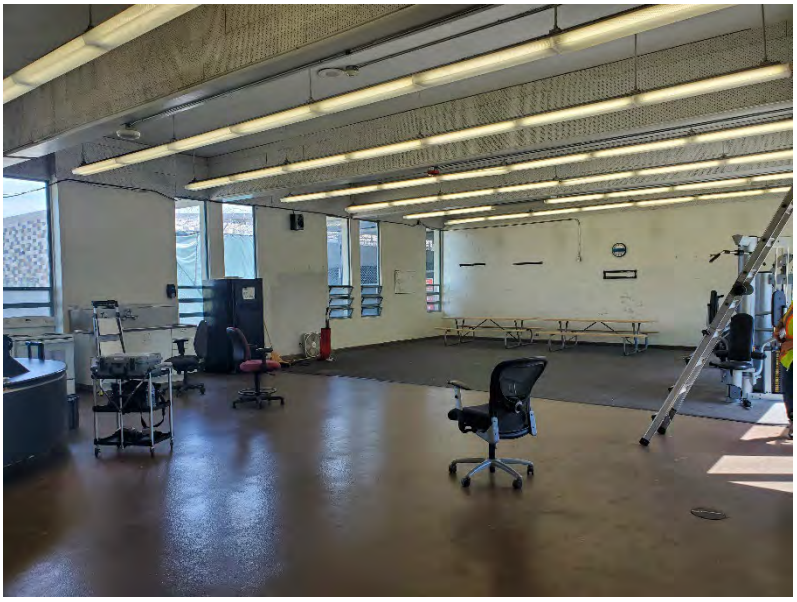
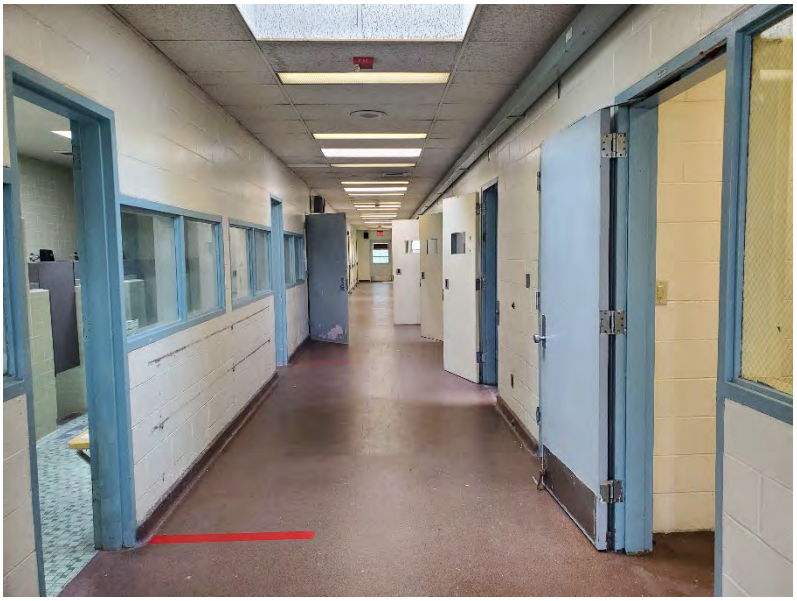
APPENDIX 3

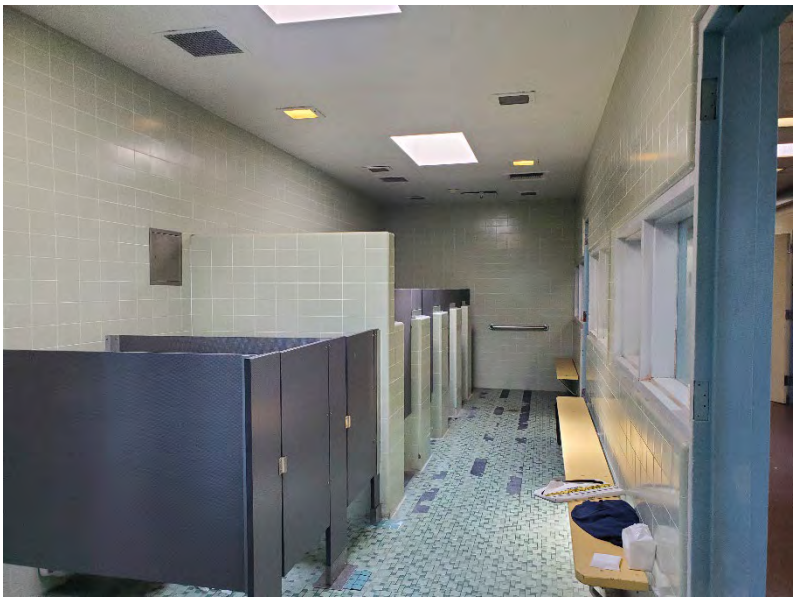
PHOTO DOCUMENTATION



1. Typical view of common room. (12”x12” ceiling tiles, concrete block wall, concrete floor and carpeting)

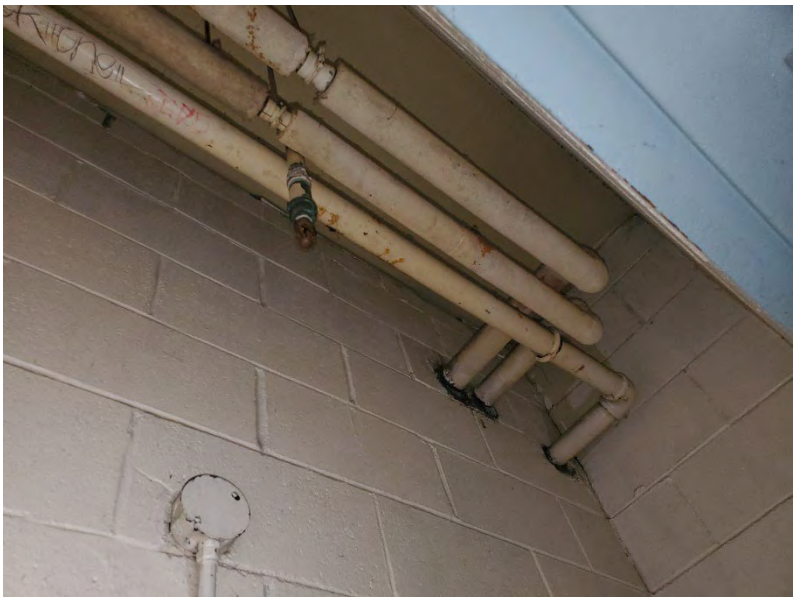


2. Common view of hallway and cells. (2’x4’ fissured ceiling tiles)



3. Typical view of bathrooms. (Ceramic wall and flooring tiles, concrete ceiling)

4. View inside of hallway pipe chassis.



5. Example of fiberglass pipe run with ACM pipe elbows. (Hallway utility closet)

6. Utility closet.

7. Asphalt.

8. Concrete overhang.

APPENDIX 4

INSPECTOR CERTIFICATIONS

California Certified Asbestos Consultant (CAC)

Card Holder: __Michelle Ehresman_____

Certification Number: ___14-5323_ Exp.: _11/19/2024__

Current Employer: _MTGL, Inc._____

Supporting Certifications:

- AHERA Contractor/Supervisor Refresher Certification Exp. 6/24/2024
- AHERA Building Inspector Refresher Certification Exp. 7/27/2024
- AHERA Management Planner Refresher Certification Exp. 7/27/2024
- AHERA Project Designer Refresher Certification Exp. 8/16/2024

MTGL, Inc.
7742 Arjons Drive
San Diego, CA 92126
858-537-3999

Asbestos Training Program

This is to certify

Michelle Ehresman
1656

Has successfully completed 8 hours of formal training
required by section 206 of TSCA II entitled

Contractor/Supervisor
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-04

Class Dates: 06-24-2023
Exam Date: n/a
Expiration Date: 06-24-2024
Certification Number: 0623ABCA167303

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Michelle Ehresman

ABIR0727230010N35227

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

NATEC International, Inc.
National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.
National Association of Training and Environmental Consulting
Asbestos • Lead • Mold • HAZWOPER
PO Box 8657, Fountain Valley, CA 92728
(714) 678-2750, (800) 969-3228, Fax (714) 678-2757
www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Building Inspector Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. ABIR0727230010N35227

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Project Designer Refresher Course

DOSH #:CA-015-10

Michelle Ehresman

APDR0816230004N35415

Norm Kramer
Principal Instructor

Michael W. Horner
Training Director

8/16/2023	8/16/2023	8/16/2023	8/16/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

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Asbestos • Lead • Mold • HAZWOPER

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Project Designer Refresher Course

Expiration: 8/16/2024

Training Date 8/16/2023
Certificate No. APDR0816230004N35415

Michael W. Horner
Training Director

Certificate Of Completion

Asbestos Management Planner Refresher Course

DOSH #:CA-015-08

Michelle Ehresman

AMPR0727230007N35357

David Wallach
Principal Instructor

Michael W. Horner
Training Director

7/27/2023	7/27/2023	7/27/2023	7/27/2024
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC INTERNATIONAL

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National Association of Training and Environmental Consulting
1100 Technology Circle, Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

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Asbestos • Lead • Mold • HAZWOPER

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www.natecintl.com

NATEC International, Inc.
National Association of Training and Environmental Consulting
*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Michelle Ehresman

Holds Training Certification For
Asbestos Management Planner Refresher Course

Expiration: 7/27/2024

Training Date 7/27/2023
Certificate No. AMPR0727230007N35357

Michael W. Horner
Training Director

Darla Beery

AHERA Building Inspector Certification

Asbestos Training Program

This is to certify

Darla Beery
6150

Has successfully completed 4 hours of formal training
required by section 206 of TSCA II entitled

Building Inspector
Refresher

Presented By
Environmental Compliance Training
PO BOX 16555
San Diego, CA. 92176-6555
(858) 558-7465

Director: _____
Walter T. Amenta, CIH, Approval Number CA-029-06

Class Dates: 10-10-2023
Exam Date: n/a
Expiration Date: 10-10-2024
Certification Number: 1023ABCA171101

0

LEAD-BASED PAINT INSPECTION REPORT

Juvenile Hall-Building 10
331 The City Drive, S
Orange, California 92868

Prepared for:

Vanir Construction
4540 Duckhorn Drive, Suite 300
Sacramento, California 95834

Prepared by:

MTGL, Inc.
7742 Arjons Drive
San Diego, California 92126
858-537-3999

Project Number:

SDPE-24-061.1CT

Michelle Ehresman, CAC, LIA/LPM, ICRA
Certification Number: CDPH# 0458/0459

Report Issuance Date: April 27, 2024

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Appendix 2 – Site Drawing

Appendix 3 – Glossary

Appendix 4 – Inspector Certification

Appendix 5 – CDPH 8552 Form

Appendix 6 – Renovate Right

SECTION 1
Introduction

GENERAL INFORMATION

MTGL was retained by Vanir Construction to conduct a lead-based paint inspection at the subject property located at 331 The City Drive in Orange, California 92868. All inspections were in accordance with the guidelines set forth in the U.S. Department of Housing and Urban Development. This document is prepared for the sole use of Vanir Construction and/or any Regulatory or Governmental agencies that may directly become involved with this project.

MTGL's scope of work was limited to the following Client specified locations at the property:

- Building 10 (Single story, wood frame with concrete block on a concrete slab.)
    - Quads G, H, J and K

PURPOSE

The purpose of this inspection is to identify and assess painted components at the subject location above specified regulatory action levels within the Client specified scope of work.

AUTHORIZATION

Authorization to perform the survey was given by Mr. Scott Battles with a notice to proceed via proposal SDPE-24-061.1CT.

PERFORMANCE

All visual inspections and component testing was performed in accordance with Federal, State and local requirements. The inspection was performed by Michelle Ehresman, a California Certified Lead Inspector/Assessor on March 27, 2024.

SECTION 2
Warranty

LEAD-BASED PAINT SURVEY

MTGL, Inc. warrants that the findings contained herein have been prepared with the level of care and skill exercised by experienced and knowledgeable environmental consultants who are appropriately licensed or otherwise trained to perform lead-based paint assessments pursuant to the scope of work required on this project.

MTGL, Inc. warrants that the findings contained herein have been prepared in general accordance with accepted professional practices as applied by similar professionals in the community at the time of its preparation. Changes in the state of the art or in applicable regulations cannot be anticipated and have not been addressed in this report.

The survey included the inspection of accessible materials only. MTGL did not inspect or sample inaccessible areas such as behind walls or within ductwork and did not dismantle any part of the structure to survey inaccessible areas. For the purpose of this warranty, inaccessible is defined as areas of the building that could not be tested (sampled) without destruction of the structure or a portion of the structure. Inaccessible materials that are visible to MTGL inspectors shall be assumed to be lead-based paint coated.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD)

SECTION 3
Methodology

GENERAL REFERENCES

LEAD-BASED PAINT

Lead-based paint testing was conducted in accordance with the Title 17, California Code of Regulations, Division 1, Chapter 8, Accreditation, Certification and Work Practices in Lead-Related Construction, Section 36000 and the United States Department of Housing and Urban Developments *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, Chapter 7 Lead-Based Paint Inspections***,** as published in June 1995 and revised in 1997.

The State of California, HUD and the EPA currently define lead-based paint as paints or other surface coatings, which contain lead equal to or greater than 1.0 milligrams of lead per square centimeter of surface area (mg/cm^2), or equal to or greater than 0.5% by weight.

Lead-based paint testing was conducted using portable x-ray fluorescence (XRF) spectrum analyzer, Model Niton XLP 300, Manufactured by Niton, Inc. The Niton XLP 300 is calibrated to measure the K-shell x-ray emissions of lead. The K-shell is normally used for paint analysis because it measures lead in all layers of paint films, including the lower layers where higher concentrations of lead are usually found. An initial calibration and ending calibration is validated each day with a laminated Lead Paint Standards testing card which is provided by the manufacturer. The card is a direct comparison to the paint standard to NIST kit SRM2579a with a spectrum analyzer. If an instrument does not maintain consistent calibrations after following the manufacturer's recommendation, the unit is removed from the site and sent back to the manufacturer for service.

In the instance where paint chip samples are collected, sample collections are conducted by the requirements of the American Society of Testing and Materials standard E 1729, Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques and HUD Guidelines.

Performance Characteristic Sheet (PCS)

Performance Characteristic Sheets for most XRF models can be found on the U.S. Department of Housing and Urban Developments Office of Healthy Homes and Lead Hazard Control website, specifically HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.(http://www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm).Operating specification and procedures for the XRF used for this survey can be downloaded at the website above. PCS's can also be obtained by calling toll free to the National Lead Information Clearinghouse, at 800-424-LEAD. Persons with hearing or speech impediments may access the above number via TTY by calling the Federal Information Relay Service at 800-887-8339, toll free.

SECTION 4
Summary of Findings

GENERAL SUMMARY

Lead-Based Paint Inspection Results

The purpose of the lead-based paint survey was to evaluate the referenced facility's painted components that may contain lead-based paint. Suspect components identified during the survey included but not limited to the following:

- Interior: Door and Window Components, Wall, Floor and Ceilings
- Exterior: Wall, Windows, and Doors

The following is a summary of lead based painted components identified that contain lead greater than 1.0 $mg/cm^{2\ or\ greater}$ * (Please see attachment I for a detail report of findings.)

- **No lead-based paint greater than 1.0 mg/cm2 was identified on the components tested.**

- **Intact lead containing (>1.0 mg/cm2) green ceramic wall, base tile was identified in the staff bathrooms.**

- **Intact lead containing (>1.0 mg/cm2) green ceramic was identified in the bathrooms.**

- **Deteriorated lead containing (>1.0 mg/cm2) porcelain sinks were identified in the hallway laundry rooms.**

**MTGL, Inc. is not responsible for actual quantity of the material(s). MTGL recommends bidding contractors to calculate quantities for estimated abatement costs. When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.*

No lead-based paint was identified on the accessible components tested, however, lead containing, ceramic walls, base tile and white porcelain sinks were identified and Title 8, CCR Section 1532.1 will apply to minimize a lead dust hazard and work protection during demolition.

When evaluating this report, it is assumed that according to Chapter 7 HUD guidelines, that if one testing combination (i.e. window, door) is positive for lead in an interior or exterior room equivalent, that all other similar testing combinations in those areas are assumed to be positive.

Current EPA and Cal/EPA regulations do not require lead-based paint to be removed prior to demolition, unless found to be loose and peeling. Provided that paints are securely adhered to the substrates, deposal of the debris can be handled in California as non-hazardous and non-RCRA waste, pending characterization of the waste.

Loose and peeling paints or other wastes exceeding the Total Threshold Level Concentration (TTLC) of 1,000 ppm (µg/g) would be required to be disposed of as non-RCRA hazardous waste. However, if the leachable lead contents of the wasted exceed the Soluble Threshold Level Concentrations (STLC) of 5 mg/liter, the wastes must be disposed of as RCRA waste.

Several government agencies have definitions for what amount of lead constitutes paint to be considered "lead-based". The Department of Housing and Urban Development (HUD) has designated the amount to be 1.0 mg/cm^{2,} 0.5% by weight or 5000 ppm (parts per million). The HUD regulations are related to potential hazards in the home environment and not to construction activities. The amount designated for high contact play areas is 400 ppm.

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

EPA's RRP Rule requires anyone (remodeling, renovation and painting contractors and most other trades) who works in pre-1978 housing for compensation and who might disturb painted surfaces to become an EPA Certified Renovator by taking an 8-hour RRP "Lead Safe Work Practices" class from an EPA accredited training provider. The initial certification is good for five (5) years. To "renew" contractors must take a 4-hour RRP Refresher class before their initial certification expires. The RRP rule applies to anyone who works for compensation in pre-1978 housing and/or child-occupied facilities who might disturb painted surfaces, including:

- General contractors
- Demolition workers
- Remodeling contractors
- Maintenance workers in multi-family housing
- Painters, plumbers and most specialty trades.

The RRP rule covers a lot of jobs: renovation, remodeling, painting, window replacement, plumbing, electrical work, heating & air-conditioning, demolition, plus work performed by trades like carpenters, electricians and handymen. The rule also applies to persons working for rental property owners, schools, and day care providers. And, it applies to non-profits and governmental agencies. The RRP Rule requires that "Lead Safe Work Practices" be used when disturbing more than 6 square feet per room or 20 square feet outside.

It shall be noted that California's lead-based paint regulations cover ALL pre-78 structures that have not been tested - not just Target Housing and Child-Occupied Facilities. (Title 17, CCR, Div 1, Ch 8). Since 2003, California law (Title 17) has required that "Lead Safe Work Practices" be used in ALL pre-1978 structures when disturbing any amount of known or "presumed" lead-based paint. Contractors may have taken additional training to meet State of California requirements for Lead-Related Construction and obtain the required California Department of Public Health-Lead Related Construction Certifications for permanent abatement. This certification supplements but does not replace the EPA RRP certification. CDPH State Certified Lead Abatement Supervisors and Workers must also become RRP certified, and abatement firms must also be RRP Certified if they do non-abatement jobs.

Contractors and renovators who work or compensation in pre-1978 housing and/or a child-occupied facility that will disturb painted surfaces greater than 6 square feet per room or 20 square feet outside must give Clients a pamphlet called "Renovate Right" and get a signed receipt before beginning a job. Contractors can call (800) 424-5323 and ask for free copies of "Renovate Right" and the "Small Entity Compliance Guide to Renovate Right" or both can be downloaded as PDF files from the EPA website.

The Consumer Product Safety Commission (CPSC) has defined lead-based paint as surface coatings containing lead concentrations greater than 90 ppm. All children's products, and some furniture, for adult and children, must not contain a concentration of lead greater than 0.009 percent (90 parts per million) in paint or any similar surface coatings. Household paint must also meet this requirement. In 1978, the CPSC banned the sale of lead-based paint to consumers and the use of lead-based paint in residences and public buildings.

Please note that the detection of any amount of lead in a component will trigger numerous requirements from the California Occupations Safety and Health Administration (Cal-OSHA) lead in construction standard (e.g., Title 8, CCR Section 1532.1), even with common tasks such as drywall demolition, manual paint scraping, and manual paint sanding. The employer is required to conduct air sampling to determine the exposure to lead during these tasks and during other tasks that could result in lead exposure. Until actual exposures are determined, workers are required to wear respirators that are appropriate to the task. Detailed requirements are published in the Cal-OSHA standard for lead in construction.

All workers who may be exposed to lead must be trained in the hazards of lead. The results of air sampling are used to determine if workers are exposed to lead above the action level (AL) of 30 micrograms per cubic meter of air or above the permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air, averaged over an 8-hour shift. Exposures above the AL or PEL will trigger additional requirements including engineering controls, proper housekeeping, washing facilities for hand and face washing, additional worker training, respiratory protection, medical monitoring, and additional air sampling. The employer must have a written compliance plan.

SECTION 5
Hazard Control and Abatement Options

Lead Paint

Interim controls which are temporary measures may include the following:

- Paint Film Stabilization: “scrape off the loose and flakey paint and reapply with regular house paint”.
- Friction (places that rub) and Impact (places that are bumped or banged) Surface Treatments (Doors, windows, cabinets, floors, etc): treated by covering the surfaces with an abrasion-resistant material, or by repairing to an intact working condition in order to minimize dust.
- Special Cleaning: reduction of lead hazard by cleaning up visible dust by HEPA vacuuming, washing and HEPA vacuuming again.

Interim controls typically last less than 20 years and will require the reevaluation of components on a periodic basis.

As of April 22, 2010, the EPA passed the Renovator, Repair and Paint Rule (RRP) *(40 CFR Part 745.90)* which states all renovation and painting contractors and other trades who work in pre-1978 housing and who might disturb painted surfaces must become Lead Certified Renovators by taking a one-day course about using "Lead Safe Work Practices" on the job.

Abatement methods which eliminate or put a barrier in front of lead hazards may include the following:

- Encapsulation: covering lead paint with a special liquid or thick coating (not regular paint). Works well on surfaces that are in good condition and should not be used on friction or impact surfaces.
- Enclosure: covering lead paint with a solid, dust-tight barrier that is usually mechanically attached (sheetrock, paneling, drywall).
- Replacement: removal of lead covered components (doors, windows, molding) and replacing with lead free components.
- Removal: recommended when other options may not be feasible; removal of lead paint by means of heat guns, scraping and sanding, power tools, chemical stripping and/or use of abrasives and hydro blasting.

Abatement controls typically last more than 20 years. Abatement methods that will result in the smallest amount of dust generated are preferred. Workers who partake in the above abatement methods should be California State Certified Lead Supervisors and Workers. Clearance sampling after abatement must be conducted by a certified lead-based paint inspector

Lead Safe Work Practice Requirements for Maintenance, Renovation or Remodeling

Lead-based paint, deteriorated paint or lead-based hazards require lead safe work practices. These practices are necessary for regular lead based paint hazard controls, repair, remodeling, renovation or other work activities that may disturb lead based paint above HUD's de minimis levels. HUD describes de minimus levels as follows:

- 20 square feet on exterior surfaces
- 2 square feet in any one interior room or space
- 10% of a type of building component with a small surface area (such as painted windowsills) on interior or exterior surfaces

Workers who may disturb lead-based paint above the de minimis level during repair, renovation or maintenance activities or any other work efforts that disturbs a known or assumed lead-based paint above HUD's de minimis shall be trained in lead safe work practices.

Firms providing abatement services must be certified as an abatement firm by the EPA or the State. Workers conducting abatement must be trained and certified as abatement workers by a training provider accredited by the EPA or State.

SECTION 6
DISCLOSURE

A copy of this summary must be provided to new lessees (tenants) and purchasers of this property under Federal Law (24 CFR part 35 and 40 CFR part 745) before they become obligated under a lease or sales contract. The complete report must also be provided to new purchasers and it must be made available to new tenants. Landlords (lessors) and sellers are also required to distribute an educational pamphlet and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from lead-based paint hazards.

It is the owner's legal obligation to disclose the inspection results to tenants and/or purchasers before obligation under 24 CFR part 35 and 40 CFR part 745 (published in the Federal Register, Volume 61, Number 45, March 6, 1996, starting on P. 9064; copies of the regulations and related materials can be obtained from the National Lead Information Center Clearinghouse, (1-800-424-LEAD).

SECTION 7
Appendices

Appendix 1

XRF Data Sheet

and

Performance Characteristic Sheet (PCS)

Lead Based Paint XRF Data Sheet -Positive Locations

Project: Vanir- Juvenile Hall-Building 10, 331 The City Drive, Orange, CA 92868

Inspection Date: March 27, 2024

(EPA Regulated Lead-Based Paint= 1.0 mg/cm²)
(County of Los Angeles= 0.7mg/cm²)
(<LOD= Below Limit of Detection)

Sample #	Unit	Side	Location	Test Location	Component		Paint Condition	Substrate	Color	XRF Reading (mg/cm2)	Classification (pos, neg, inc.)
					Structure	Member					
1			Calibration						Red NIST	0.9	
2			Calibration						Red NIST	1.0	
3			Calibration						Red NIST	1.0	
4	10-K	D	Restrooms	Wall	Tile		Intact	Ceramic	Green	6.3	Positive
5	10-K	B	Laundry	Wall	Sink		Poor	Porcelain	White	9.3	Positive
6	10-K	D	Staff RR	Wall	Tile		Intact	Ceramic	Green	5.0	Positive
7	10-J	D	Restrooms	Wall	Tile		Intact	Ceramic	Green	4.9	Positive
8	10-J	B	Laundry	Wall	Sink		Poor	Porcelain	White	7.1	Positive
9	10-J	D	Staff RR	Wall	Tile		Intact	Ceramic	Green	6.3	Positive
10	10-G	D	Staff RR	Wall	Tile		Intact	Ceramic	Green	6.5	Positive
11	10-G	D	Restrooms	Wall	Tile		Intact	Ceramic	Green	7.4	Positive
12	10-G	B	Laundry	Wall	Sink		Poor	Porcelain	White	40	Positive
13	10-H	D	Restrooms	Wall	Tile		Intact	Ceramic	Green	4.9	Positive
14	10-H	B	Laundry	Wall	Sink		Poor	Porcelain	White	7.1	Positive
15	10-H	D	Staff RR	Wall	Tile		Intact	Ceramic	Green	6.3	Positive
			Calibration						Red NIST	1.0	

Performance Characteristic Sheet

EFFECTIVE DATE: **September 24, 2004** **EDITION NO.: 1**

MANUFACTURER AND MODEL:

Make: *Niton LLC*

Tested Model: *XLp 300*

Source: ^{109}Cd

Note: This PCS is also applicable to the equivalent model variations indicated below, for the Lead-in-Paint K+L variable reading time mode, in the XLi and XLp series:

XLi 300A, XLi 301A, XLi 302A and XLi 303A.

XLp 300A, XLp 301A, XLp 302A and XLp 303A.

XLi 700A, XLi 701A, XLi 702A and XLi 703A.

XLp 700A, XLp 701A, XLp 702A, and XLp 703A.

Note: The XLi and XLp versions refer to the shape of the handle part of the instrument. The differences in the model numbers reflect other modes available, in addition to Lead-in-Paint modes. The manufacturer states that specifications for these instruments are identical for the source, detector, and detector electronics relative to the Lead-in-Paint mode.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Lead-in-Paint K+L variable reading time mode.

XRF CALIBRATION CHECK LIMITS:

0.8 to 1.2 mg/cm^2 (inclusive)

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm^2 in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm^2 film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION:

For XRF results using Lead-in-Paint K+L variable reading time mode, substrate correction is <u>not</u> needed for:

Brick, Concrete, Drywall, Metal, Plaster, and Wood

INCONCLUSIVE RANGE OR THRESHOLD:

K+L MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm^2)
Results not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted in August 2004 on 133 testing combinations. The instruments that were used to perform the testing had new sources; one instrument's was installed in November 2003 with 40 mCi initial strength, and the other's was installed June 2004 with 40 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

SUBSTRATE CORRECTION VALUE COMPUTATION:

Substrate correction is not needed for brick, concrete, drywall, metal, plaster or wood when using Lead-in-Paint K+L variable reading time mode, the normal operating mode for these instruments. If substrate correction is desired, refer to Chapter 7 of the HUD Guidelines for guidance on correcting XRF results for substrate bias.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use the K+L variable time mode readings.

Conduct XRF retesting at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family housing a result is defined as the average of three readings. In multifamily housing, a result is a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

TESTING TIMES:

For the Lead-in-Paint K+L variable reading time mode, the instrument continues to read until it is moved away from the testing surface, terminated by the user, or the instrument software indicates the reading is complete. The following table provides testing time information for this testing mode. The times have been adjusted for source decay, normalized to the initial source strengths as noted above. Source strength and type of substrate will affect actual testing times. At the time of testing, the instruments had source strengths of 26.6 and 36.6 mCi.

Testing Times Using K+L Reading Mode (Seconds)

	All Data			Median for laboratory-measured lead levels (mg/cm^2)		
Substrate	25^{th} Percentile	Median	75^{th} Percentile	Pb < 0.25	0.25 ≤ Pb<1.0	1.0 ≤ Pb
Wood Drywall	4	11	19	11	15	11
Metal	4	12	18	9	12	14
Brick Concrete Plaster	8	16	22	15	18	16

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than or equal to the threshold, and negative if they are less than the threshold.

DOCUMENTATION:

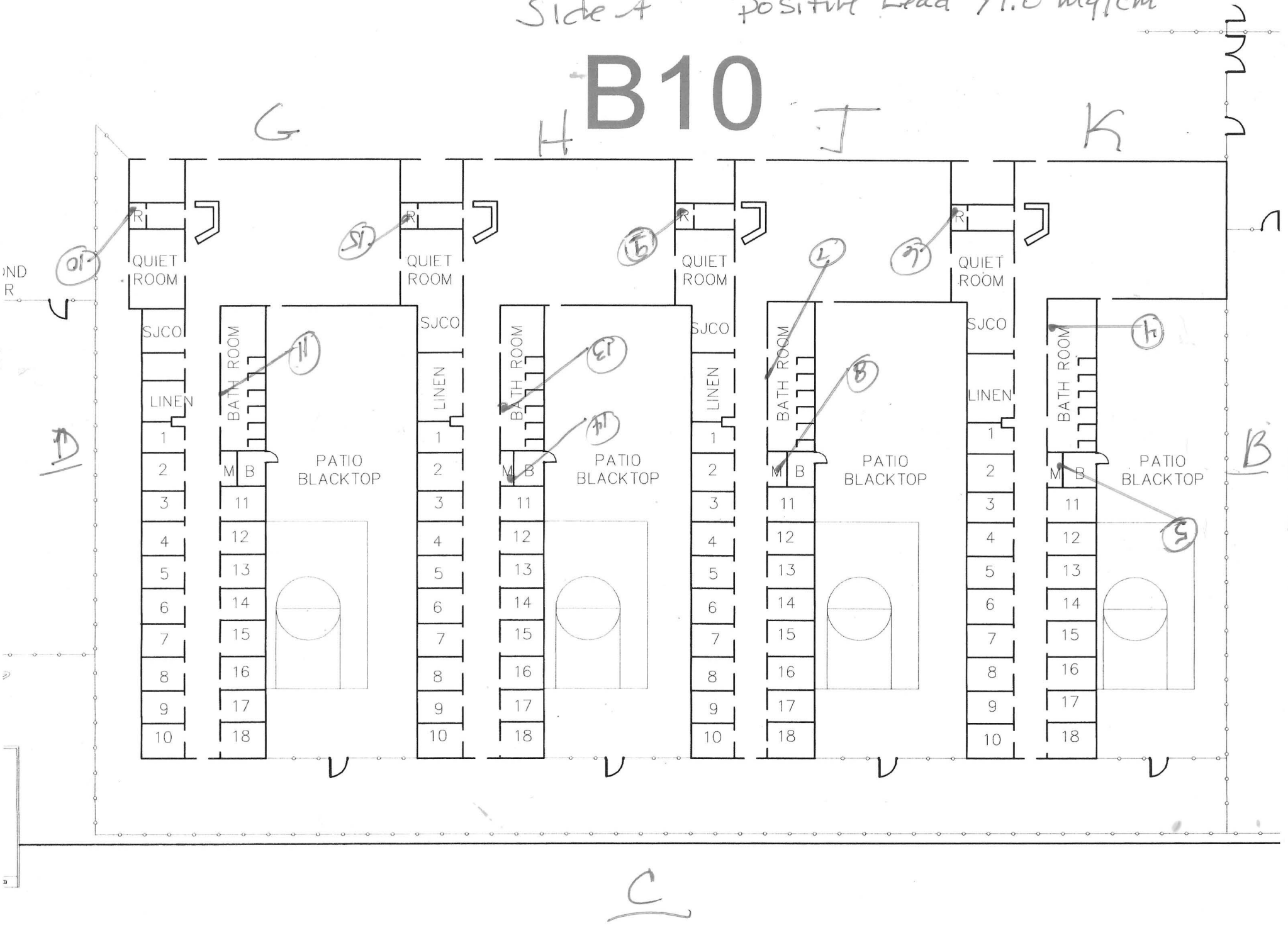
A document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD.

This XRF Performance Characteristic Sheet was developed by the Midwest Research Institute (MRI) and QuanTech, Inc., under a contract between MRI and the XRF manufacturer. HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

APPENDIX 2

SITE DRAWING

Side A Positive Lead > 1.0 mg/cm²



Appendix 3

Glossary

Glossary

AALA: American Association for Laboratory Accreditation. Also known as A2LA.

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, monitoring. See also Complete abatement and Interim controls.

Abrasion resistance: Resistance of the paint to wear by rubbing or friction; related to both toughness and gloss.

Accessible surface: Any protruding interior or exterior surface, such as an interior window sill, that a young child can mouth or chew.

Accreditation: A formal recognition that an organization, such as a laboratory, is competent to carry out specific tasks or types of tests.

Accredited laboratory: A laboratory that has been evaluated and approved by the National Lead Laboratory Accreditation Program (NLLAP), to perform lead measurement or analysis, usually over a specified period of time.

Accredited training provider: A training provider who meets the standards established by EPA for the training of risk assessors, inspectors, lead-based paint hazard control contractors, and workers.

Accuracy: The degree of agreement between an observed value and an accepted reference value (a "true" value); a data quality indicator. Accuracy includes a combination of random errors (precision) and systematic errors (bias) due to sampling and analysis.

Acrylic: A synthetic resin used in high-performance waterborne coatings; a coating whose binder contains acrylic resins.

Adhesion: The ability of dry paint or other coating to attach to a surface and remain fixed on it without blistering, flaking, cracking, or being susceptible to removal by tape.

Administrative removal: The temporary removal of workers from the job to prevent the concentration of lead in their blood from reaching levels requiring medical removal.

AIHA: American Industrial Hygiene Association.

ALC: See Apparent Lead Concentration.

Aliquot: See Subsample.

Alkali: A chemical, such as lye, soda, lime, etc., that will neutralize an acid. Oil paint films can be destroyed by alkalies. Some paint removal products contain alkaline substances.

Alkyd: Synthetic resin modified with oil; coating that contains alkyd resins in the binder.

Apparent Lead Concentration (ALC): The x-ray fluorescence (XRF) reading or average of more than one reading on a *painted* surface. See also XRF analyzer, Substrate Equivalent Lead (SEL), and Corrected Lead Concentration (CLC).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Bias: A systematic error in the measurement process. For XRF readings, one source of bias is the substrate effect. See also Substrate effect and XRF analyzer.

Biennial report (for hazardous waste): A report (EPA Form 8700–13A) submitted by generators of hazardous waste to the EPA Regional Administrator. The report is due on March 1 of even-numbered years. The report includes information on the generator's activities during the previous calendar year. The owners and operators of treatment, storage, and disposal facilities must also prepare and submit biennial reports using EPA Form 8700–1313.

Binder: Solid ingredients in a coating that hold the pigment particles in suspension and bind them to the substrate. Binders used in paints and coatings include oil, alkyd, acrylic, latex, and epoxy. The nature and amount of binder determines many of the coating's performance properties—washability, toughness, adhesion, gloss, etc. See also Pigment.

Biological monitoring: The analysis of blood, urine, or both to determine the level of lead contamination in the body. Blood lead levels are expressed in micrograms of lead per deciliter (one-tenth of a liter) of blood, or μg/dL. They are also expressed in micromoles per liter (μmol/L).

Blank: A nonexposed sample of the medium being used for testing (i.e., wipe or filter) that is analyzed to determine if the medium has been contaminated with lead (e.g., at the factory or during transport).

Blind sample: A subsample submitted for analysis with a composition and identity known to the submitter but not to the analyst; used to test the analyst's or laboratory's proficiency in conducting measurements. See also Spiked sample.

Blood lead threshold: Any blood lead level greater than or equal to 10 μg/dL as defined by the Centers for Disease Control and Prevention. See also Elevated Blood Lead level (EBL) child.

Building component: Any element of a building that may be painted or have dust on its surface, e.g. walls, stair treads, floors, railings, doors, window sills, etc.

Building component replacement: See Replacement.

Cementitious material: A material that is mixed with water, either with or without aggregate, to provide the plasticity, cohesion, and adhesion necessary for the placement and formation of a rigid mass (ASTM Standard C 11).

Centimeter: See cm.

Certification: The process of testing and evaluating against certain specifications the competence of a person, organization, or other entity in performing a function or service, usually for a specified period of time.

Certified: The designation for contractors who have completed training and other requirements to allow them to safely undertake risk assessments, inspections, or abatement work. Risk assessors, inspectors, and abatement contractors should be certified by the appropriate local, State or Federal agency.

Certified Industrial Hygienist (CIH): A person who has passed the 2-day certification exam of the American Board of Industrial Hygiene, and who has at least 4 years of experience in industrial hygiene and a graduate degree or a total of 5 years of experience. See also Industrial hygienist.

Certified reference material (CRM): Reference material that has at least one of its property values established by a technically valid procedure and is accompanied by or traceable to a certificate or other documentation issued by a certifying body. See also Standard reference material.

CFR: See Code of Federal Regulations.

Chalking: The photo-oxidation of paint binders—usually due to weathering—that causes a powder to form on the film surface.

Characteristics (of hazardous waste): EPA has identified four characteristics of hazardous waste: ignitability, corrosivity, reactivity, and toxicity (as determined by the TCLP test). Any solid waste that exhibits at least one of these characteristics may be classified as hazardous under the Resource Conservation and Recovery Act (RCRA), depending on how the waste is produced and what quantities are generated. See also Toxicity Characteristic Leaching Procedure (TCLP).

Chewable surface: See Chewed surface and Accessible surface.

Chewed surface: Any painted surface that shows evidence of having been chewed or mouthed by a young child. A chewed surface is usually a protruding, horizontal part of a building, such as an interior window sill. See also Accessible surface.

CLC: See Corrected Lead Concentration (CLC).

Cleaning: The process of using a HEPA vacuum and wet cleaning agents to remove leaded dust; the process includes the removal of bulk debris from the work area. OSHA prohibits the use of compressed air to clean lead-contaminated dust from a surface.

Clearance examination: Visual examination and collection of environmental samples by an inspector or risk assessor and analysis by an accredited laboratory upon completion of an abatement project, interim control intervention, or maintenance job that disturbs lead-based paint (or paint suspected of being lead-based). The clearance examination is performed to ensure that lead exposure levels do not exceed standards established by the EPA Administrator pursuant to Title IV of the Toxic Substances Control Act, and that any cleaning following such work adequately meets those standards.

Clearance examiner: A person who conducts clearance examinations following lead-based paint hazard control and cleanup work, usually a certified risk assessor or a certified inspector.

cm: Centimeter; 1/100 of a meter.

Code of Federal Regulations (CFR): The codification of the regulations of Federal agencies. The regulations are published in the *Federal Register*. See also *Federal Register* (FR).

Cohesion: Ability of a substance to adhere to itself; internal adhesion; the force holding a substance together.

Common area: A room or area that is accessible to all residents in a community (e.g., hallways or lobbies); in general, any area not kept locked.

Competent person: As defined in the OSHA Lead Construction Standard (29 CFR 1926.62), a person who is capable of identifying or predicting hazardous working conditions and work areas, and who has authorization to take prompt, corrective measures to eliminate the hazards. A competent person is not necessarily a risk assessor, inspector, or abatement project supervisor.

Complete abatement: Abatement of all lead-based paint inside and outside a dwelling or building and reduction of any lead-contaminated dust or soil hazards. All of these strategies require preparation; cleanup; waste disposal; postabatement clearance testing; recordkeeping; and, if applicable, reevaluation and on-going monitoring. See also Abatement.

Compliance plan: A document that describes the types of tasks, workers, protective measures, and tools and other materials that may be employed in lead-based paint hazard control to comply with the OSHA Lead Exposure in Construction standard.

Composite sample: A single sample made up of individual subsamples. Analysis of a composite sample produces the arithmetic mean of all subsamples.

Containment: A process to protect workers and the environment by controlling exposures to the lead-contaminated dust and debris created during abatement. See Worksite preparation level.

Contingency plan: A document that describes an organized, planned, and coordinated course of action to be taken during any event that threatens human health or the environment, such as a fire, explosion, or the release of hazardous waste or its constituents from a treatment, storage, or disposal facility.

Corrected Lead Concentration (CLC): The absolute difference between the Apparent Lead Concentration and the Substrate Equivalent Lead. See also Apparent Lead Concentration (ALC) and Substrate Equivalent Lead (SEL).

Detection limit: The minimum amount of a substance that can be reliably measured by a particular method.

Deteriorated lead-based paint: Any lead-based paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligatoring, cracking, or otherwise becoming separated from the substrate.

Digestion blank: A mixture of the reagents used for digesting of paint, soil, or dust matrixes but without the matrix. The blank undergoes all the steps of the analysis, starting with digestion. The blank is used to evaluate the contamination process from a laboratory.

Direct-reading XRF: An analyzer that provides the operator with a display of lead concentrations calculated from the lead K x ray intensity without a graphic of the spectrum usually in mg/cm^2 (milligrams of lead per square centimeter of painted surface area). See also XRF analyzer.

Disposal (of hazardous waste): The discharge, deposit, injection, dumping, spilling, leaking, or placement of solid or hazardous waste on land or in water so that none of its constituents can pollute the environment by being emitted into the air or discharged into a body of water, including groundwater.

Disposal facility: A facility or part of one in which hazardous waste is placed on land or in water to remain there after the facility closes.

Door mat: See Walk-off mat.

Dust removal: A form of interim control that involves initial cleaning followed by periodic monitoring and recleaning, as needed. Depending on the severity of lead-based paint hazards, dust removal may be the primary activity or just one element of a broader control effort.

Dust trap: A surface, component, or furnishing that serves as a reservoir where dust can accumulate.

EBL child: See Elevated Blood Lead level (EBL) child.

Efflorescence: The salt rising to the surface of a material, such as masonry, plaster, or cement, caused by the movement of water through the material. Paint or encapsulants may not adhere to a surface contaminated with efflorescence.

Elastomeric: A group of pliable, elastic liquid encapsulant coatings. An elastomer is a macromolecular material which, at room temperature, is capable of substantially recovering its size and shape after the force causing its deformation is removed (see ASTM D 907, D-14).

Elevated Blood Lead level (EBL) child: A child who has a blood lead level greater than or equal to 20 μg/dL or a persistent 15 μg/dL. See also Blood lead threshold.

Encapsulation: Any covering or coating that acts as a barrier between lead-based paint and the environment, the durability of which relies on adhesion and the integrity of the existing bonds between multiple layers of paint and between the paint and the substrate. See also Enclosure.

Enclosure: The use of rigid, durable construction materials that are mechanically fastened to the substrate to act as a barrier between the lead-based paint and the environment.

Engineering controls: Measures other than respiratory protection or administrative controls that are implemented at the work site to contain, control, and/or otherwise reduce exposure to lead-contaminated dust and debris usually in the occupational health setting. The measures include process and product substitution, isolation, and ventilation.

Epoxy paint: Paint based on an epoxy resin. An epoxy resin is a cross-linking resin the reactivity of which depends on the epoxide group.

Evaluation: Risk assessment, paint inspection, reevaluation, investigation, clearance examination, or risk assessment screen.

Examination: See Clearance examination.

Examiner: A person certified to conduct clearance examinations or reevaluations, usually a certified inspector or certified risk assessor.

Exposure monitoring: The sampling and analysis of air both inside and outside the work area to determine the degree of worker and resident exposure to lead or other airborne contaminants, often involving air sampling inside a worker's breathing zone.

Exterior work area: For lead hazard control work, the exterior work area includes any exterior building components, such as a porch or stairway; the safety perimeter; and access barriers.

Facility (pertaining to hazardous waste): All buildings, contiguous land, structures, and other appurtenances, as well as any improvements, where lead-based paint or hazardous waste is treated, stored, or disposed. A facility may consist of several different treatment, storage, or disposal units, such as landfills and surface impoundments.

Federal Register (FR): A daily Federal publication that contains proposed and final regulations, rules, and notices.

Fibermat: A semirigid woven material attached with a liquid adhesive to a surface or substrate.

Field blank: A clean sample of the matrix (e.g., filter, or wipe) that has been exposed to the sampling conditions; returned to the laboratory; and analyzed as an environmental sample. Clean quartz sand, air sampling filters and cassettes, and clean wipes can be used as field blanks. The field blank, which should be treated just like the sample, indicates possible sources of contamination.

FR: See *Federal Register (FR)*.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Generator: Any person whose act or operation produces hazardous waste identified or listed in 40 CFR Part 261 or whose act causes a hazardous waste to come under regulation (40 CFR 260.10).

Generator identification number: The unique number assigned by EPA to each generator; transporter of hazardous waste; and treatment, storage, or disposal facility.

Hazardous waste: As defined in EPA regulations (40 CFR 261.3), *hazardous waste* is solid waste or a combination of solid wastes that because of its quantity; concentration; or physical, chemical, or infectious characteristics may cause or significantly contribute to increases in mortality, serious and irreversible or incapacitating but reversible illnesses, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed. As defined in the regulations, solid waste is hazardous if it meets one of four conditions: (1) exhibits a characteristic of hazardous waste (40 CFR Sections 261.20 through 262.24); (2) has been listed as hazardous (40 CFR Section 261.31 through 261.33); (3) is a mixture containing a listed hazardous waste combined with a nonhazardous solid waste, unless the mixture is specifically excluded or no longer exhibits any of the characteristics of hazardous waste; and (4) is not excluded from regulation as hazardous waste. For lead-based paint abatement

waste, hazardous waste is waste that contains more than 5 ppm of leachable lead as determined by the TCLP test, or is waste that is corrosive, ignitable, or reactive and not otherwise excluded.

Hazardous Waste Manifest: See Manifest.

Heat gun: A device capable of heating lead-based paint causing it to separate from the substrate. For lead hazard control work, the heat stream leaving the gun should not exceed 1,100 °F (some authorities may use a different temperature).

HEPA filter: See High-Efficiency Particulate Air (HEPA) filter.

HEPA/wet wash/HEPA cycle: The cleaning cycle that begins with HEPA vacuuming, followed by a wet wash with a lead-specific cleaning agent, such as trisodium phosphate detergent or another liquid cleaning agent, followed by a final pass with a HEPA vacuum over the surface.

High-Efficiency Particulate Air (HEPA) filter: A filter capable of removing particles of 0.3 microns or larger from air at 99.97 percent or greater efficiency.

High phosphate detergent: See Trisodium phosphate (TSP) detergent.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Incinerator: An enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

Industrial hygienist: A person having a college or university degree in engineering, chemistry, physics, medicine, or a related physical or biological science who, by virtue of special training, is qualified to anticipate, recognize, evaluate, and control environmental and occupational health hazards and the impact of those hazards on the community and workers.

In-place management: See Interim controls.

Inspection (of paint): A surface-by-surface investigation to determine the presence of lead-based paint (in some cases including dust and soil sampling) and a report of the results.

Inspector: An individual who has completed training from an accredited program and been licensed or certified by the appropriate State or local agency to (1) perform inspections to determine and report the presence of lead-based paint on a surface-by-surface basis through onsite testing, (2) report the findings of such an inspection, (3) collect environmental samples for laboratory analysis, (4) perform clearance testing, and (5) document successful compliance with lead-based paint hazard control requirements or standards.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include specialized cleaning, repairs, maintenance, painting, temporary containment, and management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land-use controls. See also Monitoring, Reevaluation, and Abatement.

Interior window sill: The portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed; often called the window stool.

Investigation (pertaining to EBL case): The process of determining the source of lead exposure for a child or other resident with an elevated blood lead level. Investigation consists of administration of a questionnaire, comprehensive environmental sampling, case management, and other measures.

Investigator: A person who conducts an investigation of a dwelling where a resident has an elevated blood lead level. The investigator must be proficient in interviewing techniques, environmental sampling, and the interpretation of risk assessment and environmental sampling data.

Laboratory analysis: A determination of the lead content by atomic absorption spectroscopy, inductively coupled plasma emission spectroscopy, or laboratory-based K or L x-ray fluorescence, or an equivalent method.

Landfill: A State-licensed or State-permitted disposal facility that meets municipal solid waste standards (see Federal regulations at 40 CFR 258).

Landfill liner: A continuous layer of natural or synthetic materials placed beneath and sometimes around a surface impoundment, landfill, or landfill cell. The layer restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR Part 258).

Latex: A waterborne emulsion paint made with synthetic binders, such as 100-percent acrylic, vinyl acrylic, terpolymer, or styrene acrylic; a stable emulsion of polymers and pigment in water.

Lead: Lead includes metallic lead and inorganic and organic compounds of lead.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm^2 as measured by XRF or laboratory analysis, or 0.5 percent by weight (5,000 μg/g, 5,000 ppm, or 5,000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA Administrator under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include for example, deteriorated lead-based paint, leaded dust levels above applicable standards, and bare leaded soil above applicable standards.

Lead-based paint hazard control: Activities to control and eliminate lead-based paint hazards, including interim controls, abatement, and complete abatement.

Lead-based paint abatement planner/designer: An individual who has completed an accredited training program on planning and designing lead-based paint abatement projects.

Lead-based paint abatement worker: See Worker.

Lead carbonate: A pigment used in some lead-based paints as a hiding agent; also known as white lead.

Lead-contaminated dust: Surface dust in residences that contains an area or mass concentration of lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. Until the EPA standards are set, the HUD-recommended clearance and risk assessment standards for leaded dust are 100 $\mu g/ft^2$ on floors, 500 $\mu g/ft^2$ on interior window sills, and 800 $\mu g/ft^2$ on window troughs. The recommended standard for lead hazard screens for floors is 50 $\mu g/ft^2$ and for window troughs is 400 $\mu g/ft^2$.

Lead-contaminated soil: Bare soil on residential property that contains lead in excess of the standard established by the EPA Administrator, pursuant to Title IV of the Toxic Substances Control Act. The HUD-recommended standard and interim EPA guidance is 400 μg/g for high-contact play areas and 2,000 μg/g in other bare areas of the yard. Soil contaminated with lead at levels greater than or equal to 5,000 μg/g should be abated by removal or paving.

Lead-free dwelling: A lead-free dwelling contains no lead-based paint and has interior dust and exterior soil lead levels below the applicable HUD and EPA standards.

Lead hazard screen: A means of determining whether residences in good condition should have a full risk assessment. Also called a risk assessment screen.

Lead-poisoned child: A child with a single blood lead level that is greater than or equal to 20 μg/dL or consecutive blood lead levels greater than or equal to 15 μg/dL. Local definitions may vary.

Lead-specific detergent: A cleaning agent manufactured specifically for cleaning and removing leaded dust or other lead contamination.

Leaded dust: See Lead-contaminated dust.

Leaded zinc: A paint primer made from zinc oxide and lead sulfates.

Licensed: Holding a valid license or certification issued by EPA or by an EPA-approved State program pursuant to Title IV of the Toxic Substances Control Act. The license is based on certification for lead-based paint hazard control work. See also Certified.

Listed waste: A hazardous waste that has been placed on one of three lists developed by EPA: nonspecific source wastes, specific source wastes, and commercial chemical products. The lists were developed by examining different types of waste and chemical products to determine if they exhibited one of the four characteristics of hazardous waste (toxicity, corrosivity, ignitability, or reactivity), met the statutory definition of hazardous waste, were acutely toxic or acutely hazardous, or were otherwise toxic.

Maintenance: Work intended to maintain adequate living conditions in a dwelling, which has the potential to disturb lead-based paint or paint that is suspected of being lead-based.

Manifest: The shipping document (EPA Form 8700–22 or a comparable form required by the State or locality) used for identifying the quantity, composition, origin, routing, and destination of hazardous waste during its transport from the point of generation to the point of treatment, storage, or disposal. Also, a shipping document used to keep track of items being transported. All hazardous waste must be accompanied by a manifest. See Hazardous waste.

Mat: See Walk-off mat.

Matrix blank: A sample of the matrix (paint chips, soil, or dust) that does not contain the analyte lead. This sample goes through the complete analysis, including digestion.

MDL: See Method detection limit (MDL).

Mean: The arithmetic average of a series of numerical data values; for example, the algebraic sum of the data values divided by the number of data values.

Medical removal: The temporary removal of workers from the job because of the occurrence of elevated blood lead levels as defined in the OSHA Lead Exposure in Construction standard (29 CFR 1926.62).

Method blank: See Digestion blank.

Method detection limit (MDL): The minimum concentration of an analyte that, for a given matrix and method, has a 99-percent probability of being identified, qualitatively or quantitatively measured, and reported to be greater than zero.

mg: Milligram; 1/1,000 of a gram.

Microgram: See μg.

Mil: 1/1,000 of an inch; used to measure thickness.

Milligram: See mg.

Monitoring: Surveillance to determine (1) that known or suspected lead-based paint is not deteriorating, (2) that lead-based paint hazard controls, such as paint stabilization, enclosure, or encapsulation have not failed, (3) that structural problems do not threaten the integrity of hazard controls or of known or suspected

lead-based paint, and (4) that dust lead levels have not risen above applicable standards. There are two types of monitoring activities; visual surveys by property owners and reevaluations by certified risk assessors. Visual surveys are generally conducted annually for the purpose of making the first three determinations listed above. Reevaluations are conducted in accordance with the Standard Reevaluation Schedule (or more frequently, if needed) for the purpose of making all four determinations. Monitoring is not required in properties known to be free of lead-based paint. See also Reevaluation and Standard reevaluation schedule.

Monofil: A State-approved landfill that accepts only construction debris.

Mouthable surface: See Chewed surface.

Multifamily housing: Housing that contains more than one dwelling unit per location.

NLLAP requirements: Requirements, specified by the EPA National Lead Laboratory Accreditation Program (NLLAP), for accreditation for the lead analysis of paint, soil, and dust matrixes by an EPA-recognized laboratory accreditation organization.

Offsite paint removal: The process of removing a component from a building and stripping the paint from the component at an offsite paint-stripping facility.

Ongoing monitoring: See Monitoring.

Owner: A person, firm, corporation, guardian, conservator, receiver, trustee, executor, government agency or entity, or other judicial officer who, alone or with others, owns, holds, or controls the freehold or leasehold title or part of the title to property, with or without actually possessing it. This definition includes a vendee who possesses the title, but does not include a mortgagee or an owner of a reversionary interest under a ground rent lease.

Oxidation: A chemical reaction that occurs upon exposure to oxygen. Some coatings cure by oxidation; oxygen enters the liquid coating and crosslinks (attaches) the resin molecules. This film-forming method is also called "air cure" or "air dry." Oxidation also causes rust to form on metals and paint to chalk.

Paint film stabilization: The process of wet scraping, priming, and repainting surfaces coated with deteriorated lead-based paint; paint film stabilization includes cleanup and clearance.

Paint removal: An abatement strategy that entails the removal of lead-based paint from surfaces. For lead hazard control work, this can mean using chemicals, heat guns below 1,100 °F, and certain *contained* abrasive methods. Open flame burning, open abrasive blasting, sandblasting, water blasting, and extensive dry scraping are prohibited paint removal methods. (Methylene chloride paint removers and dry scraping are also not recommended.)

Patch test: A test method or procedure to assess the adhesion of an encapsulant coating to a substrate covered with a layer or layers of lead-based paint.

Personal breathing zone samples: Air samples collected from the breathing zone of a worker (within a 1-foot radius of the worker's mouth) but outside the respirator. The samples are collected with a personal sampling pump operating at 2 liters per minute, drawing air through a 37 mm mixed cellulose ester filter housed in a closed-face cassette with a pore size of 0.8 microns. See Exposure monitoring.

Personal Protective Equipment (PPE): Equipment for protecting the eyes, face, head, and/or extremities; includes protective clothing, respiratory devices, and protective shields; used when hazards capable of causing bodily injury or impairment are encountered.

PHA: See Public Housing Agency (PHA).

Pigment: Insoluble, finely ground materials that give paint its properties of color and hide.

Pigment Volume Concentration (PVC): Pigment volume as a percentage of the total nonvolatile ingredients.

Pilot project: In multifamily housing, the testing of a lead-based paint hazard control strategy on a limited number of dwellings, usually those that are vacant, to determine the feasibility of carrying out such a strategy in the entire multifamily housing development; usually involves paint testing, air sampling, wipe sampling, worksite preparation, and a variety of lead-based paint hazard control treatments.

Plastic: See Polyethylene plastic.

Polyethylene plastic: All references to polyethylene plastic refer to 6-mil plastic sheeting or polyethylene bags (or doubled bags if using 4-mil polyethylene bags), or any other thick plastic material shown to demonstrate at least equivalent performance. Plastic used to contain waste should be capable of completely containing the waste and, after being properly sealed, should remain leak-tight with no visible signs of discharge during movement or relocation.

Polyurethane: An exceptionally hard and wear-resistant coating created by the reaction of polyols with a multifunctional isocyanate; often used to seal wood floors following lead-based paint hazard control work and cleaning.

Precision: The degree to which a set of observations or measurements of the same property, usually obtained under similar conditions, conform to themselves; a data quality indicator. Precision is usually expressed in either absolute or relative terms as standard deviation, variance, or range. Often known as "reproducibility."

Primary prevention: The process of controlling lead hazards to prevent exposure *before* a child is poisoned. See Secondary prevention and Tertiary prevention.

Primary standard: A substance or device with a property or value that is unquestionably accepted, within specified limits, in establishing the value of the same or related property of another substance or device.

Public Housing Agency (PHA): Any State, county, municipality, or other government entity or public body, or agency or instrumentality thereof, authorized to engage or assist in the development or operation of housing for low-income families.

PVC: See Pigment Volume Concentration (PVC).

Quality Assurance (QA): An integrated system of activities involving planning, quality control, quality assessment, reporting, and quality improvement to ensure that a product or service meets defined standards of quality within a stated level of confidence.

Quality Control (QC): The overall system of technical activities whose purpose is to measure and control the quality of a product or service so that it meets the needs of users. The aim is to provide a level of quality that is satisfactory, adequate, dependable, and economical.

Random sample: A sample drawn from a population in a way that allows each member of the population to have an equal chance of being selected. Random sampling is a process used to identify locations for the lead-based paint inspections in multifamily dwellings. See also Targeted sample and Worst-case sample.

RCRA: See Resource Conservation and Recovery Act (RCRA).

Reevaluation: In lead hazard control work, the combination of a visual assessment and collection of environmental samples performed by a certified risk assessor to determine if a previously implemented lead-based paint hazard control measure is still effective and if the dwelling remains lead-safe.

Reference material: A material or substance that has at least one sufficiently well established property that can be used to calibrate an apparatus, assess a measurement method, or assign values to materials.

Reinspection: See Reevaluation.

Removal: See Paint removal.

Renovation: Work that involves construction and/or home or building improvement measures such as window replacement, weatherization, remodeling, and repainting.

Replacement: A strategy of abatement that entails the removal of building components coated with lead-based paint (such as windows, doors, and trim) and the installation of new components free of lead-based paint.

Representative sample: A sample of a universe or whole (e.g., waste sample pile, lagoon, groundwater, or waste stream) that can be expected to exhibit the average properties of the entire universe or whole.

Resident: A person who lives in a dwelling.

Resource Conservation and Recovery Act (RCRA): The primary Federal statute governing waste management from generation to disposal. RCRA defines the criteria for hazardous and nonhazardous waste.

Risk assessment: An onsite investigation of a residential dwelling to discover any lead-based paint hazards. Risk assessments include an investigation of the age, history, management, and maintenance of the dwelling, and the number of children under age 6 and women of childbearing age who are residents; a visual assessment; limited environmental sampling (i.e., collection of dust wipe samples, soil samples, and deteriorated paint samples); and preparation of a report identifying acceptable abatement and interim control strategies based on specific conditions.

Risk assessment screen: A type of risk assessment performed only in buildings in good condition using fewer samples but more stringent evaluation criteria (standards) to determine lead hazards.

Risk assessor: A certified individual who has completed training with an accredited training program and who has been certified to (1) perform risk assessments, (2) identify acceptable abatement and interim control strategies for reducing identified lead-based paint hazards, (3) perform clearance testing and reevaluations, and (4) document the successful completion of lead-based paint hazard control activities.

Sample site: A specific spot on a surface being tested for lead concentration.

Saponification: The chemical reaction between alkalies and oil that produces a type of soap. Because of saponification, oil and alkyd coatings will not adhere to masonry substrates, galvanized metals, or zinc-rich primers. Also a form of incompatibility between types of coatings.

Screen: See Risk assessment screen or Lead hazard screen.

Screening: The process of testing children to determine if they have elevated blood lead levels.

Secondary prevention: The process of identifying children who have elevated blood lead levels through screening and controlling or eliminating the sources of further exposure. See also Primary prevention and Tertiary prevention.

SEL: See Substrate Equivalent Lead (SEL).

Site: The land or body of water where a facility is located or an activity is conducted. The site includes adjacent land used in connection with the facility or activity.

Small-quantity generator: Owners, contractors (generators), or both who produce less than 100 kg of hazardous waste per month and accumulate less than 100 kg of hazardous waste at any one time, or who produce less than 1 kg of *acutely* hazardous waste per month and accumulate less than 1 kg of *acutely* hazardous waste at any one time.

Soil: See Bare soil.

Solid waste: As defined by RCRA, the term *solid waste* means garbage; refuse; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; or other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations or from community activities. The term does not include solid or dissolved material in domestic sewage or solid or dissolved material in irrigation return flows or industrial discharges (which are point sources subject to permits under the Clean Water Act), nor does the term include special nuclear or byproduct material as defined by the Atomic Energy Act of 1954.

Spectrum analyzer: A type of XRF analyzer that provides the operator with a plot of the energy and intensity, or counts of both K and L x-ray spectra, as well as a calculated lead concentration. See also XRF analyzer.

Spiked matrix: See Spiked sample.

Spiked sample: A sample prepared by adding a known mass of the target analyte (e.g., leaded dust) to a specific amount of matrix sample (e.g., one dust wipe) for which an independent estimate of the target analyte concentration is available. Spiked samples are used to determine, for example, the effect of the matrix on a method's recovery efficiency. See also Blind sample.

Spot-prime: To apply a paint primer to localized areas of exposed substrate.

Standard deviation: A measure of the precision of a reading; the spread of the deviation from the mean. The smaller the standard deviation, the more precise the analysis. The standard deviation is calculated by first obtaining the mean, or the arithmetic average, of all of the readings. A formula is then used to calculate how much the individual values vary from the mean—the standard deviation is the square root of the arithmetic average of the squares of the deviation from the mean. Many hand calculators have an automatic standard deviation function. See also Mean.

Standard reevaluation schedule (SRS): A schedule that determines the frequency that reevaluations should be performed on a property.

Standard reference material (SRM): A certified reference material produced by the National Institute of Standards and Technology (U.S. Department of Commerce) and characterized for absolute content independent of analytical method. See also Certified reference material.

Subsample: A representative portion of a sample. A subsample may be either a field sample or a laboratory sample. A subsample is often combined with other subsamples to produce a composite sample. See also Composite sample.

Substrate: A surface on which paint, varnish, or other coating has been applied or may be applied. Examples of substrates include wood, plaster, metal, and drywall.

Substrate effect: The radiation returned to an XRF analyzer by the paint, substrate, or underlying material, in addition to the radiation returned by any lead present. This radiation, when counted as lead x-rays by an XRF analyzer contributes to substrate equivalent lead (bias). The inspector may have to compensate for this effect when using XRF analyzers. See also XRF analyzer.

Substrate Equivalent Lead (SEL): The XRF measurement taken on an unpainted surface; used to calculate the corrected lead concentration on a surface by using the following formula: Apparent Lead Concentration–Substrate Equivalent Lead = Corrected Lead Concentration. See also Apparent Lead Concentration (ALC), Corrected Lead Concentration (CLC), and XRF analyzer.

Target housing: Any residential unit constructed before 1978, except dwellings that do not contain bedrooms or dwellings that were developed specifically for the elderly or persons with disabilities—unless a child younger than 6 resides or is expected to reside in the dwelling. In the case of jurisdictions that banned the sale or use of lead-based paint before 1978, the Secretary of HUD may designate an earlier date for defining target housing.

Targeted sample: A sample of dwelling units selected from an apartment building or housing development using information supplied by the owner. The units selected are likely to have the greatest probability of containing lead-based paint hazards. A targeted sample is usually selected for performing risk assessments in multifamily housing when it is not possible to select a worst-case sample. See also Worst-case sample and Random sample.

TCLP: See Toxicity Characteristic Leaching Procedure (TCLP).

Tertiary prevention: Providing medical treatment to children with elevated blood lead levels to prevent more serious injury or death.

Testing combination: A unique surface to be tested that is characterized by the room equivalent, component, substrate, and visible color.

Test location: A specific area on a testing combination where XRF instruments will test for lead-based paint.

Toxicity Characteristic Leaching Procedure (TCLP): A laboratory test to determine if excessive levels of lead or other hazardous materials could leach from a sample into groundwater; usually used to determine if waste is hazardous based on its toxicity characteristics.

Trained: Successful completion of a training course in a particular discipline. For lead hazard control work, the training course must be accredited by EPA or by an EPA-approved State program, pursuant to Title IV of the Toxic Substances Control Act.

Transporter: A person who transports hazardous waste, requiring a manifest under 40 CFR Part 260.10, within the United States by air, rail, highway, or water.

Treatment: In residential lead-based paint hazard control work, any method designed to control lead-based paint hazards. Treatment includes interim controls, abatement, and removal. Hazardous waste "treatment" is a method, technique, or process (such as neutralization) that is designed to change the physical, chemical, or biological character or composition of hazardous waste to neutralize it; render it nonhazardous or less hazardous; recover it; make it safer to transport, store, or dispose; or allow for easier recovery, storage, or volume reduction.

Treatment, Storage, and Disposal (TSD) facility: A facility licensed to handle hazardous waste.

Trisodium phosphate (TSP) detergent: A detergent that contains trisodium phosphate.

Trough: See Window trough.

Truck-mounted vacuum unit: A vacuum system whose components, except for hoses and attachments, are located outside the building undergoing dust removal. The exhaust is vented outside so that the interior dust is not disturbed.

TSD: See Treatment, Storage, and Disposal (TSD) facility.

TSP: See Trisodium phosphate (TSP) detergent.

μg (or ug): Micrograms. The prefix micro- means 1/1,000,000 (or one-millionth); a microgram is 1/1,000,000 of a gram and 1/1,000 of a milligram; equal to about 35/1,000,000,000 (35 billionths) of an ounce (an ounce is equal to 28,400,000 μg).

Urethane-modified alkyd: An alkyd molecule that has been chemically modified by the incorporation of a urethane; a coating, often a varnish, that uses a urethane-modified alkyd resin in the binder.

Useful life: The life expectancy of a coating before it requires refinishing or some other form of maintenance.

VOC: See Volatile Organic Compound (VOC).

Volatile Organic Compound (VOC): Substances that vaporize or evaporate from a coating during the coating or curing process.

Walk-off mat: A washable, fibrous material (preferably with a rubber or vinyl backing) positioned at main entryways to reduce transport of lead dust and lead soil into a building or residence.

White lead: A white pigment, usually lead carbonate. See also Lead carbonate.

Window sill: See Interior window sill.

Window stool: See Interior window sill.

Window trough: For a typical double-hung window, the portion of the exterior window sill between the interior window sill (or stool) and the frame of the storm window. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered. Sometimes inaccurately called the window "well." See also Window well.

Window well: The space that provides exterior access and/or light to a window that is below grade, i.e., below the level of the surrounding earth or pavement. See also Window trough.

Worker: An individual who has completed training in an accredited program to perform lead-based paint hazard control in housing.

Worksite: Any interior or exterior area where lead-based paint hazard control work takes place.

Worksite preparation level: A set of measures designed to protect residents and the environment from leaded dust, paint chips, or other forms of lead contamination through the erection of barriers and the establishment of access control, resident relocation or movement restrictions, warning signs, ventilation, and other measures.

Worst-case sample: A sample of dwelling units having the greatest probability of containing lead-based paint hazards selected by a risk assessor on the basis of a visual examination of all dwelling units in a housing development or apartment building. See also Targeted sample and Random sample.

XRF analyzer: An instrument that determines lead concentration in milligrams per square centimeter (mg/cm^2) using the principle of x-ray fluorescence (XRF). Two types of XRF analyzers are used—direct readers and spectrum analyzers. In these *Guidelines*, the term XRF analyzer only refers to portable instruments manufactured to analyze paint, and does not refer to laboratory-grade units or portable instruments designed to analyze soil.

Appendix 4

Inspector Certification

California Department of PublicHealth

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC HEALTH

LEAD-RELATED CONSTRUCTION CERTIFICATE

INDIVIDUAL:	CERTIFICATE TYPE:	NUMBER:	EXPIRATION DATE:
Michelle Ehresman	Lead Inspector/Assessor	LRC-00000459	5/31/2025
	Lead Project Monitor	LRC-00000458	5/31/2025

Disclaimer: This document alone should not be relied upon to confirm certification status. Compare the individual's photo and name to another valid form of government issued photo identification. Verify the individual's certification status by searching for Lead-Related Construction Professionals at www.cdph.ca.gov/programs/clppb or calling (800) 597-LEAD

Appendix 5

CDPH 8552 Inspection Form

LEAD HAZARD EVALUATION REPORT

Section 1 — Date of Lead Hazard Evaluation 3/27/24

___ Section 2 — Type of Lead Hazard Evaluation (Check one box only)

☑ Lead Inspection ☐ Risk assessment ☐ Clearance Inspection ☐ Other (specify) _____

Section 3 — Structure Where Lead Hazard Evaluation Was Conducted

Address [number, street, apartment (if applicable)]	City	County	Zip Code
331 The City Drive (Building 10)	Orange	Orange	92868

Construction date (year) of structure	Type of structure	Children living in structure?
Unknown	☐ Multi-unit building ☐ School or daycare ☐ Single family dwelling ☑ Other_____	☐ Yes ☑ No ☐ Don't Know

Section 4 — Owner of Structure (if business/agency, list contact person)

Name	Telephone number
c/o Vanir Contruction (Scott Battles)	916-677-7024

Address [number, street, apartment (if applicable)]	City	State	Zip Code
4540 Duckhorn Drive, Suite 300	Sacramento	CA	95834

Section 5 — Results of Lead Hazard Evaluation (check all that apply)

☑ No lead-based paint detected ☐ Intact lead-based paint detected ☐ Deteriorated lead-based paint detected

☐ No lead hazards detected ☐ Lead-contaminated dust found ☐ Lead-contaminated soil found ☑ Other Lead containing ceramic til

Section 6 — Individual Conducting Lead Hazard Evaluation

Name	Telephone number
Michelle Ehresman	858-537-3999

Address [number, street, apartment (if applicable)]	City	State	Zip Code
7742 Arjons Drive	San Diego	CA	92126

CDPH certification number	Signature	Date
LRC 0459	Michelle Ehresman	4/27/24

Name and CDPH certification number of any other individuals conducting sampling or testing (if applicable)

Section 7 — Attachments

A. A foundation diagram or sketch of the structure indicating the specifc locations of each lead hazard or presence of lead-based paint;
B. Each testing method, device, and sampling procedure used;
C. All data collected, including quality control data, laboratory results, including laboratory name, address, and phone number.

First copy and attachments retained by inspector

Second copy and attachments retained by owner

Third copy only (no attachments) mailed or faxed to:

California Department of Public Health
Childhood Lead Poisoning Prevention Branch Reports
850 Marina Bay Parkway, Building P, Third Floor
Richmond, CA 94804-6403
Fax: (510) 620-5656

Appendix 6

Renovate Right

THE LEAD-SAFE CERTIFIED GUIDE TO

RENOVATE RIGHT

Important lead hazard information for families, child care providers and schools.

U.S. Department of Housing and Urban Development

EPA

1-800-424-LEAD (5323)
www.epa.gov/getleadsafe
EPA-740-K-10-001
April 2010

IT'S THE LAW!

Federal law requires contractors that disturb painted surfaces in homes, child care facilities and schools, built before 1978 to be certified and follow specific work practices to prevent lead contamination. Always ask to see your contractor's certification.

Federal law requires that individuals receive certain information before renovating more than six square feet of painted surfaces in a room for interior projects or more than twenty square feet of painted surfaces for exterior projects or window replacement or demolition in housing, child care facilities and schools built before 1978.

- Homeowners and tenants: renovators must give you this pamphlet before starting work.
- Child care facilities, including preschools and kindergarten classrooms, and the families of children under six years of age that attend those facilities: renovators must provide a copy of this pamphlet to child care facilities and general renovation information to families whose children attend those facilities.

WHO SHOULD READ THIS PAMPHLET?

This pamphlet is for you if you:

- Reside in a home built before 1978.
- Own or operate a child care facility, including preschools and kindergarten classrooms, built before 1978, or
- Have a child under six years of age who attends a child care facility built before 1978.

You will learn:

- Basic facts about lead and your health.
- How to choose a contractor, if you are a property owner.
- What tenants, and parents/guardians of a child in a child care facility or school should consider.
- How to prepare for the renovation or repair job.
- What to look for during the job and after the job is done.
- Where to get more information about lead.

This pamphlet is not for:

- **Abatement projects.** Abatement is a set of activities aimed specifically at eliminating lead or lead hazards. EPA has regulations for certification and training of abatement professionals. If your goal is to eliminate lead or lead hazards, contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information.
- **"Do-it-yourself"** projects. If you plan to do renovation work yourself, this document is a good start, but you will need more information to complete the work safely. Call the National Lead Information Center at **1-800-424-LEAD (5323)** and ask for more information on how to work safely in a home with lead-based paint.
- **Contractor education.** Contractors who want information about working safely with lead should contact the National Lead Information Center at **1-800-424-LEAD (5323)** for information about courses and resources on lead-safe work practices.

RENOVATING, REPAIRING, OR PAINTING?

- Is your home, your building, or the child care facility or school your children attend being renovated, repaired, or painted?
- Was your home, your building, or the child care facility or school where your children under six years of age attend built before 1978?

If the answer to these questions is YES, there are a few important things you need to know about lead-based paint.

This pamphlet provides basic facts about lead and information about lead safety when work is being done in your home, your building or the child care facility or school your children attend.

The Facts About Lead

- Lead can affect children's brains and developing nervous systems, causing reduced IQ, learning disabilities, and behavioral problems. Lead is also harmful to adults.
- Lead in dust is the most common way people are exposed to lead. People can also get lead in their bodies from lead in soil or paint chips. Lead dust is often invisible.
- Lead-based paint was used in more than 38 million homes until it was banned for residential use in 1978.
- Projects that disturb painted surfaces can create dust and endanger you and your family. Don't let this happen to you. Follow the practices described in this pamphlet to protect you and your family.

LEAD AND YOUR HEALTH

Lead is especially dangerous to children under six years of age.

Lead can affect children's brains and developing nervous systems, causing:

- Reduced IQ and learning disabilities.
- Behavior problems.

Even children who appear healthy can have dangerous levels of lead in their bodies.

Lead is also harmful to adults. In adults, low levels of lead can pose many dangers, including:

- High blood pressure and hypertension.
- Pregnant women exposed to lead can transfer lead to their fetuses. Lead gets into the body when it is swallowed or inhaled.
- People, especially children, can swallow lead dust as they eat, play, and do other normal hand-to-mouth activities.
- People may also breathe in lead dust or fumes if they disturb lead-based paint. People who sand, scrape, burn, brush or blast or otherwise disturb lead-based paint risk unsafe exposure to lead.

What should I do if I am concerned about my family's exposure to lead?

- Call your local health department for advice on reducing and eliminating exposures to lead inside and outside your home, child care facility or school.
- Always use lead-safe work practices when renovation or repair will disturb painted surfaces.
- A blood test is the only way to find out if you or a family member already has lead poisoning. Call your doctor or local health department to arrange for a blood test.

For more information about the health effects of exposure to lead, visit the EPA lead website at **www.epa.gov/lead/pubs/leadinfo.htm** or call **1-800-424-LEAD (5323)**.

There are other things you can do to protect your family every day.

- Regularly clean floors, window sills, and other surfaces.
- Wash children's hands, bottles, pacifiers, and toys often.
- Make sure children eat a healthy, nutritious diet consistent with the USDA's dietary guidelines, that helps protect children from the effects of lead.
- Wipe off shoes before entering house.

WHERE DOES THE LEAD COME FROM?

Dust is the main problem.

The most common way to get lead in the body is from dust. Lead dust comes from deteriorating lead-based paint and lead-contaminated soil that gets tracked into your home. This dust may accumulate to unsafe levels. Then, normal hand to-mouth activities, like playing and eating (especially in young children), move that dust from surfaces like floors and window sills into the body.

Home renovation creates dust.

Common renovation activities like sanding, cutting, and demolition can create hazardous lead dust and chips.

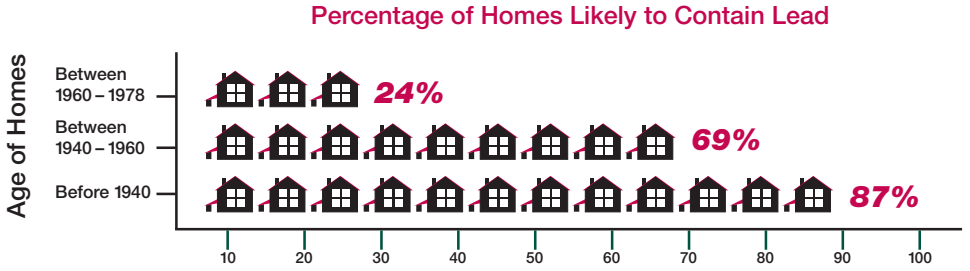
Proper work practices protect you from the dust.

The key to protecting yourself and your family during a renovation, repair or painting job is to use lead-safe work practices such as containing dust inside the work area, using dust-minimizing work methods, and conducting a careful cleanup, as described in this pamphlet.

Other sources of lead.

Remember, lead can also come from outside soil, your water, or household items (such as lead-glazed pottery and lead crystal). Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for more information on these sources.

CHECKING YOUR HOME FOR LEAD-BASED PAINT



Older homes, child care facilities, and schools are more likely to contain lead-based paint.

Homes may be single-family homes or apartments. They may be private, government-assisted, or public housing. Schools are preschools and kindergarten classrooms. They may be urban, suburban, or rural.

You have the following options:

You may decide to assume your home, child care facility, or school contains lead. Especially in older homes and buildings, you may simply want to assume lead-based paint is present and follow the lead-safe work practices described in this brochure during the renovation, repair, or painting job.

You can hire a certified professional to check for lead-based paint. These professionals are certified risk assessors or inspectors, and can determine if your home has lead or lead hazards.

- A certified inspector or risk assessor can conduct an inspection telling you whether your home, or a portion of your home, has lead-based paint and where it is located. This will tell you the areas in your home where lead-safe work practices are needed.
- A certified risk assessor can conduct a risk assessment telling you if your home currently has any lead hazards from lead in paint, dust, or soil. The risk assessor can also tell you what actions to take to address any hazards.
- For help finding a certified risk assessor or inspector, call the National Lead Information Center at **1-800-424-LEAD (5323)**.

You may also have a certified renovator test the surfaces or components being disturbed for lead using a lead test kit. Test kits must be EPA-recognized and are available at hardware stores. They include detailed instructions for their use.

FOR PROPERTY OWNERS

You have the ultimate responsibility for the safety of your family, tenants, or children in your care.

This means properly preparing for the renovation and keeping persons out of the work area (see p. 8). It also means ensuring the contractor uses lead-safe work practices.

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes, child care facilities, and schools built before 1978 be certified and follow specific work practices to prevent lead contamination.

Make sure your contractor is certified, and can explain clearly the details of the job and how the contractor will minimize lead hazards during the work.

- You can verify that a contractor is certified by checking EPA's website at **epa.gov/getleadsafe** or by calling the National Lead Information Center at **1-800-424-LEAD (5323)**. You can also ask to see a copy of the contractor's firm certification.
- Ask if the contractor is trained to perform lead-safe work practices and to see a copy of their training certificate.
- Ask them what lead-safe methods they will use to set up and perform the job in your home, child care facility or school.
- Ask for references from at least three recent jobs involving homes built before 1978, and speak to each personally.

Always make sure the contract is clear about how the work will be set up, performed, and cleaned.

- Share the results of any previous lead tests with the contractor.
- You should specify in the contract that they follow the work practices described on pages 9 and 10 of this brochure.
- The contract should specify which parts of your home are part of the work area and specify which lead-safe work practices will be used in those areas. Remember, your contractor should confine dust and debris to the work area and should minimize spreading that dust to other areas of the home.
- The contract should also specify that the contractor will clean the work area, verify that it was cleaned adequately, and re-clean it if necessary.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Direct the contractor to comply with regulatory and contract requirements.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If your property receives housing assistance from HUD (or a state or local agency that uses HUD funds), you must follow the requirements of HUD's Lead-Safe Housing Rule and the ones described in this pamphlet.

FOR TENANTS AND FAMILIES OF CHILDREN UNDER SIX YEARS OF AGE IN CHILD CARE FACILITIES AND SCHOOLS

You play an important role ensuring the ultimate safety of your family.

This means properly preparing for the renovation and staying out of the work area (see p. 8).

Federal law requires that contractors performing renovation, repair and painting projects that disturb painted surfaces in homes built before 1978 and in child care facilities and schools built before 1978, that a child under six years of age visits regularly, to be certified and follow specific work practices to prevent lead contamination.

The law requires anyone hired to renovate, repair, or do painting preparation work on a property built before 1978 to follow the steps described on pages 9 and 10 unless the area where the work will be done contains no lead-based paint.

If you think a worker is not doing what he is supposed to do or is doing something that is unsafe, you should:

- Contact your landlord.
- Call your local health or building department, or
- Call EPA's hotline **1-800-424-LEAD (5323)**.

If you are concerned about lead hazards left behind after the job is over, you can check the work yourself (see page 10).

PREPARING FOR A RENOVATION

The work areas should not be accessible to occupants while the work occurs.

The rooms or areas where work is being done may need to be blocked off or sealed with plastic sheeting to contain any dust that is generated. Therefore, the contained area may not be available to you until the work in that room or area is complete, cleaned thoroughly, and the containment has been removed. Because you may not have access to some areas during the renovation, you should plan accordingly.

You may need:

- Alternative bedroom, bathroom, and kitchen arrangements if work is occurring in those areas of your home.
- A safe place for pets because they too can be poisoned by lead and can track lead dust into other areas of the home.
- A separate pathway for the contractor from the work area to the outside in order to bring materials in and out of the home. Ideally, it should not be through the same entrance that your family uses.
- A place to store your furniture. All furniture and belongings may have to be moved from the work area while the work is being done. Items that can't be moved, such as cabinets, should be wrapped in plastic.
- To turn off forced-air heating and air conditioning systems while the work is being done. This prevents dust from spreading through vents from the work area to the rest of your home. Consider how this may affect your living arrangements.

You may even want to move out of your home temporarily while all or part of the work is being done.

Child care facilities and schools may want to consider alternative accommodations for children and access to necessary facilities.

DURING THE WORK

Federal law requires contractors that are hired to perform renovation, repair and painting projects in homes, child care facilities, and schools built before 1978 that disturb painted surfaces to be certified and follow specific work practices to prevent lead contamination.

The work practices the contractor must follow include these three simple procedures, described below:

1. **Contain the work area.** The area must be contained so that dust and debris do not escape from that area. Warning signs must be put up and plastic or other impermeable material and tape must be used as appropriate to:
   - Cover the floors and any furniture that cannot be moved.
   - Seal off doors and heating and cooling system vents.

   These will help prevent dust or debris from getting outside the work area.

2. **Avoid renovation methods that generate large amounts of lead-contaminated dust.** Some methods generate so much lead-contaminated dust that their use is prohibited. They are:
   - Open flame burning or torching.
   - Sanding, grinding, planing, needle gunning, or blasting with power tools and equipment not equipped with a shroud and HEPA vacuum attachment.
   - Using a heat gun at temperatures greater than 1100°F.

   There is no way to eliminate dust, but some renovation methods make less dust than others. Contractors may choose to use various methods to minimize dust generation, including using water to mist areas before sanding or scraping; scoring paint before separating components; and prying and pulling apart components instead of breaking them.

3. **Clean up thoroughly.** The work area should be cleaned up daily to keep it as clean as possible. When all the work is done, the area must be cleaned up using special cleaning methods before taking down any plastic that isolates the work area from the rest of the home. The special cleaning methods should include:
   - Using a HEPA vacuum to clean up dust and debris on all surfaces, followed by
   - Wet wiping and wet mopping with plenty of rinse water.

   When the final cleaning is done, look around. There should be no dust, paint chips, or debris in the work area. If you see any dust, paint chips, or debris, the area must be re-cleaned.

FOR PROPERTY OWNERS: AFTER THE WORK IS DONE

When all the work is finished, you will want to know if your home, child care facility, or school has been cleaned up properly. Here are some ways to check.

Ask about your contractor's final cleanup check. Remember, lead dust is often invisible to the naked eye. It may still be present even if you cannot see it. The contractor must use disposable cleaning cloths to wipe the floor of the work area and compare them to a cleaning verification card to determine if the work area was adequately cleaned.

To order a cleaning verification card and detailed instructions visit the EPA lead website at **www.epa.gov/lead** or contact the National Lead Information Center at **1-800-424-LEAD (5323)** or visit their website at **www.epa.gov/lead/nlic.htm**.

You also may choose to have a lead-dust test. Lead-dust tests are wipe samples sent to a laboratory for analysis.

- You should specify in your contract that a lead-dust test will be done. In this case, make it clear who will do the testing.
- Testing should be done by a lead professional.

If you choose to do the testing, some EPA-recognized lead laboratories will send you a kit that allows you to collect samples and send them back to the lab for analysis.

Contact the National Lead Information Center at **1-800-424-LEAD (5323)** for lists of qualified professionals and EPA-recognized lead labs.

If your home, child care facility, or school fails the dust test, the area should be re-cleaned and tested again.

Where the project is done by contract, it is a good idea to specify in the contract that the contractor is responsible for re-cleaning if the home, child care facility, or school fails the test.

FOR ADDITIONAL INFORMATION

You may need additional information on how to protect yourself and your children while a job is going on in your home, your building, or child care facility.

The National Lead Information Center at **1-800-424-LEAD (5323)** or **www.epa.gov/lead/nlic.htm** can tell you how to contact your state, local, and/or tribal programs or get general information about lead poisoning prevention.

- State and tribal lead poisoning prevention or environmental protection programs can provide information about lead regulations and potential sources of financial aid for reducing lead hazards. If your state or local government has requirements more stringent than those described in this pamphlet, you must follow those requirements.
- Local building code officials can tell you the regulations that apply to the renovation work that you are planning.
- State, county, and local health departments can provide information about local programs, including assistance for lead-poisoned children and advice on ways to get your home checked for lead.

The National Lead Information Center can also provide a variety of resource materials, including the following guides to lead-safe work practices. Many of these materials are also available at **www.epa.gov/lead/pubs/brochure.htm**.

- Steps to Lead Safe Renovation, Repair and Painting.
- Protect Your Family from Lead in Your Home
- Lead in Your Home: A Parent's Reference Guide

For the hearing impaired, call the Federal Information Relay Service at 1-800-877-8339 to access any of the phone numbers in this brochure.

EPA CONTACTS

EPA Regional Offices

EPA addresses residential lead hazards through several different regulations. EPA requires training and certification for conducting abatement and renovations, education about hazards associated with renovations, disclosure about known lead paint and lead hazards in housing, and sets lead-paint hazard standards.

Your Regional EPA Office can provide further information regarding lead safety and lead protection programs at **epa.gov/lead**.

Region 1
(Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)
Regional Lead Contact
U.S. EPA Region 1
Suite 1100
One Congress Street
Boston, MA 02114-2023
(888) 372-7341

Region 2
(New Jersey, New York, Puerto Rico, Virgin Islands)
Regional Lead Contact
U.S. EPA Region 2
2890 Woodbridge Avenue
Building 205, Mail Stop 225
Edison, NJ 08837-3679
(732) 321-6671

Region 3
(Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia)
Regional Lead Contact
U.S. EPA Region 3
1650 Arch Street
Philadelphia, PA
19103-2029
(215) 814-5000

Region 4
(Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee)
Regional Lead Contact
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960
(404) 562-9900

Region 5
(Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin)
Regional Lead Contact
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3507
(312) 886-6003

Region 6
(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)
Regional Lead Contact
U.S. EPA Region 6
1445 Ross Avenue,
12th Floor
Dallas, TX 75202-2733
(214) 665-6444

Region 7
(Iowa, Kansas, Missouri, Nebraska)
Regional Lead Contact
U.S. EPA Region 7
901 N. 5th Street
Kansas City, KS 66101
(913) 551-7003

Region 8
(Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming)
Regional Lead Contact
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202
(303) 312-6312

Region 9
(Arizona, California, Hawaii, Nevada)
Regional Lead Contact
U.S. Region 9
75 Hawthorne Street
San Francisco, CA 94105
(415) 947-8021

Region 10
(Alaska, Idaho, Oregon, Washington)
Regional Lead Contact
U.S. EPA Region 10
1200 Sixth Avenue
Seattle, WA 98101-1128
(206) 553-1200

OTHER FEDERAL AGENCIES

CPSC

The Consumer Product Safety Commission (CPSC) protects the public from the unreasonable risk of injury or death from 15,000 types of consumer products under the agency's jurisdiction. CPSC warns the public and private sectors to reduce exposure to lead and increase consumer awareness. Contact CPSC for further information regarding regulations and consumer product safety.

CPSC
4330 East West Highway
Bethesda, MD 20814
Hotline 1-(800) 638-2772
www.cpsc.gov

CDC Childhood Lead Poisoning Prevention Branch

The Centers for Disease Control and Prevention (CDC) assists state and local childhood lead poisoning prevention programs to provide a scientific basis for policy decisions, and to ensure that health issues are addressed in decisions about housing and the environment. Contact CDC Childhood Lead Poisoning Prevention Program for additional materials and links on the topic of lead.

CDC Childhood Lead Poisoning Prevention Branch
4770 Buford Highway, MS F-40
Atlanta, GA 30341
(770) 488-3300
www.cdc.gov/nceh/lead

HUD Office of Healthy Homes and Lead Hazard Control

The Department of Housing and Urban Development (HUD) provides funds to state and local governments to develop cost-effective ways to reduce lead-based paint hazards in America's privately-owned low-income housing. In addition, the office enforces the rule on disclosure of known lead paint and lead hazards in housing, and HUD's lead safety regulations in HUD-assisted housing, provides public outreach and technical assistance, and conducts technical studies to help protect children and their families from health and safety hazards in the home. Contact the HUD Office of Healthy Homes and Lead Hazard Control for information on lead regulations, outreach efforts, and lead hazard control research and outreach grant programs.

U.S. Department of Housing and Urban Development
Office of Healthy Homes and Lead Hazard Control
451 Seventh Street, SW, Room 8236
Washington, DC 20410-3000
HUD's Lead Regulations Hotline
(202) 402-7698
www.hud.gov/offices/lead/

SAMPLE PRE-RENOVATION FORM

This sample form may be used by renovation firms to document compliance with the Federal pre-renovation education and renovation, repair, and painting regulations.

Occupant Confirmation

Pamphlet Receipt

❑ I have received a copy of the lead hazard information pamphlet informing me of the potential risk of the lead hazard exposure from renovation activity to be performed in my dwelling unit. I received this pamphlet before the work began.

Printed Name of Owner-occupant

Signature of Owner-occupant | Signature Date

Renovator's Self Certification Option (for tenant-occupied dwellings only)

Instructions to Renovator: If the lead hazard information pamphlet was delivered but a tenant signature was not obtainable, you may check the appropriate box below.

❑ **Declined** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below at the date and time indicated and that the occupant declined to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit with the occupant.

❑ **Unavailable for signature** – I certify that I have made a good faith effort to deliver the lead hazard information pamphlet to the rental dwelling unit listed below and that the occupant was unavailable to sign the confirmation of receipt. I further certify that I have left a copy of the pamphlet at the unit by sliding it under the door or by (fill in how pamphlet was left).

Printed Name of Person Certifying Delivery | Attempted Delivery Date

Signature of Person Certifying Lead Pamphlet Delivery

Unit Address

Note Regarding Mailing Option — As an alternative to delivery in person, you may mail the lead hazard information pamphlet to the owner and/or tenant. Pamphlet must be mailed at least seven days before renovation. Mailing must be documented by a certificate of mailing from the post office.

APPENDIX H

PRELIMINARY WQMP

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County of Orange
Stormwater Requirements Template

INTERNAL PROJECTS ONLY

TRANSMITTAL PAGE

Include this document at the charter of every project.
Submit a new transmittal page at each 35%, 65%, 90%, and 100% Design stages, as applicable.

Project Name:	**Orange County Youth Transition Center**			
Project File No:	INSERT PROJECT FILE NO. HERE			
Project Location:	331 The City Drive S		Check One:	
	Orange	92868	☒ North OC	☐ South OC
Project Description:	The County of Orange plans to demolish and replace ten buildings at the Orange County Juvenile Hall Campus in Orange, California, through the YTC Juvenile Hall Replacement Project. This project, located at 331 The City Drive South on a 17-acre property redevelopment is bounded by Interstate 5 (I-5) and the Santa Ana River to the east, Service Way to the north, Justice Center Way to the south, and Hospital Frontage Road to the west. The site is designated for Public Facilities and Institutions (PF/I) land use according to the City of Orange General Plan Land Use Element. The project will occur in three phases, Phase 1 will replace 95,589 sq. ft. of existing structures with new facilities, including YTC living units, vocational/educational, culinary, transitional housing, and administrative/medical buildings, totaling 117,905 sq. ft. Phase 2 will add long-term housing, a classroom/library, and independent living buildings. Phase 3, still in design, will focus on tenant improvements and potentially a couple more building demolitions. Phase 3 does not involve any new construction and therefore, Phase 3 improvements are not subject to WQMP requirements. Overall, the project aims to modernize the campus facilities, enhance services, and support institutional uses.			
Is project part of a Master Plan or larger development?			☒ No	☐ Yes
Name of Project/Development: Orange County Youth Transition Center				
Project Area (total area associated with the Project or total area of the right-of-way):			43.71	acres
Area to be disturbed by the Project (Project Footprint):			8.30	acres
Project Proposed Impervious Area (subset of Project Footprint)			3.20	acres
Project Proposed Pervious Area (subset of Project Footprint)			5.10	acres
The proposed **decrease** in impervious area (subset of project footprint) in the proposed condition as compared to the pre-project condition: **Note**: The proposed 40% decrease in impervious area applies to redevelopment changes within the project footprint (8.30 acres) and not the total project area (43.71 acres).			40	%

Identify the Project type below (refer to the WQMP Applicability Checklist):	Place "X" in only one box below	
Type 1: Priority Project – WQMP required	☒	
Type 2: Green Street Project – WQMP required	☐	
Type 3: Non-Priority Project – WQP required (North OC) or NPP required (South OC)	☐	
Type 4: Maintenance/Other Project – No WQMP required, no WQP/NPP required	☐	
Additional Permits	Yes	No
Does the Project require coverage under a Construction General Permit?	☒	☐
Does the Project require coverage under the Clean Water Act, i.e., Section 401/404?	☐	☒
Does the Project require a California Department of Fish and Wildlife Permit?	☐	☒
Does the Project require a Dewatering Permit?	☐	☒

Date Prepared: 11/18/2024

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North Orange County
WQMP Applicability Checklist

1. Is the Project located in North Orange County (NOC)?

☒ Yes; proceed to Question 2 ☐ No; please refer to the South Orange County WQMP Applicability Checklist

2. Is the Project proposing streets, roads, highways, freeways, sidewalks, and/or bikeways of 5,000 square feet or more of new paved impervious surface?

☐ Yes; proceed to Question 12 ☒ No; proceed to Question 3

3. Is the Project a below-ground linear drainage or utility construction project, such as storm drains, sewers, and water lines, that will result in the replacement of more than 5,000 square feet of impervious surface within a developed public street, road, or highway?

☐ Yes; proceed to Question 4 ☒ No; proceed to Question 6

4. Will the Project maintain original line and grade, and hydraulic capacity/original purpose of the facility?

☐ Yes; proceed to Question 13 ☐ No; proceed to Question 5

5. Is the Project occurring in response to an emergency to protect public health and safety?

☐ Yes; **Type 3: Non-Priority Project**, WQP required; proceed to Section 1 ☐ No; proceed to Question 14

6. Is the Project a new development project that creates 10,000 square feet or more of impervious surfaces (collectively over the entire project site)?

☐ Yes; **Type 1: Priority Project**, WQMP required; proceed to Section 1 ☒ No; proceed to Question 7

7. Is the Project a redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces)?

☒ Yes; proceed to Question 14 ☐ No; proceed to Question 8

8. Is the Project a new or redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the entire project site), and consist primarily of one or more of the following uses:
   i. Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). Information and an SIC search function are available at https://www.osha.gov/pls/imis/sicsearch.html.
   ii. Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater.
   iii. Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.
   iv. Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. Information and an SIC search function are available at https://www.osha.gov/pls/imis/sicsearch.html.
   v. Retail gasoline outlets. This category includes Retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic of 100 or more vehicles per day.

☐ Yes; proceed to Question 14 ☐ No; proceed to Question 9

9. Is the Project a new or redevelopment project that creates and/or replaces 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharges directly to an Environmentally Sensitive Area (ESA)?

   Note: "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the Project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the Project to the ESA (i.e. not comingled with flows from adjacent lands). For projects adjacent to an ESA, but not discharging to an ESA, the 2,500 sq-ft threshold does not apply as long as the Project does not physically disturb the ESA and the ESA is upstream of the Project.

   ☐ Yes; proceed to Question 14 ☐ No; proceed to Question 10

10. Will the Project require discretionary action (grading permit, building permit, etc.) that will include a precise plan of development, except for those projects exempted by the Permittee Water Quality Ordinance (as applicable)?

    ☐ Yes; **Type 3: Non-Priority Project**, WQP required; proceed to Section 1 ☐ No; proceed to Question 11

11. Will the Project require issuance of a non-residential plumbing permit for pipelines conveying hazardous materials (e.g. gasoline) as defined in the Permittee Water Quality/Stormwater Ordinance?

    ☐ Yes; **Type 3: Non-Priority Project**, WQP required; proceed to Section 1 ☐ No; **Type 4: Maintenance/Other Project**, no WQP or WQMP required; proceed to Section 1

12. Is the Project a Maintenance Project (a routine activity that is conducted to maintain the original line and grade, hydraulic capacity, or original purpose of the facility)?

    ☐ Yes; **Type 4: Maintenance/Other Project**, no WQP or WQMP required; proceed to Section 1 ☐ No; **Type 2: Green Street Project**; modified WQMP required; proceed to Section 1

13. Is the Project a Maintenance Project (a routine activity that is conducted to maintain the original line and grade, hydraulic capacity, or original purpose of the facility)?

    ☐ Yes; **Type 4: Maintenance/Other Project**, no WQP or WQMP required; proceed to Section 1 ☐ No; **Type 3: Non-Priority Project**; WQP required; proceed to Section 1

14. Is the Project a Maintenance Project (a routine activity that is conducted to maintain the original line and grade, hydraulic capacity, or original purpose of the facility)?

    ☐ Yes; **Type 4: Maintenance/Other Project**, no WQP or WQMP required; proceed to Section 1 ☒ No; **Type 1: Priority Project**; WQMP required; proceed to Section 1

South Orange County
WQMP Applicability Checklist

1. Is the Project located in South Orange County (SOC)?

   ☐ Yes; proceed to Question 2 ☐ No; please refer to the North Orange County WQMP Applicability Checklist

2. Is the Project proposing new or retrofitting 5,000 square feet of existing paved sidewalks, bicycle lanes, or trails that meet the following criteria:
   a. Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR
   b. Designed and constructed to be hydraulically disconnected from paved streets or roads; OR
   c. Designed and constructed with permeable pavements or surfaces

   ☐ Yes; proceed to Question 11 ☐ No; proceed to Question 3

3. Is the Project proposing retrofitting or redevelopment of 5,000 square feet of existing paved alleys, streets, or roads?

   ☐ Yes; proceed to Question 11 ☐ No; proceed to Question 4

4. Is the Project a new development project that creates 10,000 square feet or more of impervious surfaces (collectively over the entire project site)?

   ☐ Yes; proceed to Question 12 ☐ No; proceed to Question 5

5. Is the Project a redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces)?

   ☐ Yes; proceed to Question 12 ☐ No; proceed to Question 6

6. Is the Project a new or redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the entire project site), and consist primarily of one or more of the following uses:
   i. Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). Information and an SIC search function are available at https://www.osha.gov/pls/imis/sicsearch.html.
   ii. Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater.
   iii. Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.
   iv. Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. Information and an SIC search function are available at https://www.osha.gov/pls/imis/sicsearch.html.
   v. Retail gasoline outlets. This category includes Retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic of 100 or more vehicles per day.

   ☐ Yes; proceed to Question 12 ☐ No; proceed to Question 7

7. Is the Project a new or redevelopment project that creates and/or replaces 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharges directly to an Environmentally Sensitive Area (ESA)?

   Note: "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the Project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the Project to the ESA (i.e. not comingled with flows from adjacent lands). For projects adjacent to an ESA, but not discharging to an ESA, the 2,500 sq. ft threshold does not apply as long as the Project does not physically disturb the ESA and the ESA is upstream of the Project.

   ☐ Yes; proceed to Question 12 ☐ No; proceed to Question 8

8. Is the Project proposing permeable pavement surfaces?

   ☐ Yes; proceed to Question 9 ☐ No; proceed to Question 10

9. If the proposed permeable pavement surfaces were tabulated as impervious surface, would the Project qualify as a Priority Project per Questions 4-7 above?

   ☐ Yes; proceed to Question 13 ☐ No; proceed to Question 10

10. Is the Project resulting in the disturbance of one or more acres of total land (impervious or pervious) **and** expected to generate pollutants (as identified in Section 2.3.4.1 and 2.3.4.2 of the 2017 SOC WQMP Technical Guidance Document (TGD)) post-construction?

    ☐ Yes; **Type 1: Priority Project**, WQMP required; proceed to Section 1

    ☐ No; **Type 4: Maintenance/Other Project**, no NPP or WQMP required; proceed to Section 1

11. Will the Project propose ONLY routine maintenance activities, such as trenching and resurfacing associated with utility work; pavement grinding; resurfacing existing roadways, sidewalks, pedestrian ramps, or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair?

    ☐ Yes; **Type 4: Maintenance/Other Project**, no NPP or WQMP required; proceed to Section 1

    ☐ No; **Type 2: Green Street Project**; modified WQMP required; proceed to Section 1

12. Will the Project propose ONLY routine maintenance activities, such as trenching and resurfacing associated with utility work; pavement grinding; resurfacing existing roadways, sidewalks, pedestrian ramps, or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair?

    ☐ Yes; **Type 4: Maintenance/Other Project**, no NPP or WQMP required; proceed to Section 1

    ☐ No; **Type 1: Priority Project**; WQMP required; proceed to Section 1

13. Will the Project propose ONLY routine maintenance activities, such as trenching and resurfacing associated with utility work; pavement grinding; resurfacing existing roadways, sidewalks, pedestrian ramps, or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair?

    ☐ Yes; **Type 4: Maintenance/Other Project**, no NPP or WQMP required; proceed to Section 1

    ☐ No; **Type 3: Non-Priority Project**; NPP required; proceed to Section 1

Acronyms

A_{df}	Cross sectional area at design flow depth
A_I	Infiltrating surface area
A_{IMP}	Impervious area
A_P	Pervious area
A_R	Retention area
A_T	Trench footprint area
A_{TT}	Total tributary area
ac	Acres
ac-ft	Acre-feet
b	Swale bottom width
BMP	Best Management Practice
C	Simple runoff coefficient
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
cf	Cubic-feet
D_{24}	Daily harvest water demand
d_{48}	48-hour drawdown time
d_{85}	85th percentile storm event rainfall depth
$d_{effective}$	Effective ponding depth
d_b	Basin depth
d_f	Flow depth
$d_{filtered}$	Depth of water filtered during the design capture storm
d_g	Gravel layer depth
d_{HSC}	Effective storm retention depth
d_m	Bioretention media depth
d_O	Depth of water at overflow
d_P	Ponding depth
d_{PM}	Maximum ponding depth
d_r	Depth of water routed through media
d_R	Aggregate reservoir depth
D_R	Retention depth
d_{RM}	Maximum aggregate reservoir depth
d_T	Trench fill depth
DCV	Design Capture Volume
DCV_i	Initial Design Capture Volume
DCV_{UR}	Upstream Design Capture Volume Reduction
DD	Drawdown time
DD_g	Drawdown time for gravel layer
DD_P	Drawdown time for ponded water
DMA	Drainage Management Area
DQ	Design Flow Rate
E	Capture Efficiency

E_R	Green/Brown Roof Extensiveness
E_{Red}	Reduction Efficiency
ESA	Environmentally Sensitive Area
ET	Evapotranspiration
f_{ED}	Fraction of effective ponding depth to design capture storm depth
f_{EV}	Effective volume factor
f_{PD}	Fraction of design ponding depth to design capture storm depth
FS	Factor of Safety
ft	feet
GIS	Geographic Information System
HCOC	Hydrologic Condition of Concern
hr	Hour
HSC	Hydrologic Source Control
I	Design storm intensity
I_{85}	85^{th} percentile storm event rainfall intensity
I_{full}	Gradient across filter bed assuming storage is full
IA_{HSC}	Impervious area covered by hydrologic source controls
ID	Identification
in	Inch
K_d	Design infiltration rate
K_L	Landscape coefficient
K_{media}	Media design infiltration rate
K_{obs}	Observed saturated infiltration rate
K_{sat}	Design saturated hydraulic conductivity
K_{screen}	Feasibility screening infiltration rate
L	Length
L_{min}	Minimum length
LID	Low Impact Development
min	Minute
MRD_{min}	Minimum required moisture retention depth
MS4	Municipal Separate Storm Sewer System
n	Manning's roughness coefficient
n_g	Porosity of gravel layer
n_m	Porosity of bioretention media
n_R	Porosity of aggregate reservoir fill
n_T	Porosity of trench fill
NA	Not applicable
NOC	North Orange County
NPDES	National Pollutant Discharge Elimination System
NPP	Non-Priority Project Water Quality Plan
NRCS	Natural Resources Conservation Service
OC	Orange County
O&M	Operations and Maintenance
PE	Professional Engineer
Q	Flow rate

R	Ratio of pervious to impervious area
R_{SD}	Percent volume reduction based on soil depth
S	Longitudinal slope
SACF	Surface area Correction Factor
SARWQCB	Santa Ana Regional Water Quality Control Board
SD	Soil depth
SD_{min}	Minimum soil depth
SDRWQCB	San Diego Regional Water Quality Control Board
sf	Square-feet
SIC	Standard Industrial Classification
SOC	South Orange County
T_{HR}	Minimum hydraulic residence time
T_R	Assumed storm duration
Tc	Time of concentration
$Tc_{2\text{-yr, POST}}$	Time of concentration for the 2-year, 24-hour storm under post-development conditions
$Tc_{2\text{-yr, PRE}}$	Time of concentration for the 2-year, 24-hour storm under pre-development conditions
TGD	Technical Guidance Document
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
v	Velocity
$V_{2\text{-yr, POST}}$	Runoff volume for the 2-year, 24-hour storm under post-development conditions
$V_{2\text{-yr, PRE}}$	Runoff volume for the 2-year, 24-hour storm under pre-development conditions
$V_{cistern}$	Cistern volume
V_{max}	Maximum volume
$V_{storage}$	Dead storage volume
w	Filter strip width
WIHMP	Watershed Infiltration and Hydromodification Management Plan
WQMP	Water Quality Management Plan
WQP	Water Quality Plan
yr	Year

1. Required Documents Checklist

A Draft WQMP is required at each phase of the Project (Initiation, 35% Design, 65% Design, and 90% Design, as applicable) with the Final WQMP submitted at Project Completion. Based on the Project type identified by the WQMP Applicability Checklist, select the relevant **Required Documents Checklist** from pages below. Along with the checklist, drafts shall include only the required sections as indicated in the "Project Phase" column, as well as updated documents from every preceding project phase. All sections will be required for the final WQMP at the 100% Design phase. In addition, some attachments may be required. An updated Attachments Checklist should be included at every applicable stage of the Project.

Note that a submittal is required for Type 4: Maintenance/Other Projects. See the **Required Documents Checklist for Type 4 Projects** below.

This Conceptual WQMP is being developed under the Project "Initiation" phase and is for CEQA clearances and approvals only. Phase 1 is currently under design and details will be provided at a level of detail consistent with the construction documents. Phase 2 has not started any design and is only a colored site plan concept. From a CEQA perspective, Phase 2 will be evaluated at a Program-Level EIR. All information provided in the tables of the Conceptual WQMP will include acreages and pervious/impervious conditions for both phases and the detailed explanation below the table will break up the details into Phase 1 and Phase 2.

1.1 Required Documents Checklist for Type 1 Projects

Type 1: Priority Project Water Quality Management Plan (WQMP)

Sections Required			Page	Project Phase	For Internal Use Only
☒	-	Transmittal Page	i	Initiation	
☒	-	WQMP Applicability Checklist	iii-iv or vi-vii	Initiation	
☒	1	Required Documents Checklist 1.1 Required Documents Checklist for Type 1 Projects 1.5 Attachment Checklist	1-1	Initiation	
☒	2	Project Description	2-1	Initiation	
☒	3	Site and Watershed Characterization 3.1 Site Characterization 3.2 Watershed Characterization 3.3 Preliminary Infiltration Investigation Preliminary Infiltration Investigation	3-1	Initiation	
☒	5	Site Design and Drainage Plan 5.1 Project Performance Criteria – NOC Only 5.2 DMA Delineation and BMP Site Selection 5.3 Additional Investigations for Priority Projects	5-1	35% Design	
☒	6	Site Design BMPs for Priority Projects 6.1 Selection of Site Design BMPs 6.2 Site Design BMP Calculations 6.3 Inventory of BMPs	6-1	35% Design	
☒	8	Hydromodification BMPs	8-1	35% Design	
☒	9	BMP Exhibit	9-1	35% Design	
☒	10	Source Control BMPs	10-1	65% Design	
☒	11	Educational Material	11-1	100% Design	
☒	12	Routine Inspections, Operations, and Maintenance 12.1 Inspection / Maintenance Responsibilities 12.2 Operations and Maintenance Plan	12-1	100% Design	
☒	13	Discretionary Permits and Water Quality Conditions 13.1 Discretionary Permits 13.2 Water Quality Conditions	13-1	100% Design	

1.2 Required Documents Checklist for Type 2 Projects

Type 2: Green Streets Project

Sections Required			Page	Project Phase	For Internal Use Only
☐	-	Transmittal Page	i	Initiation	
☐	-	WQMP Applicability Checklist	ii-iii or iv-v	Initiation	
☐	1	Required Documents Checklist 1.2 Required Documents Checklist for Type 2 Projects 1.5 Attachment Checklist	1-1	Initiation	
☐	2	Project Description	2-1	Initiation	
☐	3	Site and Watershed Characterization 3.1 Site Characterization 3.2 Watershed Characterization	3-1	Initiation	
☐	5	Site Design and Drainage Plan 5.1 Project Performance Criteria – NOC Only 5.2 DMA Delineation	5-1	35% Design	
☐	7	Site Design BMPs for Green Street Projects	7-1	35% Design	
☐	8	Hydromodification BMPs	8-1	35% Design	
☐	9	BMP Exhibit	9-1	35% Design	
☐	12	Routine Inspections, Operations, and Maintenance 12.1 Inspection / Maintenance Responsibilities 12.2 Operations and Maintenance Plan	12-1	100% Design	
☐	13	Discretionary Permits and Water Quality Conditions 13.1 Discretionary Permits 13.2 Water Quality Conditions	13-1	100% Design	

1.3 Required Documents Checklist for Type 3 Projects

Type 3: Non-Priority Project Water Quality Plan (WQP/NPP)

Sections Required			Page	Project Phase	For Internal Use Only
☐	-	Transmittal Page	i	Initiation	
☐	-	WQMP Applicability Checklist	ii-iii or iv-v	Initiation	
☐	1	Required Documents Checklist 1.3 Required Documents Checklist for Type 3 Projects 1.5 Attachment Checklist	1-1	Initiation	
☐	2	Project Description	2-1	Initiation	
☐	3	Site and Watershed Characterization 3.1 Site Characterization 3.2 Watershed Characterization	3-1	Initiation	
☐	4	Site Design BMPs for Non-Priority Projects 4.1 Site Design BMPs 4.2 Other BMPs	4-1	35% Design	
☐	9	BMP Exhibit	9-1	35% Design	
☐	10	Source Control BMPs	10-1	65% Design	
☐	12	Routine Inspections, Operations, and Maintenance 12.1 Inspection / Maintenance Responsibilities	12-1	100% Design	

1.4 Required Documents Checklist for Type 4 Projects

Type 4: Maintenance/Other Projects

Sections Required			Page	Project Phase	For Internal Use Only
☐	-	Transmittal Page	i	Initiation	
☐	-	WQMP Applicability Checklist	ii-iii or iv-v	Initiation	
		Required Documents Checklist	1-1		
☐	1	1.4 Required Documents Checklist for Type 4 Projects		Initiation	

1.5 Attachment Checklist

Identify the attachments included in this submittal. Refer to the appropriate sections to determine if attachments are necessary.

Attachment		Section	Included
Attachment 1	Preliminary Infiltration Investigation Report	3.3	☒
Attachment 2	WIHMP Criteria and Opportunities (NOC Only)	5.1	☒
Attachment 3	Additional DMA Delineation Tables	5.2	☒
Attachment 4	DCV Calculations	5.2	☒
Attachment 5	Supplementary Infiltration Investigation Report	5.3.1	☒
Attachment 6	Additional Infiltration and Harvest and Use Feasibility Tables	5.3.3	☒
Attachment 7	Priority Project BMP Conformance Analysis Tables	6.2	☒
Attachment 8	DCV Reduction Calculations	6.2	☒
Attachment 9	Green Street Project BMP Conformance Analysis Tables	7	☐
Attachment 10	Hydromodification Exhibits and Calculations	8	☒
Attachment 11	Hydromodification Management Plan	8	☐
Attachment 12	BMP Exhibit	9	☒
Attachment 13	Additional Educational Material	11	☐
Attachment 14	Additional BMP Inspection and Maintenance Responsibility Tables	12.1	☐
Attachment 15	Operations and Maintenance Plan	12.2	☐
Attachment 16	BMP Inspection Record	14	NA[1]
Attachment 17	Conceptual Hydrology Reports (Phase 1 and Phase 2 Separate)	15	

[1] A BMP Inspection Record is not to be completed by the Plan Developer or submitted with the WQMP/WQP/NPP. A BMP Inspection Record form is provided to allow the Plan Developer to review items that will be inspected and ensure BMPs are designed in a manner that aligns with the requirements identified in the form.

2. Project Description

Section 2 is required for ***Type 1: Priority Projects***, ***Type 2: Green Street Projects,*** and ***Type 3: Non-Priority Projects***.

Describe the Project in a manner that matches the legal description of the Project used as part of project approval. The description shall also identify Project features and attributes relevant for water quality and hydromodification management planning. The purpose of this information is to:

1. Legally define what is meant by the "Project" for the purpose of discretionary and subsequent approval; and
2. Provide a general introduction to proposed development patterns, land uses, site activities as they relate to determining applicable stormwater management provisions.

This section shall not provide a detailed description of the existing or proposed site. That information will be catalogued in more detail as part of Section 3: Site and Watershed Characterization. The Project Description Section of the WQMP/WQP/NPP shall include:

- Project location, parcel numbers, and legal address, as applicable;
- Legal boundaries of the proposed Project;
- Project acreage;
- Proposed land uses and site activities, including associated quantification (e.g., acreages, units);
- Off-site improvements as part of the overall Project action; and
- General description of site grading and drainage modifications as part of proposed development.

Project Description		
Project Area (total area associated with the Project or total area of the right-of-way):	43.71	acres
	1,904,152.77	sq. ft.
Area to be disturbed by the Project (Project Footprint):	8.30	acres
	361,571.91	sq. ft.
Project Proposed Impervious Area (subset of Project Footprint)	3.20	acres
	222,563.86	sq. ft.
Project Proposed Pervious Area (subset of Project Footprint)	5.10	acres
	222,078.21	sq. ft.
The proposed **decrease** in impervious area in the proposed condition as compared to the pre-project condition: **Note**: The proposed 40% decrease in impervious area applies to redevelopment changes within the project footprint (8.30 acres) and not the total project area (43.71 acres).	40	%

Project Description

The County of Orange plans to demolish and replace ten buildings at the Orange County Juvenile Hall Campus in Orange, California, through the YTC Juvenile Hall Replacement Project. This project, located at 331 The City Drive South on a 17-acre property redevelopment is bounded by Interstate 5 (I-5) and the Santa Ana River to the east, Service Way to the north, Justice Center Way to the south, and Hospital Frontage Road to the west. The site is designated for Public Facilities and Institutions (PF/I) land use according to the City of Orange General Plan Land Use Element. The project will occur in three phases, Phase 1 will replace 95,589 sq. ft. of existing structures with new facilities, including YTC living units, vocational/educational, culinary, transitional housing, and administrative/medical buildings, totaling 117,905 sq. ft. Phase 2 will add long-term housing, a classroom/library, and independent living buildings. Phase 3, still in design, will focus on tenant improvements and potentially a couple more building demolitions. Phase 3 does not involve any new construction and therefore, Phase 3 improvements are not subject to WQMP requirements. Overall, the project aims to modernize the campus facilities, enhance services, and support institutional uses.

Grading and Earthwork - The existing grade on the project site is relatively flat, with gentle slopes ranging from 0.5 percent to 2 percent. The proposed pad grades and finish floor elevations for all new buildings would be elevated over the existing highest-grade point at the perimeter of each building, allowing surface drainage to be directed away from the proposed structures and toward appropriate drainage facilities. Existing earth materials in the building footprint areas would be excavated and properly compacted to an anticipated maximum depth of 6 feet below the existing ground surface. Deeper excavations could be conducted, as necessary, at the direction of the Geotechnical Engineer.

Grading would commence with the removal of all existing vegetation and improvements, and debris such as wood and root structures would be exported from the site. Fill and backfill soils would be placed in horizontal loose layers ranging from approximately 6 to 36 inches thick. It is not anticipated that the importation of soil would be necessary under the proposed project, as grading quantities are expected to be balanced on site. The proposed project does not propose any retaining walls but may include vertical mounding landscaping improvements including planter drains and plaza drains in between buildings. An overall Campus Path of Travel Exhibit would be developed in accordance with ADA standards to confirm key walkway locations.

Storm Drainage and Stormwater -

The proposed project (Phase 1 and 2 improvements only) would include new storm drainage laterals to be extended as needed from the existing 42-inch mainline storm drain provided on the Campus. In addition to the existing series of 24-inch by 24-inch inlets in the courtyard areas around the existing Campus buildings, the proposed project would add a new low point with a relocated inlet to direct storm flows to a water quality treatment basin. All hydrology and hydrologic calculations would be performed and verified for protection in a 100-year storm event according to the Orange County Hydrology Manual (1986) and its Addendum (1996) during final design.

The proposed project (Phase 1 and 2 only) would capture on-site water via roof drains, atrium area rains, and catch basins located within the Phase 1 and 2 project limits. The project site would be designed to help route water into a series of designated BIO-1 Bioretention with Underdrains and INF-3 Bioretention with no Underdrain prior to discharge. One storm drain would be connected to the existing mainline, which runs south along The City Drive and discharges into the Santa Ana River Channel, which ultimately leads to the Pacific Ocean.

3. Site and Watershed Characterization

Section 3 is required for ***Type 1: Priority Projects,*** ***Type 2: Green Street Projects,*** and ***Type 3: Non-Priority Projects***.

The purpose of this Section is to describe the Project site conditions that will inform the selection and design of BMPs through an analysis of the physical conditions and limitations of the site and its receiving waters. The Plan Developer shall conduct appropriate investigations to characterize the site and watershed in a manner that supports informed and appropriate decisions about site design, source control, Low Impact Development (LID), and hydromodification BMPs as part of subsequent steps. The Project WQMP/WQP/NPP shall clearly and comprehensively document the investigations completed and describe the site and watershed conditions in a manner that provides appropriate support for subsequent selection of site design, source control, LID and hydromodification BMPs.

3.1 Site Characterization

The Project Site Characterization Section of the WQMP/WQP/NPP shall include:

- Physical setting
  - Address
  - Planning Area/Land Use Designation/Zoning
- Site characteristics
- Topography
- Soil type and geology
- Groundwater considerations
- Geotechnical considerations
- Off-site drainage
- Existing utilities
- Proposed site development activities (including pollutants to be generated)
- Project land uses

Site Characterization

Identify the pollutant(s) expected to be generated by the Project.

- ☐ Metals
- ☒ Nutrients
- ☒ Oil and grease
- ☒ Pathogens (bacteria and viruses)
- ☒ Suspended solids / sediment
- ☒ Toxic organic compounds (pesticides, solvents, and hydrocarbons)
- ☒ Trash and debris

The County of Orange plans to demolish and replace ten buildings at the Orange County Juvenile Hall Campus in Orange, California, located at 331 The City Drive South on a 17-acre property. The site is designated for Public Facilities and Institutions (PF/I) land use according to the City of Orange General Plan. The project will occur in three phases: Phase 1 will replace 95,589 sq. ft. of existing structures with new facilities totaling 117,905 sq. ft. Phase 2 will add long-term housing, a classroom/library, and independent living buildings. Phase 3 will focus on tenant improvements and possibly more demolitions. The project aims to modernize the campus facilities and enhance services.

The site has a relatively flat topography with gentle slopes ranging from 0.5 to 2 percent and is categorized within Hydrologic Group B soils. The most recent geotechnical report is titled Geotechnical Consultation Multipurpose Building site for Juvenile Hall, City of Orange, Orange County, California, dated August 2016, the soils in the area consist of Quaternary Old Alluvial Fan deposits which includes sand, silt, and clay that represents deposits mainly from the Santa Ana River, currently less than 500 ft from the eastern boundary of campus Groundwater was not encountered within the depth of the earth borings investigated with a maximum depth of 38 feet. The approximate elevation of the site is between 137.1 to 126.6 feet above sea level.

Existing utilities will be expanded to include new sewer, water, and storm drainage laterals, as well as electrical improvements for the proposed buildings. Anticipated site development activities may generate pollutants such as nutrients, oil and grease, pathogens, suspended solids, and toxic organic compounds.

Grading will involve removing vegetation and debris, excavating up to 6 feet, and balancing soil on-site. No retaining walls are planned, but landscaping improvements will be included. New storm drainage laterals will be extended from the existing 42-inch mainline storm drain. The project will under Phase 1 will capture and treat stormwater runoff through bioretention basins before discharge into the Santa Ana River Channel. Under Phase 2 project area the project will capture and infiltrate stormwater runoff through bioretention basins.

3.2 Watershed Characterization

The Project Watershed Characterization Section of the WQMP/WQP/NPP shall include:

- Watershed
- Receiving waters
- Water quality impairments and TMDLs
- Pollutants of concern
- Methods for determining stream susceptibility
- Environmentally sensitive areas (ESAs) and areas of special biological concern
- Potential hydrologic conditions of concern (HCOC)

Additional information regarding these topics can be found in Section 2.3 of the NOC WQMP TGD and Section 2.3 of the SOC WQMP TGD.

Watershed Characterization

Identify the watershed(s) applicable to the Project.

- ☐ Aliso Creek
- ☐ Anaheim Bay – Huntington Harbor
- ☐ Dana Point Coastal Streams
- ☐ Laguna Coastal Streams
- ☐ Newport Bay
- ☐ Newport Coastal Streams
- ☐ San Clemente Coastal Streams
- ☐ San Gabriel – Coyote Creek
- ☐ San Juan Creek
- ☐ San Mateo Creek
- ☒ Santa Ana River

The Santa Ana River watershed includes receiving waters such as Santa Ana River, Reach 2; Santa Ana River, Reach 1; and the Pacific Ocean. There are no noted water quality impairments, Total Maximum Daily Loads (TMDLs), pollutants of concern, environmentally sensitive areas (ESAs), or potential hydrologic conditions of concern (HCOC) within the watershed and receiving water bodies.

3.3 Preliminary Infiltration Investigation

Section 3.3 is required only for ***Type 1: Priority Projects***.

A preliminary infiltration investigation is required for all Type 1: Priority Projects. Infiltration BMPs are prioritized on the hierarchy of BMPs; therefore, infiltration testing is necessary to determine feasibility for full or partial infiltration.

Testing shall seek to characterize the infiltration rates at the likely elevation of the infiltration BMPs, but it is recognized that design-level BMP elevations may not be known at this time. Spacing of tests shall be determined based on the variability of conditions. This can be informed by other information about the soils and geology within the Project, such as previous geotechnical investigations. In sites with uniform conditions, a minimum of three tests per site is recommended, coupled with review of other information to interpolate or extrapolate from test results. For larger or more varied sites, additional tests may be needed. Testing locations shall be focused where other soils and geologic data suggests that infiltration is most likely to be feasible.

As described in Section 2.3.1.3 of the SOC WQMP TGD, the goal of this investigation shall be to identify potentially suitable areas for infiltration. **Table 3-1** below, correlates feasibility potential to ranges for the feasibility screening infiltration rate (K_{screen}) and is intended to guide decision making. Note that K_{screen} is equivalent to the observed saturated infiltration rate (K_{obs}) divided by a factor of 2.

Table 3-1 Preliminary Infiltration Feasibility as Indicated by K_{screen}

Infiltration Rate	Indication	Infiltration BMP Category
K_{screen} > 2 in/hr	Highest potential for full infiltration	Full Infiltration
0.3 in/hr < K_{screen} < 2 in/hr	Full infiltration BMPs may be possible, but conditions may be marginal and require more thorough analysis or contingency planning as part of BMP selection	Full Infiltration or Partial Infiltration
0.05 in/hr < K_{screen} < 0.3 in/hr	Incidental infiltration may be possible	Partial Infiltration
K_{screen} < 0.05 in/hr	Negligible infiltration potential	No Infiltration

As part of the planning/screening phase, review of Natural Resources Conservation Service (NRCS) soils maps (provided in Appendix N.1 of the SOC WQMP TGD) and available information may be conducted by the Project design professional. Simple open pit testing may also be conducted by the Project design professional. These forms of testing do not require a report separate from the WQMP. Other types of tests must be conducted by a licensed professional geotechnical engineer or registered geologist. These types of testing require reporting.

A Preliminary Infiltration Investigation Report shall be included as **Attachment 1,** and it shall include a description of methods, identification of other data source uses, geologic setting, testing locations, testing results, interpretation of findings, and a graphical identification of ranges of infiltration rate (if applicable). The Report shall also discuss findings related to seasonal high groundwater, infiltrating into plumes or hazardous areas, and groundwater wells and associated buffer areas. Section 4.2.2.1 of the SOC WQMP TGD provides additional factors related to infiltration feasibility, if applicable, shall be included in the Report.

The results from the Preliminary Infiltration Investigation will be necessary for determining Infiltration Feasibility within the drainage management areas (DMAs) identified in **Section 5.2**.

> **Note**: Infiltration BMPs are proposed for Phase 2 of the site, but additional testing may be necessary. Initial percolation tests show that the average infiltration rates range from 1.40 to 2.73 in/hr, indicating that infiltration is possible. However, when applying the safety factor of 2 as indicated above the infiltration rates ($K_{screen)}$ range from 0.7 to 1.37 in/hr, suggesting that further analysis or planning may be needed.

4. Site Design BMPs for Non-Priority Projects

Section 4 is required for ***Type 3: Non-Priority Projects***.

The purpose of this Section is to document the selected and implemented site design BMPs and source control BMPs.

4.1 Site Design BMPs

Site Design BMPs reduce the volume of stormwater runoff generated on a project site as well as improve the quality of runoff that leaves the site, and are required for all proposed Non-Priority Projects. Descriptions of the most common Site Design BMPs are provided in the NOC and SOC WQMP TGDs. Complete **Table 4-1** below. All incorporated site design BMPs must be included in the BMP Exhibit, further discussed in **Section 9**, and on the construction plan set.

Table 4-1 Site Design BMPs for Non-Priority Projects

Site Design BMP	Included	Brief Description
Hydrologic Source Controls (HSCs)		
Localized On-Lot Infiltration[1]	☐	Phase 1 detail only, Phase 2 to be determined during initial design phase (35%)
Impervious Area Dispersion[2]	☐	Phase 1 detail only, Phase 2 to be determined during initial design phase (35%)
Street Trees[3]	☐	Phase 1 detail only, Phase 2 to be determined during initial design phase (35%)
Amended Soils Over Tight Underlying Soils	☐	
Residential Rain Barrels (Not Actively Managed)	☐	
Infiltration		
Bioretention without Underdrains	☐	
Rain Gardens	☐	
Porous Landscaping	☐	
Infiltration Planters	☐	
Retention Swales	☐	

[1] Also known as Downspout Infiltration, Retention Grading, French Drains, or On-Lot Rain Gardens
[2] Also known as Downspout Dispersion, Downspout Disconnection, Impervious Area Disconnection, or Sheet Flow Dispersion
[3] Also known as Canopy Interception

Site Design BMP	Included	Brief Description
Infiltration Trenches	☐	
Infiltration Basins	☐	
Subsurface Infiltration Galleries	☐	
French Drains	☐	
Permeable Asphalt	☐	
Permeable Concrete	☐	
Permeable Concrete Pavers	☐	
Evapotranspiration		
Green Roofs, Brown Roofs, Blue Roofs	☐	
Rainwater Harvesting		
Above-ground Rain Barrels	☐	
Above-ground Cisterns	☐	
Underground Tanks	☐	
Biotreatment		
Bioretention with Underdrains	☐	Phase 1 detail only, Phase 2 to be determined during initial design phase (35%)
Stormwater Planter Boxes with Underdrains	☐	
Rain Gardens with Underdrains	☐	
Constructed Wetlands	☐	
Vegetated Swales	☐	
Vegetated Filter Strips	☐	
Compost-Amended Road Shoulders	☐	
Proprietary (Ready-To-Install) Vegetated Biotreatment Systems	☐	

4.2 Other BMPs

Other BMPs, such as Treatment Control BMPs (sand filters, cartridge media filters) or Pretreatment BMPs (hydrodynamic separation devices, catch basin inserts), may be appropriate under certain conditions. Please provide details on any other BMPs selected for this Project. All incorporated BMPs must be included in the BMP Exhibit, further discussed in Section 9, and on the construction plan set.

Other BMPs
INSERT DETAILS HERE OR INSERT N/A

5. Site Design and Drainage Plan

Section 5 is required for ***Type 1: Priority Projects*** and ***Type 2: Green Street Projects***.

The purpose of this Section is to develop the site design and drainage plan incorporating all applicable site design BMPs and source control BMPs, and to determine the locations for structural BMPs by dividing the site into separate drainage management areas (DMAs). For Priority Projects in NOC, this section will also establish Project performance criteria and document conformance with performance criteria.

5.1 Project Performance Criteria – NOC Only

Section 5.1 is required for ***NOC Type 1: Priority Projects*** ***and Type 2: Green Street Projects***.

Project Performance Criteria	
1. Is there an approved Watershed Infiltration and Hydromodification Management Plan (WIHMP)[1] or equivalent for the Project area that includes more stringent LID feasibility criteria or opportunities identified for implementing LID on regional or sub-regional basis? If so, describe the WIHMP feasibility criteria or regional/sub-regional LID opportunities:	
☐	A WIHMP applies. A description will be included as **Attachment 2**.
☒	A WIHMP is not applicable.
2. If HCOCs exist, identify applicable hydromodification control performance criteria. Check all that apply.	
☐	Post-development runoff volume for the 2-year, 24-hr storm event ($V_{2\text{-yr, POST}}$) exceeds that of the pre-development condition ($V_{2\text{-yr, PRE}}$) by more than 5%, thereby requiring hydromodification controls.
☐	Post-development time of concentration for the 2-year, 24-hr storm event ($Tc_{2\text{-yr, POST}}$) is less than that of the pre-development condition ($Tc_{2\text{-yr, PRE}}$) by more than 5%, thereby requiring hydromodification controls.
☒	HCOC do not exist within the Project area. Exhibits and/or calculations will be provided as **Attachment 10** demonstrating as such.
3. List applicable LID performance criteria. Check all that apply.	
☒	Selected BMPs will infiltrate, harvest and use, or evapotranspire the runoff from the 85th percentile, 24-hour storm event (Design Capture Volume, or DCV).
☒	Infiltration, harvest and use, and evapotranspiration (ET) cannot be feasibly implemented for the full DCV; and therefore, a properly designed biotreatment system will be considered to treat the runoff from the 85th percentile, 24-hour storm event.
4. List applicable structural treatment control BMP performance criteria.	
☐	Implemented LID BMPs (including biotreatment) are insufficient in treating the full DCV; therefore, structural treatment control BMPs are necessary and will treat the 85th percentile, 24-hour storm event.
☒	The full DCV is treated by LID BMPS; therefore, structural treatment control BMPs are not necessary.

[1]As of December 2019, no WIHMP exists in Orange County.

5.2 DMA Delineation and BMP Site Selection

Section 5.2 is required for all ***Type 1: Priority Projects*** *and Type 2: Green Street Projects*.

The Project site shall be delineated into DMAs per guidance provided in Section 2.4.2.2. of the NOC WQMP TGD or per Section 2.4.3.3 of the SOC WQMP TGD and shall be shown on the BMP Exhibit, further discussed in **Section 9**. Upon delineation, locations for proposed structural BMPs within each DMA shall be identified. These locations, along with areas of potential pollutant generation, impervious and pervious areas, any sensitive environmental features, and infiltration rates (if applicable) shall all be included in the BMP Exhibit. DMAs shall be summarized in **Table 5-1** below, referencing the IDs shown in the exhibit and providing the total area, percent impervious, and Design Capture Volume (DCV). BMPs shall be summarized in **Table 5-2** below, providing the BMP ID as shown in the exhibit, infiltration feasibility, the DMA(s) for which it is providing treatment, and total DCV. Refer to the Preliminary Infiltration Investigation conducted per **Section 3.3** of this template to determine infiltration feasibility for each BMP. Infiltration Feasibility is not required for Type 2: Green Street Projects. Additional tables are provided in and are to be appended to the WQMP as **Attachment 3.** Instructions on how to calculate DCV are provided in Appendix III of the NOC WQMP TGD (Equation III.1) and Appendix E of the SOC WQMP TGD (Equation E.2). Calculations are to be included as **Attachment 4.**

Table 5-1 DMA Summary

DMA ID	Total Area	Imperviousness	DCV
	ac	%	ac-ft
Phase 1 – DMA 1, Behavioral Health	0.289	100%	0.02
Phase 1 – DMA 2, Kitchen	0.096	100%	0.01
Phase 1 – DMA 3, Vocation	0.253	100%	0.01
Phase 1 – DMA 4, Duplex	0.278	100%	0.02
Phase 1 – DMA 5, Triplex	0.273	100%	0.02
Phase 1 – DMA 6, Site	5.382	20%	0.10
Phase 2A – DMA 1, Long-Term Housing	1.409	65%	0.06
Phase 2B – DMA 1, Independent Living	1.083	75%	0.05

Table 5-2 BMP Summary

BMP ID	Infiltration BMP Category			Associated DMA(s)	Total DCV
	Full	Partial	No Infiltration	-	ac-ft
BH	☐	☐	☒	Phase 1 – DMA 1, Behavioral Health	0.02
K	☐	☐	☒	Phase 1 – DMA 2, Kitchen	0.01
V	☐	☐	☒	Phase 1 – DMA 3, Vocation	0.01
D	☐	☐	☒	Phase 1 – DMA 4, Duplex	0.02
T	☐	☐	☒	Phase 1 – DMA 5, Triplex	0.02
LTH	☒	☐	☐	Phase 2A – DMA 1, Long-Term Housing	0.234
IL	☒	☐	☐	Phase 2B – DMA 1, Independent Living	0.201

A narrative is to be provided describing the rationale behind the selected drainage and site plan. At a minimum, the narrative shall include the following:

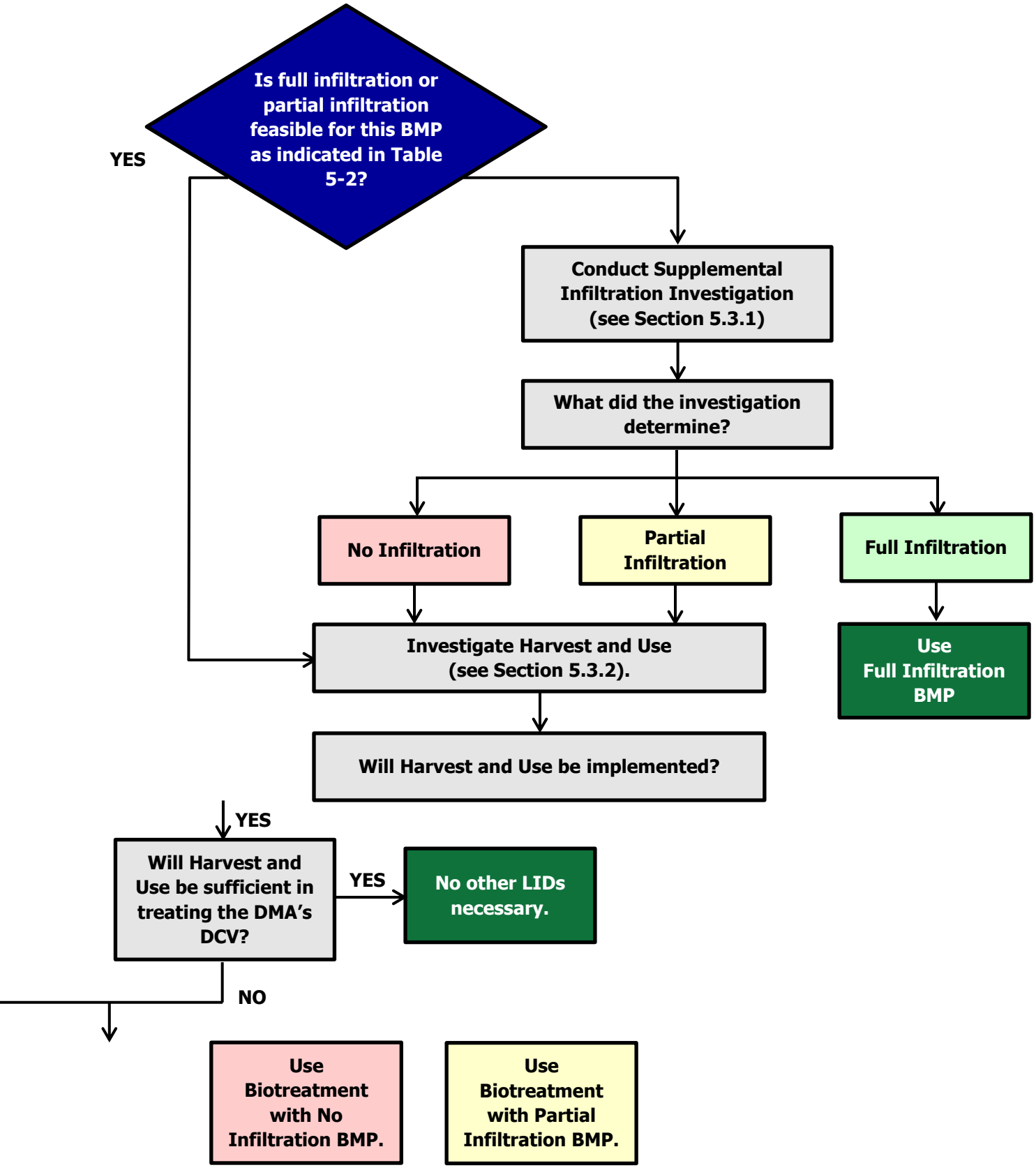
- Provide rationale and methodology for how the site was divided into DMAs and how BMP placement was selected;
- Describe how DMAs and BMP sites were located to maximize retention and site BMPs where infiltration is most feasible, to the extent practicable; and
- Describe any overriding factors affecting drainage and BMP location at the site.

DMA Delineation and BMP Justification
Phase 1 Drainage Management Areas (DMAs) are designated for managing runoff from the building footprint. BMPs are strategically placed based on roof drainage locations and coordinated to integrate with the new landscaping. The selected BMPs are flow-through filtration planters designed to capture roof runoff. Infiltration is not feasible due to the proximity of the planters to the foundations of the new buildings. **Phase 2** Phase 2 is divided into two DMAs, designated as Phase 2A – DMA 1 and Phase 2B – DMA 1. Although specific BMPs have not yet been designed for these areas, the approach will mirror Phase 1. This includes the implementation of retention planters (INF-3 Bioretention with no Underdrain) to effectively capture and manage runoff within each DMA.

5.3 Additional Investigations for Priority Projects

Section 5.3 is required for all ***Type 1: Priority Projects***.

The SOC WQMP TGD defines a hierarchy for BMP prioritization with full infiltration BMPs ranking first. Additionally, the TGD requires consideration of harvest and use for any BMPs for which full infiltration is not feasible. Therefore, to determine the feasibility of each, additional investigations are necessary. The flow chart in **Figure 5-1** below will guide the Plan Developer in determining which investigations are necessary. The sections below provide guidance related to these investigations.



re 5-1 BMP Prioritization Flow Chart

5.3.1 Supplemental Infiltration Investigation

Infiltration BMPs are to be prioritized over any and all other LID BMPs. Therefore, for any BMPs for which "Full Infiltration" or "Partial Infiltration" is feasible, additional infiltration testing is required. This will provide more accurate infiltration rates compared to those provided by the Preliminary Infiltration Investigation. For BMPs for which "No Infiltration" was identified, additional testing is not necessary; however, documentation must be provided demonstrating the unlikelihood of infiltration feasibility. Refer to the NOC and SOC WQMP TGDs for appropriate criteria related to infeasibility and attach all relevant documentation as **Attachment 5**.

Infiltration testing must be conducted or overseen by a qualified professional; either a Professional Engineer (PE) or Registered Geologist licensed in the State of California and shall be conducted at the location of the proposed BMP. The elevation of the tests shall correspond to the facility elevation, plus 1 to 2 feet to account for soil amendments or decompacted zones under the infiltration system. If a confining layer, or soil with a greater percentage of fines, is observed during the subsurface investigation to be within 6 feet of the bottom of the planned infiltration system, the testing shall be conducted within that confining layer. The boring logs shall continue to at least 15 feet below the invert of the proposed BMP. Borings shall be conducted at each test location.

The recommended number of infiltration tests depends up on the footprint size and the soil variability. The following guidance is provided to estimate the number of tests per BMP:

- Three infiltration tests shall be conducted for every Full Infiltration BMP, conducted within the proposed BMP footprint or within 20 feet of the perimeter in representative soil formations.
- For Full Infiltration BMPs with footprints larger than 10,000 square feet, conduct one additional test for every 10,000 square feet of BMP footprint area after the first 10,000 square feet. For example, if a large BMP had an infiltration area of 30,000 square feet, 5 tests shall be conducted (3 for the first 10,000 square feet, 1 for the next 10,000, and 1 for the next 10,000).
- One test for every 100 lineal feet of infiltration facility.
- In general, no more than five valid tests are required per BMP of any footprint, unless more tests would be valuable or necessary (at the discretion of the qualified professional assessing the site, as well as the reviewing jurisdiction).

These recommendations may need to be reduced or increased at the discretion of the Plan Developer and reviewing jurisdiction depending on the complexity and variability of the site.

Reporting shall include:

- Name and qualifications of preparer;
- Scope of investigation, including description of methods, identification of other data source uses;
- Geologic setting;
- Testing locations and depths;
- Testing results;
- Testing records and description of specific measurements;

- Interpretation of findings, including consideration of limiting horizons or groundwater conditions that could limit full scale infiltration;
- Confirmation or adjustment of preliminary infiltration screening (i.e. Is it acceptable to utilize full infiltration BMPs?); and
- Recommended component of the overall factor of safety that is appropriate to account for variability or uncertainty in testing.

For each BMP-site-specific K_{obs} provided by the Supplementary Infiltration Investigation, calculate the updated K_{screen}. Then, using **Table 5-3** below, identify the updated infiltration feasibility the K_{screen} correlates to. Record results in **Table 5-4.**

Table 5-3 Updated Infiltration Feasibility

Infiltration Rate	Infiltration BMP Category
K_{screen} > 2 in/hr	Full Infiltration
0.3 in/hr < K_{screen} < 2 in/hr	Full Infiltration or Partial Infiltration
0.05 in/hr < K_{screen} < 0.3 in/hr	Partial Infiltration
K_{screen} < 0.05 in/hr	No Infiltration

5.3.2 Harvest and Use Investigation

As discussed, full infiltration BMPs shall be implemented wherever feasible; however, in the case that full infiltration is not feasible, harvest and use must first be considered before any biotreatment BMP can be considered. For BMPs for which "Partial Infiltration" or "No Infiltration" was identified, either in **Table 5-2** or by the Supplemental Infiltration Investigation, harvest and use feasibility must be determined. Harvest and use feasibility criteria is provided in Section 4.2.3 of the SOC WQMP TGD. Record results in **Table 5-4** below. Note that harvest and use is not required if found feasible.

5.3.3 Results from Additional Investigations

In **Table 5-4** below, summarize the results from the investigations conducted per **Section 5.3.1** and **Section 5.3.2**. Additional tables are provided in and shall be attached as **Attachment 6**.

Table 5-4 Infiltration and Harvest and Use Feasibility

BMP ID	Infiltration Feasibility			Harvest and Use Feasibility		
	Full	Partial	No Infiltration	Feasible	Not Feasible	NA
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐

6. Site Design BMPs for Priority Projects

Section 6 is required for ***Type 1: Priority Projects***.

Site Design BMPs reduce the volume of stormwater runoff generated on a project site as well as improve the quality of runoff that leaves the site. Site Design BMPs are required for all proposed Priority Projects and shall be included in the BMP Exhibit, discussed further in **Section 9**, and the construction plan set.

6.1 Selection of Site Design BMPs

Refer to Section 2.5 of the SOC WQMP TGD for BMP selection Guidance.

6.2 Site Design BMP Calculations

Attachment 7 contains Priority Project BMP Conformance Analysis Tables for NOC and SOC. One set of tables must be completed for each DMA listed in **Section 5.2** above. Note that a single set of tables may be completed for multiple DMAs if BMPs are shared (i.e. one BMP is designed to treat runoff from multiple DMAs). Be sure to include the DMA ID (or list of DMA IDs) and the corresponding DCV (or sum of DCVs) in each table.

This WQMP Template includes just one set of BMP Conformance Analysis Tables for NOC and SOC. The Plan Developer must include as many sets of tables as necessary to evaluate all DMAs. Each additional set of tables is to be appended within **Attachment 7**.

All calculations are to be included in **Attachment 8**. Calculation procedures shall be in accordance with Appendix E of the SOC WQMP TGD for South Orange County projects, and with Appendix III of the NOC WQMP TGD for North Orange County projects.

6.3 Inventory of BMPs

Using **Table 6-1** below, provide a summary of all HSCs, LID BMPs, Treatment Controls, and/or Regional/Sub-Regional BMPs implemented by the Project. Include the BMP type, treatment capacity, associated DMA(s), and corresponding DCV/Total DCV.

Table 6-1 Priority Project BMP Inventory

BMP ID	BMP Type	Treatment Capacity / DCV Reduction	Associated DMA(s)	DCV / Total DCV	
			-		
BH1	Flowthrough Planter	708.75 cu-ft	BEHAVIORAL HEALTH	345	1,050 cu-ft
BH2	Flowthrough Planter		BEHAVIORAL HEALTH	345	
BH3	Flowthrough Planter		BEHAVIORAL HEALTH	360	
K1	Flowthrough Planter	236.25 cu-ft	KITCHEN		240 cu-ft
V1	Flowthrough Planter	618.75 cu-ft	VOCATIONAL	288	864 cu-ft
V2	Flowthrough Planter		VOCATIONAL	432	
V3	Flowthrough Planter		VOCATIONAL	144	
D1	Flowthrough Planter	680.63 cu-ft	DUPLEX	150	882 cu-ft
D2	Flowthrough Planter		DUPLEX	147	
D3	Flowthrough Planter		DUPLEX	147	
D4	Flowthrough Planter		DUPLEX	150	
D5	Flowthrough Planter		DUPLEX	144	
D6	Flowthrough Planter		DUPLEX	144	
T1	Flowthrough Planter	1,068.75 cu-ft	TRIPLEX	84	1,482 cu-ft
T2	Flowthrough Planter		TRIPLEX	72	
T3	Flowthrough Planter		TRIPLEX	119	
T4	Flowthrough Planter		TRIPLEX	125	
T5	Flowthrough Planter		TRIPLEX	72	
T6	Flowthrough Planter		TRIPLEX	147	
T7	Flowthrough Planter		TRIPLEX	210	
T8	Flowthrough Planter		TRIPLEX	201	
T9	Flowthrough Planter		TRIPLEX	198	
T10	Flowthrough Planter		TRIPLEX	201	
T11	Flowthrough Planter		TRIPLEX	214	
BMP 2A	Bioretention Planter with no Underdrain	1,305 cu-ft	Phase 2A DMA 1	1,309 cu-ft	
BMP 2B	Bioretention Planter with no Underdrain	1,121 cu-ft	Phase 2B DMA 1	1,122 cu-ft	

Total DCV Reduction =		cu-ft	Is compliance achieved? ☒ Yes ☐ No
Total DCV =	0	cu-ft	

7. Site Design BMPs for Green Street Projects

Section 7 is required for ***Type 2: Green Street Projects***.

Generally, Green Street Projects must follow the same criteria as Type 1: Priority Projects regarding site design and drainage management area assessments (see **Section 3** of this template). Green Street Projects must also delineate drainage management areas and determine the DCV for each DMA (see **Section 5** of this template).

The Municipal Separate Storm Sewer System (MS4) Permit cites the requirement that Plan Developers utilize the USEPA municipal handbook "Managing Wet Weather with Green Infrastructure – Green Streets" as guidance for selecting appropriate BMPs. Because street projects typically feature more constraints in terms of utilities, structures, and traffic flow, certain BMPs are a better choice than others for Green Street Projects. The MS4 Permit requires that Plan Developers of applicable Green Streets Projects shall select BMPs consistent with the USEPA Green Streets guidance to the "Maximum Extent Practicable". The "Maximum Extent Practicable" standard is intended to be a relatively stringent standard. Developers of Green Streets Projects must follow a BMP prioritization and selection process for each DMA and must exhaust every physical possibility before declaring that capturing and treating the DCV is not possible.

The following steps are used to size LID BMPs for applicable Green Street Projects.

1. Complete site and watershed characterization (**Section 3**).
2. Delineate DMAs and compute the DCV per each DMA (**Section 5**)
3. For each DMA identified in Step 2, select one or more BMPs consistent with USEPA Green Streets guidance. Refer to Section 2.9.4 of the SOC WQMP TGD for more information. Selected BMPs shall be included in the BMP Exhibit (discussed further in **Section 9)**, and the construction plan set.
4. Complete the tables in **Attachment 9** for each DMA identified in Step 2. Note that a single set of tables may be completed for multiple DMAs if BMPs are shared (i.e. one BMP is designed to treat runoff from multiple DMAs). Be sure to include the DMA ID (or list of DMA IDs) and the corresponding DCV (or sum of DCVs) in each table. This WQMP Template includes just one set of BMP Conformance Analysis Tables. The Plan Developer must include as many sets of tables as necessary to evaluate all DMAs. Each additional set of tables is to be appended within **Attachment 9**. All calculations are to be included in **Attachment 8**. Calculation procedures shall be in accordance with Appendix E of the SOC WQMP TGD for South Orange County projects, and with Appendix III of the NOC WQMP TGD for North Orange County projects.
5. If LID or hydromodification sizing criteria cannot be achieved, document the constraints that override the application of BMPs, and provide the largest portion of the sizing criteria that can be reasonably provided given constraints.

7.1 Inventory of BMPs

Using **Table 7-1** below, provide a summary of all HSCs, LID BMPs, and/or Treatment Controls BMPs implemented by the Project. Include the BMP type, treatment capacity, associated DMA(s), and corresponding DCV/Total DCV.

Table 7-1 Green Street Project BMP Inventory

BMP ID	BMP Type	Treatment Capacity / DCV Reduction	Associated DMA(s)	DCV / Total DCV
		ac-ft	-	ac-ft

8. Hydromodification BMPs

Section 8 is required for ***Type 1: Priority Projects*** and ***Type 2: Green Street Projects***.

Priority Projects and Green Street Projects are required to determine whether HCOCs exist as a result of the Project. Use the appropriate table below to identify whether or not HCOCs exist and whether a Hydromodification Management Plan is necessary. Note that criteria for NOC and SOC are different.

Determination of HCOCs within NOC			
Do HCOCs exist?		**Reasoning**	
☒	No	☐	The volumes and the time of concentration of storm water runoff for the post-development condition do not significantly exceed those of the pre-development condition for a two-year frequency storm event (a difference of 5% or less is considered insignificant). This may be achieved through site design and source control BMPs.
		☒	All downstream conveyance channels that will receive runoff from the Project are engineered, hardened, and regularly maintained to ensure design flow capacity, and no sensitive stream habitat areas will be affected.
☐	Yes	☐	None of the conditions above are met.

Determination of HCOCs within SOC			
Do HCOCs exist?		**Reasoning**	
☐	No	☐	Project discharges directly to a protected conveyance (bed and bank are concrete lined the entire way from the point(s) of discharge to a receiving lake, reservoir, embayment, or the Ocean.
		☐	Project discharges directly to storm drains which discharge directly to a reservoir, lake, embayment, ocean, or protected conveyance.
		☐	The Project discharges to an area identified in the Water Management Area Analysis as exempt from hydromodification concerns.
☐	Yes	☐	None of the conditions above are met.

If HCOCs do not exist for the Priority Project or Green Streets Project, exhibits and/or calculations must be provided as **Attachment 10** demonstrating such.

If HCOCs do exist, additional documentation demonstrating mitigation of possible hydromodification is necessary. Include said documentation as **Attachment 11**. Structural BMPs, if incorporated, shall be included in the BMP Exhibit, discussed further in **Section 9**, and the construction plan set. Note that SOC, specifically, requires a Hydromodification Management Plan. Refer to the SOC WQMP TGD for additional information.

9. BMP Exhibit

Section 9 is required for ***Type 1: Priority Projects***, ***Type 2: Green Street Projects,*** and ***Type 3: Non-Priority Projects***.

An exhibit is to be included with the WQMP/WQP/NPP beginning with the Draft submission due at the 65% Design phase and is to be updated for all submissions up to the Final WQMP/WQP/NPP due at Project completion. Exhibit elements vary depending on the required document type (WQMP, WQP, or NPP) and Project location. Refer to the checklist below for exhibit requirements. Note that items in bold should also be including in the Project's construction plan set.

BMP Exhibit Requirements	
☒	Minimum 24" x 36" sheet
☒	Title block including the Project name, Project file number (as assigned by County), and grading/building or planning application permit numbers, as applicable
☒	Project location (including address, drainage plot plan, tract/lot number(s), etc.)
☒	Legend, north arrow, and scale
☒	Plan Developer name and stamp
☒	Site boundary
☒	Downstream receiving water(s) of the Project, any 303(d) listed or TMDL water bodies, and any hydromodification susceptible water bodies
☐	Land uses and land covers, as applicable
☒	**Each facility and its intended function**
☐	Areas of outdoor activities, as applicable
☒	**Drainage delineations and flow information**
☐	**Key topographic features, environmentally sensitive features, natural drainage courses, and other relevant information**
☒	Relationship between onsite drainage and offsite drainage including all drainage connections
☒	**Stormwater management infrastructure including storm drain facilities**
☐	Conditions relevant to infiltration feasibility findings (as applicable), such as, but not limited to, surficial soil properties, depth to groundwater, and geotechnical hazards, locations of infiltration testing, factors influencing demonstrated space constraints or vertical constraints
☒	**Locations and types of all structural BMPs including, as applicable**
☐	**GIS coordinates for all structural BMPs, as applicable**
☒	**BMP details with detailed design parameters relevant to sizing calculations, as applicable**

10. Source Control BMPs

Section 10 is required for ***Type 1: Priority Projects***, ***Type 2: Green Street Projects,*** and ***Type 3: Non-Priority Projects***.

Source Control BMPs, both non-structural and structural, are required for Priority Projects, Green Street Projects, and Non-Priority Projects where applicable to Project features. Please identify the applicable Source Control BMPs within **Table 10-1** and **Table 10-2** below. For any BMP marked "Not Included", an explanation is required and shall be provided at the bottom of the table. All structural BMPs marked "included" shall be included in the BMP Exhibit discussed in **Section 9**, and in the construction plan set.

Table 10-1 Structural Source Control BMPs

Identifier	Name	Included	Not Included	Not Applicable
S1	Provide storm drain system stenciling and signage	☒	☐	☐
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☒	☐	☐
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	☐
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	☐
S5	Protect slopes and channels and provide energy dissipation	☐	☐	☒
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☒	☐	☐
S6	Dock areas	☐	☐	☒
S7	Maintenance bays	☐	☐	☒
S8	Vehicle wash areas	☐	☐	☒
S9	Outdoor processing areas	☐	☐	☒
S10	Equipment wash areas	☐	☐	☒
S11	Fueling areas	☐	☐	☒
S12	Hillside landscaping	☐	☐	☒
S13	Wash water control for food preparation areas	☐	☐	☒
S14	Community car wash racks	☐	☐	☒

For any Source Control BMPs marked "Not Included" briefly state reasoning:

All BMPs will be provided within the Phase 1 Site Specific WQMP; All BMP's will be provided within the Phase 2 Site Specific BMP when the design phase is initiated.

Describe implementation frequency for each Source Control BMP.

Phase 1 details on frequency to be provided in the Phase 1 Site Specific BMP; Phase 2 details on frequency to be provided when the design phase is initiated.

Table 10-2 Non-Structural Source Control BMPs

Identifier	Name	Included	Not Applicable	Not Included
N1	Education for Property Owners, Tenants and Occupants	☒	☐	☐
N2	Activity Restrictions	☒	☐	☐
N3	Common Area Landscape Management	☒	☐	☐
N4	BMP Maintenance	☒	☐	☐
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	☐
N6	Local Industrial Permit Compliance	☐	☒	☐
N7	Spill Contingency Plan	☐	☒	☐
N8	Underground Storage Tank Compliance	☐	☒	☐
N9	Hazardous Materials Disclosure Compliance	☐	☒	☐
N10	Uniform Fire Code Implementation	☒	☐	☐
N11	Common Area Litter Control	☒	☐	☐
N12	Employee Training	☒	☐	☐
N13	Housekeeping of Loading Docks	☐	☒	☐
N14	Common Area Catch Basin Inspection	☒	☐	☐
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	☐
N16	Retail Gasoline Outlets	☐	☒	☐

For any Source Control BMPs marked "Not Included" briefly state reasoning:

All BMPs will be provided within the Phase 1 Site Specific WQMP; All BMP's will be provided within the Phase 2 Site Specific BMP when the design phase is initiated.

Describe implementation frequency for each Source Control BMP.

Phase 1 details on frequency to be provided in the Phase 1 Site Specific BMP; Phase 2 details on frequency to be provided when the design phase is initiated.

11. Educational Material

Section 11 is required for ***Type 1: Priority Projects***.

Educational materials specifically applicable to the Project must be identified. Identify the applicable educational materials below. Listed materials are available in the provided web links and are not to be included in the WQMP submission; however, additional materials specific to the Project may be included and must be attached as **Attachment 13**.

Educational Material	
Title	**Check If Applicable**
Residential Material (https://h2oc.org/resources/view-order-brochures/resident-brochures/)	
The Ocean Begins at Your Front Door	☒
Tips for Protecting Your Watershed	☒
Proper Disposal of Household Hazardous Waste	☒
Homeowners Guide for Sustainable Water Use	☒
Household Tips	☒
Tips for the Home Mechanic	☒
Recycle at Your Local Used Oil Collection Center (North County)	☒
Recycle at Your Local Used Oil Collection Center (Central County)	☐
Recycle at Your Local Used Oil Collection Center (South County)	☐
Tips for the Home Improvement Projects	☐
Tips for Using Concrete and Mortar	☐
Tips for Projects Using Paint	☒
Sewage Spill Reference Guide for Private Property Owners	☐
Tips for Maintaining a Septic Tank System	☐
Tips for Landscaping and Gardening	☒
Tips to Prevent Overwatering	☒
Responsible Pest Control	☒
Tips for Pet Care	☐
Tips for Horse Care	☐
Tips for Pool Maintenance	☐
Tips for Residential Pool, Landscape and Hardscape Drains	☐
Children's Watershed Workbook	☐
Coloring and Activity Booklet Brochure	☐
Tips for Car Wash Fundraisers	☐
Business Material (https://h2oc.org/resources/view-order-brochures/business-brochures/)	
Tips for the Automotive Industry	☐
Tips for the Food Service Industry	☒
Proper Maintenance Practices for Your Business	☒
Compliance BMPs for Mobile Businesses	☐
Water Quality Requirements for Land Development	☐

Other Material	Check if Attached
	☐
	☐
	☐
	☐
	☐

12. Routine Inspections, Operations, and Maintenance

Section 12 must be completed for ***Type 1: Priority Projects***, ***Type 2: Green Street Projects,*** and ***Type 3: Non-Priority Projects***.

12.1 Inspection / Maintenance Responsibilities

Structural BMPs implemented by Priority Projects, Green Street Projects, and Non-Priority Projects must be regularly inspected and maintained post-construction for proper effectiveness into perpetuity. For each BMP implemented by the Project, document inspection and maintenance information within **Table 12-1**. Additional tables are provided in and are to be appended as **Attachment 14**.

Inspection and maintenance records must be kept for a minimum of five years for inspection by the regulatory agency.

12.2 Operations and Maintenance Plan

Section 12.2 must be completed for ***Type 1: Priority Projects*** ***and Type 2: Green Street Projects***.

Plan Developers of Type 1: Priority Projects and Type 2: Priority Green Street Projects are required to prepare a comprehensive O&M Plan for structural BMPs implemented as part of the Final WQMP submittal. Refer to Section 7 of the NOC WQMP TGD, and Section 2.8 of the SOC WQMP TGD for guidance related to the O&M Plan.

The O&M Plan submitted at the 100% Design phase of the final WQMP must describe the designated party responsible for maintenance, inspection/maintenance activities required, and maintenance frequency. The O&M Plan included in the WQMP is intended to be a starting point for maintenance activities that will take place in the future. Site specific conditions will determine the final maintenance requirements of the site over time, and that ultimately maintenance frequency is set by OC Public Works' asset management system.

The O&M Plan is to be included as **Attachment 15.**

> All BMPs will be provided within the Phase 1 Site Specific WQMP; All BMP's will be provided within the Phase 2 Site Specific BMP when the design phase is initiated.

Table 12-1 BMP Inspection and Maintenance Responsibilities

BMP	DMA	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities

13. Discretionary Permits and Water Quality Conditions

Section 13 is required for ***Type 1: Priority Projects*** and ***Type 2: Green Street Projects***.

13.1 Discretionary Permits

List the discretionary permit(s) applicable to the Project and provide the site address or lot and tract/parcel map number describing the property for which the permit was issued.

Permit	Site Address/Lot and Tract/Parcel Map Number
INSERT PERMIT NAME HERE	INSERT ADDRESS HERE
INSERT PERMIT NAME HERE	INSERT ADDRESS HERE
INSERT PERMIT NAME HERE	INSERT ADDRESS HERE
INSERT PERMIT NAME HERE	INSERT ADDRESS HERE
INSERT PERMIT NAME HERE	INSERT ADDRESS HERE

13.2 Water Quality Conditions

List the conditions verbatim, any Water Quality Conditions, including the condition requiring preparation of WQMP, if applicable. Water Quality Conditions may be included as mitigation measures in California Environmental Quality Act (CEQA) documents for the Project. For example, a Mitigation Monitoring and Report Program adopted in a certified CEQA document may include Project Design Features, Standard Conditions, and Mitigation Measures related to water quality protection.

Water Quality Condition
DESCRIBE CONDITION HERE
DESCRIBE CONDITION HERE
DESCRIBE CONDITION HERE
DESCRIBE CONDITION HERE
DESCRIBE CONDITION HERE

14. Submittal Process

A Draft WQMP/WQP/NPP is required at each phase of the Project (Initiation, 35% Design, 65% Design, 90% Design, as applicable) with the Final WQMP submitted at 100% Design. Drafts shall include all required sections as detailed in **Section 1** and shall be submitted at the specified Project Phase as well as the phases that follow. All sections shall be updated prior to each Draft and the Final submission to reflect the latest Project design.

The OC Environmental Resources Division and Operations and Maintenance Division will review the WQMP/WQP/NPP at all stages of design. Upon completion and submission of the Final WQMP/WQP/NPP, both Divisions will review the plan and if approved, no further action is required of the Plan Developer. If the plan is not approved, comments will be provided to the Plan Developer which shall be addressed prior to resubmission. It is expected that the ultimate owner of these public facilities will be involved throughout the design phase.

During construction, the OC Construction Division will conduct inspections on all construction processes related to the structural BMPs identified in the Final WQMP/WQP/NPP. Inspections will monitor construction processes to ensure that the BMPs are designed according to the approved plan. Inspection forms must be completed and submitted to the OC Construction Division by the Inspector for every required inspection. A BMP Inspection Record, available in **Attachment 16**, shall be kept on site by the Contractor and updated following each inspection. Provided that BMPs are constructed according to the approved design plan and modifications are not necessary post construction, responsibility for maintenance of the BMPs will be transferred to the parties identified in **Section 12**.

Following the transfer of responsibility, the following forms will be sent to and filed by the following departments. The Transmittal Page shall be included with every submittal.

Table 14-1 Document Transfer Guide

Recipient	Document(s)
During Project Design	
OC Environmental Resources OC Operations and Maintenance Division OC Facilities Maintenance	➢ All Sections
After Plan Approval, Before Construction Completion	
OC Construction Division	➢ Section 9 – BMP Exhibit ➢ Attachment 12 – BMP Exhibit ➢ Attachment 16 – BMP Inspection Record
After Construction Completion and Project Acceptance by County	
OC Operations and Maintenance Division (for Type 1: Priority Projects not involving buildings or parking lots; all Type 2: Green Street Projects)	➢ Table 6-1 / Table 7-1 - BMP Inventory ➢ Section 9 – BMP Exhibit ➢ Section 10 – Source Control BMPs ➢ Section 12 – Routine Inspections, Operations, and Maintenance ➢ Attachment 12 – BMP Exhibit ➢ Attachment 14 – Additional BMP Inspection and Maintenance Responsibility Tables ➢ Attachment 15 – Operations and Maintenance Plan
OC Facilities Maintenance (for Type 1: Priority Projects involving buildings or parking lots)	➢ Table 6-1 – BMP Inventory ➢ Section 9 - BMP Exhibit ➢ Section 10 – Source Control BMPs ➢ Section 12 – Routine Inspections, Operations, and Maintenance ➢ Attachment 12 – BMP Exhibit ➢ Attachment 14 – Additional BMP Inspection and Maintenance Responsibility Tables ➢ Attachment 15 – Operations and Maintenance Plan
OC Parks Maintenance (for Type 1: Priority Projects and Type 2: Green Street Projects involving bikeways)	➢ Table 6-1 / Table 7-1 - BMP Inventory ➢ Section 9 – BMP Exhibit ➢ Section 10 – Source Control BMPs ➢ Section 12 – Routine Inspections, Operations, and Maintenance ➢ Attachment 12 – BMP Exhibit ➢ Attachment 14 – Additional BMP Inspection and Maintenance Responsibility Tables ➢ Attachment 15 – Operations and Maintenance Plan

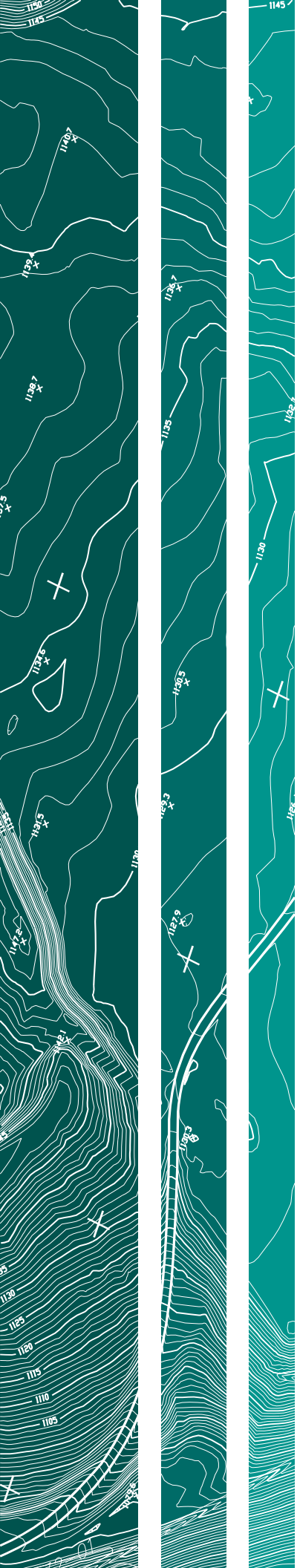
15. Attachments

The following attachments may be required as part of the Project WQMP/WQP/NPP submittal. Refer to sections outlined below for more information.

Attachment		Section
Attachment 1	Preliminary Infiltration Investigation Report	3.3
Attachment 2	WIHMP Criteria and Opportunities (NOC Only)	5.1
Attachment 3	Additional DMA Delineation Tables	5.2
Attachment 4	DCV Calculations	5.2
Attachment 5	Supplementary Infiltration Investigation Report	5.3.1
Attachment 6	Additional Infiltration and Harvest and Use Feasibility Tables	5.3.3
Attachment 7	Additional Priority Project BMP Conformance Analysis Tables	6.2
Attachment 8	DCV Reduction Calculations	6.2
Attachment 9	Additional Green Street Project BMP Conformance Analysis Tables	7
Attachment 10	Hydromodification Exhibits and Calculations	8
Attachment 11	Hydromodification Management Plan	8
Attachment 12	BMP Exhibit	9
Attachment 13	Additional Educational Material	11
Attachment 14	Additional BMP Inspection and Maintenance Responsibility Tables	12.1
Attachment 15	Operations and Maintenance Plan	12.2
Attachment 16	BMP Inspection Record	14
Attachment 17	Conceptual Hydrology Report	

Attachment 1

Preliminary Infiltration Investigation Report



GEOCON

GEOTECHNICAL INVESTIGATION

ORANGE COUNTY YOUTH TRANSITION CENTER
PROJECT (OC YTC)
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

May 21, 2024
PROJECT NO. W1857-88-01

PREPARED FOR:
Balfour Beatty Construction
San Diego, California

Project No. W1857-88-01
May 21, 2024

Balfour Beatty Construction, LLC
13530 Evening Creek Drive North, Suite 270
San Diego, CA 92128

Subject: GEOTECHNICAL INVESTIGATION
ORANGE COUNTY YOUTH TRANSITION CENTER PROJECT (OC YTC)
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

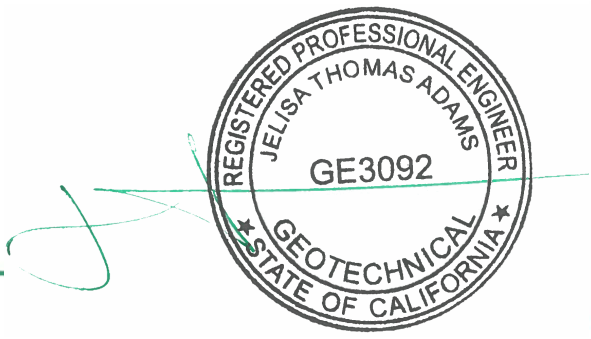
Ladies and Gentlemen:

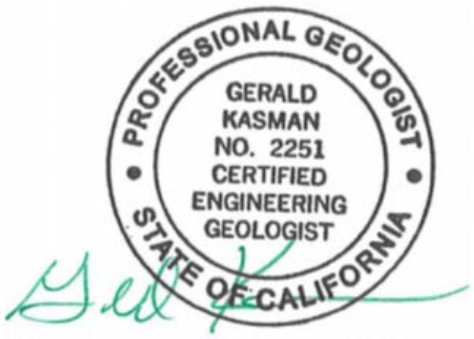
In accordance with your authorization of our proposal dated November 17, 2023, we have performed a geotechnical investigation for the proposed Orange County Youth Transition Center project (OC YTC) located at 331 The City Drive South in the City of Orange, California. The accompanying report presents the findings of our study and our conclusions and recommendations pertaining to the geotechnical aspects of proposed design and construction. Based on the results of our investigation, it is our opinion that the project can be developed as proposed, provided the recommendations of this report are followed and implemented during design and construction.

If you have any questions regarding this report, or if we may be of further service, please contact the undersigned.

Very truly yours,

GEOCON WEST, INC.





Andrew Sover
PE 92879

Jelisa Thoms Adams
GE 3092

Gerald A. Kasman
CEG 2251

(email) Addressee

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- Figure B38, Corrosivity Test Results

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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a geotechnical investigation for the proposed Orange County Youth Transition Center (YTC) project located at 331 The City Drive South, in the City of Orange, California (see Vicinity Map, Figure 1). The purpose of the investigation was to evaluate subsurface soil and geologic conditions underlying the site and, based on conditions encountered, to provide conclusions and recommendations pertaining to the geotechnical aspects of proposed design and construction.

The scope of this investigation included a site reconnaissance, field exploration, laboratory testing, engineering analysis, and the preparation of this report. The site was explored between February 7 and 13, 2024, by excavating eight 8-inch-diameter borings using a truck-mounted hollow-stem auger drilling machine and a limited access drilling machine to depths between 5 and 63.5 feet beneath the ground surface. Additionally, five borings were excavated using 3-inch hand augers to depths between 15 and 16½ feet beneath the ground surface. Percolation testing was performed in two borings to determine the infiltration rate of site soils. Three Cone Penetrometer Tests (CPTs) were advanced on February 12, 2024, to approximate depths of 63 to 100 feet below the ground surface using a truck-mounted 30-ton CPT rig. Additional site exploration was performed on May 2, 2024, by excavating two 8-inch diameter borings using a limited access drilling machine to depths of approximately 20.5 feet below the ground surface. The approximate locations of the exploratory borings and CPT soundings are depicted on the Site Plan (see Figure 2). A detailed discussion of the field investigation, including boring logs and CPT soundings, are presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to determine pertinent physical and chemical soil properties. Appendix B presents a summary of the laboratory test results.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. References reviewed to prepare this report are provided in the *List of References* section.

If project details vary significantly from those described herein, Geocon should be contacted to determine the necessity for review and possible revision of this report.

2. SITE AND PROJECT DESCRIPTION

The subject site is located at 331 The City Drive South in the City of Orange, California. The site is occupied by a youth detention center comprised of one- to two-story dormitories and classrooms, a multipurpose rehabilitation center, and grass fields. The approximate boundary of the area of proposed construction is shown on the Site Plan (see Figure 2). The site is bounded by Service Way South to the north, by Sidwell Way to the east, Justice Center Way to the south, and by the Lamoreaux Justice Center to the west. The site is relatively level and surface water drainage at the site appears to flow to the site drains.

Based on the information provided by the Client, it is our understanding that the proposed project consists of approximately 94,300 gross square feet of new building area and includes site access, new parking areas, outdoor recreation and landscape development and connections to existing Juvenile Hall systems and infrastructure. To create a clear area for construction of new facilities, the project includes demolition of several occupied and unoccupied buildings, perimeter security fencing, site amenities and landscaping. The proposed structures are anticipated to be one- to two-story and constructed at or near present grade. It is anticipated that both masonry and wood framed construction will be used. Temporary modular classrooms will also be constructed to facilitate the project. The existing site conditions are depicted on the Site Plan (see Figure 2). Plans for the proposed project are still being developed and were not available for inclusion in this report.

Based on the preliminary nature of the design at this time, wall and column loads were not available. It is anticipated that column loads for the proposed structures will be up to 20 kips, and wall loads will be up to 2 kips per linear foot.

Once the design phase and foundation loading configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

3. GEOLOGIC SETTING

The subject site is located on the south-central portion of the Orange County Coastal Plain, a relatively flat-lying alluviated surface with an average slope of less than 20 feet per mile. The lowland surface is bounded by hills and mountains on the north and east, and by the Pacific Ocean to the south and southwest. Prominent structural features within the Orange County Coastal Plain include the central lowland plain, the northwest trending line of low hills and mesas underlain by the Newport-Inglewood Fault Zone along the coast (Newport Mesa, Huntington Beach Mesa, Bolsa Chica Mesa, and Landing Hill), and the San Joaquin Hills to the southeast.

4. SOIL AND GEOLOGIC CONDITIONS

Based on published geologic maps of the area, the site is underlain by artificial fill and Holocene age young alluvial fan deposits that consist of sand and silt, with lesser amounts of clay (California Geological Survey, 2012). Detailed stratigraphic profiles of the materials encountered at the site are provided on the boring logs and CPT soundings in Appendix A.

4.1 Artificial Fill

Artificial fill was encountered in our explorations to a maximum depth of 3½ feet below existing ground surface. The artificial fill generally consists of dark brown silty sand and sandy silt that can be characterized as moist and loose to medium dense or firm. The fill is likely the result of past grading or construction activities at the site. Deeper fill may exist between excavations and in other portions of the site that were not directly explored.

4.2 Young Alluvium

Holocene age alluvial fan deposits were encountered beneath the fill. The alluvium generally consists of brown to yellowish brown, or grayish brown silty sand and poorly graded sand with minor interbeds of sandy silt and sandy clay and various amounts of fine- to coarse-gravel. The alluvial soils are characterized as poorly- to well-graded sand, slightly moist to wet and soft to firm or loose to dense.

5. GROUNDWATER

Review of the Seismic Hazard Zone Report for the Anaheim Quadrangle (California Division of Mines and Geology [CDMG], 1998, revised 2001) indicates that the historically highest groundwater level in the area is between 30 and 40 feet beneath the existing ground surface. Groundwater information presented in this document is generated from data collected in the early 1900's to the late 1990s.

Groundwater was encountered in our borings at a depth of approximately 54 feet below the existing ground surface. The groundwater measurements were performed in a manner that is typical of geotechnical exploration and should not be interpreted as representing a fully equalized water level.

Based the reported historic high groundwater levels in the immediate area (CDMG, 2001), and the depth of proposed construction, static groundwater is neither expected to be encountered during construction, nor have a detrimental effect on the project. However, it is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed (especially in impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall), groundwater seepage levels encountered during construction may be actually higher than those encountered during our investigation. In addition, recent requirements for storm water infiltration could result in shallower seepage conditions in the region. Proper surface drainage of irrigation and precipitation will be critical for future performance of the project. Recommendations for drainage are provided in the Surface Drainage section of this report (see Section 7.16).

6. GEOLOGIC HAZARDS

6.1 Surface Fault Rupture

The numerous faults in Southern California include Holocene-active, pre-Holocene, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS, formerly known as CDMG) for the Alquist-Priolo Earthquake Fault Zone Program (CGS, 2018). By definition, a Holocene-active fault is one that has had surface displacement within Holocene time (about the last 11,700 years). A pre-Holocene fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a state-designated Alquist-Priolo Earthquake Fault Zone (CGS, 2024a; 2024b) for surface fault rupture hazards. No Holocene-active or pre-Holocene faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low. However, the site is located in the seismically active Southern California region, and could be subjected to moderate to strong ground shaking in the event of an earthquake on one of the many active Southern California faults. The faults in the vicinity of the site are shown in Figure 3, Regional Fault Map.

The closest surface trace of a Holocene-active fault to the site is the Newport-Inglewood Fault Zone located approximately 9.7 miles to the southwest. Other nearby active faults are the Whittier Fault, the Chino Fault, the Elsinore Fault, and the Palos Verdes Fault Zone (offshore segment) located approximately 10 miles to the north-northeast, 15 miles to the northeast, 16 miles to the northeast, and 19 miles to the southwest, respectively (USGS, 2006; Ziony and Jones, 1989). The active San Andreas Fault Zone is located approximately 41 miles northeast of the site (USGS, 2006; Ziony and Jones, 1989).

Several buried thrust faults, commonly referred to as blind thrusts, underlie the Southern California area at depth. These faults are not exposed at the ground surface and are typically identified at depths greater than 3.0 kilometers. The October 1, 1987 M_w 5.9 Whittier Narrows earthquake and the January 17, 1994 M_w 6.7 Northridge earthquake were a result of movement on the Puente Hills Blind Thrust and the Northridge Thrust, respectively. The Puente Hills Blind Thrust underlies the site at depth. These thrust faults and others in the Los Angeles area are not exposed at the surface and do not present a potential surface fault rupture hazard at the site; however, these deep thrust faults are considered active features capable of generating future earthquakes that could result in moderate to significant ground shaking at the site.

6.2 Seismicity

As with all of Southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. The epicenters of recorded earthquakes with magnitudes equal to or greater than 5.0 in the site vicinity are depicted on Figure 4, Regional Seismicity Map. A partial list of moderate to major magnitude earthquakes that have occurred in the Southern California area within the last 100 years is included in the table on the following page.

LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
Long Beach	March 10, 1933	6.4	12	SSW
Tehachapi	July 21, 1952	7.5	106	NW
San Fernando	February 9, 1971	6.6	52	NW
Whittier Narrows	October 1, 1987	5.9	22	NW
Sierra Madre	June 28, 1991	5.8	34	NNW
Landers	June 28, 1992	7.3	88	ENE
Big Bear	June 28, 1992	6.4	67	ENE
Northridge	January 17, 1994	6.7	47	NW
Hector Mine	October 16, 1999	7.1	108	ENE

The site could be subjected to strong ground shaking in the event of an earthquake. However, this hazard is common in Southern California and the effects of ground shaking can be minimized if the proposed structures are designed and constructed in conformance with current building codes and engineering practices.

6.3 Seismic Design Criteria

The following table summarizes the site-specific design criteria obtained from the 2022 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application U.S. Seismic Design Maps, provided by the Structural Engineers Association of California (SEAOC). The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2022 CBC and Table 20.3-1 of ASCE 7-16. The values presented on the following page are for the risk-targeted maximum considered earthquake (MCE_R).

Although there are liquefiable soils underlying the site, we expect the proposed structures will possesses fundamental periods of less than 0.5 seconds; therefore, use of Site Class F is not considered necessary and a site response analysis is not anticipated to be required in accordance with ASCE 7-16, Section 20.3.1.

2022 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2022 CBC Reference
Site Class	D	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.363g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.484g	Figure 1613.2.1(2)
Site Coefficient, F_A	1	Table 1613.2.3(1)
Site Coefficient, F_V	1.816	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.363g	Section 1613.2.3 (Eqn 16-20)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.879g*	Section 1613.2.3 (Eqn 16-21)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.909g	Section 1613.2.4 (Eqn 16-22)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.586g*	Section 1613.2.4 (Eqn 16-23)

*Per Supplement 3 of ASCE 7-16, a ground motion hazard analysis (GMHA) shall be performed for projects on Site Class "D" sites with 1-second spectral acceleration (S1) greater than or equal to 0.2g, which is true for this site. However, Supplement 3 of ASCE 7-16 provides an exception stating that that the GMHA may be waived provided that the parameter SM1 is increased by 50% for all applications of SM1. The values for parameters SM1 and SD1 presented above have not been increased in accordance with Supplement 3 of ASCE 7-16.

The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCEG Peak Ground Acceleration, PGA	0.575g	Figure 22-9
Site Coefficient, FPGA	1.1	Table 11.8-1
Site Class Modified MCEG Peak Ground Acceleration, PGAM	0.633g	Section 11.8.3 (Eqn 11.8-1)

Deaggregation of the MCE peak ground acceleration was performed using the USGS online Unified Hazard Tool, 2014 Conterminous U.S. Dynamic edition (v4.2.0). The result of the deaggregation analysis indicates that the mean earthquake contributing to the MCE peak ground acceleration is characterized as a 6.65 magnitude event occurring at a hypocentral distance of 13.63 kilometers from the site.

Deaggregation was also performed for the Design Earthquake (DE) peak ground acceleration, and the result of the analysis indicates that the modal earthquake contributing to the DE peak ground acceleration is characterized as a 6.12 magnitude occurring at a hypocentral distance of 10.68 kilometers from the site.

Conformance to the criteria in the above tables for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

6.4 Liquefaction Potential

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Liquefaction is typified by a loss of shear strength in the liquefied layers due to rapid increases in pore water pressure generated by earthquake accelerations.

The current standard of practice, as outlined in the "Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California" and "Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California" requires liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine- to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

The State of California Seismic Hazard Zone Map for the Anaheim Quadrangle (CDMG, 1998) indicates that the site is located within an area identified as a zone of required investigation for liquefaction. The historic high groundwater level in the vicinity of the site is reported to be approximately 30 to 40 feet beneath the ground surface (CDMG, 1997, revised 2001). Groundwater was encountered in the current field explorations at a depth of approximately 54 feet below the existing ground surface.

Liquefaction analyses of the CPT soundings were performed using the program CLiq (Version 3.5.2.17). This program utilizes the 2001 NCEER method of analysis. This semi-empirical method is based on correlations with the data collected from the CPT soundings.

Prior to analysis, the Standard Penetration Test (SPT) blow counts from borings E, F, and I were compared with the blow counts estimated from CPTs 1, 2, and 3 based on the proximity of these explorations. SPTs were performed in the borings at intervals of approximately 5 feet. In order to supplement the SPT blow count data, the California Modified Sampler blow count data were converted to equivalent SPT blow counts based on a correlation factor of 0.55 (Rogers, 2006). The field collected blow counts were corrected for hammer efficiency to N60 blow count values. The boring N60 values were compared with the N60 values generated by the program CPet-IT (Version 3.9.1.3). The comparisons are shown as Figures 5 through 7. It is our opinion that the boring and CPT N60 values show a reasonable correlation and that analysis of the liquefaction potential may be based on the CPT data.

The liquefaction analysis was performed for a Design Earthquake level by using a historic high groundwater table of 30 feet below the ground surface, a magnitude 6.12 earthquake, and a peak horizontal acceleration of 0.422g (⅔PGAM). The enclosed liquefaction analyses, included herein for CPTs 1 through 3, indicate that the alluvial soils below the historic high groundwater could be prone to up to 1.1 inches of liquefaction induced settlement during Design Earthquake ground motion. A summary of the anticipated liquefaction induced settlements is provided as Figure 8; calculations and output from CLiq are provided as Appendix C.

It is our understanding that the intent of the Building Code is to maintain “Life Safety” during Maximum Considered Earthquake level events. Therefore, additional analysis was performed to evaluate the potential for liquefaction during a MCE event. The structural engineer should evaluate the proposed structure for the anticipated MCE liquefaction induced settlements and verify that anticipated deformations would not cause the foundation system to lose the ability to support the gravity loads and/or cause collapse of the structure.

The liquefaction analysis was also performed for the Maximum Considered Earthquake level by using a historic high groundwater table of 30 feet below the ground surface, a magnitude 6.65 earthquake, and a peak horizontal acceleration of 0.633g (PGAM). The enclosed liquefaction analyses, included herein for CPTs 1 through 3, indicate that the alluvial soils below the historic high groundwater could be prone to up to 2.5 inches of liquefaction induced settlement during Maximum Considered Earthquake ground motion. A summary of the anticipated liquefaction induced settlements is provided as Figure 9; calculations and output from CLiq are provided as Appendix C.

6.5 Seismically-Induced Settlement

Dynamic compaction of dry and loose sands may occur during a major earthquake. Typically, settlements occur in thick beds of such soils. Analysis of dry seismic induced settlements were performed using the program CLiq (Version 3.0.3.2). This program utilizes the Robertson and Shao, 2010, method of analysis.

The results of the seismically induced dry settlement calculations for CPTs 1 through 3 indicate that the soil above the historic high groundwater level of 30 feet could be prone to less than ½ inch of settlement as a result of the Design Earthquake peak ground acceleration (⅔PGAM). A summary of the estimated dry seismic settlements during a Design Level Earthquake is provided as Figure 10.

The results of the seismically induced dry settlement calculations for CPTs 1 through 3 indicate that the soil above the historic high groundwater level of 30 feet could be prone up to ⅔ inch of settlement as a result of the Design Earthquake peak ground acceleration (⅔PGAM). A summary of the estimated dry seismic settlements during a Design Level Earthquake is provided as Figure 11.

Calculations and output from CLiq are provided as Appendix C.

6.6 Slope Stability

The site and adjacent sites are relatively flat to sloping gently to the southwest. Based on a review of the City of Orange General Plan (2010) and the Orange County Safety Element (2004), the site is not located within an area identified as having a potential for slope stability hazards. Also, the site is not within an area identified as having a potential for seismic slope instability (CDMG, 1998). There are no known landslides near the site, nor is the site in the path of any known or potential landslides (USGS, 20223a). Therefore, the potential for slope stability hazards to adversely affect the proposed development is considered low.

6.7 Earthquake-Induced Flooding

Earthquake-induced flooding is inundation caused by failure of dams or other water-retaining structures due to earthquakes. The Orange County Safety Element (2004) indicates that the site is located within the Prado Dam and Santiago Reservoir inundation area. However, these reservoirs, as well as others in California, are continually monitored by various governmental agencies (such as the State of California Division of Safety of Dams and the U.S. Army Corps of Engineers) to guard against the threat of dam failure. Current design, construction practices, and ongoing programs of review, modification, or total reconstruction of existing dams are intended to ensure that all dams are capable of withstanding the maximum considered earthquake (MCE) for the site. Therefore, the potential for inundation at the site as a result of an earthquake-induced dam failure is considered low.

6.8 Tsunamis, Seiches, and Flooding

The site is not located within a coastal area. Therefore, tsunamis are not considered a significant hazard at the site.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Therefore, flooding resulting from a seismically induced seiche is considered unlikely.

According to the City of Orange General Plan (2010) and the Orange County Safety Element (2004), the site is not within a 100-year or 500-year flood zone. No base flood elevation was indicted by FEMA (2021).

6.9 Oil Fields & Methane Potential

Based on a review of the California Geologic Energy Management Division (CalGEM) Well Finder Website, the site is not located within an oil field and oil or gas wells are not documented within ½-mile of the site (CalGEM, 2024). However, due to the voluntary nature of record reporting by the oil well drilling companies, wells may be improperly located or not shown on the location map and undocumented wells could be encountered during construction. Any wells encountered during construction will need to be properly abandoned in accordance with the current requirements of the CalGEM.

Since the site is not located within the boundaries of a known oil field, the potential for the presence of methane or other volatile gases at the site is considered low. However, should it be determined that a methane study is required for the proposed development it is recommended that a qualified methane consultant be retained to perform the study and provide mitigation measures as necessary.

6.10 Subsidence

Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. The site is located within an area of known ground subsidence (USGS, 2024). Subsidence related to groundwater pumping commonly occurs in such small magnitudes and over such large areas that it is generally imperceptible at an individual locality. Accordingly, it affects only regionally extensive structures sensitive to slight elevation changes, such as canals and pipelines. The rate of elevation change is usually uniform over a large enough area that it does not result in differential settlements that would cause damage to individual buildings. Therefore, the potential for subsidence to adversely impact the proposed project is considered low.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 It is our opinion that neither soil nor geologic conditions were encountered during the investigation that would preclude the construction of the proposed project provided the recommendations presented herein are followed and implemented during design and construction.

7.1.2 Up to 3½ feet of existing artificial fill was encountered during the site investigation. The existing fill encountered is believed to be the result of past grading and construction activities at the site. Deeper fill may exist in other areas of the site that were not directly explored. Future demolition of the existing structures which occupy the site will likely disturb the upper few feet of soil below those existing improvements. It is our opinion that the existing fill, in its present condition, is not suitable for direct support of proposed foundations or slabs. If needed, the existing fill and site soils are suitable for re-use as engineered fill provided the recommendations in the *Grading* section of this report are followed (see Section 7.4).

7.1.3 The enclosed liquefaction analysis indicates that the site soils could be susceptible to approximately 1¼ inches of total settlement as a result of the Design Earthquake peak ground acceleration (⅔PGA_M), and up to 3 inches of total settlement as a result of the MCE peak ground acceleration (PGA_M). These values exceed the allowable limits of differential settlement for conventional shallow foundations set forth in Chapter 12 of ASCE 7-16. The grading and foundation design recommendations presented herein are intended to reduce the effects of settlement on proposed improvements.

7.1.4 Based on these considerations, the foundation system for the proposed structures must be able to provide sufficient support and minimize the effects of differential settlement resulting from a liquefaction event. One design option is to support proposed buildings on a reinforced mat foundation system. A mat foundation system is more capable of minimizing the effects of differential settlement and has sufficient rigidity to allow the structure to behave more uniformly. Recommendations for the design of a mat foundation system are provided in Section 7.7.

7.1.5 Alternatively, proposed structures may be supported on a conventional foundation system with interconnecting foundation ties. The foundation system should be underlain by a blanket of newly placed engineered fill. Recommendations for the design of a conventional foundation system are provided in Section 7.8.

7.1.6 As a minimum, it is recommended that existing earth materials in the building footprint areas be excavated and properly compacted to a depth of at least 5 feet below the existing ground surface. This depth is based on the existing grades at the time of our site exploration. Deeper excavations should be conducted as necessary to remove existing artificial fill or soft alluvial soil at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed building foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. It is recommended that the grading contractor verify the depth of all building foundations prior to commencement of site grading activities in order to correctly determine the required grading overexcavations for foundations. Where feasible, the excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or for a distance equal to the depth of fill below the foundation, whichever is greater. The limits of existing fill and/or soft alluvial soil removal will be verified by the Geocon representative during site grading activities. Recommendations for earthwork are provided in the *Grading* section of this report (see Section 7.4).

7.1.7 It should be noted that implementation of the recommendations presented herein is not intended to completely prevent damage to the structure during the occurrence of strong ground shaking as a result of nearby earthquakes. It is intended that the structure be designed in such a way that the amount of damage incurred as a result of strong ground shaking be reduced. Re-leveling of the foundation system and repair of utilities could be necessary following a strong seismic event that triggers liquefaction.

7.1.8 Improvements which are not supported on soil modification, such as walkways, paving, and utilities, may still be subject to seismic and/or static settlement. The client should consider the flexibility of the products and pavements being installed. It is recommended that all utilities traversing through existing site soils utilize flexible connections in order to reduce the damage to underground installations caused by potential soil movements.

7.1.9 Based on our observations during site exploration, areas of loose or soft and overly moist soils may be encountered during grading operations. These conditions may change seasonally. If the soils are more than 3 percent above the optimum moisture content at the time of construction the soils will likely require some spreading and drying activities in order to achieve proper compaction.

7.1.10 If loose or soft and overly moist soils are exposed in excavation bottoms, these soils could be subject to excessive pumping. Operation of rubber tire equipment on the subgrade soils may cause excessive disturbance of the soils. Excavation activities to establish the finished subgrade elevation must be conducted carefully and methodically to avoid excessive disturbance to the subgrade. Stabilization of areas of the excavation bottom may be required in order to provide a firm working surface upon which heavy equipment can operate. Recommendations for bottom stabilization and earthwork are provided in the *Grading* section of this report (see Section 7.4).

7.1.11 It is anticipated that stable excavations for the recommended grading associated with the proposed structure can be achieved with sloping measures. However, if excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures may be necessary in order to maintain lateral support of offsite improvements. Excavation recommendations are provided in the *Temporary Excavations* section of this report (Section 7.13).

7.1.12 Where new paving is to be placed, it is recommended that all existing fill and soft alluvium be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing fill and soft alluvium in the area of new paving is not required, however, paving constructed over existing uncertified fill or unsuitable soils may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper twelve inches of soil should be scarified and properly compacted for paving support. Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report (see Section 7.12).

7.1.13 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied-in to the proposed structure, may be supported on conventional foundations bearing on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and proper compaction cannot be performed, foundations may derive support directly in the undisturbed alluvial soils and should be deepened as necessary to maintain a minimum of 12-inch embedment into recommended bearing materials. The depth to competent alluvium should be field verified at each location. If the soils exposed in the excavation bottom are soft or loose, compaction of the soft soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved in writing by a Geocon representative.

7.1.14 Based on the results of percolation testing performed at the site, a stormwater infiltration system is considered feasible for this project. Recommendations for infiltration are provided in the Stormwater Infiltration section of this report (see Section 7.15).

7.1.15 Once the design and foundation loading configuration for the proposed structures proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Based on the final foundation loading configurations, the potential for settlement should be re-evaluated by this office.

7.1.16 Any changes in the design, location or elevation, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

7.1.17 The most recent ASTM standards apply to this project and must be utilized, even if older ASTM standards are indicated in this report.

7.2 Soil and Excavation Characteristics

7.2.1 The in-situ soils can be excavated with moderate effort using conventional excavation equipment. Caving should be anticipated in unshored excavations, especially where granular soils are present.

7.2.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable OSHA rules and regulations to maintain safety and maintain the stability of existing adjacent improvements.

7.2.3 All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load. Penetrations below this 1:1 projection will require special excavation measures such as sloping or shoring. Excavation recommendations are provided in the *Temporary Excavations* section of this report (see Section 7.13).

7.2.4 The upper five feet of existing site soils encountered during the investigation are considered to have a "very low" expansive potential (EI = 0 to 2) and are classified as "non-expansive" in accordance with the 2022 California Building Code (CBC) Section 1803.5.3. The recommendations presented herein assume that foundations and slabs will derive support in these materials.

7.3 Minimum Resistivity, pH, and Water-Soluble Sulfate

7.3.1 Potential of Hydrogen (pH) and resistivity testing as well as chloride content testing were performed on representative samples of soil to generally evaluate the corrosion potential to surface utilities. The tests were performed in accordance with California Test Method Nos. 643 and 422 and indicate that the soils are considered "moderately corrosive" with respect to corrosion of buried ferrous metals on site. The results are presented in Appendix B (Figures B30 and B38) and should be considered for design of underground structures.

7.3.2 Laboratory tests were performed on representative samples of the on-site soil to measure the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate tests are presented in Appendix B (Figures B30 and B38) and indicate that the on-site soil possess a sulfate exposure class of "S0" to concrete structures as defined by 2022 CBC Section 1904 and ACI 318 Chapter 19.

7.3.3 Geocon West, Inc. does not practice in the field of corrosion engineering and mitigation. If corrosion sensitive improvements are planned, it is recommended that a corrosion engineer be retained to evaluate corrosion test results and incorporate the necessary precautions to avoid premature corrosion of buried metal pipes and concrete structures in direct contact with the soils.

7.4 Grading

7.4.1 A preconstruction conference should be held at the site prior to the beginning of excavation operations with the owner, contractor, civil engineer, geotechnical engineer, and building official in attendance. Special soil handling requirements can be discussed at that time.

7.4.2 Earthwork should be observed, and compacted fill tested by representatives of Geocon West, Inc. The existing fill and alluvial soil encountered during exploration are suitable for re-use as an engineered fill, provided any encountered oversize material (greater than 6 inches) and any encountered deleterious debris are removed.

7.4.3 Grading should commence with the removal of all existing vegetation and existing improvements from the area to be graded. Deleterious debris such as wood and root structures should be exported from the site and should not be mixed with the fill soils. Asphalt and concrete should not be mixed with the fill soils unless approved by the Geotechnical Engineer. All existing underground improvements planned for removal should be completely excavated and the resulting depressions properly backfilled in accordance with the procedures described herein. Once a clean excavation bottom has been established it must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.).

7.4.4 As a minimum, it is recommended that the upper 5 feet of existing earth materials within proposed permanent structure footprint areas be excavated and properly compacted for foundation and slab support. This depth is based on the existing grades at the time of our site exploration. Deeper excavations should be conducted as necessary to remove any encountered fill or soft soil as necessary at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. It is recommended that the grading contractor verify the depth of all building foundations prior to commencement of site grading activities in order to correctly determine the required grading overexcavations for foundations. The limits of existing fill and/or soft soil removal will be verified by the Geocon representative during site grading activities.

7.4.5 The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater. Where the recommended lateral over-excavation cannot be performed, such as adjacent to property lines and/or an existing structure, the lateral component of the foundation design can rely solely on friction between the bottom of the foundation and the underlying subgrade soils. The foundation should not utilize passive pressure unless foundations are bounded by and in direct contact with newly placed engineered fill.

7.4.6 Within the area of the temporary modular classrooms, it is recommended that the upper 2 feet of existing earth materials within proposed structures footprint areas be excavated and properly compacted for foundation and slab support. This depth is based on the existing grades at the time of our site exploration. Deeper excavations should be conducted as necessary to remove any encountered fill or soft soil as necessary at the direction of the Geotechnical Engineer (a representative of Geocon). The excavation should extend laterally a minimum distance of 2 feet beyond the building footprint areas, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater. The limits of existing fill and/or soft soil removal will be verified by the Geocon representative during site grading activities.

7.4.7 All fill and backfill soils should be placed in horizontal loose layers approximately 6 to 8 inches thick, moisture conditioned to near optimum moisture content, and properly compacted to a minimum 90 percent of the maximum dry density in accordance with ASTM D 1557 (latest edition).

7.4.8 All excavations must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon).

7.4.9 Based on our observations during site exploration, areas of loose or soft and overly moist soils may be encountered during grading operations. These conditions may change seasonally. If the soils are more than 3 percent above the optimum moisture content at the time of construction the soils will likely require some spreading and drying activities in order to achieve proper compaction.

7.4.10 Prior to placing fill, a stable excavation bottom must be established. In areas where the subgrade is saturated or soft, proper compaction will likely not be possible or achieved in a timely manner without introducing stabilization measures. If subgrade stabilization is required at the excavation bottom, rubber tire equipment should not be allowed in the excavation bottom until it is stabilized or extensive soil disturbance could result. It is suggested that excavation and grading be performed during the summer season to promote moisture control of the soils. In addition, the use of track equipment should be used to minimize disturbance to the soils at the excavation bottom.

7.4.11 Bottom stabilization, if necessary, may be achieved placing a thin lift of 3- to 6-inch-diameter crushed angular rock into the soft excavation bottom. The use of crushed concrete will also be acceptable. The crushed rock should be spread thinly across the excavation bottom and pressed into the soils by track rolling or wheel rolling with heavy equipment. It is very important that voids between the rock fragments are not created so the rock must be thoroughly pressed or blended into the soils. All subgrade soils must be properly compacted and proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon West, Inc.).

7.4.12 An additional method of subgrade stabilization would be to place a minimum 12 inches thick layer of aggregate base over Tensar InterAx NX850 geogrid or equivalent extruded (nonwoven) geotextile. The Tensar geogrids should be installed taught and should overlap in accordance with the manufacturer's recommendations. Prior to placing the geogrid, excessively soft or wet materials should be removed and the resulting excavation bottom should be free of loose material. Non-vibratory compaction methods should be used for compaction of the base material. The aggregate base should be compacted to a dry density of at least 95 percent of the laboratory maximum density near the optimum moisture. If pumping of the subgrade continues, a thicker layer of aggregate base may be placed. It is very important that subgrade stabilization be performed uniformly across the entire excavation bottom.

7.4.13 It is anticipated that stable excavations for the recommended grading can be achieved with sloping measures. However, if excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures may be necessary in order to maintain lateral support of the existing offsite improvements. Excavation recommendations are provided in the *Temporary Excavations* section of this report (Section 7.13).

7.4.14. Where new paving is to be placed, it is recommended that all existing fill and soft alluvium be excavated and properly compacted for paving support. As a minimum, the upper 12 inches of soil should be scarified, moisture conditioned to near optimum moisture content, and compacted to at least 95 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition). Paving recommendations are provided in the *Preliminary Pavement Recommendations* section of this report (see Section 7.12).

7.4.15 Although not anticipated for this project, all imported fill shall be observed, tested, and approved by Geocon West, Inc. prior to bringing soil to the site. Import fill should consist of the characteristics presented in the table below.

SUMMARY OF IMPORT FILL RECOMMENDATIONS

Soil Characteristic	Values
Expansion Potential	"Very Low" (Expansion Index of 20 or less)
Particle Size	Maximum Dimension Less Than 6 Inches
	Free of Debris
Corrosivity	Less Detrimental Than Existing Onsite Soils

7.4.16 Foundations for small outlying structures, such as block walls up to 6 feet high, planter walls or trash enclosures, which will not be tied to the proposed building, may be supported on conventional foundations deriving support on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and proper compaction cannot be performed, foundations may derive support directly in the undisturbed alluvial soils and should be deepened as necessary to maintain a minimum 12-inch embedment into the recommended bearing materials. The depth to competent alluvium should be field verified at each location. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative.

7.4.17 It is recommended that flexible utility connections be utilized for all rigid utilities to reduce or prevent damage to utilities from minor differential movements. Utility trenches should be properly backfilled in accordance with the following requirements. The pipe should be bedded with clean sands (Sand Equivalent greater than 30) to a depth of at least 1 foot over the pipe, and the bedding material must be inspected and approved in writing by the Geotechnical Engineer (a representative of Geocon). The use of gravel is not acceptable unless used in conjunction with filter fabric to prevent the gravel from having direct contact with soil. The remainder of the trench backfill may be derived from onsite soil or approved import soil, compacted as necessary, until the required compaction is obtained. The use of minimum 2-sack slurry as backfill is also acceptable. Prior to placing any bedding materials or pipes, the excavation bottom must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon).

7.4.18 All trench and foundation excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to placing bedding materials, fill, steel, gravel, or concrete.

7.5 Shrinkage

7.5.1 Shrinkage results when a volume of material removed at one density is compacted to a higher density. A shrinkage factor of between 5 and 15 percent should be anticipated when excavating and compacting the upper site soils to an average relative compaction of 90 percent.

7.5.2 If import soils will be utilized in the building pad, the soils must be placed uniformly and at equal thickness at the direction of the Geotechnical Engineer (a representative of Geocon West, Inc.).

7.6 Foundation Design – General

7.6.1 Proposed foundations that are situated immediately adjacent to the existing foundations should be deepened as necessary to match the depth of the existing foundation to prevent a surcharge on the existing foundation.

7.6.2 Where proposed foundations will be deeper than the existing foundation, the proposed foundation must be designed to resist the surcharge imposed by the existing foundation. The surcharge area may be defined by a 1:1 projection up and away from the bottom of an existing foundation.

7.6.3 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

7.6.4 This office should be provided a copy of the final construction plans so that the recommendations presented herein could be properly reviewed and revised if necessary.

7.7 Mat Foundation Design

7.7.1 A reinforced concrete mat foundation deriving support in newly placed engineered fill may also be utilized for support the proposed structures. Proposed foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete.

7.7.2 The recommended maximum allowable bearing value for the design of a reinforced concrete mat foundation is 4,000 pounds per square foot (psf). The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

7.7.3 It is recommended that a modulus of subgrade reaction of 150 pounds per cubic inch (pci) be utilized for the design of the mat foundation bearing in newly placed engineered fill. This value is a unit value for use with a 1-foot square footing. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K\left[\frac{B+1}{2B}\right]^2$$

where: K_R = reduced subgrade modulus
K = unit subgrade modulus
B = foundation width (in feet)

7.7.4 The thickness of and reinforcement for the mat foundation should be designed by the project structural engineer.

7.7.5 The maximum expected static settlement for a structure supported on a mat foundation system deriving support in the recommended bearing materials and designed with a maximum bearing pressure of 4,000 psf is estimated to be less than 1 inch and occur below the heaviest loaded structural element. Settlement of the foundation system is expected to occur on initial application of loading. Differential settlement is not expected to exceed ½ inch between the center and corner of the mat foundation.

7.7.6 Based on seismic considerations, proposed structures supported on a mat foundation system should be designed for a combined static and seismically-induced differential settlement of than 1¼ inches.

7.7.7 Settlement resulting from mat foundation loading depends on the pressure distribution across the mat. Typically, some areas of the mat foundation induce larger stresses in the soil than other areas based on the applied loading. Once the design and foundation loading configurations for the proposed structure proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions, the potential for settlement should be reevaluated by this office.

7.7.8 For seismic design purposes, a coefficient of friction of 0.35 may be utilized between concrete slab and subgrade soils without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.8 Conventional Foundation Design

7.8.1 Subsequent to the recommended grading, proposed structures may be supported on a conventional spread foundation system deriving support in newly placed engineered fill. Proposed building foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. The use of a conventional foundation system requires the use of interconnecting foundation ties.

7.8.2 Conventional shallow spread foundations should consist of continuous strip footings and/or isolated spread footings with interconnecting foundation ties and should be designed using the parameters in the table on the following page.

SUMMARY OF FOUNDATION RECOMMENDATIONS

Parameter	Value
Minimum Continuous Foundation Width	12 Inches
Minimum Isolated Foundation Width	24 Inches
Minimum Foundation Depth	18 Inches Below Lowest Adjacent Grade & 12 inches into recommended bearing material
Minimum Steel Reinforcement	4 No. 4 Bars, 2 Top and 2 Bottom
Allowable Bearing Capacity – Continuous Foundation	2,500 psf
Allowable Bearing Capacity – Isolated Foundation	3,000 psf
Bearing Capacity Increase	300 psf per Foot of Width
	600 psf per Foot of Depth
Maximum Allowable Bearing Capacity	4,000 psf
Estimated Total Settlement	¾ Inch
Estimated Differential Settlement	½ Inch over 20 Feet

7.8.3 The above foundation dimensions and minimum reinforcement recommendations are based on soil conditions and building code requirements only, and are not intended to be used in lieu of those required for structural purposes.

7.8.4 The allowable bearing pressures may be increased by one-third for transient loads due to wind or seismic forces.

7.8.5 The analyses presented herein indicate the site could be susceptible to seismically-induced settlement. These settlements are in addition to the static settlements indicated above and must be considered in the structural design. Based on seismic considerations, the proposed structure should be designed for a combined static and seismically-induced differential settlement indicated in the table below.

SUMMARY OF ANTICIPATED DIFFERENTIAL SETTLEMENT

Parameter	Value
Estimated Differential Static Settlement	½ Inch over 20 Feet
Estimated Differential Seismic Settlement	⅔ Inch over 20 Feet
Recommended Combined Differential Static + Seismic Settlement	1¼ over 20 feet

7.8.6 Once the design and foundation loading configurations for the proposed structures proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions, the potential for settlement should be reevaluated by this office.

7.8.7 No special subgrade presaturation is required prior to placement of concrete. However, the moisture in the foundation subgrade should be sprinkled as necessary to maintain a moist condition at the time of concrete placement.

7.8.8 If depth increases are utilized for the exterior wall footings, this office should be provided a copy of the final construction plans so that the excavation recommendations presented herein could be properly reviewed and revised if necessary. Additional grading should be conducted as needed in order to maintain the required 3-foot-thick blanket of engineered fill below foundations.

7.9 Miscellaneous Foundations

7.9.1 Foundations for small outlying structures, such as block walls up to 6 feet in height, planter walls or trash enclosures, which will not be tied to the proposed structure, may be supported on conventional foundations deriving support on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and compaction cannot be performed, foundations may derive support directly in the competent undisturbed alluvial soils and should be deepened as necessary to maintain a minimum 12-inch embedment into the recommended bearing materials. The depth to competent alluvium should be field verified at each location.

7.9.2 If the soils exposed in the excavation bottom are soft, compaction of the soft soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative. Miscellaneous foundations may be designed for a bearing value of 1,500 psf, and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade and 12 inches into the recommended bearing material. The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

7.9.3 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the excavations and exposed soil conditions are consistent with those anticipated.

7.10 Temporary Modular Classrooms Foundation Design

7.10.1 It is our understanding that the temporary modular classrooms will be supported on pier foundations deriving support on cribbing underlain by newly placed engineered fill. Provided the area of the modular classroom is prepared in accordance with the Grading recommendations provided herein (Section 7.4), the modular classroom structure foundations may be designed with an allowable bearing pressure of 1,000 pounds per square foot.

7.11 Lateral Design

7.11.1 Resistance to lateral loading may be provided by friction acting at the base of foundations, slabs and by passive earth pressure. An allowable coefficient of friction of 0.35 may be used with the dead load forces in the newly placed engineered fill or undisturbed older alluvial soils.

7.11.2 Passive earth pressure for the sides of foundations and slabs poured against newly placed engineered fill or undisturbed older alluvial soils may be computed as an equivalent fluid having a density of 250 pounds per cubic foot (pcf) with a maximum earth pressure of 2,500 psf. When combining passive and friction for lateral resistance, the passive component should be reduced by one-third. A one-third increase in the passive value may be used for wind or seismic loads.

7.10.3 Where the recommended lateral over-excavation cannot be performed, such as adjacent to property lines and/or an existing structure, the lateral component of the foundation design can rely solely on friction between the bottom of the foundation and the underlying subgrade soils. The foundation should not utilize passive pressure unless foundations are bounded by and in direct contact with newly placed engineered fill.

7.12 Concrete Slabs-on-Grade

7.12.1 Subsequent to the recommended grading, concrete slabs-on-grade for structures, not subject to vehicle loading, should be a minimum of 4 inches thick and minimum slab reinforcement should consist of No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. Steel reinforcing should be positioned vertically near the slab midpoint.

7.12.2 Slabs-on-grade at the ground surface that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder placed directly beneath the slab. The vapor retarder and acceptable permeance should be specified by the project architect or developer based on the type of floor covering that will be installed. The vapor retarder selection and design should be consistent with the guidelines presented in Section 9.3 of the American Concrete Institute's (ACI) Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials (ACI 302.2R-06) as well as ASTM E1745 and should be installed in general conformance with ASTM E 1643 (latest edition) and the manufacturer's recommendations. A minimum thickness of 15 mils extruded polyolefin plastic is recommended; vapor retarders which contain recycled content or woven materials are not recommended. The vapor retarder should have a permeance of less than 0.01 perms demonstrated by testing before and after mandatory conditioning is recommended. The vapor retarder should be installed in direct contact with the concrete slab with proper perimeter seal. If the California Green Building Code requirements apply to this project, the vapor retarder should be underlain by 4 inches of clean aggregate. It is important that the vapor retarder be puncture resistant since it will be in direct contact with angular gravel. As an alternative to the clean aggregate suggested in the Green Building Code, it is our opinion that the concrete slab-on-grade may be underlain by a vapor retarder over 4-inches of clean sand (sand equivalent greater than 30), since the sand will serve a capillary break and will minimize the potential for punctures and damage to the vapor barrier.

7.12.3 For seismic design purposes, a coefficient of friction of 0.35 may be utilized between concrete slabs and subgrade soils without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.12.4 Exterior slabs for walkways and flatwork, not subject to traffic loads, should be at least 4 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions, positioned near the slab midpoint. Prior to construction of slabs, the upper 12 inches of subgrade should be moistened to near optimum moisture content and properly compacted to at least 95 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition). Crack control joints should be spaced at intervals not greater than 10 feet and should be constructed using saw-cuts or other methods as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by the project structural engineer.

7.12.5 The moisture content of the slab subgrade should be maintained and sprinkled as necessary to maintain a moist condition as would be expected in any concrete placement.

7.12.6 The recommendations of this report are intended to reduce the potential for cracking of slabs due to settlement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to minor soil movement and/or concrete shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

7.13 Preliminary Pavement Recommendations

7.13.1 Where new paving is to be placed, it is recommended that all existing fill and soft alluvium be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing artificial fill and soft alluvium in the area of new paving is not required; however, paving constructed over existing uncertified fill or unsuitable alluvium may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of paving subgrade should be scarified, moisture conditioned to near optimum moisture content, and properly compacted to at least 95 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition).

7.13.2 The following pavement sections are based on an assumed R-Value of 20. Once site grading activities are complete an R-Value should be obtained by laboratory testing to confirm the properties of the soils serving as paving subgrade, prior to placing pavement.

7.13.3 The Traffic Indices listed below are estimates. Geocon does not practice in the field of traffic engineering. The actual Traffic Index for each area should be determined by the project civil engineer. If pavement sections for Traffic Indices other than those listed below are required, Geocon should be contacted to provide additional recommendations. Pavement thicknesses were determined following procedures outlined in the *California Highway Design Manual* (Caltrans). It is anticipated that the majority of traffic will consist of automobile and large truck traffic.

PRELIMINARY PAVEMENT DESIGN SECTIONS

Location	Estimated Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Automobile Parking and Driveways	4.0	3.0	6.0
Trash Truck & Fire Lanes	7.0	4.0	12.0

7.13.4 We understand that decomposed granite (DG) paving will be constructed for pedestrian and vehicular loading. It is recommended that the DG material be underlain by aggregate base. For the purpose of providing pavement design recommendations, we have assumed that the DG does not contribute to the paving structural section.

PRELIMINARY PAVEMENT DESIGN SECTIONS – BASE ONLY

Location	Estimated Traffic Index (TI)	Class 2 Aggregate Base (inches)
Pedestrian Walkways	n/a	4.0
Trash Truck & Fire Lanes	7.0	20.0

7.13.5 Asphalt concrete should conform to Section 203-6 of the "*Standard Specifications for Public Works Construction*" (Green Book). Class 2 aggregate base materials should conform to Section 26-1.02A of the "*Standard Specifications of the State of California, Department of Transportation*" (Caltrans). The use of Crushed Miscellaneous Base (CMB) in lieu of Class 2 aggregate base is acceptable. Crushed Miscellaneous Base should conform to Section 200-2.4 of the "*Standard Specifications for Public Works Construction*" (Green Book).

7.13.6 Unless specifically designed and evaluated by the project structural engineer, where exterior concrete paving will be utilized for support of vehicles, it is recommended that the concrete be a minimum of 6 inches of concrete reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. Concrete paving supporting vehicular traffic should be underlain by a minimum of 4 inches of aggregate base and a properly compacted subgrade. The subgrade and base material should be compacted to 95 percent relative compaction as determined by ASTM Test Method D 1557 (latest edition).

7.13.7 The performance of pavements is highly dependent upon providing positive surface drainage away from the edge of pavements. Ponding of water on or adjacent to the pavement will likely result in saturation of the subgrade materials and subsequent cracking, subsidence and pavement distress. If planters are planned adjacent to paving, it is recommended that the perimeter curb be extended at least 12 inches below the bottom of the aggregate base to minimize the introduction of water beneath the paving.

7.14 Temporary Excavations

7.14.1 Excavations on the order of 5 feet in height may be required during grading operations. The excavations are expected to expose artificial fill and alluvial soils, which may be subject to caving where granular soils are exposed. Temporary vertical excavations up to 5 feet in height may be attempted where loose soils or caving sands are not present, and where excavations are not surcharged by adjacent traffic or structures.

7.14.2 Vertical excavations greater than 5 feet or where surcharged by existing structures will require sloping or shoring measures in order to provide a stable excavation. Where sufficient space is available, temporary unsurcharged embankments could be sloped back at a uniform 1:1 slope gradient or flatter up to a maximum of 10 feet in height. A uniform slope does not have a vertical portion. Where space is limited, shoring measures will be required.

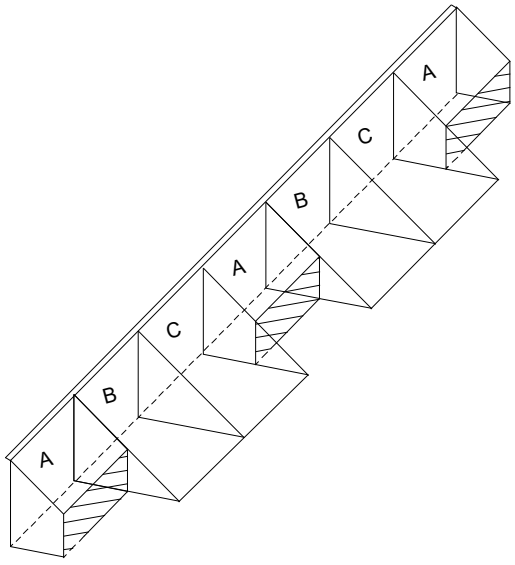
7.14.3 If excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures such as slot-cutting or shoring may be necessary in order to maintain lateral support of offsite improvements. Recommendations for slot-cutting are provided in the following section.

7.14.4 Where temporary construction slopes are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction slopes are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. The soils exposed in the cut slopes should be inspected during excavation by our personnel and the contractor's competent person so that modifications of the slopes can be made if variations in the soil conditions occur. All excavations should be stabilized within 30 days of initial excavation.

7.15 Slot Cutting

7.15.1 The slot-cutting method employs the earth as a buttress and allows the earth excavation to proceed in phases. Where slot-cutting is used for foundation construction, the proposed construction techniques should be discussed with the structural engineer so that appropriate modifications can be made to the foundation design; such as additional reinforcing or details for doweling.

7.15.2 It is recommended that the initial temporary excavation along the property line be sloped back at a uniform 1:1 (H:V) slope gradient or flatter for excavation of the existing soils to the necessary depth. The temporary excavation should not extend below the surcharge area of any adjacent foundations. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation. The temporary slope may then be excavated using the slot-cutting (see illustration below).



7.15.3 Alternate "A" slots of 8 feet in width may be worked. The remaining earth buttresses ("B" and "C" slots) should also be 8 feet in width. The wall, foundation, or backfill should be completed in the "A" slots to a point where support of the offsite property and/or any existing structures is restored before the "B" slots are excavated. After completing the wall, foundation, or backfill in the "B" slots, finally the "C" slots may be excavated. Slot-cutting is not recommended for vertical excavations greater than 5 feet in height. A slot-cut calculation is provided as Figure 12 and assumes no surcharge loads will be acting on the excavation. If surcharge loads will be present, the slot-cut calculation should be revised as necessary.

7.16 Stormwater Infiltration

7.16.1 During the site exploration, borings L and M were used to perform percolation testing. The borings were advanced to the depth listed in the table below. Slotted casing was placed in the borings, and the annular space between the casing and excavation was filled with filter pack. The borings were then filled with water to pre-saturate the soils. The casings were refilled with water and percolation test readings were performed after repeated flooding of the cased excavation. Based on the test results, the average infiltration rate (adjusted percolation rate), for the earth materials encountered, is provided in the following table. The field-measured percolation rate has been adjusted to infiltration rates in accordance with the County of Orange Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (December 2013). Additional correction factors may be required and should be applied by the engineer in responsible charge of the design of the stormwater infiltration system and based on applicable guidelines. Percolation test results are provided on Figures 13 and 14.

Boring	Soil Type	Infiltration Depth (ft)	Average Infiltration Rate (in / hour)
L	Silty Sand (SM)	5-10	1.40
M	Silty Sand (SM)	3.5-5	2.73

7.16.2 The results of the percolation testing indicate that the soils are conductive to infiltration. It is our opinion that the soil zones encountered at the depths and locations as listed in the table above are suitable for infiltration of stormwater.

7.16.3 It is our opinion that the introduction of stormwater at the depth and location indicated above will not induce excessive hydro-consolidation, will not create a perched groundwater condition, will not affect soil structure interaction of existing or proposed foundations due to expansive soils, will not saturate soils supported by existing or proposed retaining walls, and will not increase the potential for liquefaction. Resulting settlements are anticipated to be less than ¼ inch, if any.

7.16.4 If infiltration is planned for any location or depth other than where the above testing was performed, additional testing may be required.

7.16.5 The infiltration system should be located such that the closest distance between an adjacent foundation is at least 15 feet in all directions from the zone of saturation. The zone of saturation may be assumed to project downward from the discharge of the infiltration facility at a gradient of 1:1. Additional property line or foundation setbacks may be required by the governing jurisdiction and should be incorporated into the stormwater infiltration system design as necessary.

7.16.6 Subsequent to the placement of the infiltration system, it is acceptable to backfill the resulting void space between the excavation sidewalls and the infiltration system with minimum two-sack slurry provided the slurry is not placed in the infiltration zone. It is recommended that pea gravel be utilized adjacent to the infiltration zone so communication of water to the soil is not hindered.

7.16.7 Due to the preliminary nature of the project at this time, the type of stormwater infiltration system and location of the stormwater infiltration systems has not yet been determined. The design drawings should be reviewed and approved by the Geotechnical Engineer. The installation of the stormwater infiltration system should be observed and approved by the Geotechnical Engineer (a representative of Geocon).

7.17 Surface Drainage

7.17.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change in the original designed engineering properties. Proper drainage should be maintained at all times.

7.17.2 All site drainage should be collected and controlled in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2022 CBC 1804.4 or other applicable standards. In addition, drainage should not be allowed to flow uncontrolled over any descending slope. Discharge from downspouts, roof drains and scuppers are not recommended onto unprotected soils within 5 feet of the building perimeter. Planters which are located adjacent to foundations should be sealed to prevent moisture intrusion into the soils providing foundation support. Landscape irrigation is not recommended within 5 feet of the building perimeter footings except when enclosed in protected planters.

7.17.3 Positive site drainage should be provided away from structures, pavement, and the tops of slopes to swales or other controlled drainage structures.

7.17.4 Landscaping planters immediately adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. Either a subdrain, which collects excess irrigation water and transmits it to drainage structures, or impervious above-grade planter boxes should be used. In addition, where landscaping is planned adjacent to the pavement, it is recommended that consideration be given to providing a cutoff wall along the edge of the pavement that extends at least 12 inches below the base material.

7.18 Plan Review

7.18.1 Grading, foundation, and shoring plans should be reviewed by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

3. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

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5. *California Geological Survey, 2024a, CGS Information Warehouse, Regulatory Map Portal, http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps.*

6. *California Geological Survey, 2024b, Earthquake Zones of Required Investigation, https://maps.conservation.ca.gov/cgs/EQZApp/app/.*

7. *California Geological Survey, 2018, Earthquake Fault Zones, A Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California, Special Publication 42, Revised 2018.*

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10. *City of Anaheim, General Plan, (2010) Public Safety Element.*

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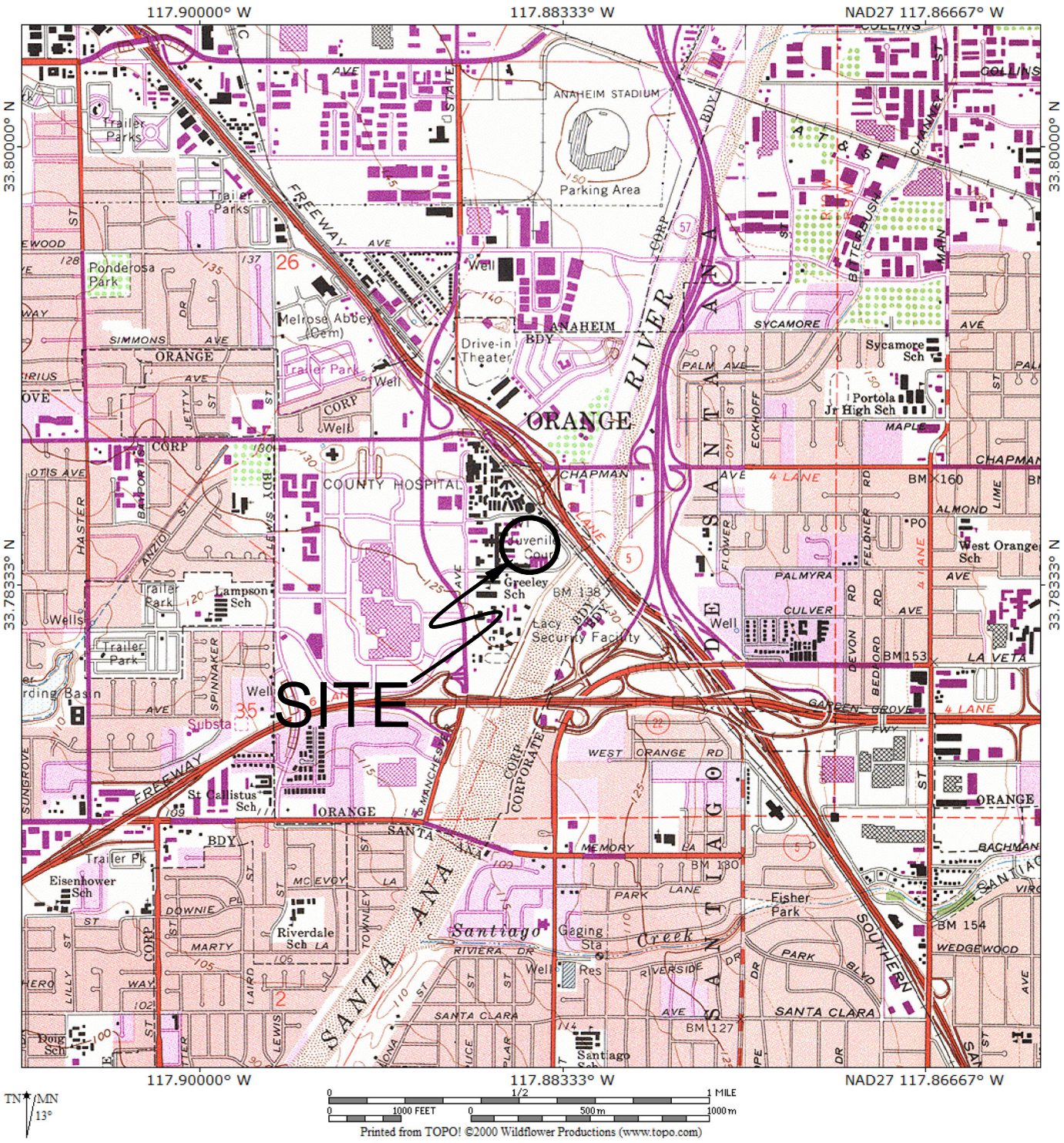

REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, ANAHEIM, CA QUADRANGLE

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VICINITY MAP

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024	PROJECT NO. W1857-88-01	FIG. 1

LEGEND

- Approximate Boring Locations
- Approximate CPT Location
- Approximate Limits of Project
- Area of Temp. Modular Classrooms

NORTH

0 100' 200'

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SITE PLAN

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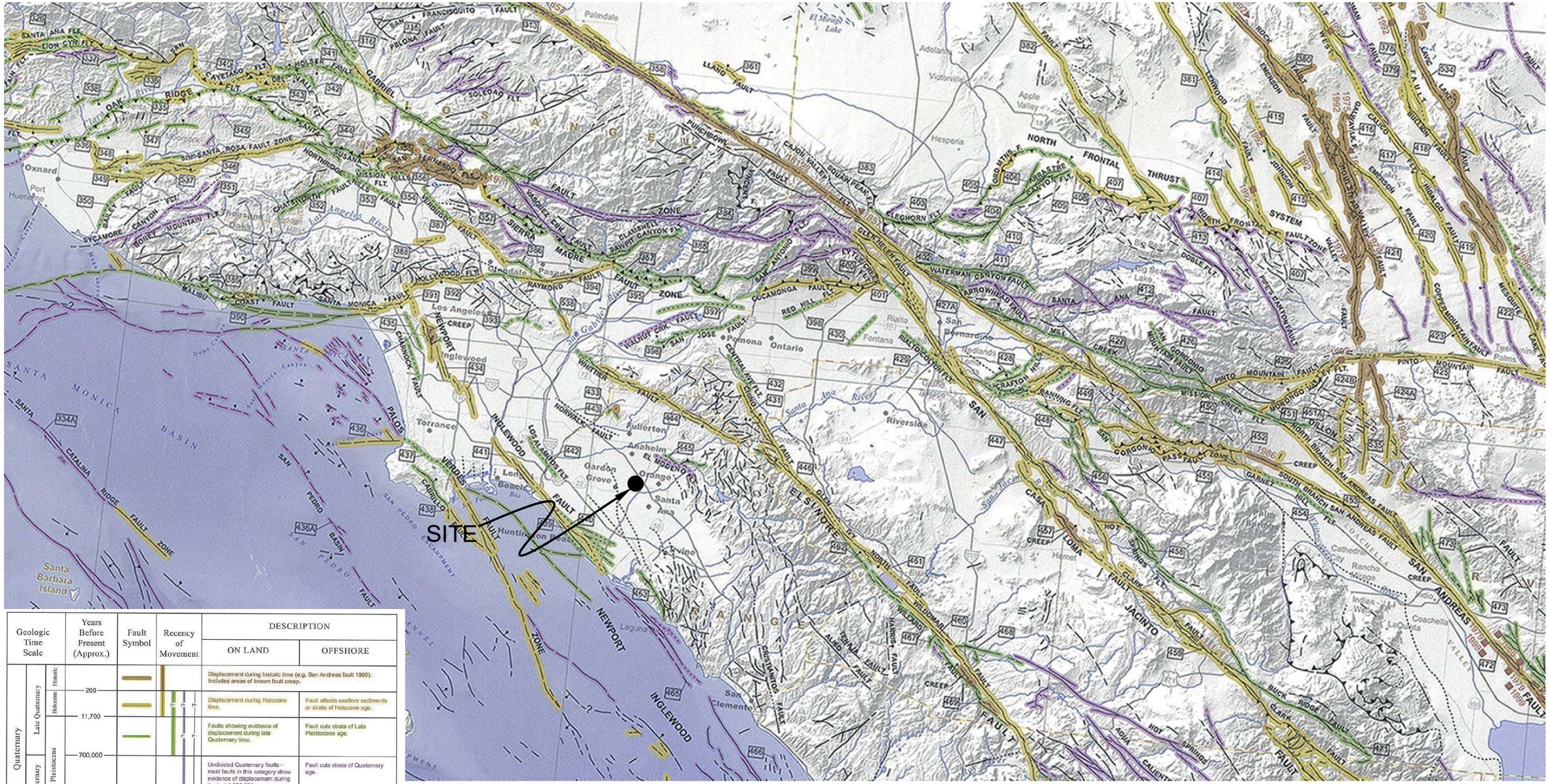
MAY 2024 | PROJECT NO. W1857-88-01 | FIG. 2

Reference: Jennings, C.W. and Bryant, W. A., 2010, Fault Activity Map of California, California Geological Survey Geologic Data Map No. 6.



Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Historic				Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	200			Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
			11,700			Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary	Pleistocene	700,000			Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
			1,600,000*				
Pre-Quaternary			4.5 billion (Age of Earth)			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.

N

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REGIONAL FAULT MAP

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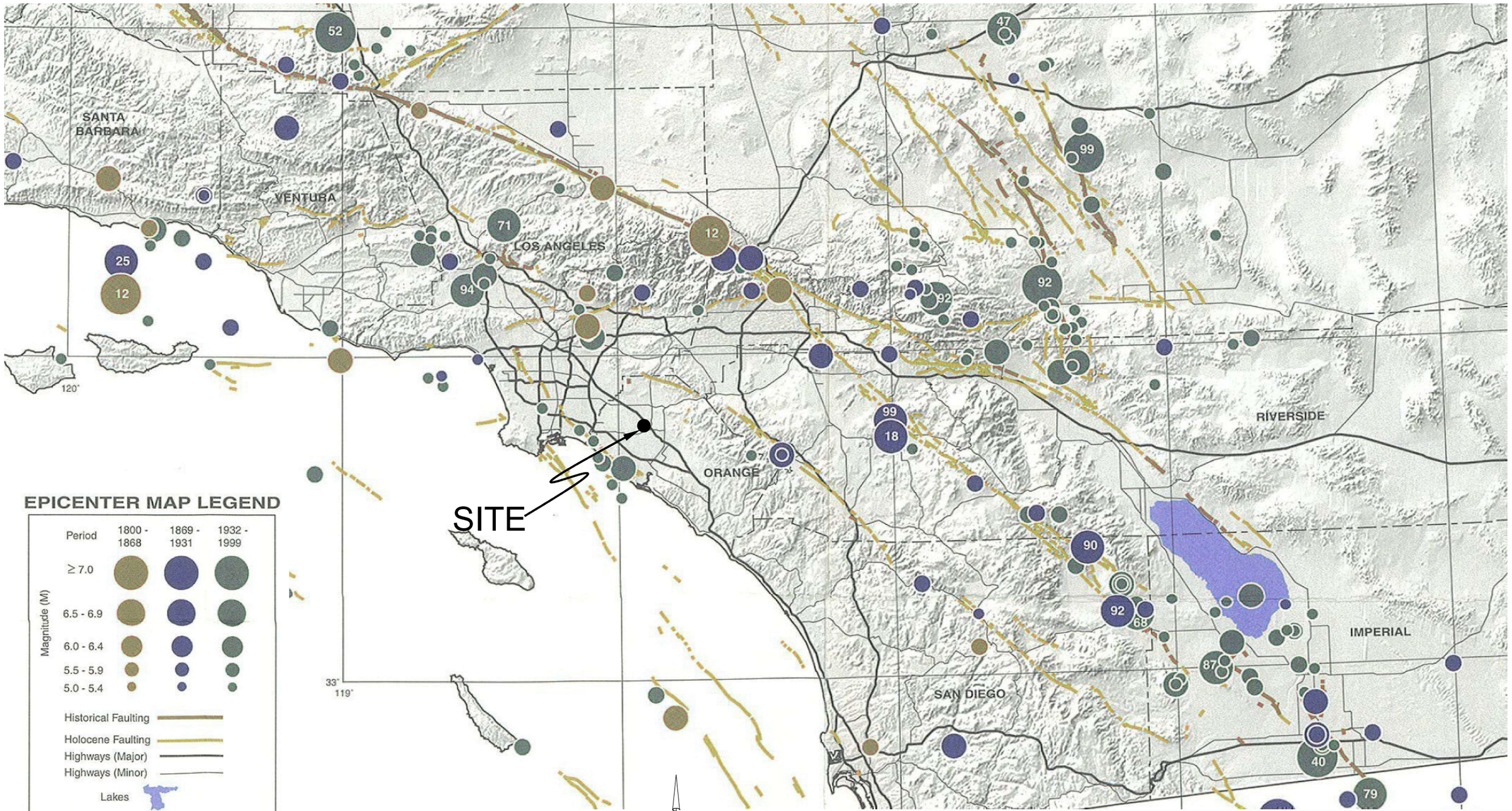
ORANGE, CALIFORNIA

MAY 2024 | PROJECT NO. W1857-88-01 | FIG. 3



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REGIONAL SEISMICITY MAP

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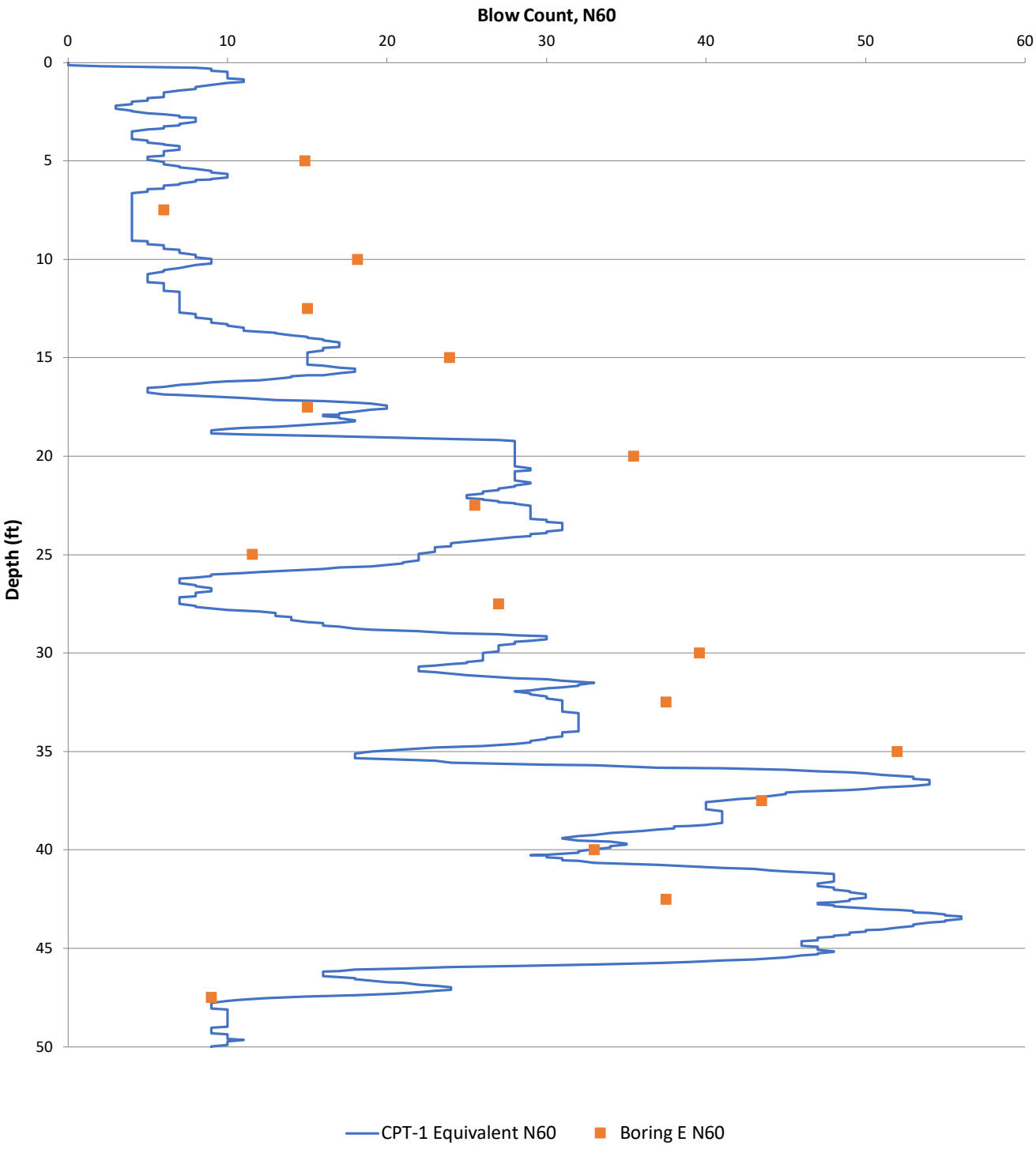
ORANGE, CALIFORNIA

MAY 2024	PROJECT NO. W1857-88-01	FIG. 4



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CORRELATION OF BORING AND CPT N60

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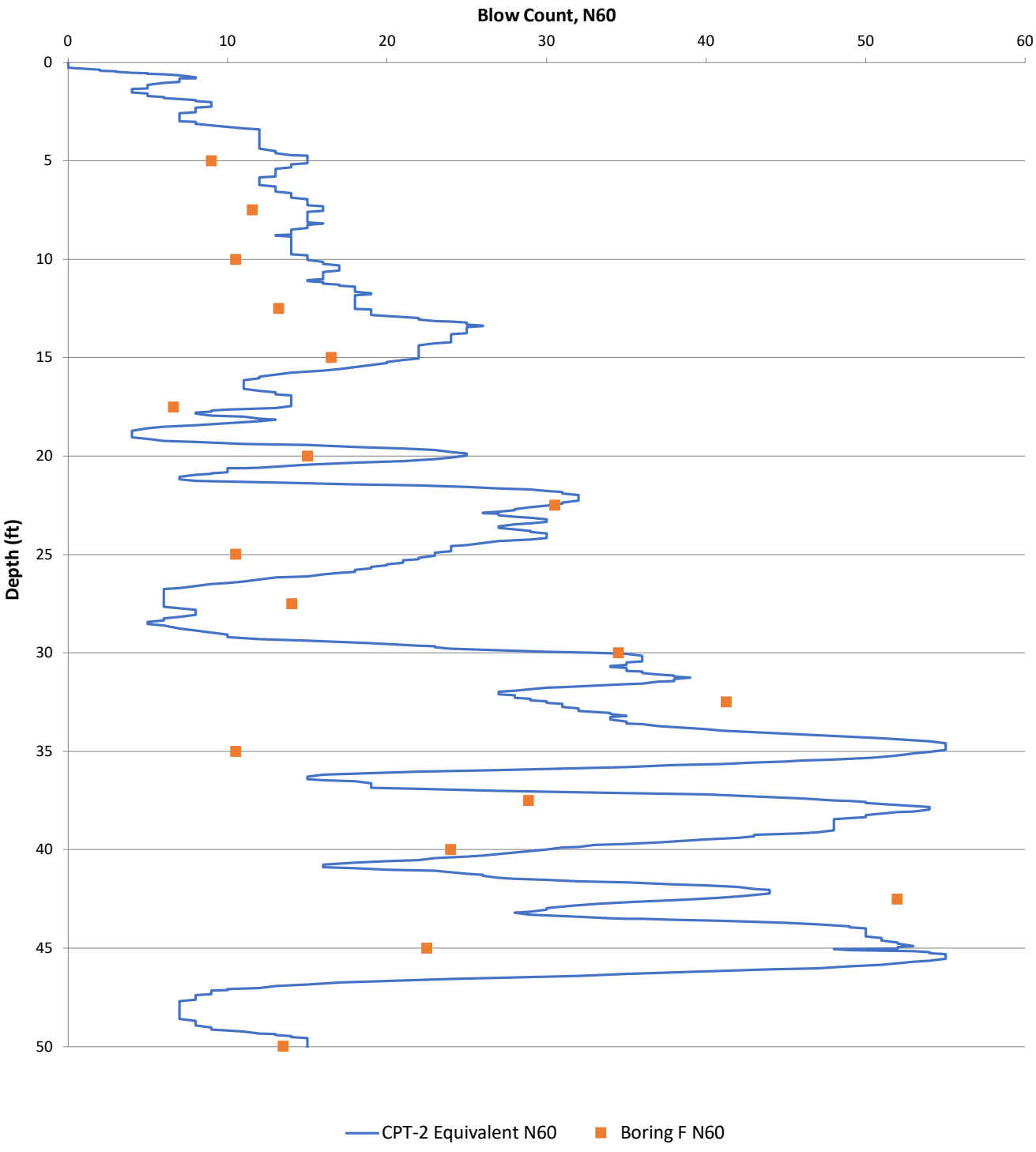
MAY 2024	PROJECT NO. W1857-88-01	FIG. 5



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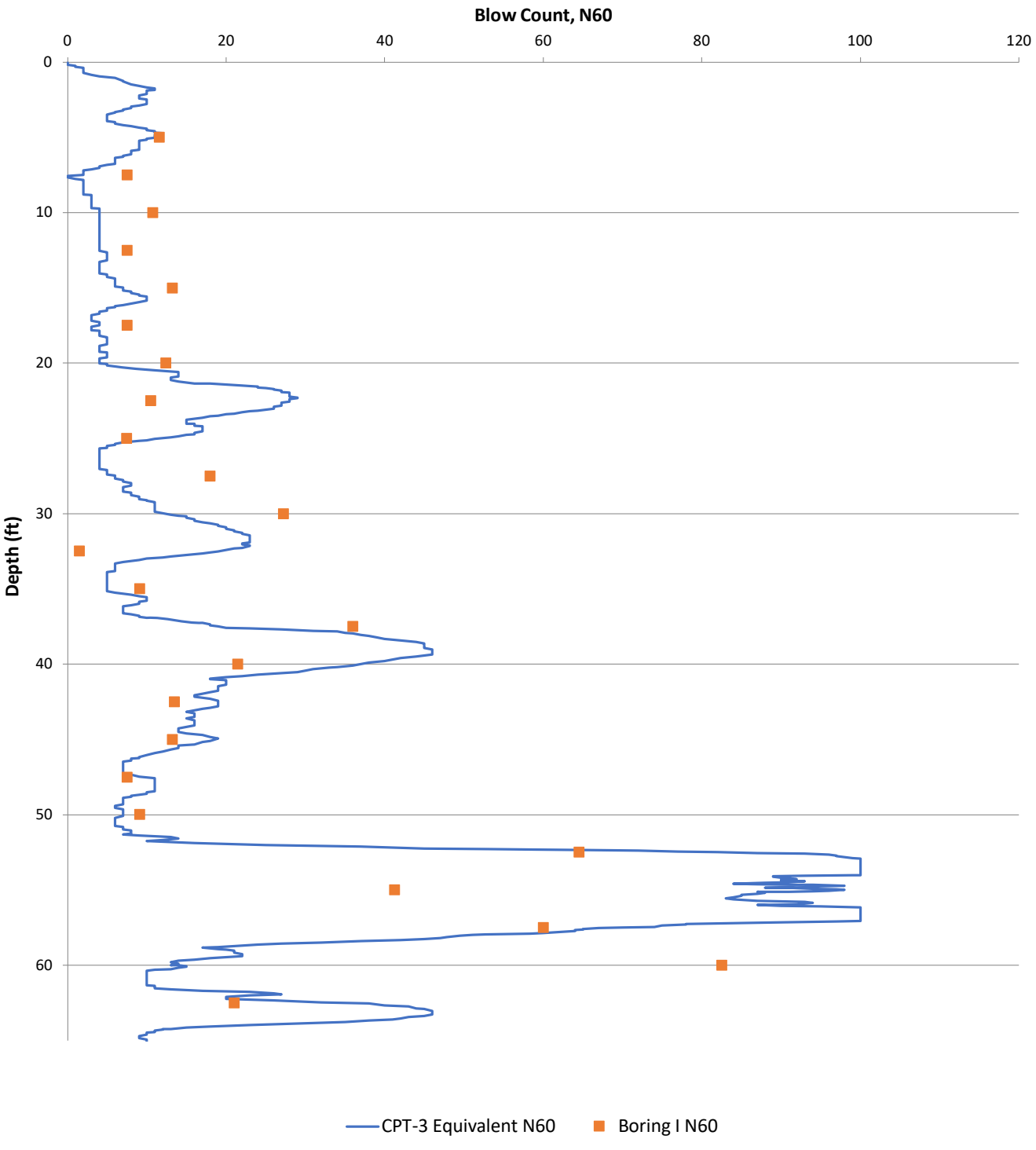
PHONE: 949-491-6570

DRAFTED BY: ACS	CHECKED BY: JTA

CORRELATION OF BORING AND CPT N60

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024	PROJECT NO. W1857-88-01	FIG. 6



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CORRELATION OF BORING AND CPT N60

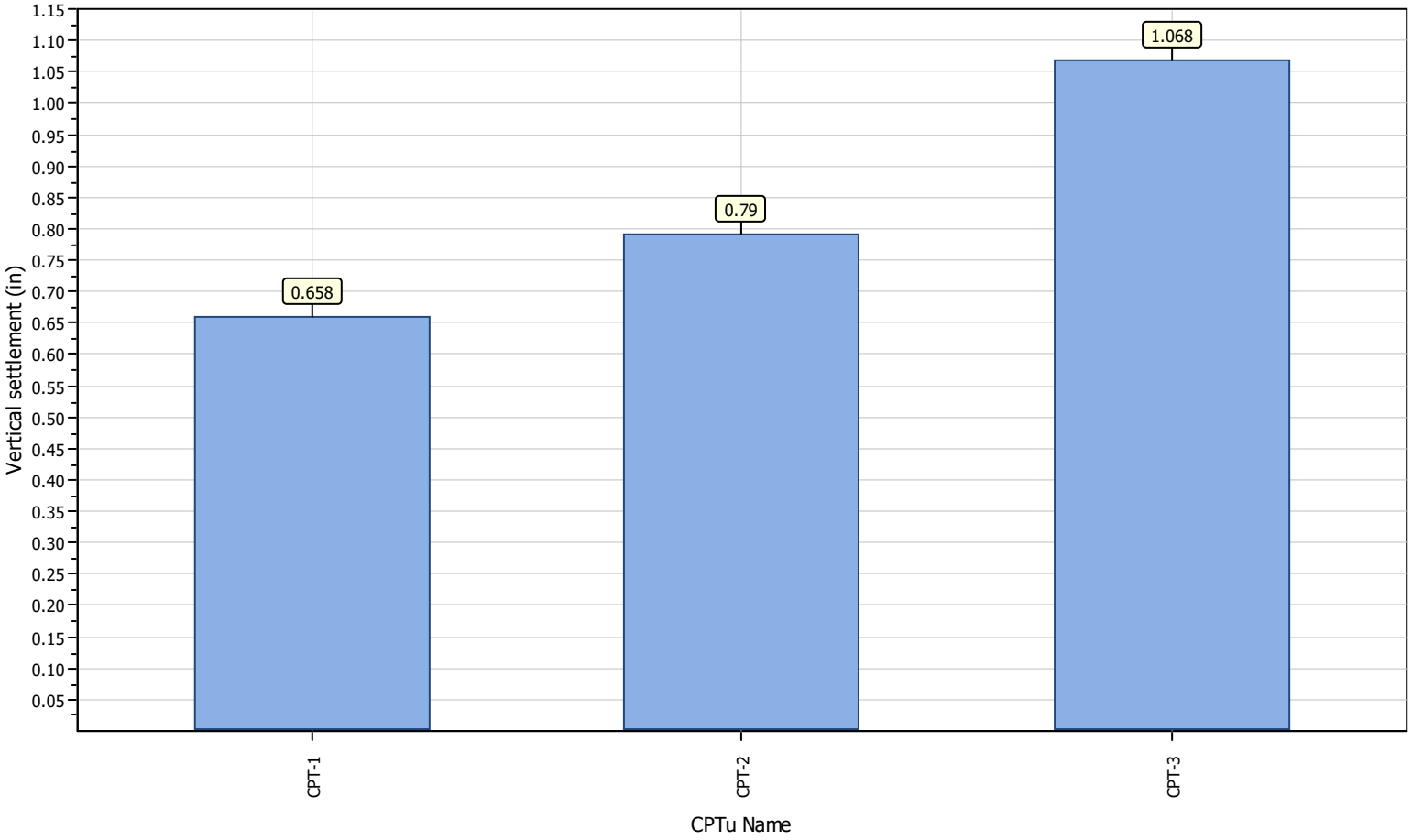
OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024	PROJECT NO. W1857-88-01	FIG. 7

Project title : W1857-88-01

Location : 331 The City Drive S

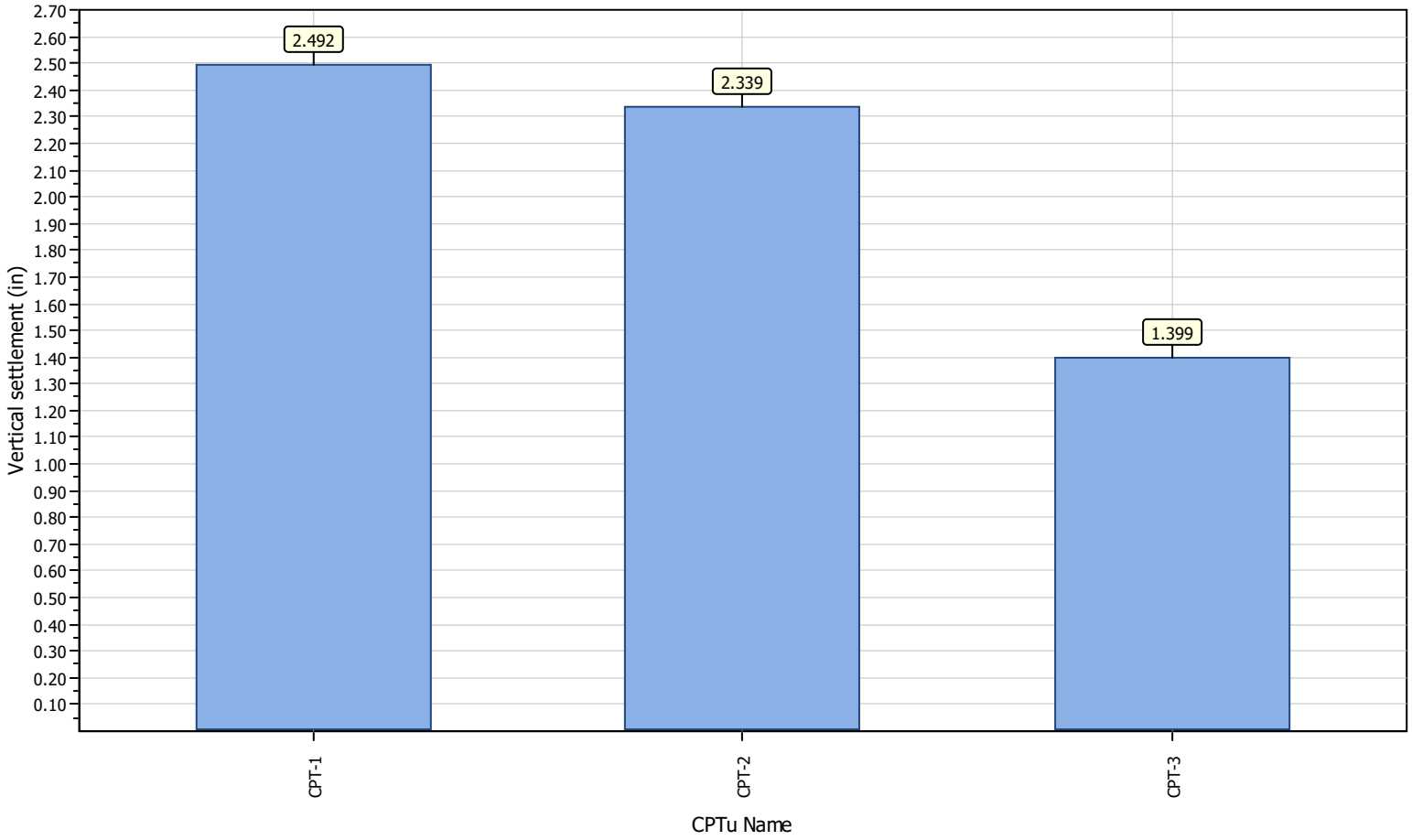
DE Overall vertical settlements report



Project title : W1857-88-01

Location : 331 The City Drive S

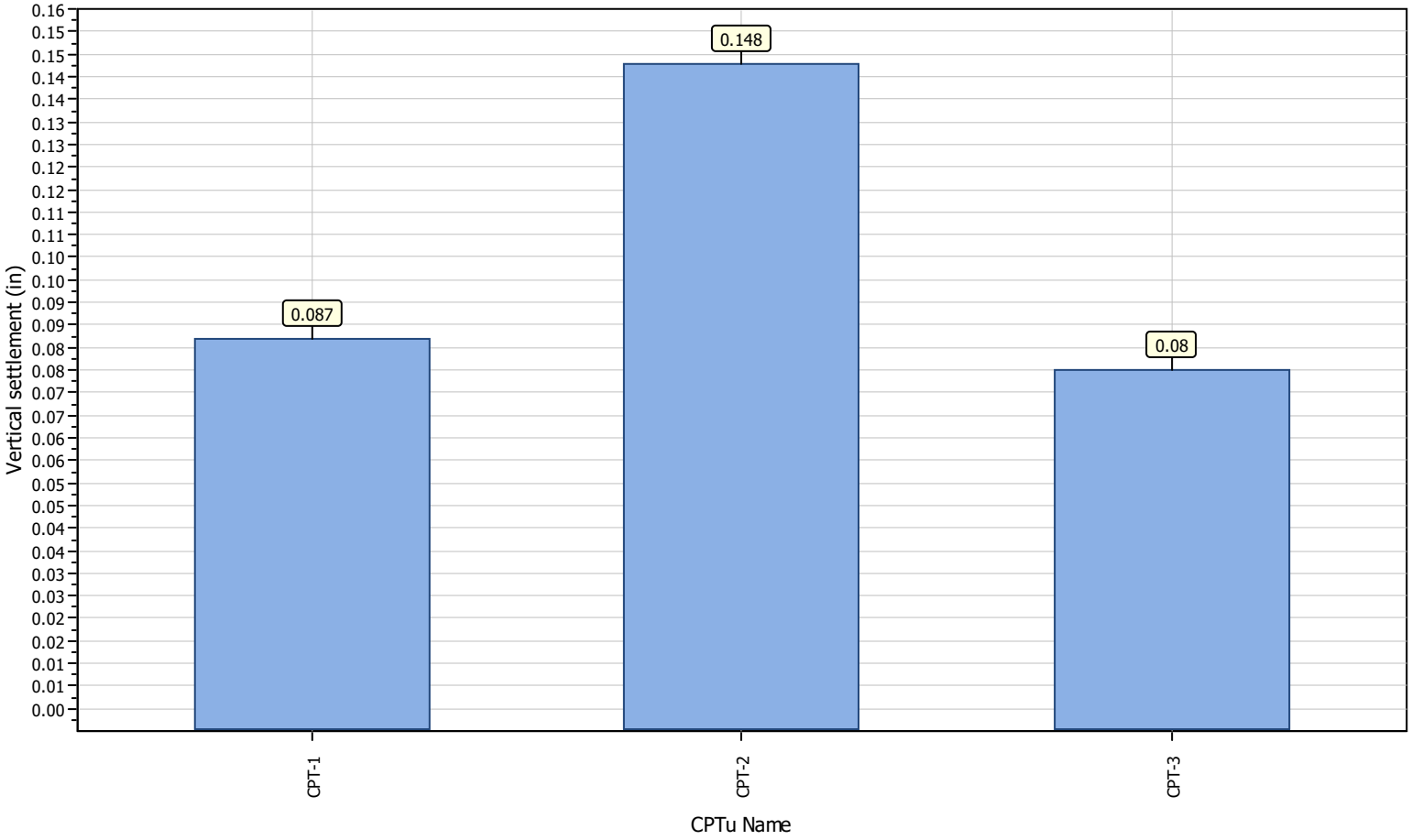
MCE Overall vertical settlements report



Project title : W1857-88-01

Location : 331 The City Drive S

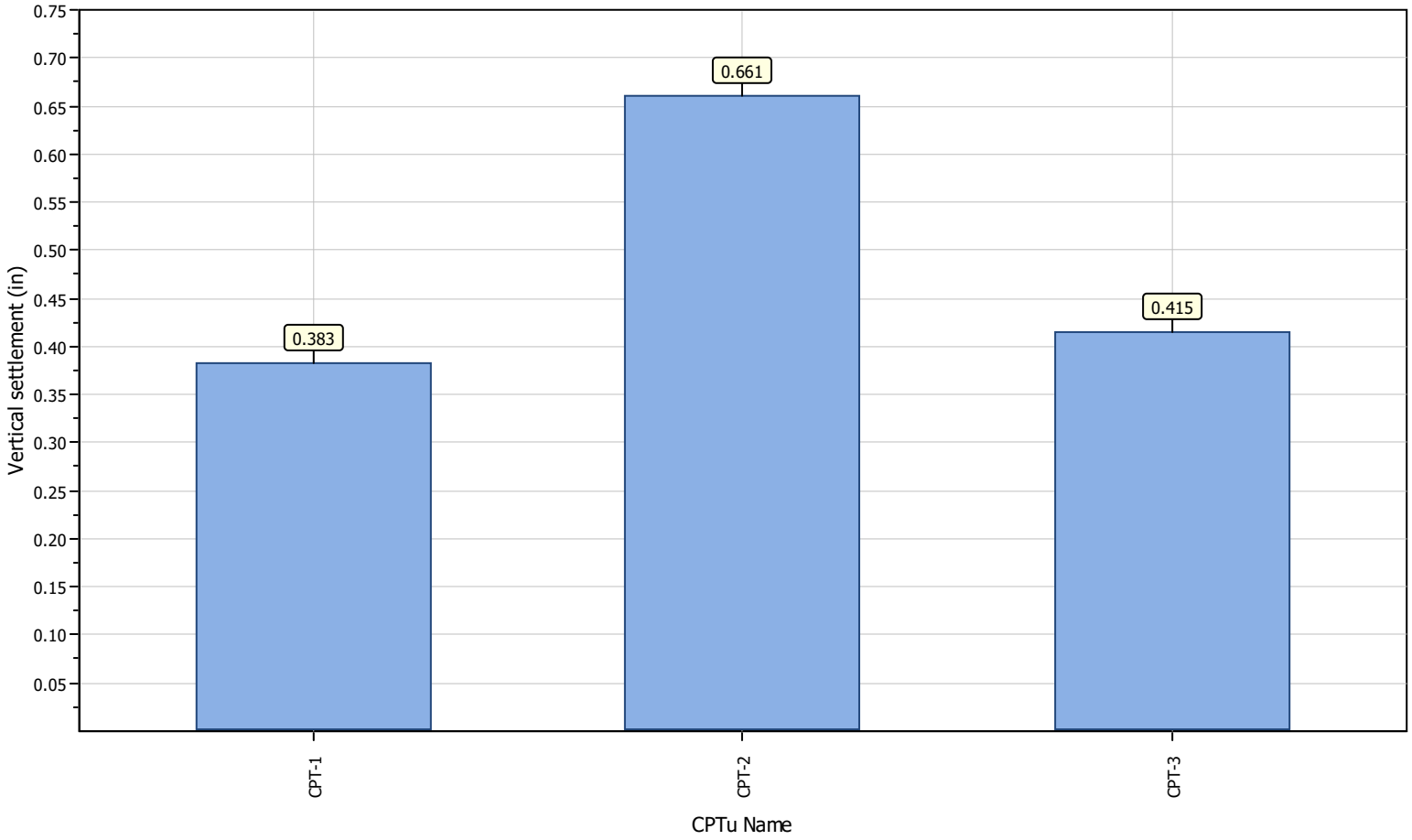
DE Overall vertical settlements report Dry Sands



Project title : W1857-88-01

Location : 331 The City Drive S

MCE Overall vertical settlements report Dry Sands



Slot Cut Calculation

Input:

Height of Slots	(H)	5.00	feet
Unit Weight of Soils	(γ)	115.0	pcf
Friction Angle of Soils	(ϕ)	31.0	degrees
Cohesion of Soils	(c)	150.0	psf
Factor of Safety	(FS)	1.25	

Factor of Safety = Resistance Force/Driving Force

Design Equations

$b = H/(\tan \alpha)$

$A = 0.5*H*b$

$W = 0.5*H*b*\gamma$ *(per lineal foot of slot width)*

$F_1 = d*W*(\sin \alpha)$

$R_1 = d*[W*(\cos\alpha)*(\tan \phi)+(c*b)]$

$R_2 = 2*[(0.5*H*b)*c]$

FS = Resistance Force/Driving Force

FS = $(R_1+R_2)/(F_1)$

Surcharge Pressure:

Line Load Surcharge	(q_L)	0.0	plf
Distance Away from Excavation	(X)	0.0	feet

Failure Angle (α)	Width of Failure Wedge (b)	Area of Wedge (A)	Weight of Wedge (W)	**Driving Force (F_1)** Wedge + Surcharge per lineal foot of Slot Wdith	**Resisting Force (R_1)** Failure Wedge per lineal foot of Slot Width	**Resisting Force (R_2)** Side Resistance Force lbs	**Allowable Width of Slots* (d)**
degrees	feet	$feet^2$	lbs/lineal foot				feet
45	5.0	13	1437.5	1016.5	1671.4	3750.0	8.0
46	4.8	12	1388.2	998.6	1622.0	3621.3	8.0
47	4.7	12	1340.5	980.4	1574.8	3496.9	8.0
48	4.5	11	1294.3	961.9	1529.6	3376.5	8.0
49	4.3	11	1249.6	943.1	1486.4	3259.8	8.0
50	4.2	10	1206.2	924.0	1444.9	3146.6	8.0
51	4.0	10	1164.1	904.6	1405.2	3036.7	8.0
52	3.9	10	1123.1	885.0	1367.2	2929.8	8.0
53	3.8	9	1083.2	865.1	1330.8	2825.8	8.0
54	3.6	9	1044.4	844.9	1295.9	2724.5	8.0
55	3.5	9	1006.5	824.5	1262.5	2625.8	8.0
56	3.4	8	969.6	803.8	1230.4	2529.4	8.0
57	3.2	8	933.5	782.9	1199.8	2435.3	8.0
58	3.1	8	898.2	761.8	1170.4	2343.3	8.0
59	3.0	8	863.7	740.4	1142.3	2253.2	8.0
60	2.9	7	829.9	718.8	1115.4	2165.1	8.0
61	2.8	7	796.8	696.9	1089.6	2078.7	8.0
62	2.7	7	764.3	674.9	1065.0	1993.9	8.0
63	2.5	6	732.4	652.6	1041.5	1910.7	8.0
64	2.4	6	701.1	630.2	1019.1	1829.0	8.0
65	2.3	6	670.3	607.5	997.8	1748.7	8.0
66	2.2	6	640.0	584.7	977.4	1669.6	8.0
67	2.1	5	610.2	561.7	958.0	1591.8	8.0
68	2.0	5	580.8	538.5	939.6	1515.1	8.0
69	1.9	5	551.8	515.2	922.2	1439.5	8.0
70	1.8	5	523.2	491.7	905.7	1364.9	8.0

* Width of Slots to achieve a minimum of 1.25 Factor of Safety, with a Maximum Allowable Slot Width of 8-feet.

Critical Slot Width with Factor of Safety equal or exceeding 1.25:

d_{allow} = 8.0 feet

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS

SLOT CUT CALCULATION

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

DRAFTED BY: JTA	CHECKED BY: JTA	MAY 2024	PROJECT NO. W1857-88-01	FIG. 12

PERCOLATION TEST DATA SHEET

Project:	OC YTC	**Project No.:**	W1857-88-01	**Date:**	Tuesday, February 13, 2024
Test Hole No.:	L	**Tested By:**	JC		
Depth of Test Hole, DT:	10	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	-	-	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	8:02 AM	8:27 AM	25	**60.0**	**83.4**	**23.4**	**yes**
2	8:30 AM	8:55 AM	25	**60.0**	**81**	**21**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	9:14 AM	9:24 AM	10.00	60.0	68.0	8.0	1.24
2	9:26 AM	9:36 AM	10.00	60.0	68.0	8.0	1.24
3	9:38 AM	9:48 AM	10.00	60.0	67.2	7.2	1.39
4	9:50 AM	10:00 AM	10.00	60.0	66.8	6.8	1.46
5	10:01 AM	10:11 AM	10.00	60.0	66.8	6.8	1.46
6	10:13 AM	10:23 AM	10.00	60.0	66.8	6.8	1.46
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	H_o =	60.0	inches
Final Depth to Water, D_f =	66.8	inches	H_f =	53.2	inches
Test Hole Radius, r =	4	inches	ΔH =	6.8	inches
Initial Depth to Water, D_0 =	60.0	inches	H_{avg} =	56.6	inches
Total Depth of Test Hole, D_t =	120	inches	$I_t = \frac{\Delta H(60r)}{\Delta t(r+2H_{avg})}$		
			Infiltration Rate, I_t =	**1.40**	**inches/hour**

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PERCOLATION TEST RESULTS AND CALCULATIONS

331 THE CITY DRIVE S
ORANGE, CALIFORNIA
OC YTC

DRAFTED BY: ACS	CHECKED BY: JTA	
MAY 2024	PROJECT NO. W1857-88-01	FIG. 13

PERCOLATION TEST DATA SHEET

Project:	OC YTC	**Project No.:**	W1857-88-01	**Date:**	Tuesday, February 13, 2024
Test Hole No.:	M	**Tested By:**	JC		
Depth of Test Hole, DT:	5	**USCS Soil Classification:**	SM		
Test Hole Dimensions (inches)			**Length**	**Width**	
Diameter (if round) =	8	**Sides (if rectangular) =**	-	-	

Sandy Soil Criteria Test*

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	8:16 AM	8:41 AM	25	**39.0**	**49.8**	**10.8**	**yes**
2	8:44 AM	9:09 AM	25	**31.8**	**42.6**	**10.8**	**yes**

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	End Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	10:32 AM	10:42 AM	10.00	42.6	45.4	2.8	3.62
2	10:45 AM	10:55 AM	10.00	42.6	46.2	3.6	2.78
3	11:03 AM	11:13 AM	10.00	42.6	46.3	3.7	2.69
4	11:16 AM	11:26 AM	10.00	42.6	46.3	3.7	2.69
5	11:28 AM	11:38 AM	10.00	42.6	46.3	3.7	2.69
6	11:41 AM	11:51 AM	10.00	42.6	46.6	4.0	2.53
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10.00	minutes	H_o =	17.4	inches
Final Depth to Water, D_f =	46.6	inches	H_f =	13.4	inches
Test Hole Radius, r =	4	inches	ΔH =	4.0	inches
Initial Depth to Water, D_0 =	42.6	inches	H_{avg} =	15.4	inches
Total Depth of Test Hole, D_t =	60	inches	$I_t = \frac{\Delta H(60r)}{\Delta t(r+2H_{avg})}$		
			Infiltration Rate, I_t =	**2.73**	**inches/hour**

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PERCOLATION TEST RESULTS AND CALCULATIONS

331 THE CITY DRIVE S
ORANGE, CALIFORNIA
OC YTC

DRAFTED BY: ACS	CHECKED BY: JTA	MAY 2024	PROJECT NO. W1857-88-01	FIG. 14

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The site was explored between February 7 and 13, 2024, by excavating eight 8-inch-diameter borings using a truck-mounted hollow-stem auger drilling machine and a limited access drilling machine to depths of 5 to 63.5 feet beneath the ground surface. Additionally, five borings were excavated using 3-inch hand augers to depths between 15 and 16½ feet beneath the ground surface. Additional site exploration was performed on May 2, 2024, by excavating two 8-inch diameter borings using a limited access drilling machine to depths of approximately 20.5 feet below the ground surface.

Representative and relatively undisturbed samples were obtained from them borings by driving a 3-inch, O. D., California Modified Sampler into the "undisturbed" soil mass with blows from a 140-pound auto-hammer falling 30 inches (hollow stem borings) or from a slide hammer (hand auger borings). The California Modified Sampler was equipped with 1-inch by 2⅜-inch diameter brass sampler rings to facilitate soil removal and testing. Standard Penetration Tests were performed and bulk samples were also obtained.

The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). The logs of the borings are presented on Figures A1 through A15. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the logs were revised based on subsequent laboratory testing. Three Cone Penetrometer Tests (CPTs) were also advanced on February 12, 2024, to approximate depths of 63 to 100 feet below the ground surface using a truck-mounted 30-ton CPT rig. Logs of the CPTS are provided as Figures A16 and A17.

The approximate locations of the borings and CPTs are shown on Figure 2.

PROJECT NO. W1857-88-01

BORING A

ELEV. (MSL.) -- DATE COMPLETED **02/12/2024**

EQUIPMENT **HAND AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, moist, brown, fine-grained.			
2					**ALLUVIUM**			
4	A@3'			SP	Sand, poorly graded, loose, moist, gray, fine-grained.		99.6	7.5
6	A@5'						102.2	10.2
8	A@7'			CL	Sandy Clay, firm, moist, brown, fine-grained.		96.8	24.5
10	A@10'			SM	Silty Sand, medium dense, moist, brown, fine- to medium-grained.		106.2	16.6
12								
14								
16	A@15'						97.2	8.1
					Total depth of boring: 16.5 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A1,
Log of Boring A, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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PROJECT NO. W1857-88-01

BORING B

ELEV. (MSL.) -- DATE COMPLETED **02/12/2024**

EQUIPMENT **HAND AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, moist, brown, fine- to medium-grained.			
2					**ALLUVIUM** Silty Sand, loose, moist, gray, fine-grained.			
4	B@3'			SM				
6	B@5'				- loose, fine- to medium-grained		100.5	14.2
8	B@7'				Sand, poorly graded, loose, moist, brown, fine-grained.		104.0	19.1
10	B@10'			SP	- fine- to medium-grained		87.3	19.4
12								
14				SC	Clayey Sand, medium dense, moist, brown, fine- to medium-grained.			
					Silty Sand, loose, moist, brown, fine-grained.			
16	B@15'			SM			34.1	16.8
					Total depth of boring: 16 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A2,
Log of Boring B, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING C

ELEV. (MSL.) -- DATE COMPLETED **02/09/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown, fine-grained.			
2					**ALLUVIUM** Silty Sand, loose, moist, gray, fine-grained.			
4								
6	C@5'			SM		12	100.2	13.7
8	C@7'					12	98.2	25.0
10	C@10'					10	88.6	22.4
12	C@12'				- medium dense	23	106.1	16.1
14	C@15'					25	94.6	9.9
					Total depth of boring: 15.5 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A3,
Log of Boring C, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING D

ELEV. (MSL.) -- DATE COMPLETED **02/07/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'		**ARTIFICIAL FILL** Silty Sand, medium dense, moist, dark brown, fine- to medium-grained.			
			ALLUVIUM Sand, poorly graded, medium dense, moist, light brown, medium- to coarse-grained.			
6	D@5'	SP	- loose	17	91.3	3.7
8	D@7'			12	85.7	4.1
10	D@10'		- medium dense	20	104.1	5.5
12	D@12'			9	100.0	2.3
			Silty Sand, loose, moist, dark brown, fine- to medium-grained.			
16	D@15'	SM		13	92.1	10.2
20	D@20'	ML	Sandy Silt, firm, moist, brown, fine-grained.	20	95.3	24.8
			Total depth of boring: 20.5 feet Fill to 1 foot. No groundwater encountered. Backfilled with soil cuttings and tamped.			

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.

NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A4,
Log of Boring D, Page 1 of 1

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING E

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown.			
2					**ALLUVIUM** Sandy Silt, stiff, moist, gray, fine- to medium-grained.			
4								
6	E@5'					18	92.1	23.9
8	E@7.5'			ML	- brown, fine-grained	4		
10	E@10'				- stiff, slightly moist, fine- to medium-grained	22	109.4	17.4
12	E@12.5'				- firm, fine-grained	10		
14								
16	E@15'				Silty Sand, medium dense, slightly moist, brown, fine- to medium-grained.	29	96.2	8.5
18	E@17'			SM	- loose	10		
20	E@20'				- medium dense	43	99.1	1.1
22	E@22.5'				Sand, poorly graded, medium dense, slightly moist, gray, fine-grained.	17		
24				SP				
26	E@25'				- loose	14	73.8	12.4
28	E@27.5'			SM	Silty Sand, medium dense, slightly moist, gray, fine-grained.	18		

W1857-88-01 BORING LOGS.GPJ

Figure A5,
Log of Boring E, Page 1 of 2

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◹ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING E

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	E@30'			SM	- fine- to medium-grained.	48	106.6	10.2
32	E@32.5'			SP	Sand, poorly graded, medium dense, slightly moist, gray, fine- to medium-grained.	25		
34	E@35'				- dense	63	104.0	4.7
36								
38	E@37.5'				- medium dense, fine-grained	29		
40	E@40'					40	91.0	29.5
42	E@42.5'			SM	Silty Sand, medium dense, slightly moist, gray, fine- to medium-grained.	25		
44								
46								
48	E@47.5'			ML	Sandy Silt, soft, moist, brown, fine-grained.	6		

Total depth of boring: 48.5 feet
Fill to 2 feet.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A5,
Log of Boring E, Page 2 of 2

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING F

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose to medium dense, moist, dark brown.			
2					**ALLUVIUM** Sand, poorly graded, loose, moist, light brown, medium- to coarse-grained.			
4								
6	F@5'					6		
8	F@7.5'			SP	- gray	14	97.2	3.7
10	F@10'				- yellowish brown	7		
12	F@12.5'				- fine- to medium-grained	16	94.1	4.1
14								
16	F@15'				- medium dense, grayish brown	11		
18	F@17.5'				Sandy Silt, soft, moist, brown, fine-grained.	8	86.7	30.5
20	F@20'			ML	- firm	10		
22	F@22.5'				Silty Sand, medium dense, slightly moist, grayish brown, fine- to medium-grained.	37	105.3	5.3
24				SM				
26	F@25'				Sandy Silt, soft, moist, brown, fine-grained.	7		
28	F@27.5'			ML	- firm	17	109.5	19.3

W1857-88-01 BORING LOGS.GPJ

Figure A6,
Log of Boring F, Page 1 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING F

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	F@30'			SP	Sand, poorly graded, medium dense, slightly moist, light brown, fine-grained.	23		
32	F@32.5'			SP		50	111.1	11.1
34								
36	F@35'			SM	Silty Sand, loose, slightly moist, light brown, fine-grained.	7		
38	F@37.5'			SP	Sand, poorly graded, medium dense, slightly moist, yellowish brown, medium- to coarse-grained.	35	103.4	2.2
40	F@40'			ML	Sandy Silt, firm, moist, brown, fine-grained.	16		
42	F@42.5'			SM	Silty Sand, dense, slightly moist, gray, mottled reddish brown.	63	103.1	8.5
44	F@45'			SM		15		
46								
48								
50	F@50'		▼	ML	Sandy Silt, firm, slightly moist, brown.	9		
52								
54								
56	F@55'			SM	Silty Sand, dense, wet, brown, some fine gravel.	35		
58								

W1857-88-01 BORING LOGS.GPJ

Figure A6,
Log of Boring F, Page 2 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING F** ELEV. (MSL.) -- DATE COMPLETED **02/08/2024** EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
60	F@60'			GW	Gravel, dense, wet, brown to black, fine to coarse gravel, some medium- to coarse-grained sand.	29		11.5
					Total depth of boring: 61 feet Fill to 2 feet. Groundwater encountered at 54 feet. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A6,
Log of Boring F, Page 3 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. W1857-88-01

BORING G

ELEV. (MSL.) -- DATE COMPLETED **02/09/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, brown to dark brown, fine-grained.			
2								
4				SM	**ALLUVIUM** Silty Sand, loose, moist, gray, fine-grained.			
6	G@5'				Sandy Silt, soft, moist, brown, fine-grained.	8		
8	G@7'			ML		9	98.1	23.4
10	G@10'					6	96.8	21.6
					Total depth of boring: 10.5 feet Fill to 2 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A7,
Log of Boring G, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING H

ELEV. (MSL.) -- DATE COMPLETED **02/09/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown, fine-grained.			
2					**ALLUVIUM** Sand, poorly graded, loose, moist, brown, medium- to coarse-grained.			
4								
6	H@5'					16	101.4	2.8
8	H@7'				- slightly moist	18	95.3	5.4
10	H@10'			SP		13	99.8	5.5
12	H@12'				- medium dense	19	100.4	5.2
14								
16	H@15'					32	98.9	8.8
18								
20	H@20'			SM	Silty Sand, medium dense, slightly moist, brown, fine-grained.	20	100.0	9.2

Total depth of boring: 20.5 feet
Fill to 2 feet.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A8,
Log of Boring H, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING I

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Sandy Silt, firm, moist, dark brown, fine-grained.			
2					**ALLUVIUM** Sand, well-graded, loose, moist, brown.			
4				SW				
6	I@5'					14		
8	I@7.5'				Sandy Clay, soft, moist, dark brown, fine-grained.	5		
10	I@10'			CL	- firm	13	105.6	20.2
12	I@12.5'				- soft	5		
14								
16	I@15'			SM	Silty Sand, loose, moist, brown, fine-grained.	16		
18	I@17.5'			CL	Silty Clay, soft, moist, dark brown.	5		
20	I@20'			SM	Silty Sand, medium dense, slightly moist, grayish brown, fine-grained.	15	89.4	32.6
22	I@22.5'				- loose	7		
24								
26	I@25'			ML	Silt, soft, moist, brown.	9		
28	I@27.5'			SM	Silty Sand, medium dense, slightly moist, grayish brown, fine-grained.	12		

W1857-88-01 BORING LOGS.GPJ

Figure A9,
Log of Boring I, Page 1 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. W1857-88-01

BORING I

ELEV. (MSL.) -- DATE COMPLETED **02/08/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	I@30'			SM		33	107.7	9.5
32	I@32.5'			CL	Sandy Clay, very soft, moist, brown, fine-grained.	PUSH		
34	I@35'					11		
36								
38	I@37.5'			SM	Silty Sand, medium dense, slightly moist, gray, fine-grained.	24		
40	I@40'					26	102.2	7.4
42	I@42.5'			ML	Sandy Silt, firm, slightly moist, gray, fine-grained.	9		
44	I@45'					16	77.6	37.9
46								
48	I@47.5'			CL	Sandy Clay, soft, moist, fine-grained, trace fine gravel.	5		
50	I@50'				- no recovery	11		
52	I@52.5'		▼	SM	- groundwater encountered at 53'11" Silty Sand, dense, moist, brown, medium-grained, some fine gravel. - groundwater encountered	43		6.4
54	I@55'				- medium dense, wet	50	118.0	15.8
56								
58	I@57.5'			GP	Gravel, dense, wet, brown.	40		7.7

W1857-88-01 BORING LOGS.GPJ

Figure A9,
Log of Boring I, Page 2 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING I** ELEV. (MSL.) -- DATE COMPLETED **02/08/2024** EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
60	I@60'			SC	Clayey Sand, wet, brown, medium-grained, some fine gravel, trace silt.	50 (5")	128.9	11.1
62	I@62.5'			CL	Clay, firm, wet, brown, trace medium-grained sand.	14		
					Total depth of boring: 63.5 feet Fill to 2 feet. Groundwater encountered at 53 feet 11 inches. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A9,
Log of Boring I, Page 3 of 3

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING J

ELEV. (MSL.) -- DATE COMPLETED **02/13/2024**

EQUIPMENT **HAND AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, brown, fine- to medium-grained.			
2	J@3'						119.4	8.6
4				SM	**ALLUVIUM** Silty Sand, medium dense, moist, some fine-grained.			
6	J@5'			SP	Sand, poorly graded, loose, slightly moist, dark brown, medium-grained.		99.7	4.3
8	J@7'						100.6	6.9
10	J@10'			CL	Sandy Clay, firm, slightly moist, brown, fine-grained.		99.2	22.2
12								
14								
16	J@15'						98.5	20.0
					Total depth of boring: 16 feet 4 inches Fill to 3.5 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. Asphalt patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A10,
Log of Boring J, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING K

ELEV. (MSL.) -- DATE COMPLETED **02/12/2024**

EQUIPMENT **HAND AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, brown, some coarse gravel.			
2	K@3'							
4				SM	**ALLUVIUM** Silty Sand, loose, moist, brown, fine- to medium-grained.			
6	K@5'			SP	Sand, poorly graded, loose, slightly moist, light brown, medium- to coarse-grained.		103.6	4.2
8	K@7'				- coarse-grained		105.6	7.7
10	K@10'			CL	Sandy Clay, firm, slightly moist, brown, fine-grained.		96.2	26.2
12								
14								
16	K@15'						102.2	24.0
					Total depth of boring: 16.5 feet Fill to 3.5 feet. No groundwater encountered. Backfilled with soil cuttings and tamped. Asphalt patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A11,
Log of Boring K, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING L

ELEV. (MSL.) -- DATE COMPLETED **02/09/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown, fine-grained.			
2				SP	**ALLUVIUM** Sand, poorly graded, loose, moist, gray, fine-grained.			
4								
6	L@5'			ML	Sandy Silt, soft, moist, brown, fine-grained.	12		
8	L@7'			SM	Silty Sand, very loose, moist, grayish brown, fine-grained.	5	78.0	30.7
10	L@10'					22	95.6	3.6

Total depth of boring: 10.5 feet
Fill to 2 feet.
No groundwater encountered.
Percolation testing performed.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A12,
Log of Boring L, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	**BORING M** ELEV. (MSL.) -- DATE COMPLETED **02/09/2024** EQUIPMENT **HAND AUGER** BY: **ACS**	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, moist, dark brown.			
2				SM	**ALLUVIUM** Silty Sand, loose, moist, grayish brown.			
4								
					Total depth of boring: 5 feet Fill to 2 feet. No groundwater encountered. Percolation testing performed. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1857-88-01 BORING LOGS.GPJ

Figure A13,
Log of Boring M, Page 1 of 1

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING N

ELEV. (MSL.) -- DATE COMPLETED **05/02/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, dry, brown, fine-grained, roots, trace fine-grained.			
2				SP	**ALLUVIUM** Sand, poorly graded, loose, dry, brown, fine- to medium-grained, trace fine gravel.			
4				SM	Silty Sand, loose, dry, brown, fine-grained.			
6	BN@5'			SP	Sand, poorly graded, loose, dry, brown, fine- to medium-grained.	18	98.5	5.6
8	BN@7'			ML	Sandy Silt, soft, moist, brown, fine-grained.	4	84.6	26.4
10	BN@10'			ML	- trace clay	9	98.9	23.9
12	BN@12'			ML	Clayey Silt, soft, moist, brown.	11	103.7	21.3
16	BN@15'			SM	Silty Sand, loose, slightly moist, brown, fine-grained.	18	102.4	20.5
20	BN@20'			SM	- medium dense	28	97.3	8.1

Total depth of boring: 20.5 feet
Fill to 2 feet.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A14,
Log of Boring N, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1857-88-01

BORING O

ELEV. (MSL.) -- DATE COMPLETED **05/02/2024**

EQUIPMENT **HOLLOW STEM AUGER** BY: **ACS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ARTIFICIAL FILL** Silty Sand, loose, slightly moist, brown, fine-grained, trace fine gravel and roots.			
2					**ALLUVIUM** Sand, poorly graded, loose, slightly moist, brown, fine- to medium-grained.			
4								
6	BO@5'				- fine-grained	13	93.4	9.1
8	BO@7'					12	94.3	3.9
10	BO@10'			SP	- gray, medium-grained	19	100.3	4.0
12	BO@12'				- no recovery	33		
14								
16	BO@15'				- medium dense	29	106.7	3.5
18								
20	BO@20'			ML SM	Sandy Silt, firm, moist, brown, fine-grained. Silty Sand, loose, moist, brown, fine-grained.	15	91.1	32.6

Total depth of boring: 20.5 feet
Fill to 2 feet.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1857-88-01 BORING LOGS.GPJ

Figure A15,
Log of Boring O, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

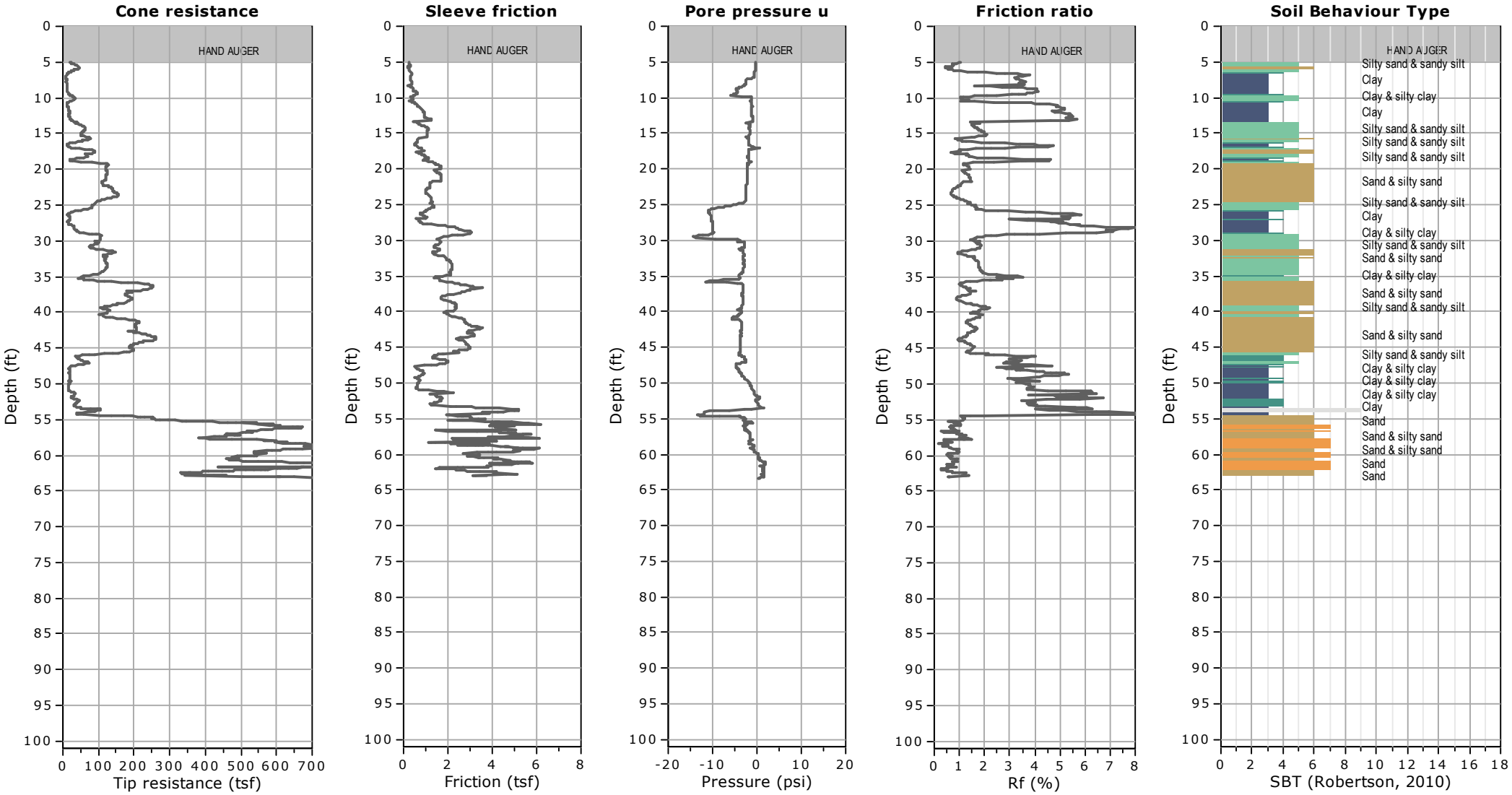
NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

Kehoe Testing and Engineering
714-901-7270
steve@kehoetesting.com
www.kehoetesting.com

Project: **Geocon West / Juvenille Hall - Youth Transition Center**
Location: **331 The City Drive S, Orange, CA**

CPT-1
Total depth: 63.40 ft, Date: 2/12/2024



Kehoe Testing and Engineering
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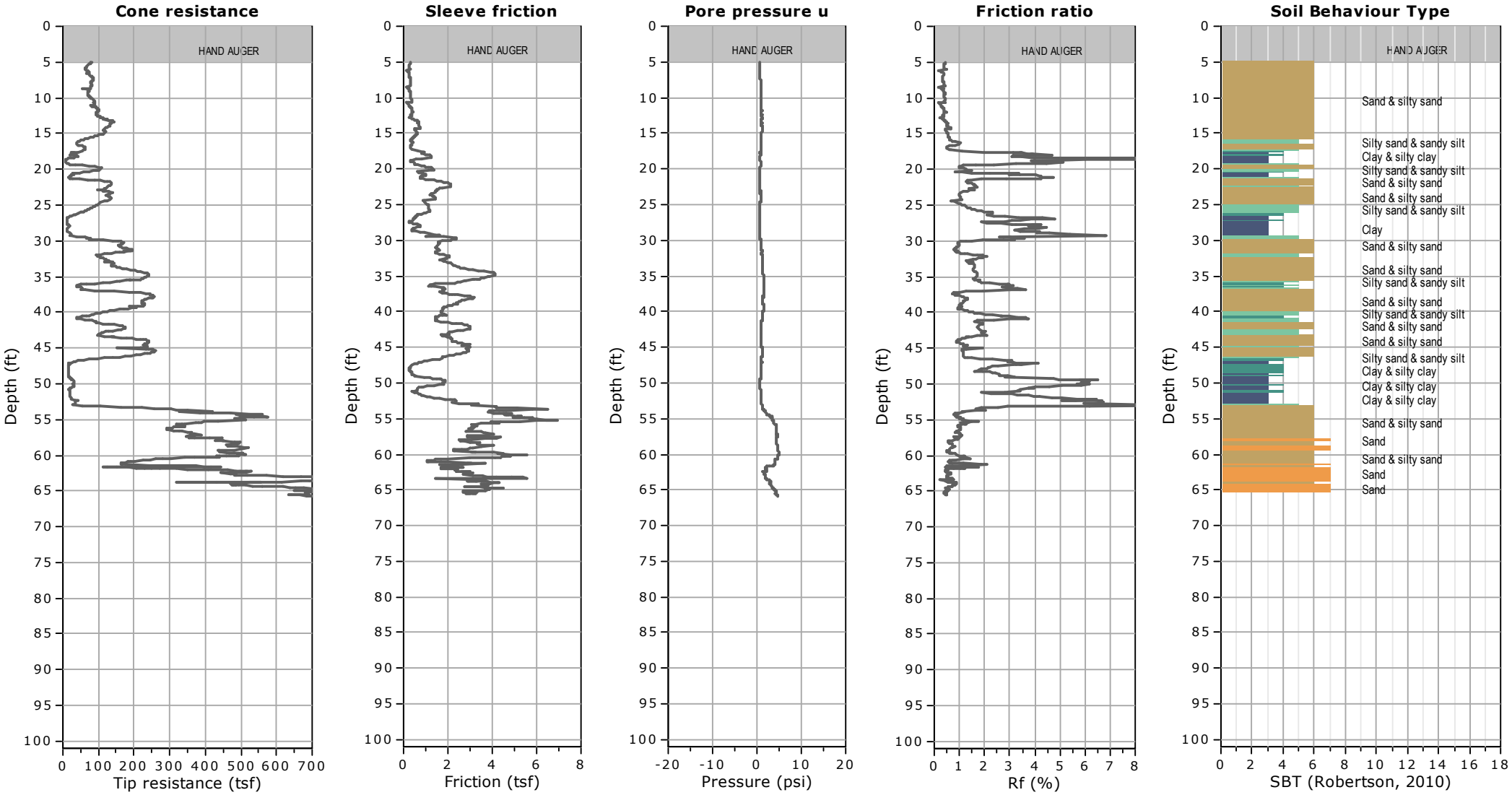
www.kehoetesting.com

Project: **Geocon West / Juvenille Hall - Youth Transition Center**
Location: **331 The City Drive S, Orange, CA**

CPT-2
Total depth: 65.96 ft, Date: 2/12/2024



Kehoe Testing and Engineering
714-901-7270
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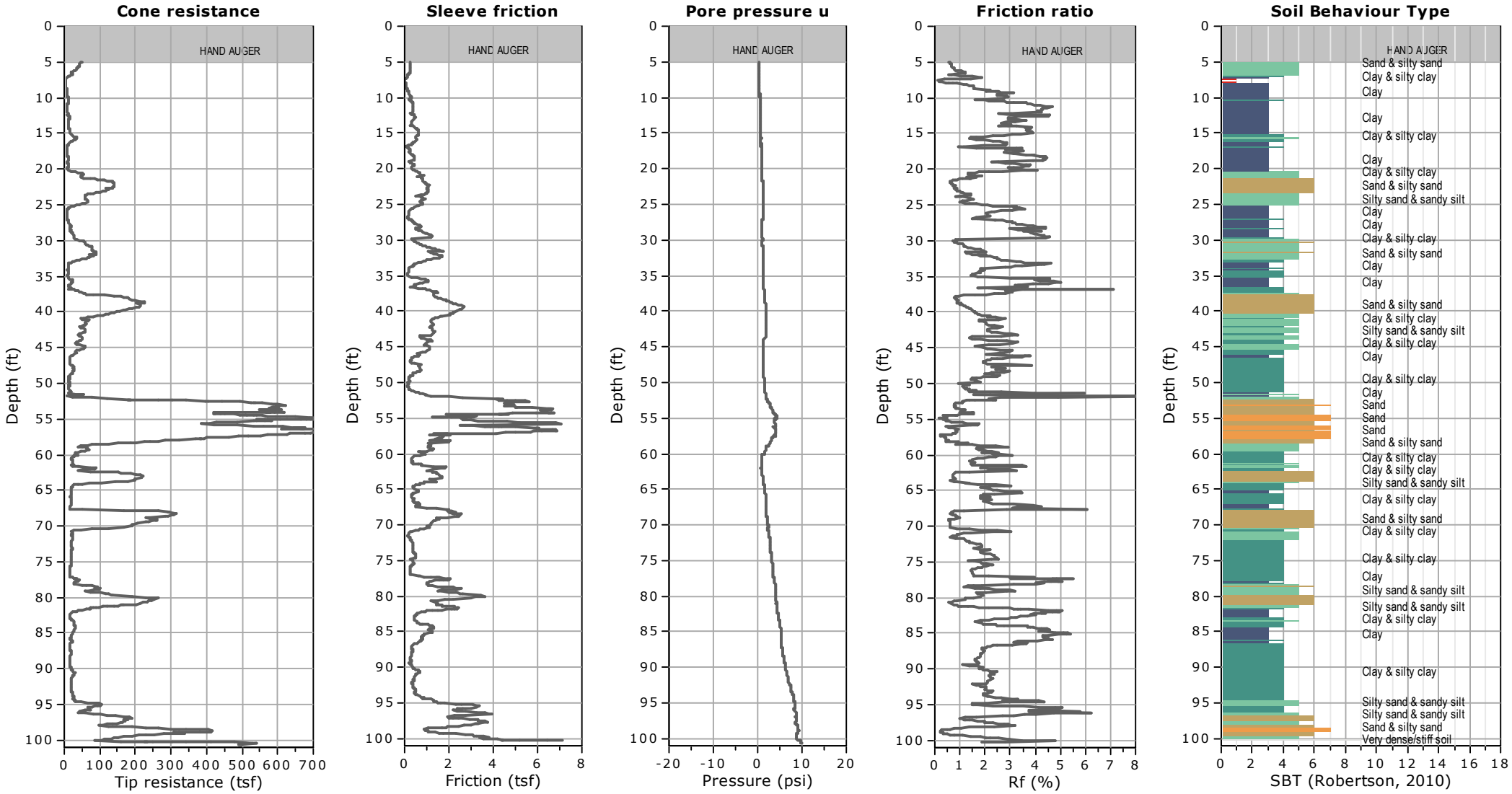
www.kehoetesting.com

Project: **Geocon West / Juvenille Hall - Youth Transition Center**
Location: **331 The City Drive S, Orange, CA**

CPT-3
Total depth: 100.60 ft, Date: 2/12/2024



APPENDIX B

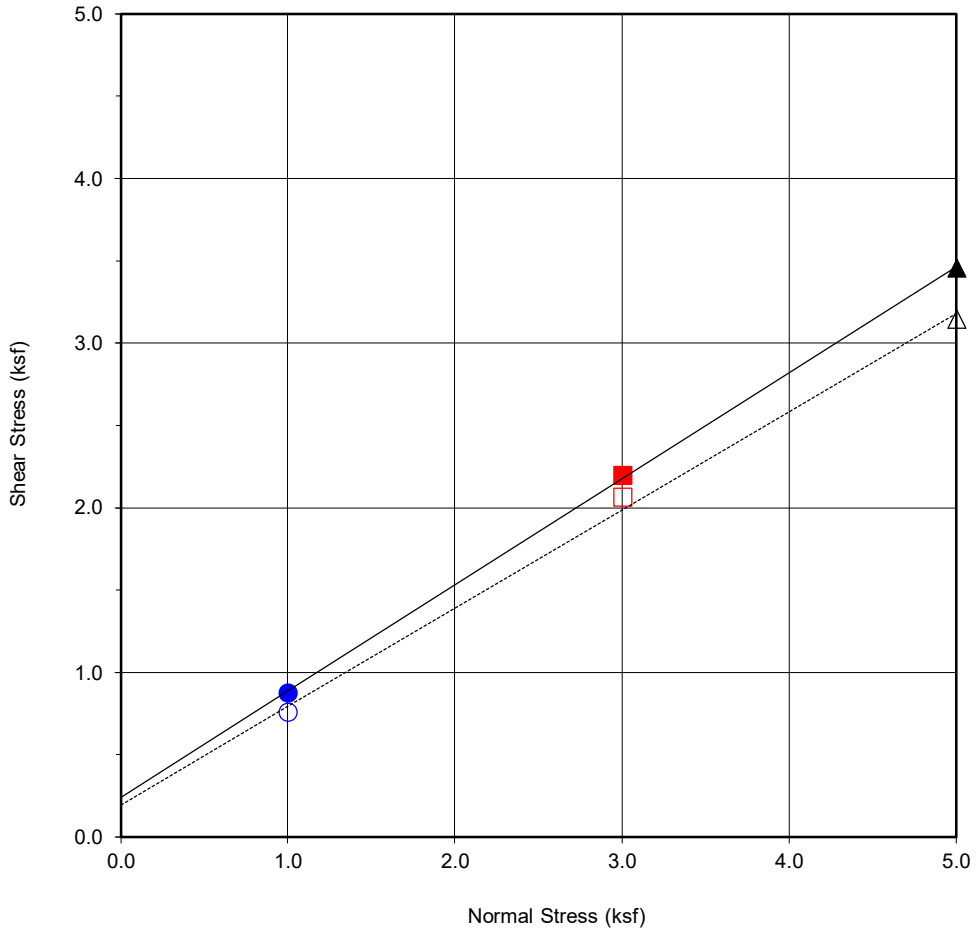
APPENDIX B

LABORATORY TESTING

We performed laboratory tests in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected soil samples for direct shear strength, consolidation and expansion characteristics, corrosivity, and maximum dry density and optimum moisture content relationship. The in-place dry density and moisture content of the samples tested are presented on the boring logs, Appendix A.

The results of the laboratory tests from the March 2024 site exploration are summarized in Figures B1 through B30.

The results of the laboratory tests from the May 2024 site exploration are summarized in Figures B31 through B38.



Boring No.	**B**
Sample No.	**B@3'**
Depth (ft)	**3'**
Sample Type:	Ring

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	241	33
Ultimate	197	31

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.88	■ 2.20	▲ 3.46
Shear Stress @ End of Test (ksf)	○ 0.76	□ 2.06	△ 3.14
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	13.7	14.6	13.2
Initial Dry Density (pcf)	97.5	97.1	101.4
Initial Degree of Saturation (%)	50.7	53.3	53.8
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	21.5	21.2	19.7

GEOCON

DIRECT SHEAR TEST RESULTS

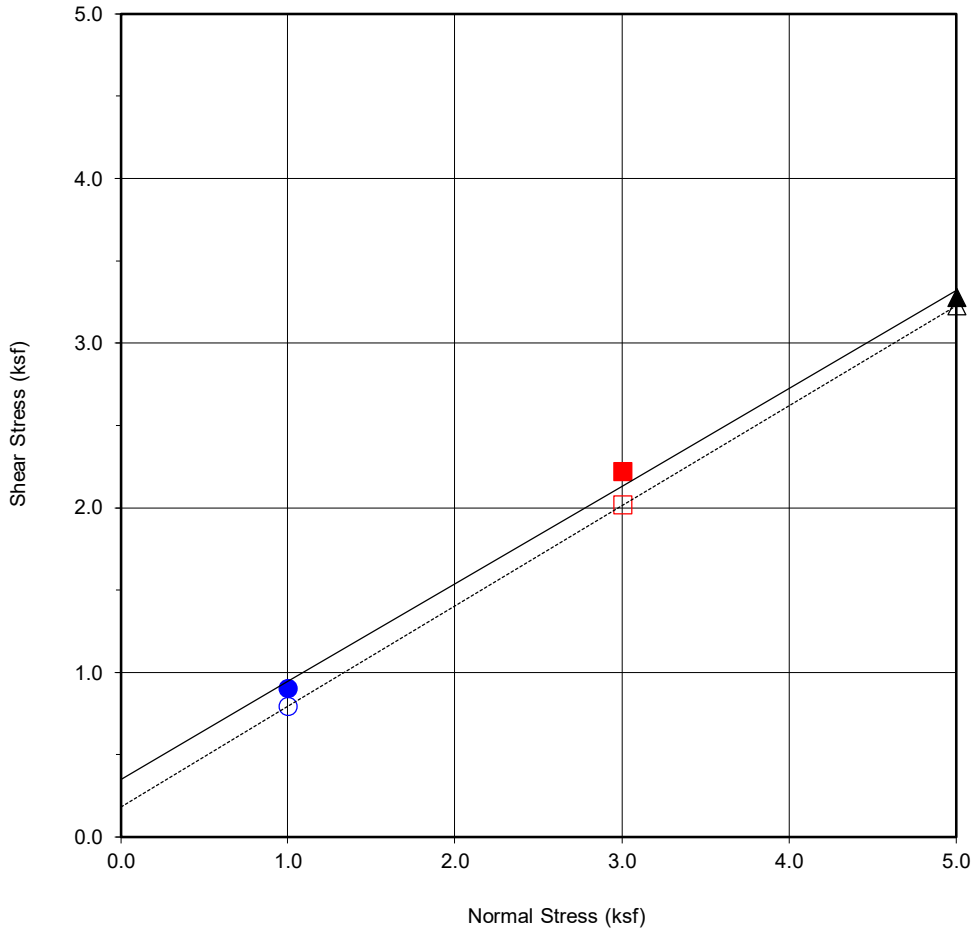
Consolidated Drained ASTM D-3080

Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B1



Boring No.	**G**
Sample No.	**G@5'**
Depth (ft)	**5'**
Sample Type:	Ring

Soil Identification:		
Sandy Silt (ML)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	350	31
Ultimate	185	31

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.90	■ 2.22	▲ 3.28
Shear Stress @ End of Test (ksf)	○ 0.79	□ 2.02	△ 3.23
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	36.2	46.1	42.5
Initial Dry Density (pcf)	88.6	84.3	86.7
Initial Degree of Saturation (%)	108.2	124.5	121.6
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	32.6	33.0	32.7

GEOCON

DIRECT SHEAR TEST RESULTS

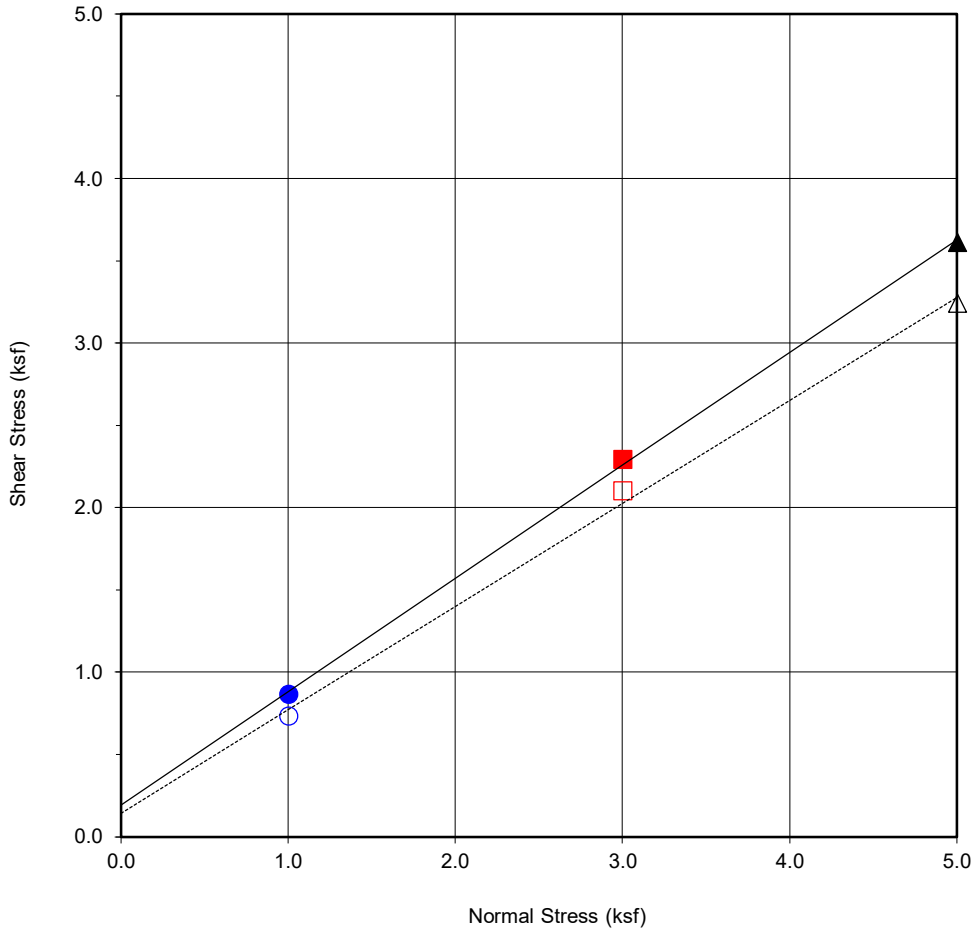
Consolidated Drained ASTM D-3080

Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B2



Boring No.	**K**
Sample No.	**K@3'**
Depth (ft)	**3'**
Sample Type:	Ring

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	195	34
Ultimate	143	32

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.86	■ 2.29	▲ 3.61
Shear Stress @ End of Test (ksf)	○ 0.73	□ 2.10	△ 3.24
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	20.6	13.7	17.8
Initial Dry Density (pcf)	85.5	91.7	87.4
Initial Degree of Saturation (%)	57.4	44.1	51.7
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	28.2	25.1	26.5

GEOCON

DIRECT SHEAR TEST RESULTS

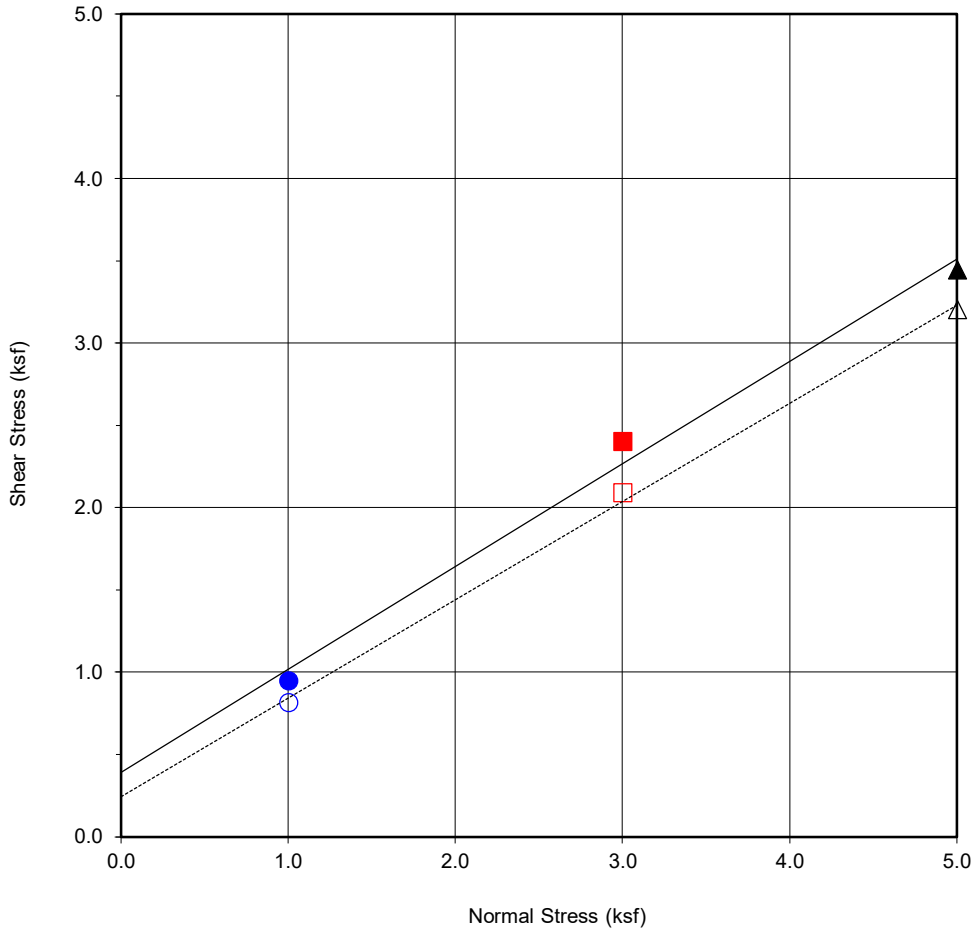
Consolidated Drained ASTM D-3080

Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B3



Boring No.	**L**
Sample No.	**L@5'**
Depth (ft)	**5'**
Sample Type:	Ring

Soil Identification:		
Sandy Silt (ML)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	392	32
Ultimate	245	31

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.95	■ 2.40	▲ 3.44
Shear Stress @ End of Test (ksf)	○ 0.82	□ 2.09	△ 3.20
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	15.4	14.9	15.6
Initial Dry Density (pcf)	85.6	86.9	88.2
Initial Degree of Saturation (%)	43.0	42.9	46.2
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	29.9	29.4	29.0

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

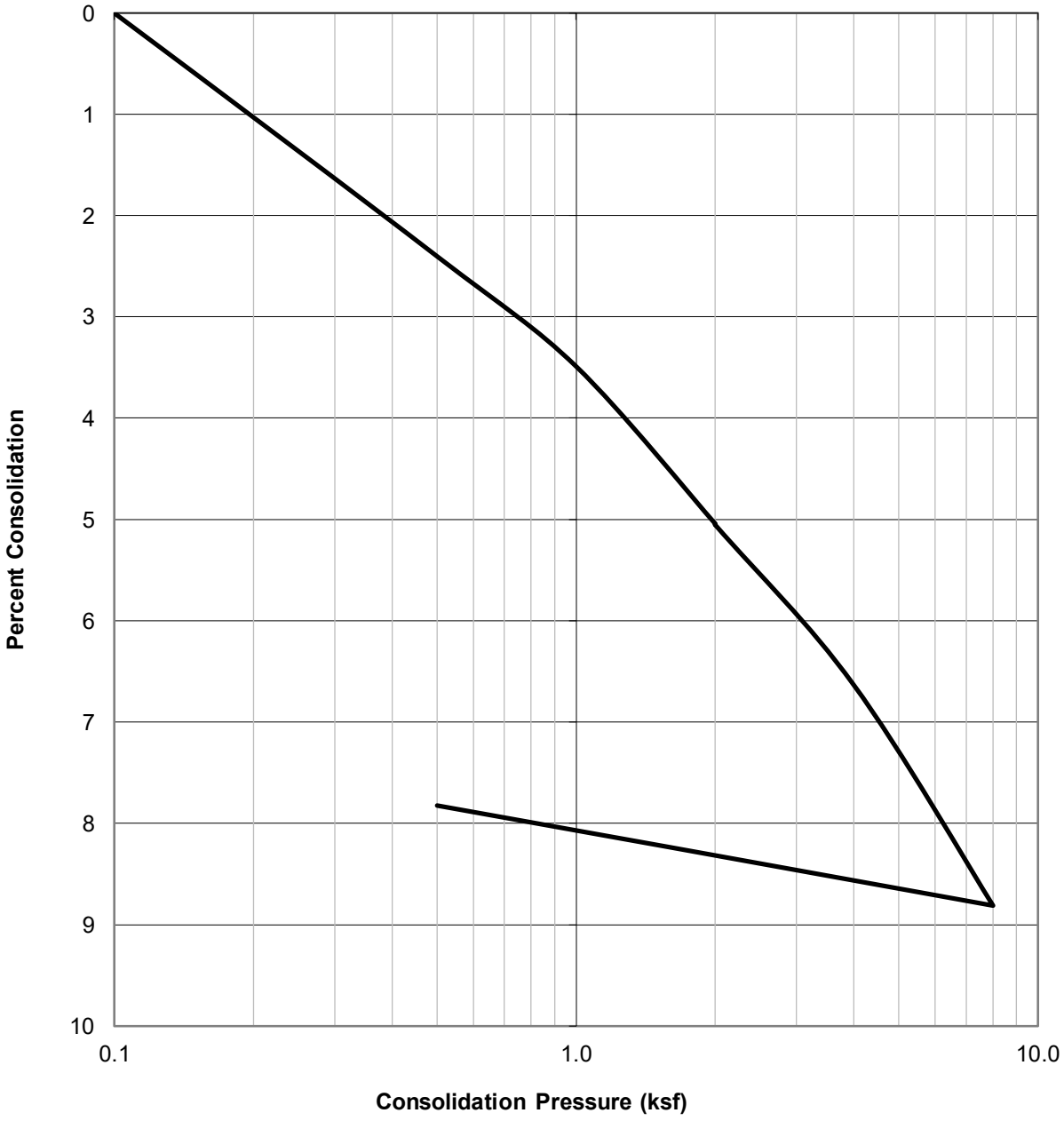
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B4

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
A@7	Sandy Clay (CL)	101.4	24.8	21.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

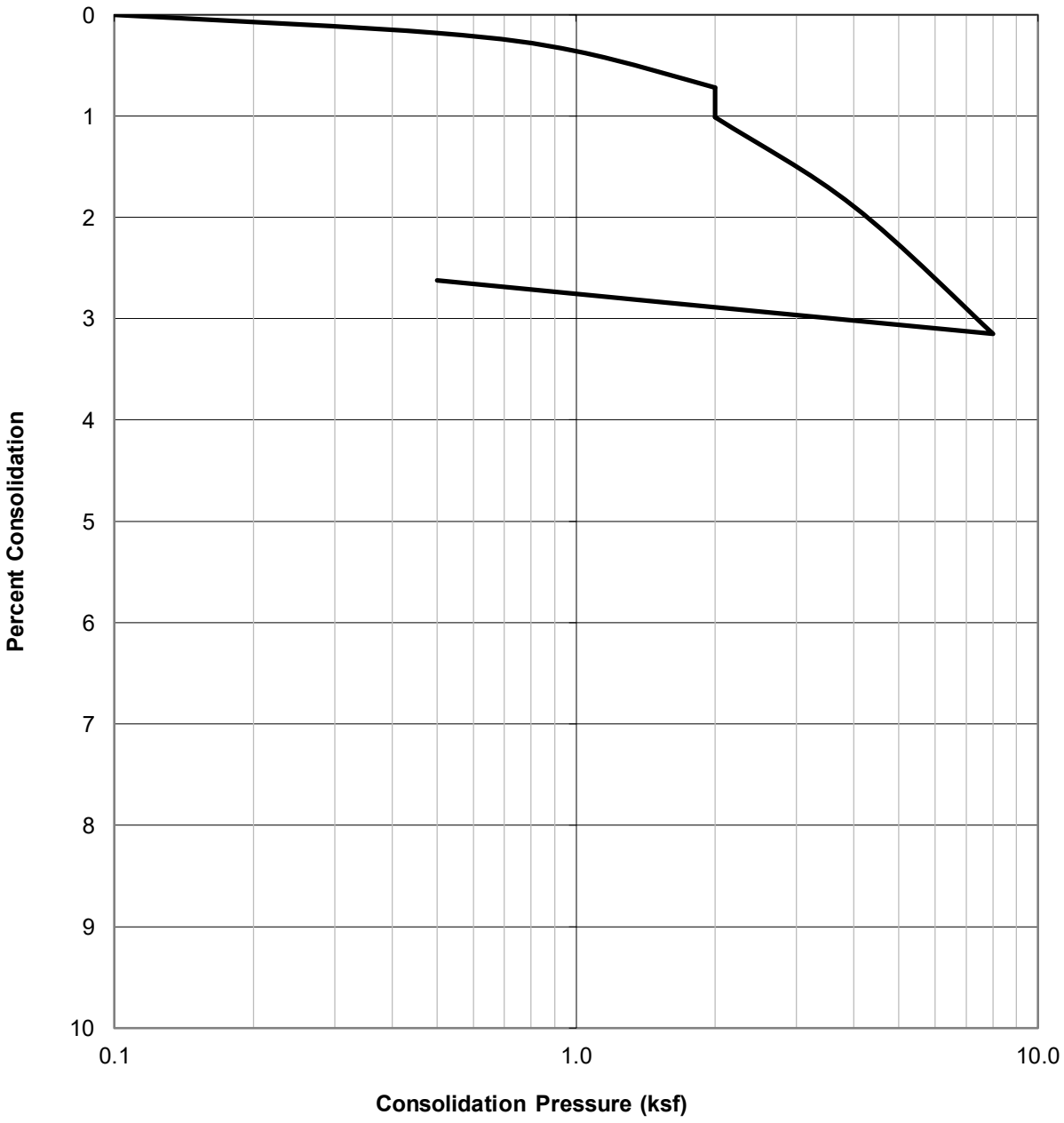
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B5

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B@3	Silty Sand (SM)	97.8	10.4	21.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

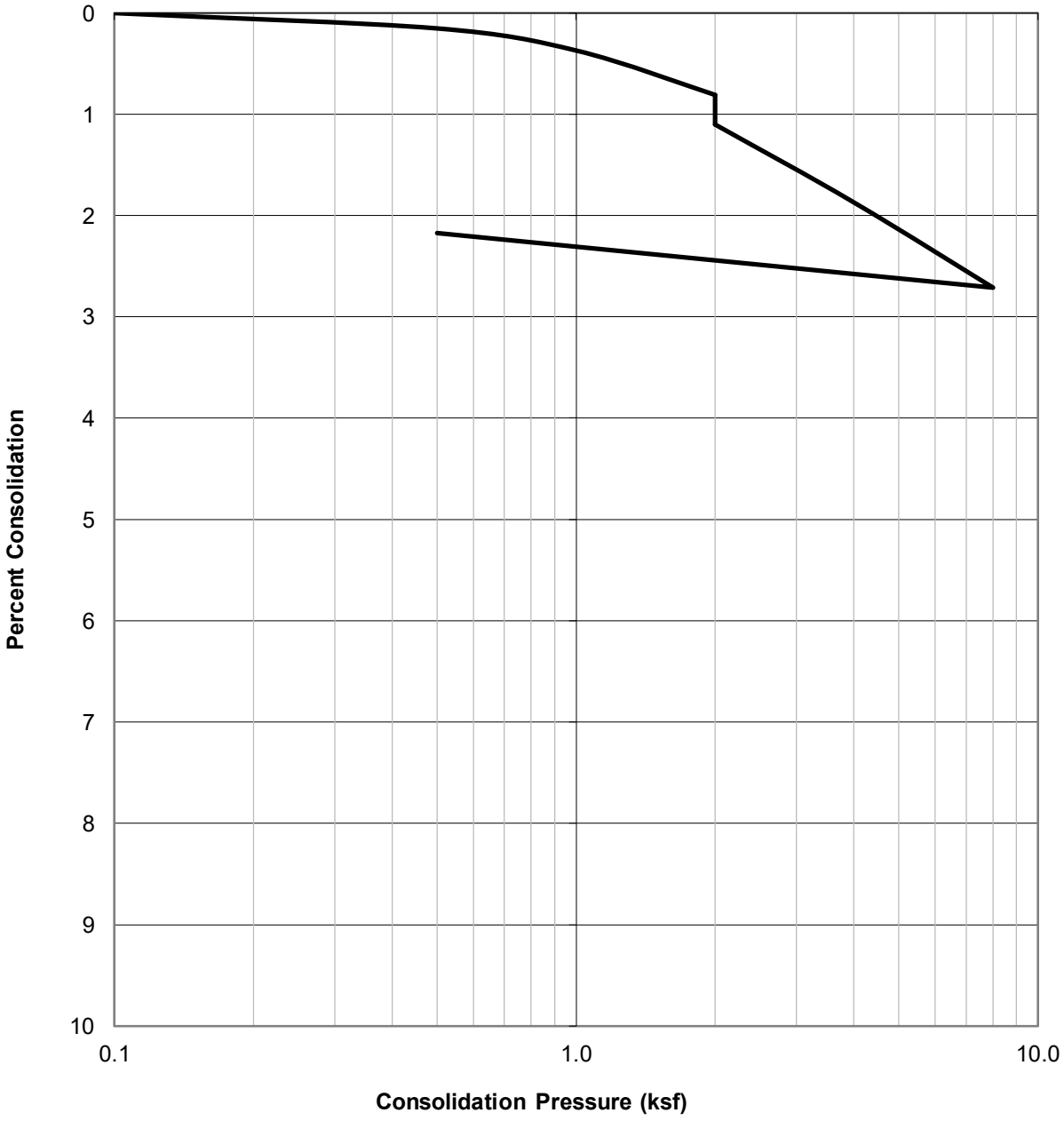
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B6

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
F@7.5	Sand (SP)	92.6	5.5	28.1

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

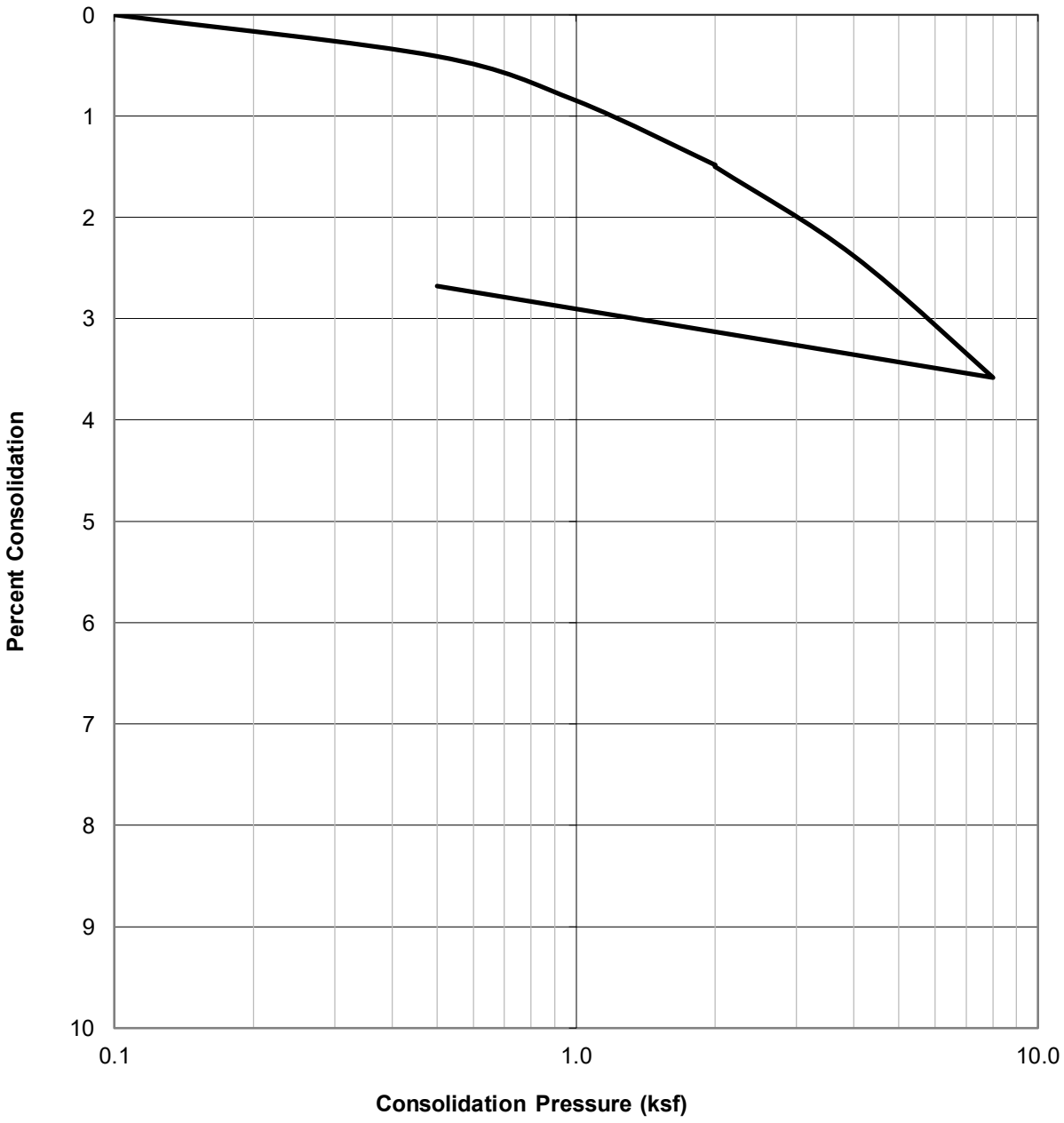
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B7

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
G@5	Sandy Silt (ML)	95.1	29.9	29.9

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

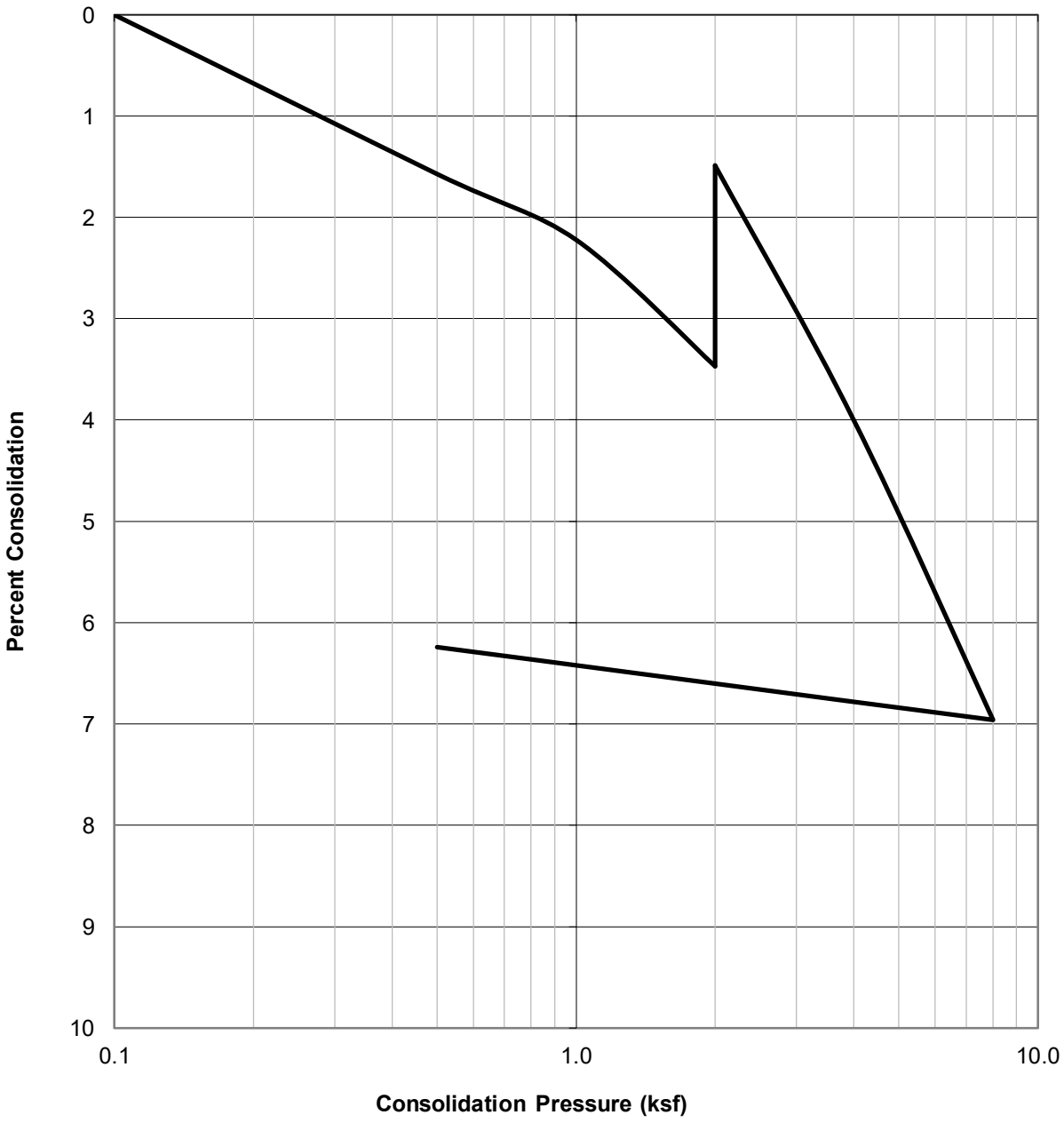
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B8

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
G@7	Sandy Silt (ML)	102.7	23.6	19.8

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

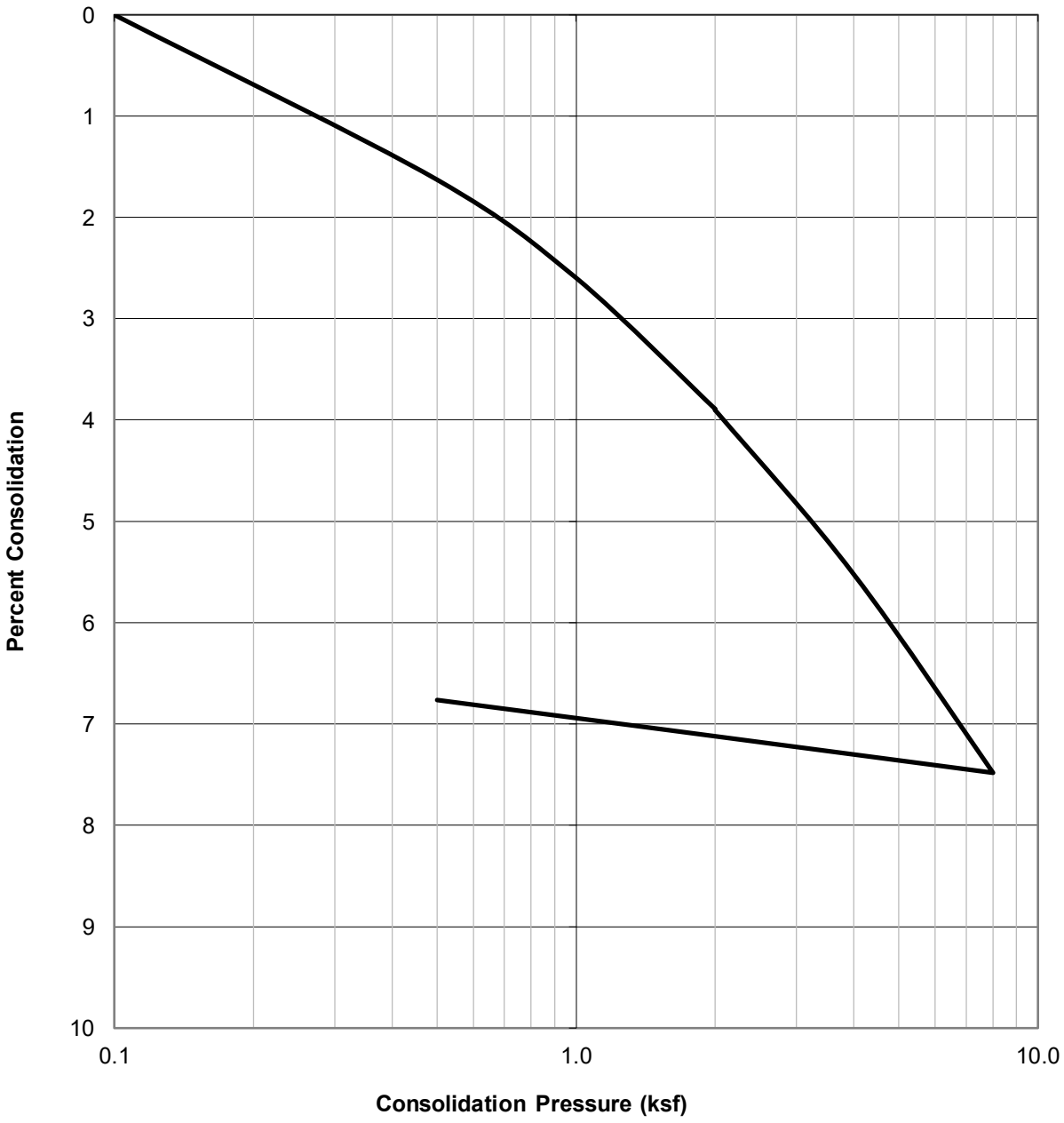
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B9

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
G@10	Sandy Silt (ML)	105.5	22.4	19.6

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

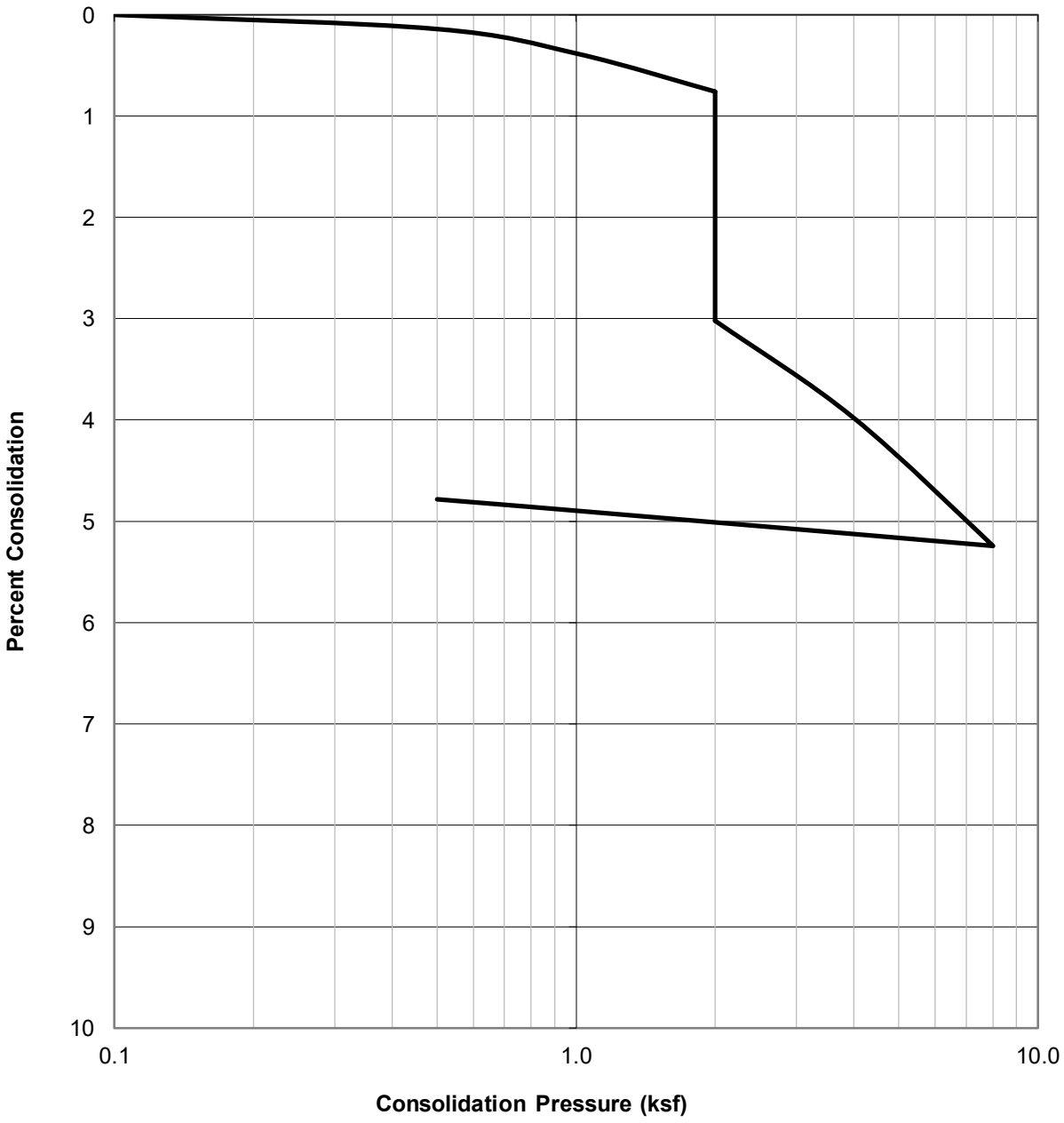
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B10

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
H@7	Sand (SP)	86.9	10.4	29.9

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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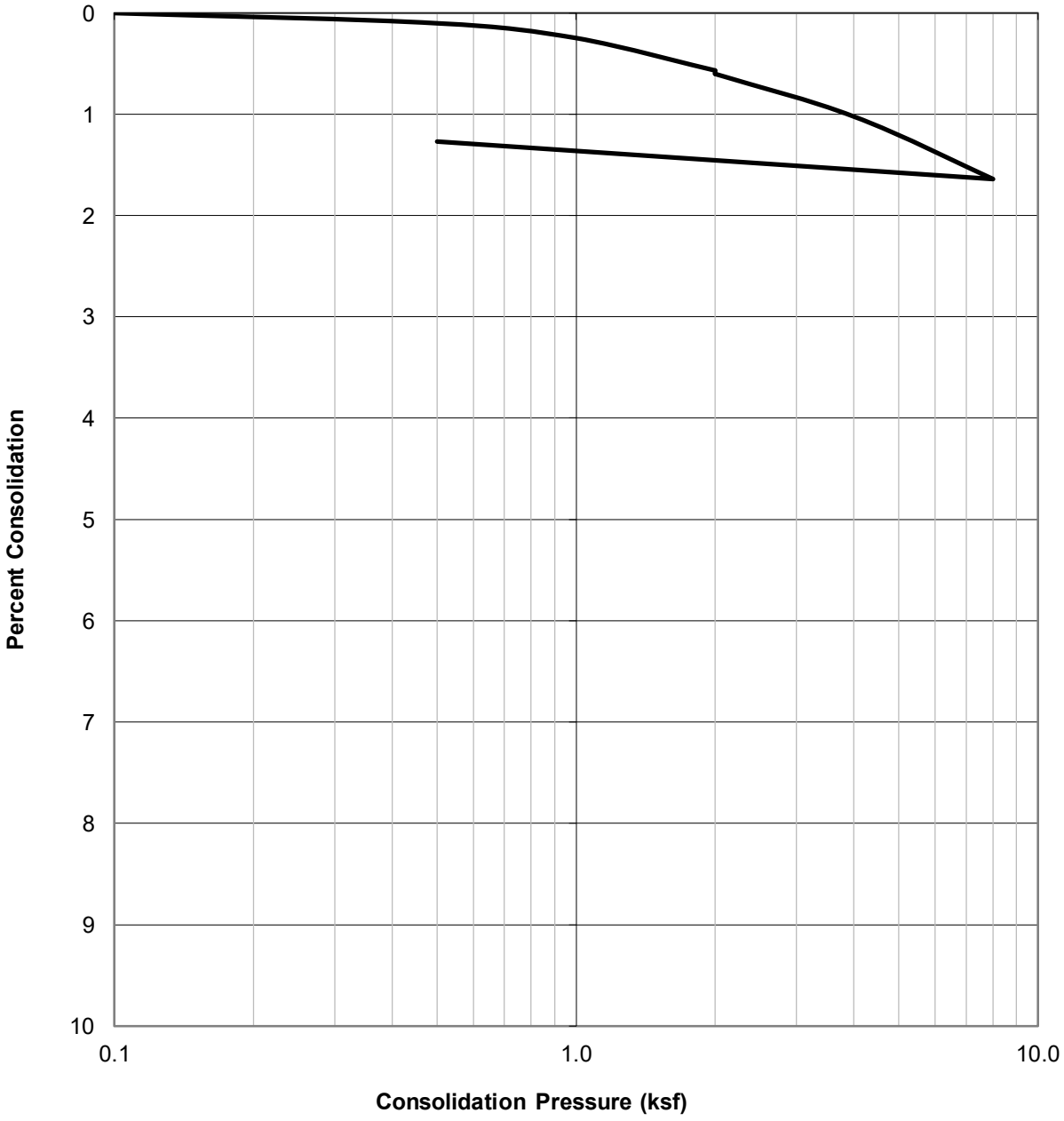
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B11

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
H@12	Sand (SP)	95.2	5.1	24.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

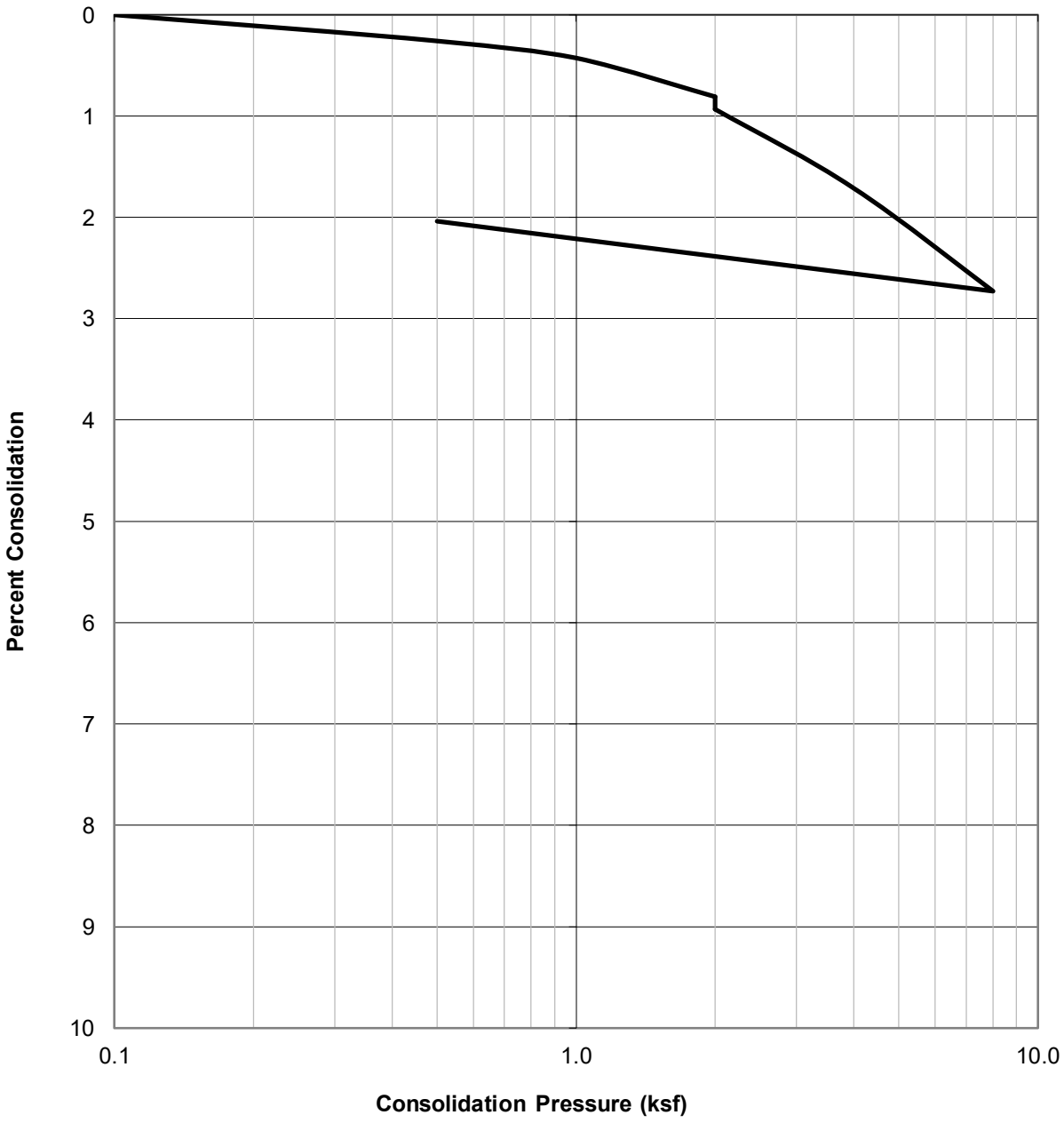
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B12

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
H@20	Silty Sand (SM)	102.2	14.7	20.8

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

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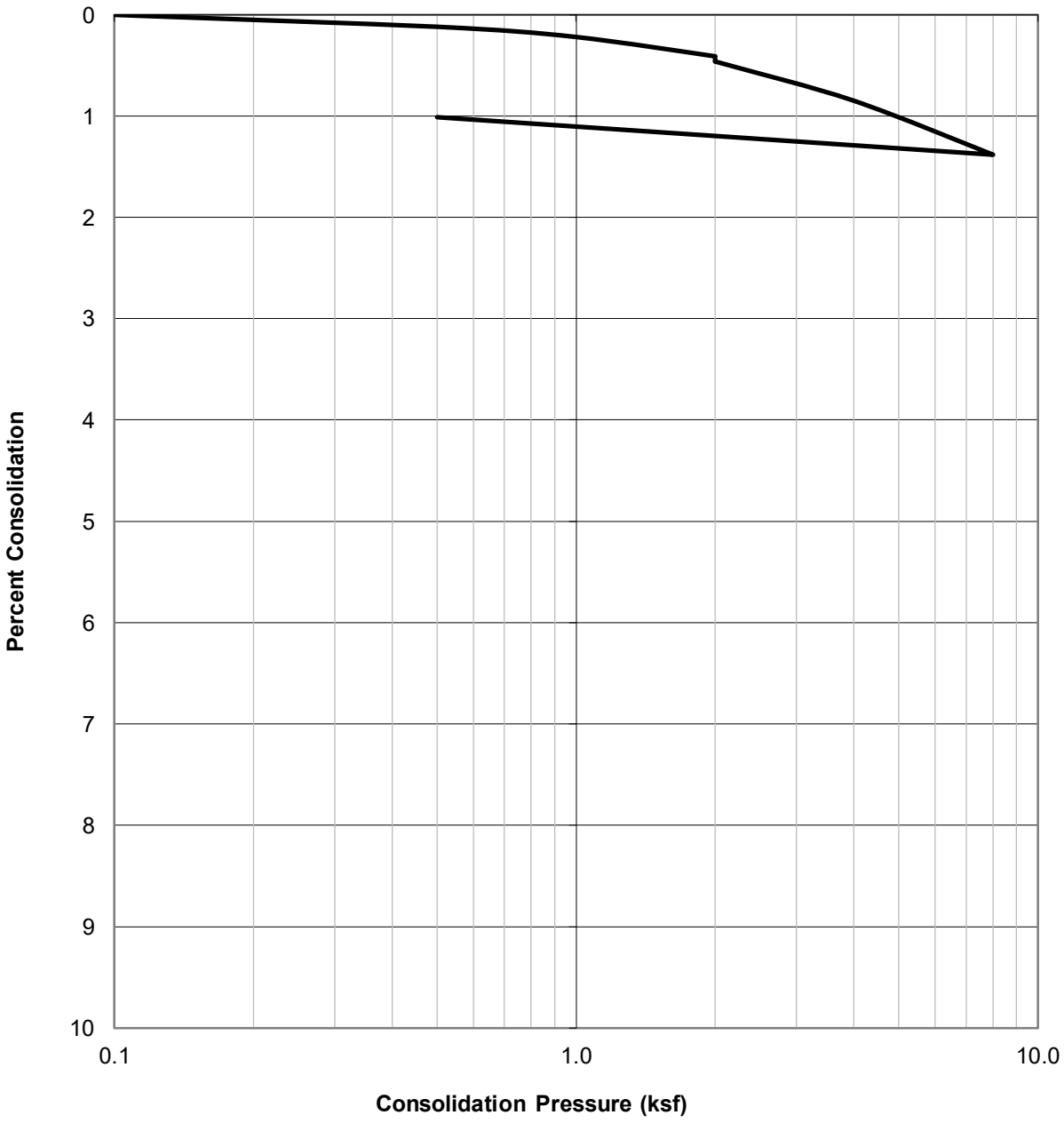
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B13

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
J@5	Sand (SP)	96.1	4.1	23.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

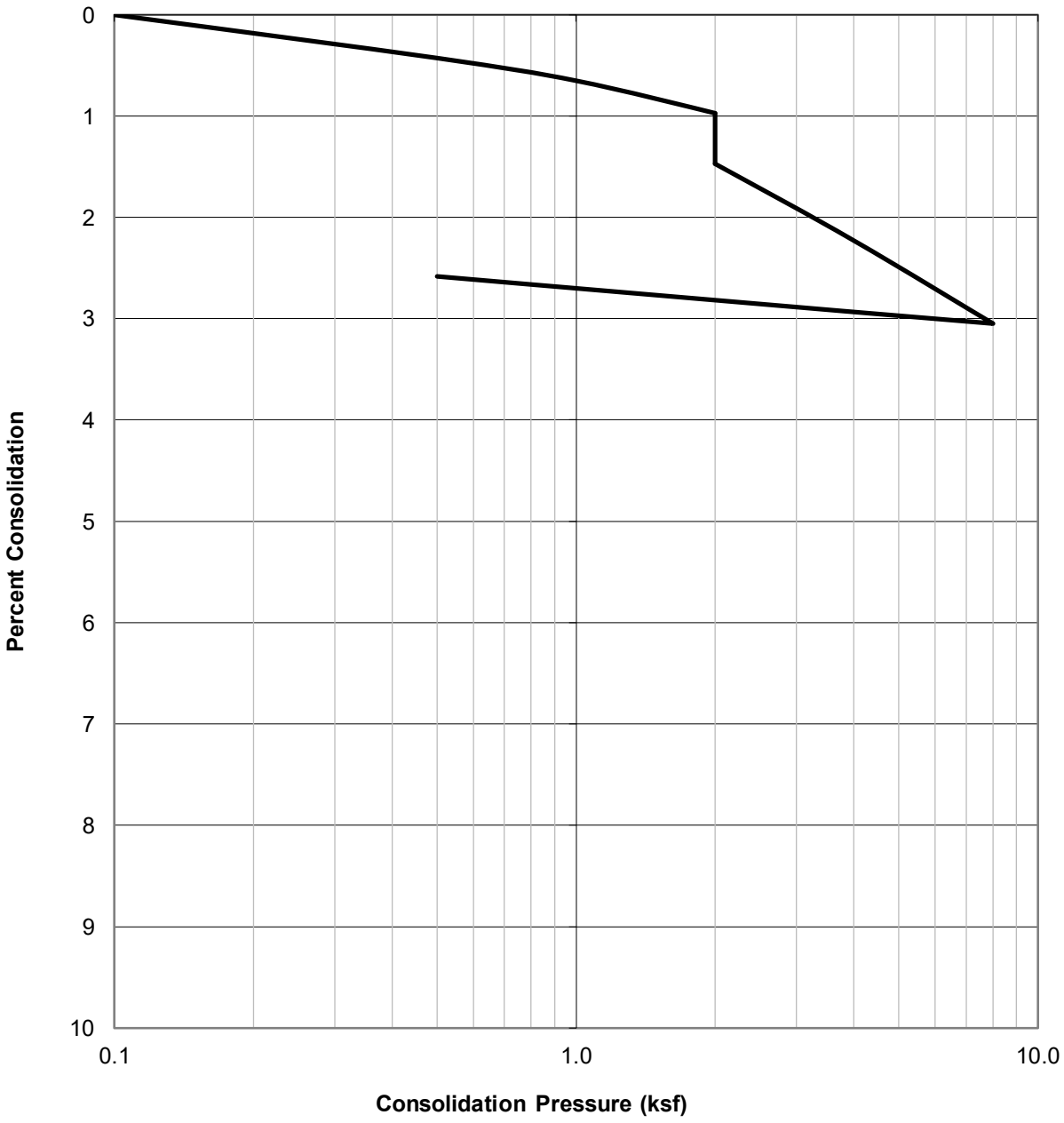
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B14

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
J@7	Sand (SP)	91.0	12.9	26.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

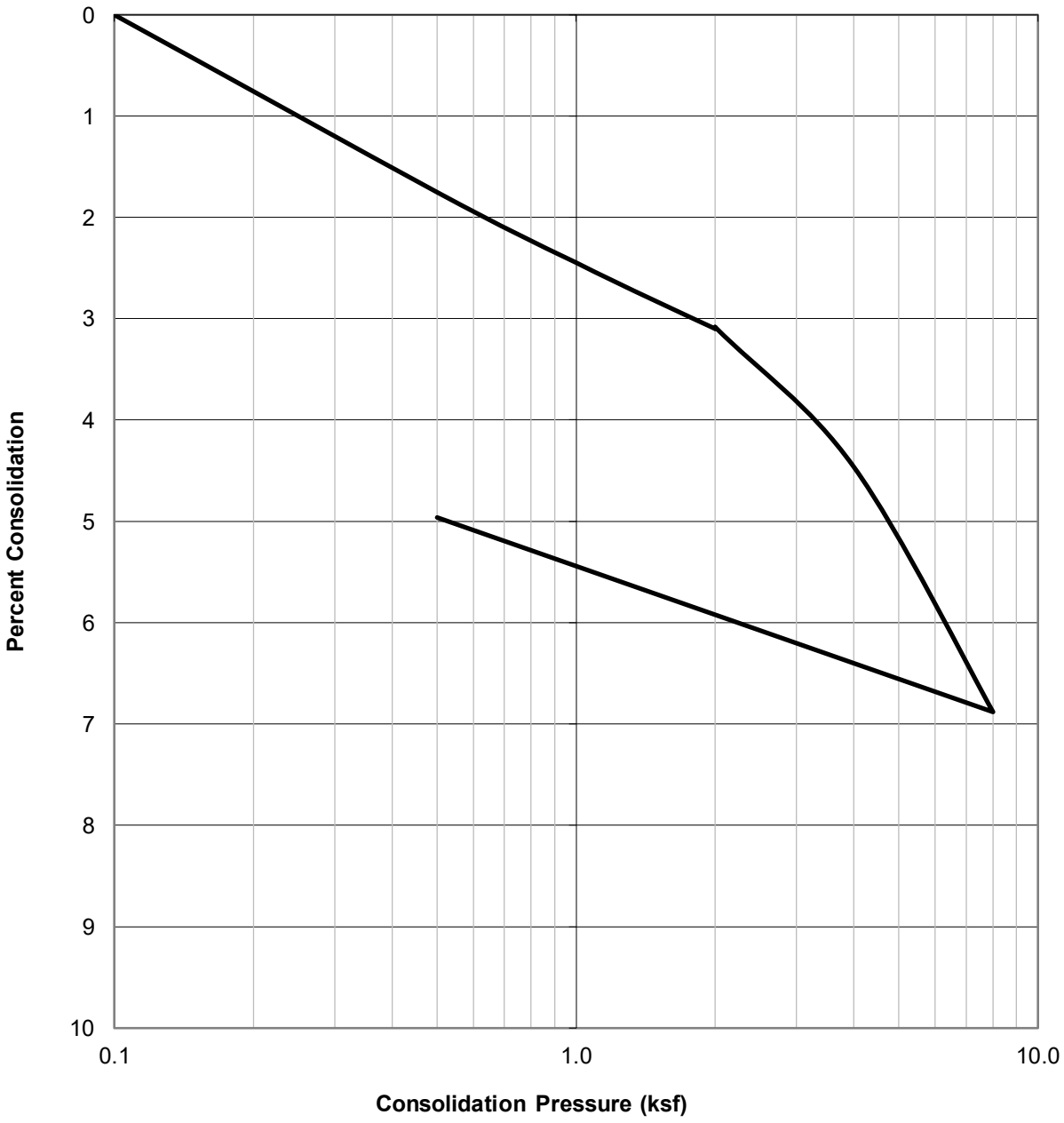
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B15

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
J@10	Sandy Clay (CL)	101.9	25.1	26.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

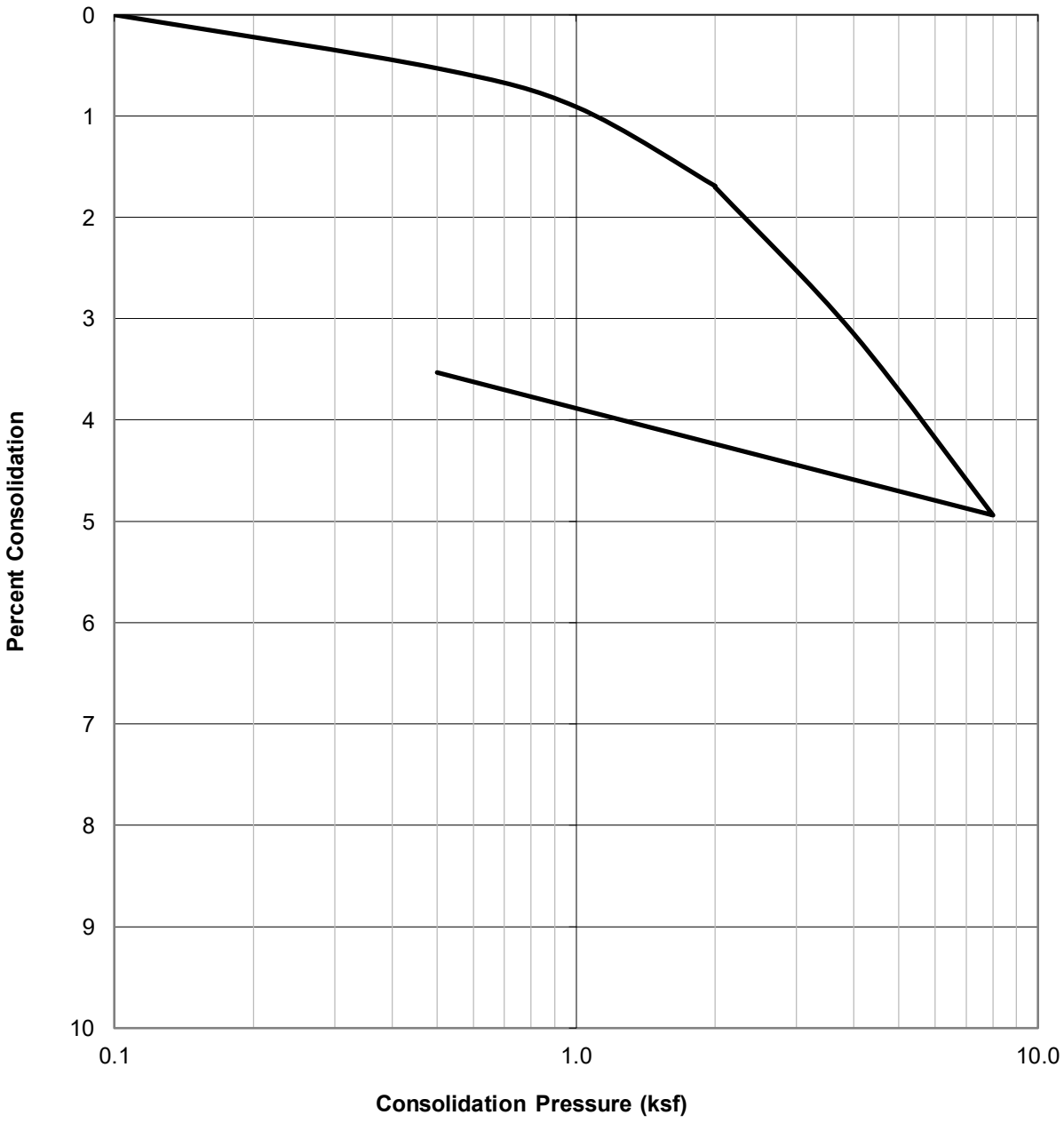
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B16

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
J@15	Sandy Clay (CL)	106.8	21.3	21.1

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

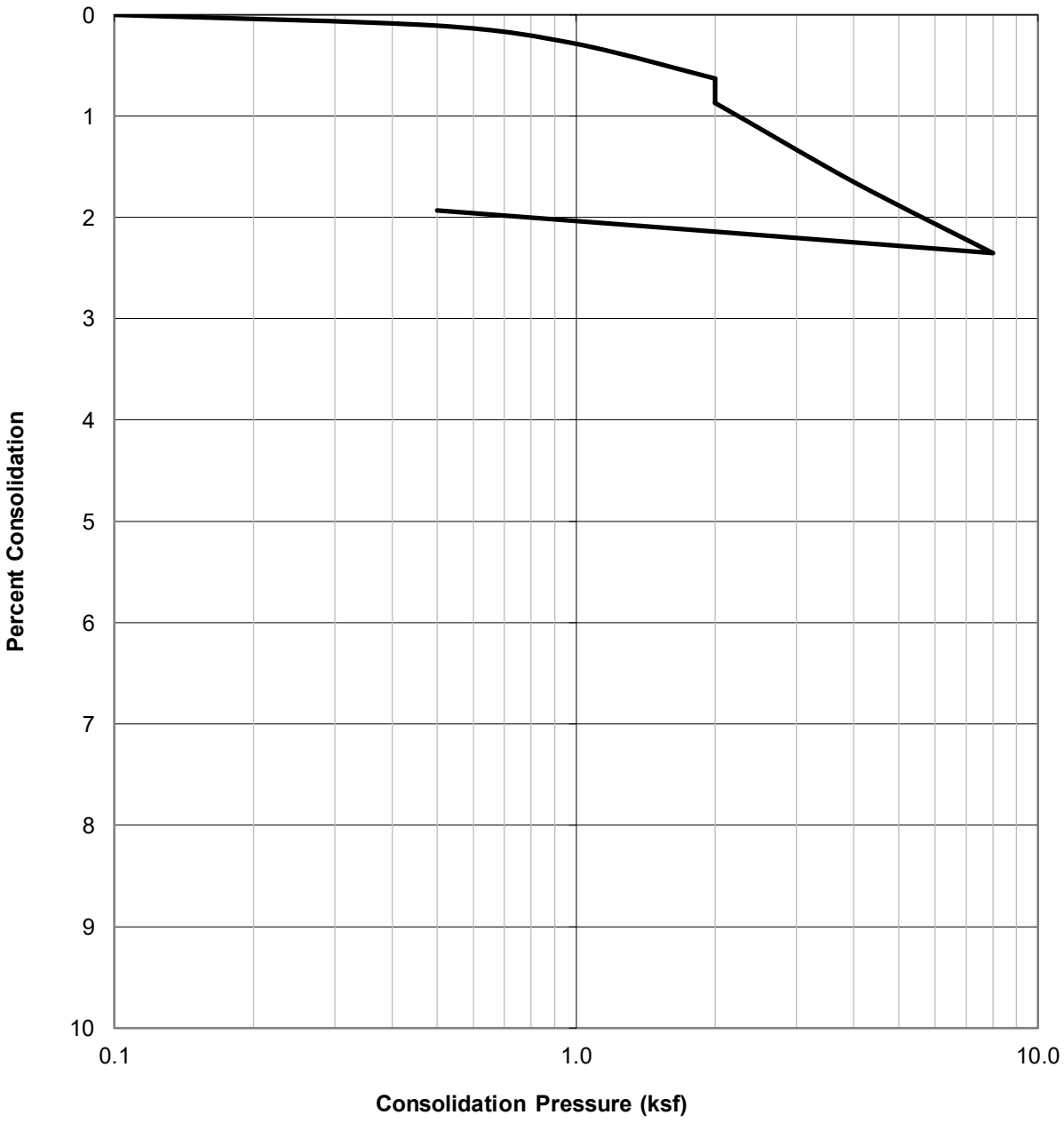
Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B17

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
L@10	Silty Sand (SM)	93.5	5.3	29.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B18

SUMMARY OF LABORATORY NO. 200 TEST RESULTS

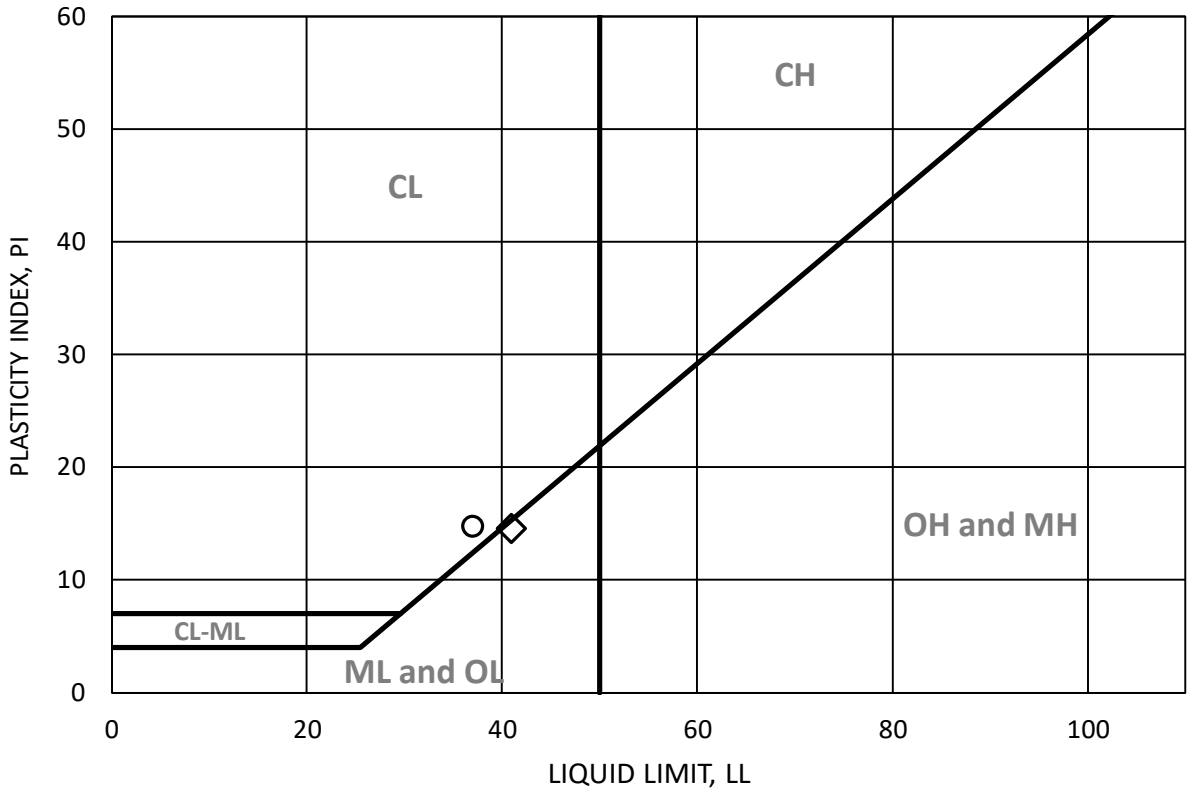
Sample No.	Percent Passing No. 200 Sieve
E @ 5'	**79.9**
E @ 7.5'	**67.6**
E @ 12.5'	**59.3**
E @ 17.5'	**34.7**
E @ 22.5'	**8.7**
E @ 27.5'	**29.1**
E @ 32.5'	**11.9**
E @ 37.5'	**3.8**
E @ 42.5'	**14.9**
E @ 47.5'	**70.5**

SUMMARY OF LABORATORY NO. 200 TEST RESULTS

Sample No.	Percent Passing No. 200 Sieve
F @ 5'	1.4
F @ 10'	1.0
F @ 15'	3.9
F @ 20'	83.3
F @ 25'	50.7
F @ 30'	8.8
F @ 35'	30.8
F @ 40'	65.9
F @ 45'	14.6
F @ 50'	66.3
F @ 55	16.4

SUMMARY OF LABORATORY NO. 200 TEST RESULTS

Sample No.	Percent Passing No. 200 Sieve
I @ 5'	5.2
I @ 7.5'	83.3
I @ 12.5'	84.7
I @ 15'	42.2
I @ 17.5'	98.8
I @ 22.5'	36.3
I @ 25'	97.5
I @ 27.5'	45.1
I @ 32.5'	80.8
I @ 35'	64.3
I @ 37.5'	11.4
I @ 42.5'	81.8
I @ 47.5'	64.6
I @ 62.5	88.8



SYMBOL	BORING	DEPTH (ft)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
■	E	47.5	N/P	N/P	N/P		N/P
◆	F	25	N/P	N/P	N/P		N/P
▲	F	35	N/P	N/P	N/P		N/P
●	F	40	N/P	N/P	N/P		N/P
□	F	50	N/P	N/P	N/P		N/P
◇	I	25	41	26	15		ML
△	I	27.5	N/P	N/P	N/P		N/P
○	I	32.5	37	22	15		CL

N/P = Non-Plastic

GEOCON

ATTERBERG LIMITS

ASTM D-4318

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Project No.: W1857-88-01

OC YTC
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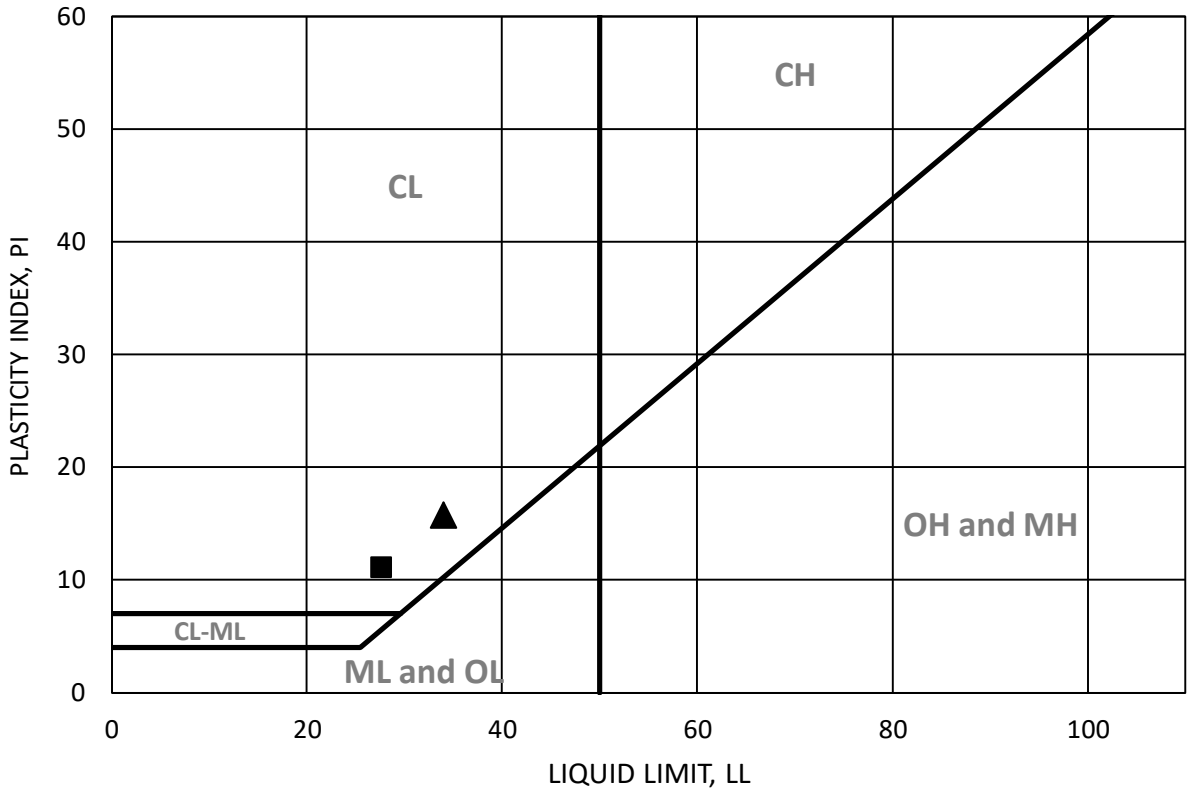
MAY 2024 Figure B22



SYMBOL	BORING	DEPTH (ft)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
■	I	42.5	N/P	N/P	N/P		N/P
◆	I	47.5	28	17	11		CL
▲	I	62.5	34	18	16		CL
●							
□							
◇							
△							
○							

N/P = Non-Plastic

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ATTERBERG LIMITS

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MAY 2024 Figure B23

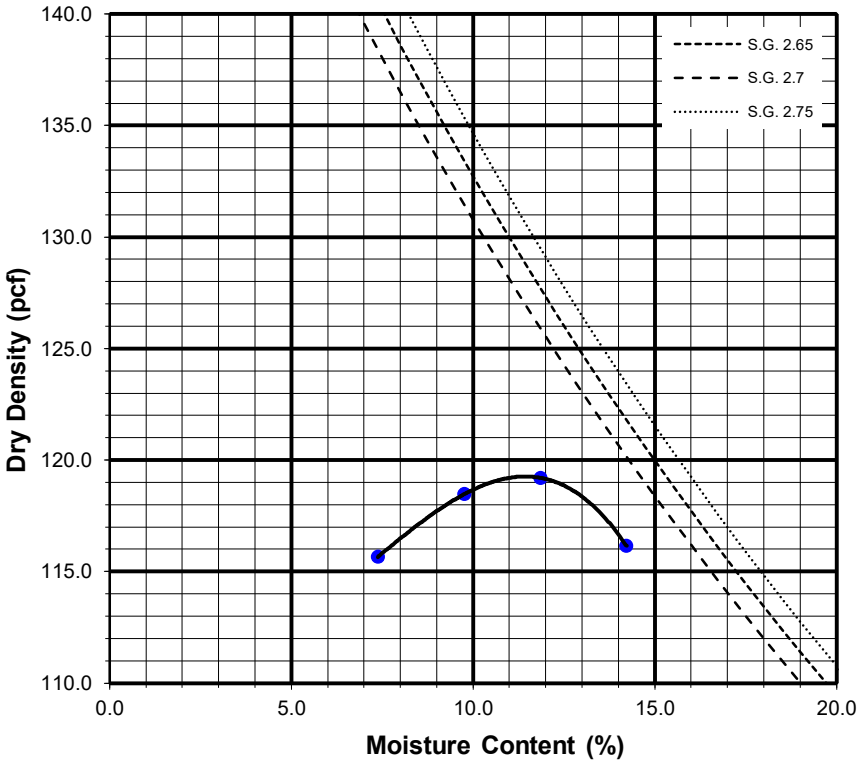
Sample No:

A+B@0-5	Silty Sand (SM)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6158	6246	6296	6286		
Weight of Mold	(g)	4282	4282	4282	4282		
Net Weight of Soil	(g)	1876	1964	2014	2004		
Wet Weight of Soil + Cont.	(g)	2261.4	2323.1	2400.7	2392.5		
Dry Weight of Soil + Cont.	(g)	2131.9	2150.2	2186.3	2141.6		
Weight of Container	(g)	377.8	377.9	378.1	377.8		
Moisture Content	(%)	7.4	9.8	11.9	14.2		
Wet Density	(pcf)	124.2	130.0	133.3	132.7		
Dry Density	(pcf)	115.7	118.5	119.2	116.2		

Maximum Dry Density (pcf)	**119.5**

Optimum Moisture Content (%)	**11.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

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Project No.: W1857-88-01

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MAY 2024 Figure B24

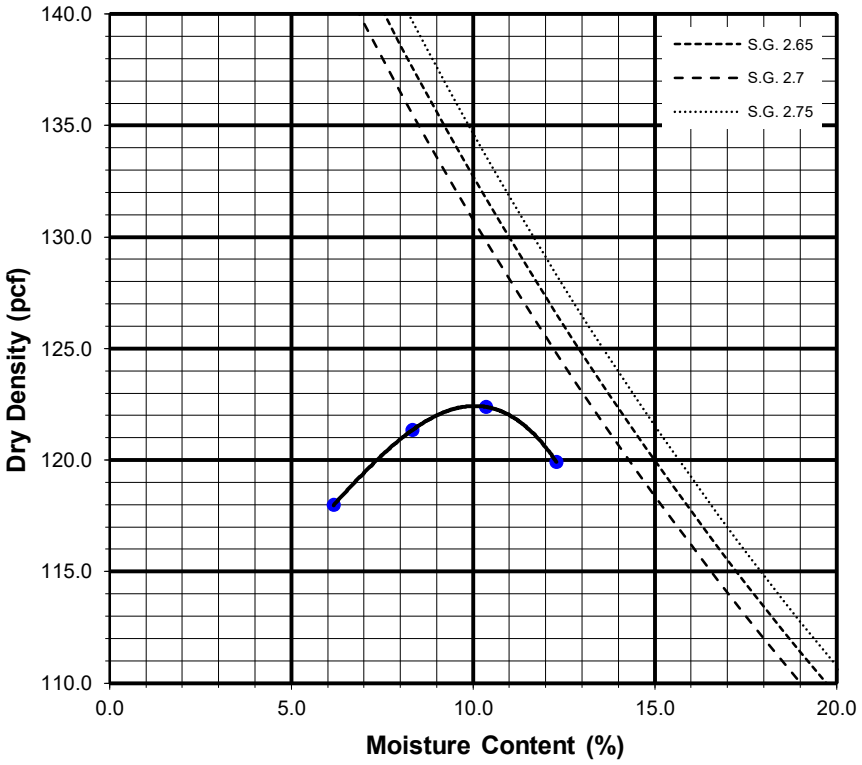
Sample No:

E+F@0-5	Silty Sand (SM)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6174	6268	6322	6316		
Weight of Mold	(g)	4282	4282	4282	4282		
Net Weight of Soil	(g)	1892	1986	2040	2034		
Wet Weight of Soil + Cont.	(g)	2278.4	2367.7	2429.0	2422.6		
Dry Weight of Soil + Cont.	(g)	2167.9	2214.5	2236.6	2198.7		
Weight of Container	(g)	376.3	377.9	378.2	377.8		
Moisture Content	(%)	6.2	8.3	10.4	12.3		
Wet Density	(pcf)	125.3	131.5	135.1	134.7		
Dry Density	(pcf)	118.0	121.4	122.4	119.9		

Maximum Dry Density (pcf)	**123.0**

Optimum Moisture Content (%)	**9.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

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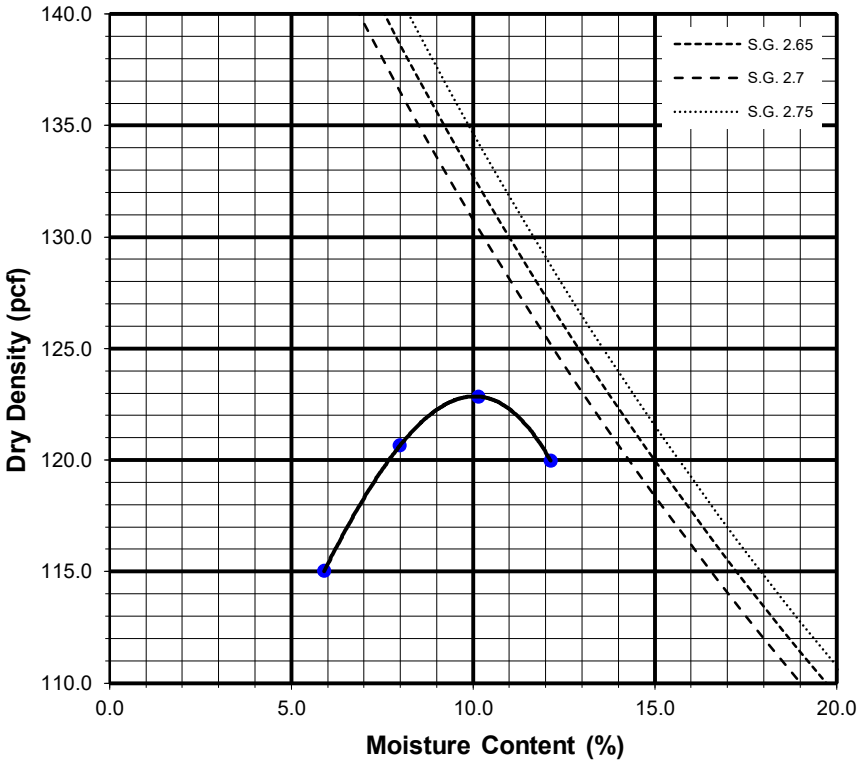
MAY 2024 Figure B25

Sample No:

M@0-5	Silty Sand (SM)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6326	6314	6250	6122		
Weight of Mold	(g)	4282	4282	4282	4282		
Net Weight of Soil	(g)	2044	2032	1968	1840		
Wet Weight of Soil + Cont.	(g)	2429.4	2418.9	2322.1	2224.9		
Dry Weight of Soil + Cont.	(g)	2240.4	2197.9	2178.2	2122.0		
Weight of Container	(g)	378.5	377.2	377.3	379.0		
Moisture Content	(%)	10.2	12.1	8.0	5.9		
Wet Density	(pcf)	135.3	134.5	130.3	121.8		
Dry Density	(pcf)	122.9	120.0	120.6	115.0		

Maximum Dry Density (pcf)	**123.0**	**Optimum Moisture Content (%)**	**9.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

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Project No.: W1857-88-01

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MAY 2024 Figure B26

A+B@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	584.4	623.1
Wt. of Mold	(gm)	201.8	201.8
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	300.0	623.1
Dry Wt. of Soil + Cont.	(gm)	267.9	341.6
Wt. of Container	(gm)	0.0	201.8
Moisture Content	(%)	12.0	23.3
Wet Density	(pcf)	115.4	126.9
Dry Density	(pcf)	103.0	102.9
Void Ratio		0.6	0.6
Total Porosity		0.4	0.4
Pore Volume	(cc)	80.5	80.5
Degree of Saturation	(%) [S_{meas}]	51.3	99.1

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
2/29/2024	10:00	1.0	0	0.4451
2/29/2024	10:10	1.0	10	0.4449
Add Distilled Water to the Specimen				
3/1/2024	10:00	1.0	1430	0.4448
3/1/2024	11:00	1.0	1490	0.4448

Expansion Index (EI meas) =	-0.1
Expansion Index (Report) =	**0**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2022 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

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Project No.: W1857-88-01

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MAY 2024 Figure B27

E+F@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	572.2	597.5
Wt. of Mold	(gm)	171.3	171.3
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	300.0	597.5
Dry Wt. of Soil + Cont.	(gm)	272.7	364.5
Wt. of Container	(gm)	0.0	171.3
Moisture Content	(%)	10.0	16.9
Wet Density	(pcf)	120.9	128.4
Dry Density	(pcf)	109.9	109.8
Void Ratio		0.5	0.5
Total Porosity		0.3	0.3
Pore Volume	(cc)	72.0	72.0
Degree of Saturation	(%) [S_{meas}]	51.0	85.8

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
2/29/2024	10:00	1.0	0	0.4441
2/29/2024	10:10	1.0	10	0.444
Add Distilled Water to the Specimen				
3/1/2024	10:00	1.0	1430	0.4439
3/1/2024	11:00	1.0	1490	0.4439

Expansion Index (EI meas) =	-0.1
Expansion Index (Report) =	**0**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2022 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

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EXPANSION INDEX TEST RESULTS

ASTM D-4829

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MAY 2024 Figure B28

M@0-5

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	576.2	584.3
Wt. of Mold	(gm)	176.4	176.4
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	300.0	584.3
Dry Wt. of Soil + Cont.	(gm)	272.2	362.8
Wt. of Container	(gm)	0.0	176.4
Moisture Content	(%)	10.2	12.4
Wet Density	(pcf)	120.6	122.9
Dry Density	(pcf)	109.4	109.3
Void Ratio		0.5	0.5
Total Porosity		0.4	0.4
Pore Volume	(cc)	72.6	73.0
Degree of Saturation	(%) [S_{meas}]	51.4	61.8

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
2/29/2024	10:00	1.0	0	0.4416
2/29/2024	10:10	1.0	10	0.4416
Add Distilled Water to the Specimen				
3/1/2024	10:00	1.0	1430	0.4434
3/1/2024	11:00	1.0	1490	0.4434

Expansion Index (EI meas) =	1.8
Expansion Index (Report) =	**2**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2022 California Building Code, Section 1803.5.3
** Reference: 1997 Uniform Building Code, Table 18-I-B.

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EXPANSION INDEX TEST RESULTS
ASTM D-4829

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Project No.: W1857-88-01
OC YTC
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ORANGE, CALIFORNIA

MAY 2024 Figure B29

SUMMARY OF LABORATORY
POTENTIAL OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
AASHTO T289 ASTM D4972 and AASHTO T288 ASTM G187

Sample No.	pH	Resistivity (ohm centimeters)
E+F@0-5	8.4	5900 (Moderately Corrosive)
M@0-5	8.7	2800 (Moderately Corrosive)

SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
AASHTO T291 ASTM C1218

Sample No.	Chloride Ion Content (%)
E+F@0-5	0.002
M@0-5	0.075

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
AASHTO T290 ASTM C1580

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure
E+F@0-5	0.001	S0
M@0-5	0.000	S0

GEOCON

CORROSIVITY TEST RESULTS

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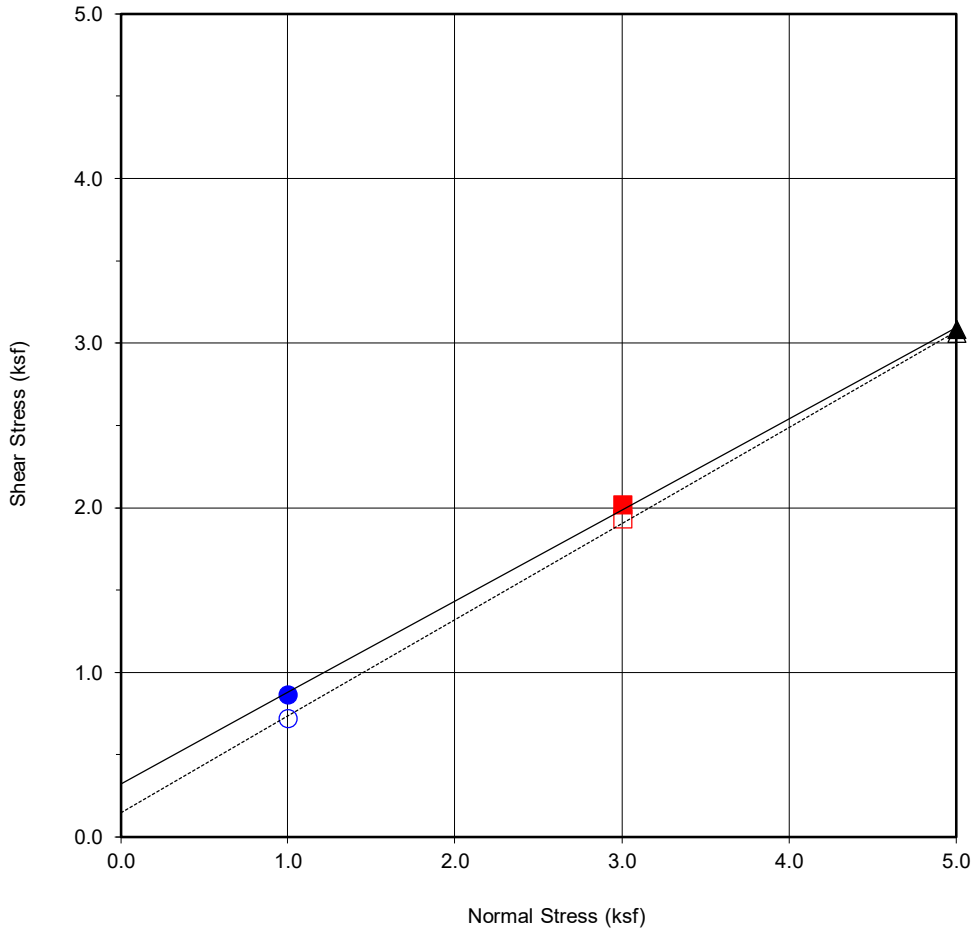
Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

MAY 2024 Figure B30



Boring No.	**N+O**
Sample No.	**N+O@0-5'**
Depth (ft)	**0-5'**
Sample Type:	REMOLD

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	323	29
Ultimate	149	30

Normal Stress (kip/ft²)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.86	■ 2.02	▲ 3.08
Shear Stress @ End of Test (ksf)	○ 0.72	□ 1.93	△ 3.06
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	12.6	12.6	12.1
Initial Dry Density (pcf)	110.0	109.9	110.5
Initial Degree of Saturation (%)	63.9	63.9	62.4
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	18.0	18.4	17.2

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DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

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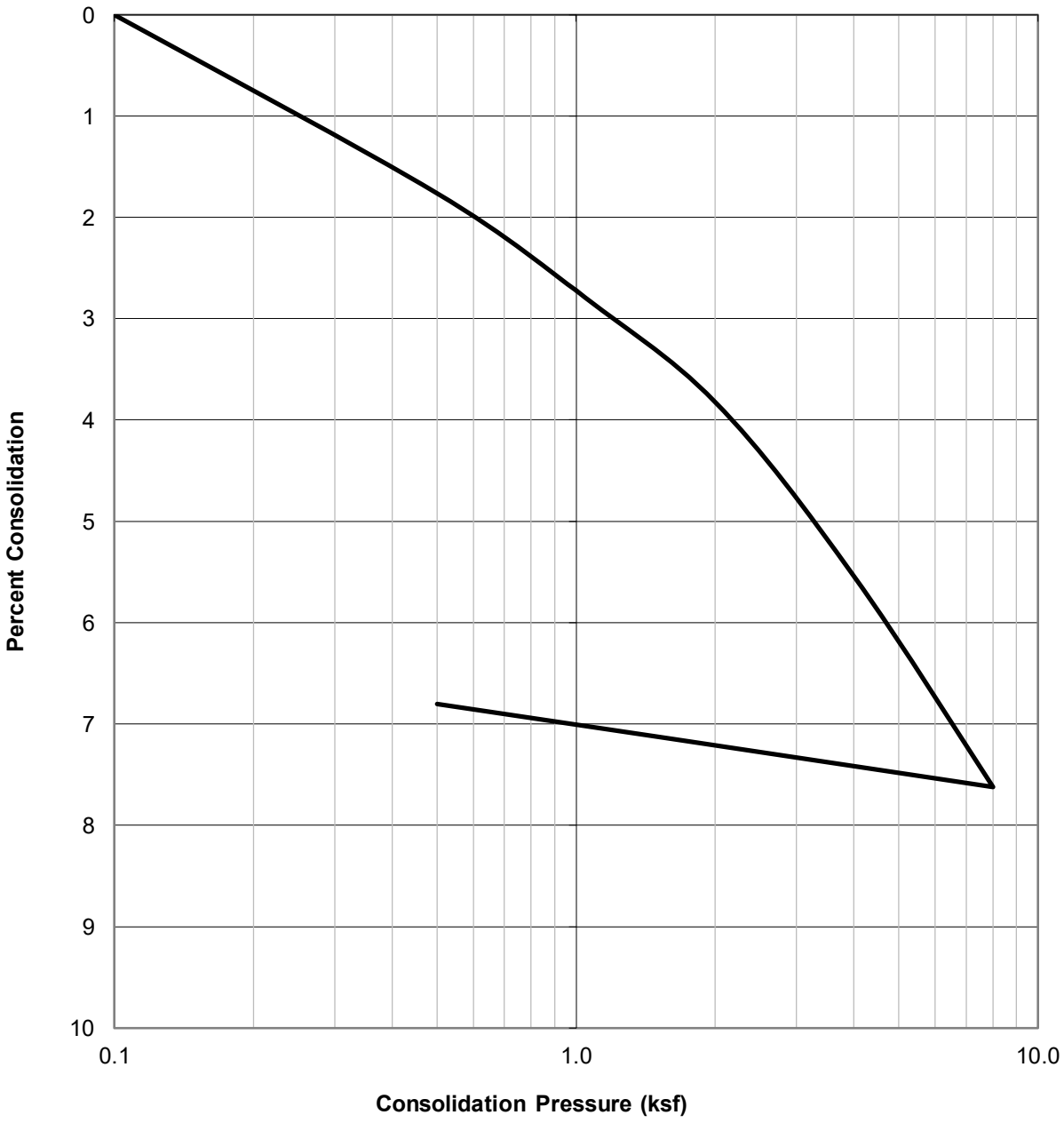
ORANGE, CALIFORNIA

May 2024 Figure B31

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
N@7'	Sandy Silt (ML)	98.2	26.6	22.5

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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OC YTC
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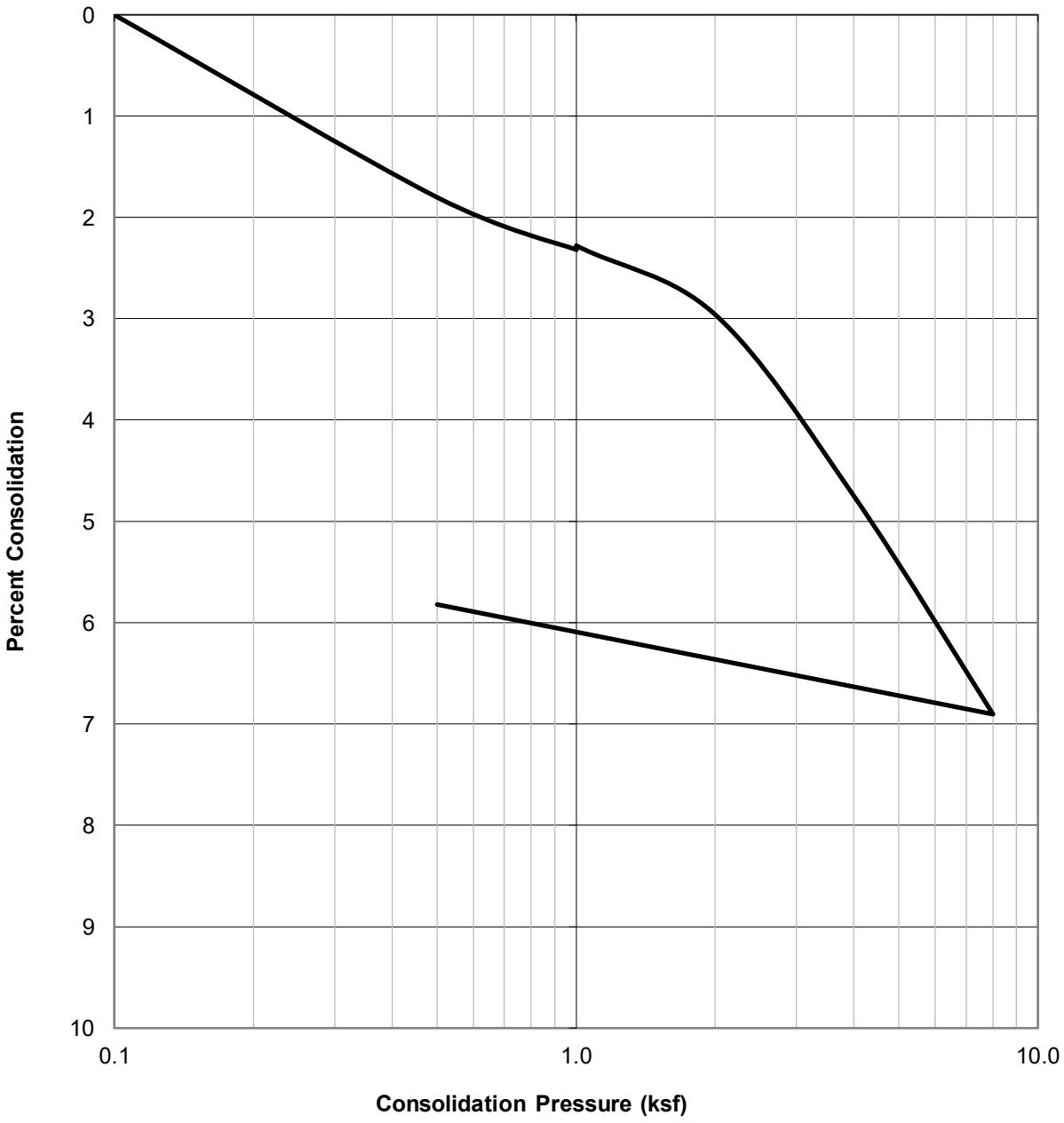
ORANGE, CALIFORNIA

May 2024 Figure B32

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
N@12'	Clayey Silt (ML)	106.3	21.9	19.6

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

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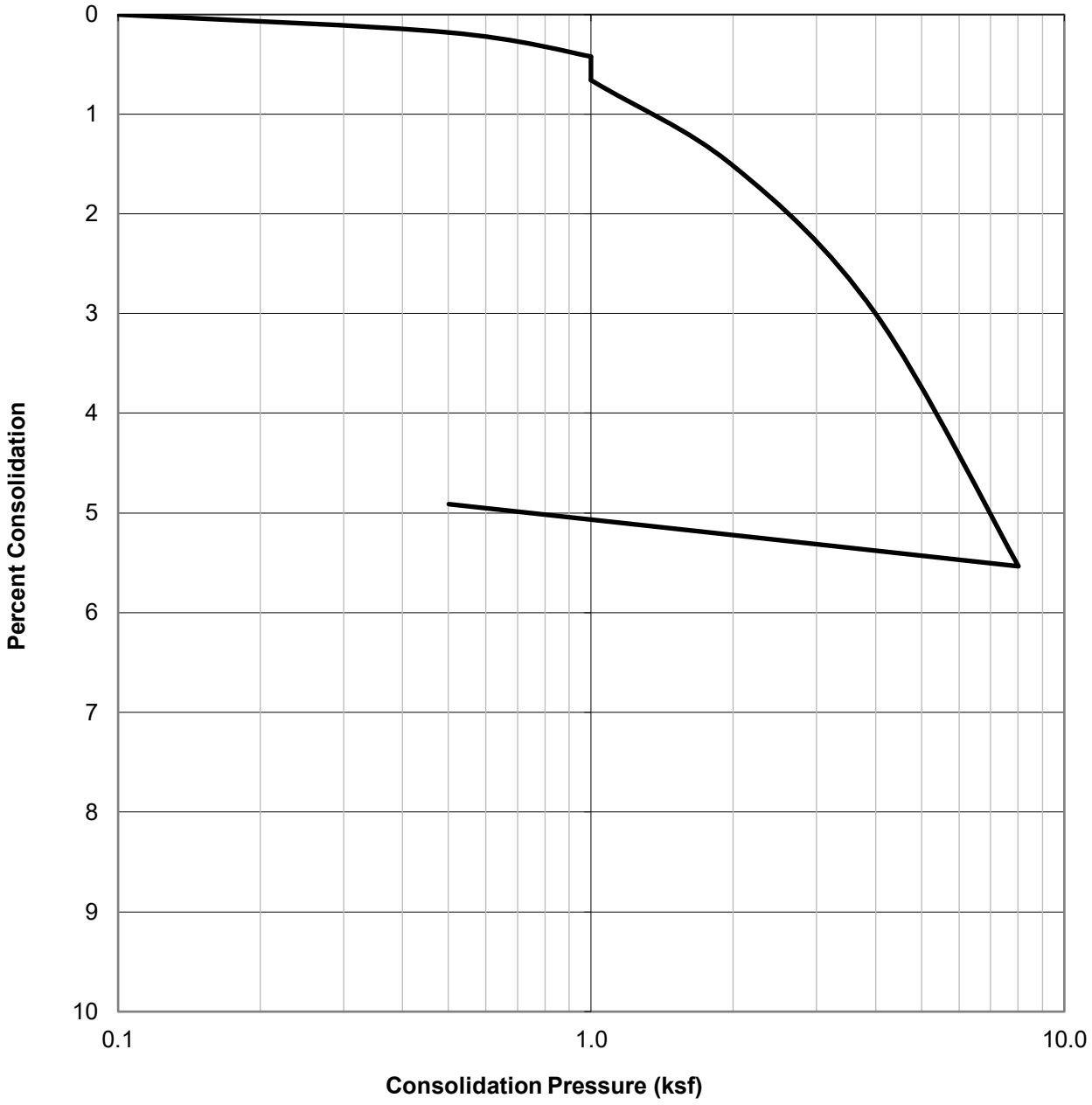
OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

May 2024 Figure B33

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
O@5'	Sand (SP)	91.3	13.7	26.6

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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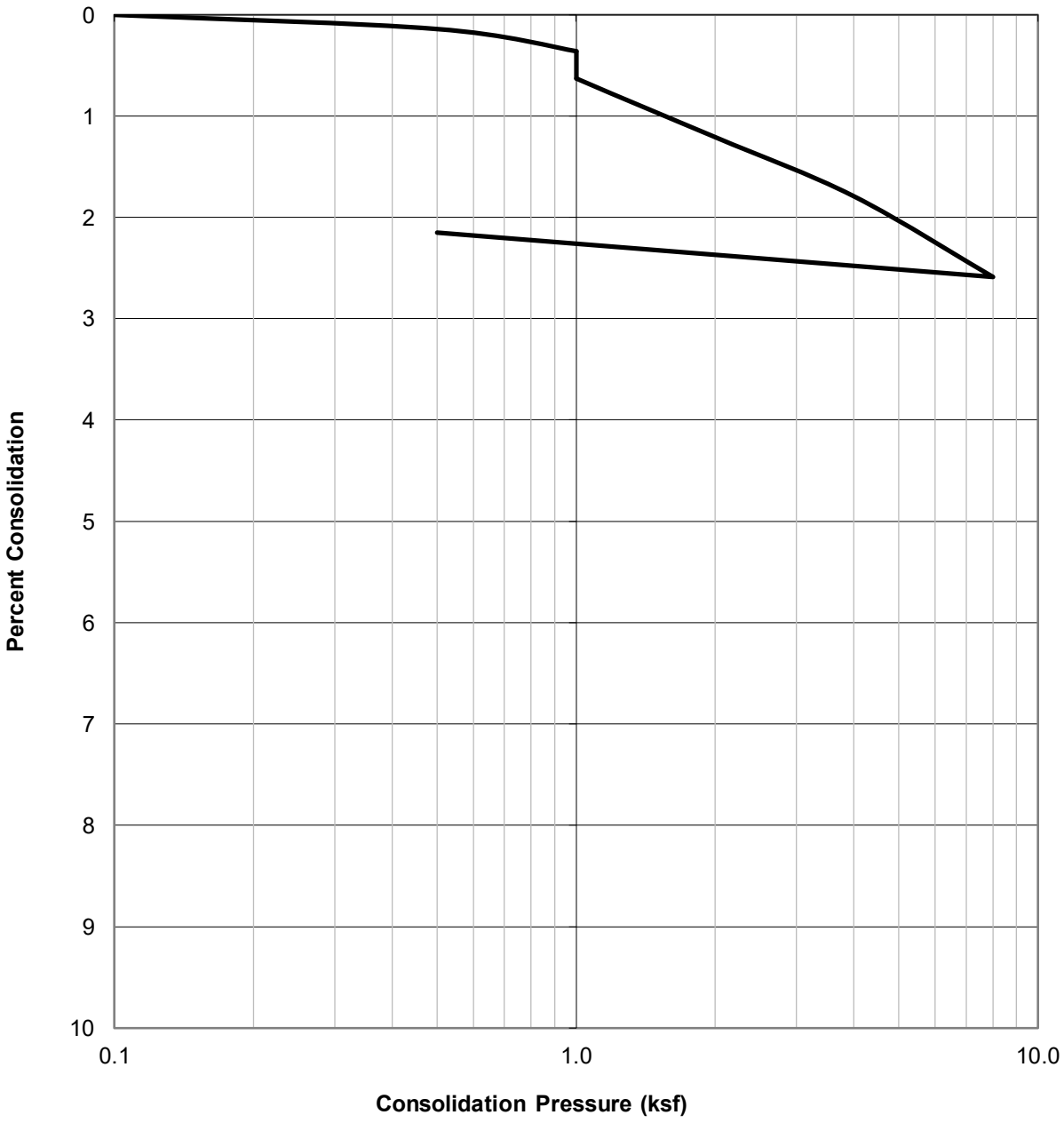
OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

May 2024 Figure B34

WATER ADDED AT 1.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
O@10'	Sand (SP)	92.1	5.0	29.0

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CONSOLIDATION TEST RESULTS

ASTM D-2435

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May 2024 Figure B35

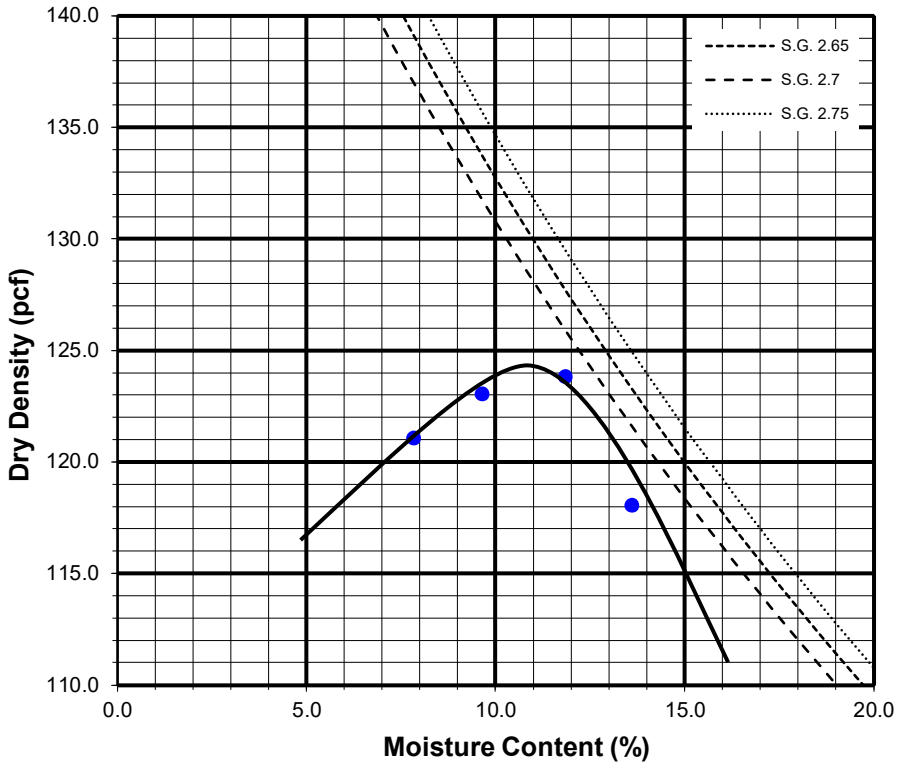
Sample No:

N+O @0-5'	Silty Sand (SM)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6254	6320	6374	6308		
Weight of Mold	(g)	4282	4282	4282	4282		
Net Weight of Soil	(g)	1972	2038	2092	2026		
Wet Weight of Soil + Cont.	(g)	2359.6	2415.4	2467.4	2412.9		
Dry Weight of Soil + Cont.	(g)	2215.7	2236.4	2246.2	2169.4		
Weight of Container	(g)	377.8	377.3	377.2	378.1		
Moisture Content	(%)	7.8	9.6	11.8	13.6		
Wet Density	(pcf)	130.6	134.9	138.5	134.1		
Dry Density	(pcf)	121.1	123.1	123.8	118.1		

Maximum Dry Density (pcf)	**124.1**

Optimum Moisture Content (%)	**10.7**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: ACS

Project No.: W1857-88-01

OC YTC
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ORANGE, CALIFORNIA

May 2024 Figure B36

N+O@0-5'

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.0
Wt. Comp. Soil + Mold	(gm)	609.4	622.2
Wt. of Mold	(gm)	200.8	200.8
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	308.5	622.2
Dry Wt. of Soil + Cont.	(gm)	282.5	373.2
Wt. of Container	(gm)	8.5	200.8
Moisture Content	(%)	9.5	12.9
Wet Density	(pcf)	123.3	126.9
Dry Density	(pcf)	112.6	112.4
Void Ratio		0.5	0.5
Total Porosity		0.3	0.3
Pore Volume	(cc)	68.8	68.5
Degree of Saturation	(%) [S_{meas}]	51.9	70.5

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
5/8/2024	10:00	1.0	0	0.4214
5/8/2024	10:10	1.0	10	0.4213
Add Distilled Water to the Specimen				
5/9/2024	10:00	1.0	1430	0.4198
5/9/2024	11:00	1.0	1490	0.4198

Expansion Index (EI meas) =	-1.5
Expansion Index (Report) =	**0**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2022 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: ACS

Project No.: W1857-88-01

OC YTC
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May 2024 Figure B37

SUMMARY OF LABORATORY
POTENTIAL OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
AASHTO T289 ASTM D4972 and AASHTO T288 ASTM G187

Sample No.	pH	Resistivity (ohm centimeters)
N+O@0-5'	8.6	10000 (Moderately Corrosive)

SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
AASHTO T291 ASTM C1218

Sample No.	Chloride Ion Content (%)
N+O@0-5'	0.016

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
AASHTO T290 ASTM C1580

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure
N+O@0-5'	0.002	S0

GEOCON

CORROSIVITY TEST RESULTS

Checked by: ACS

Project No.: W1857-88-01

OC YTC
331 THE CITY DRIVE SOUTH
ORANGE, CALIFORNIA

May 2024 Figure B38

APPENDIX C

APPENDIX C

CPT ANALYSIS OF LIQUEFACTION POTENTIAL

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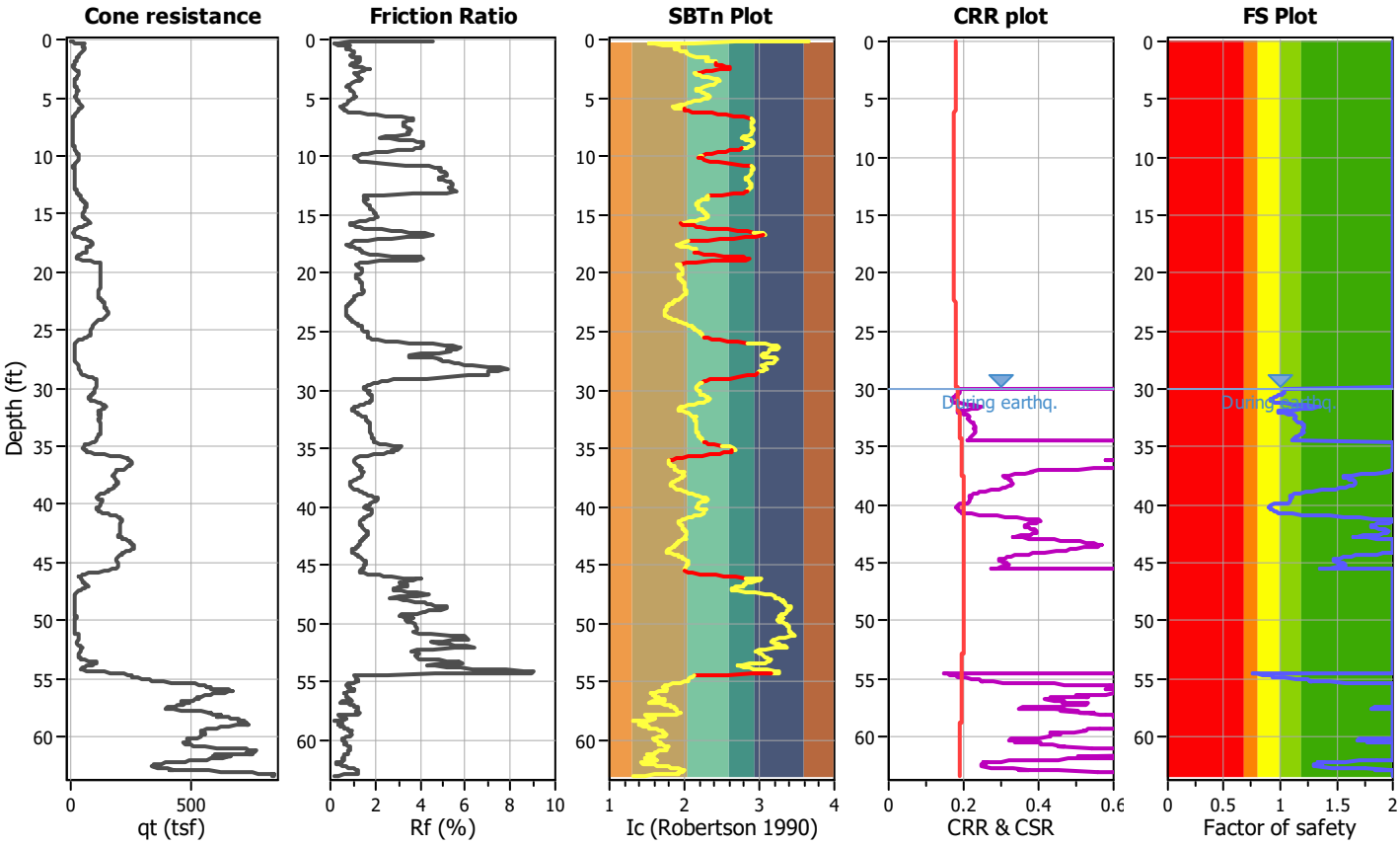
LIQUEFACTION ANALYSIS REPORT

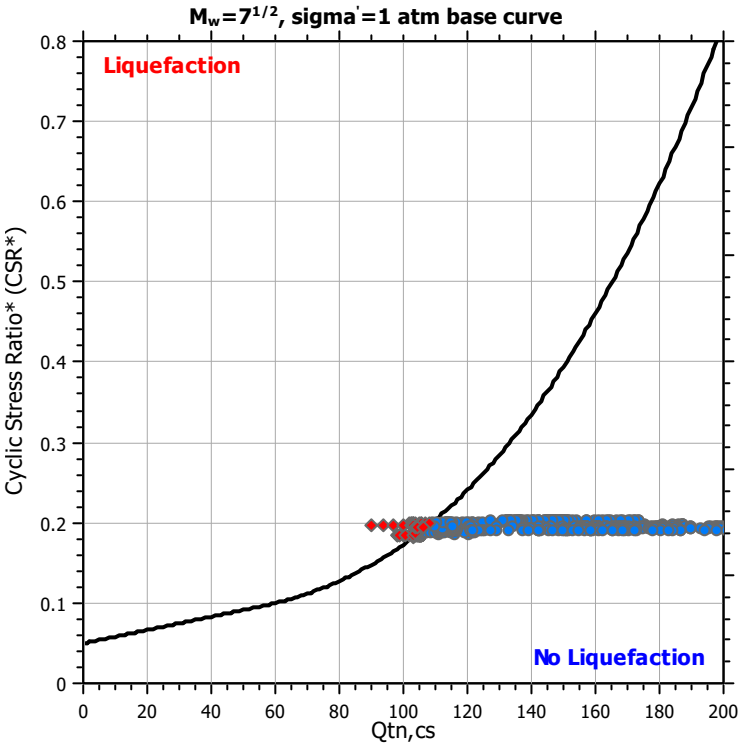
Project title : W1857-88-01 **Location : 331 The City Drive S**

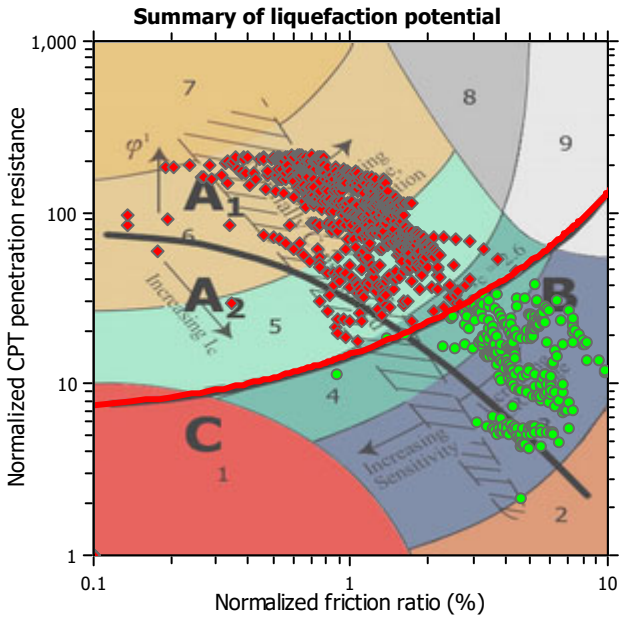
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.12	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

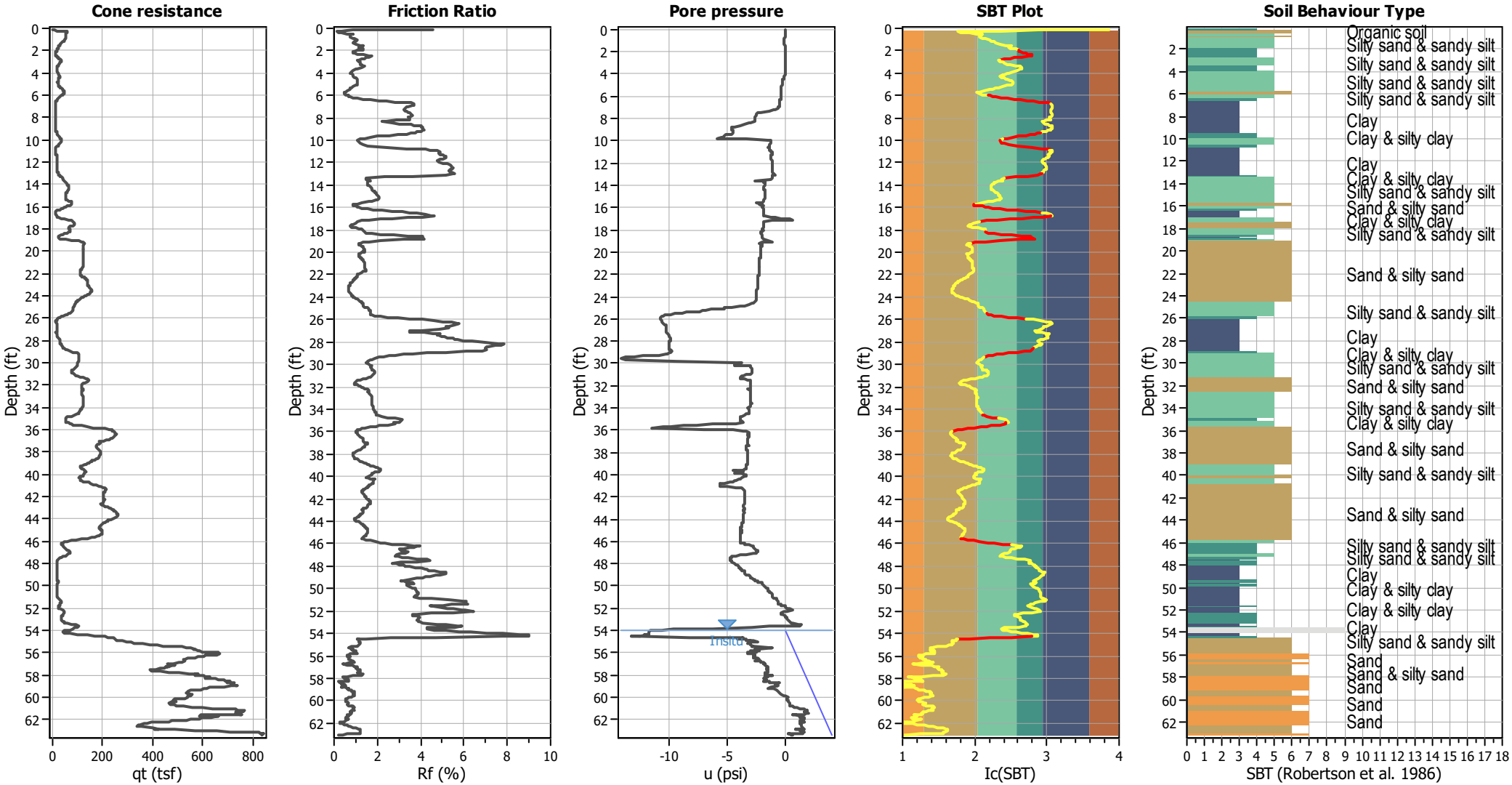






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



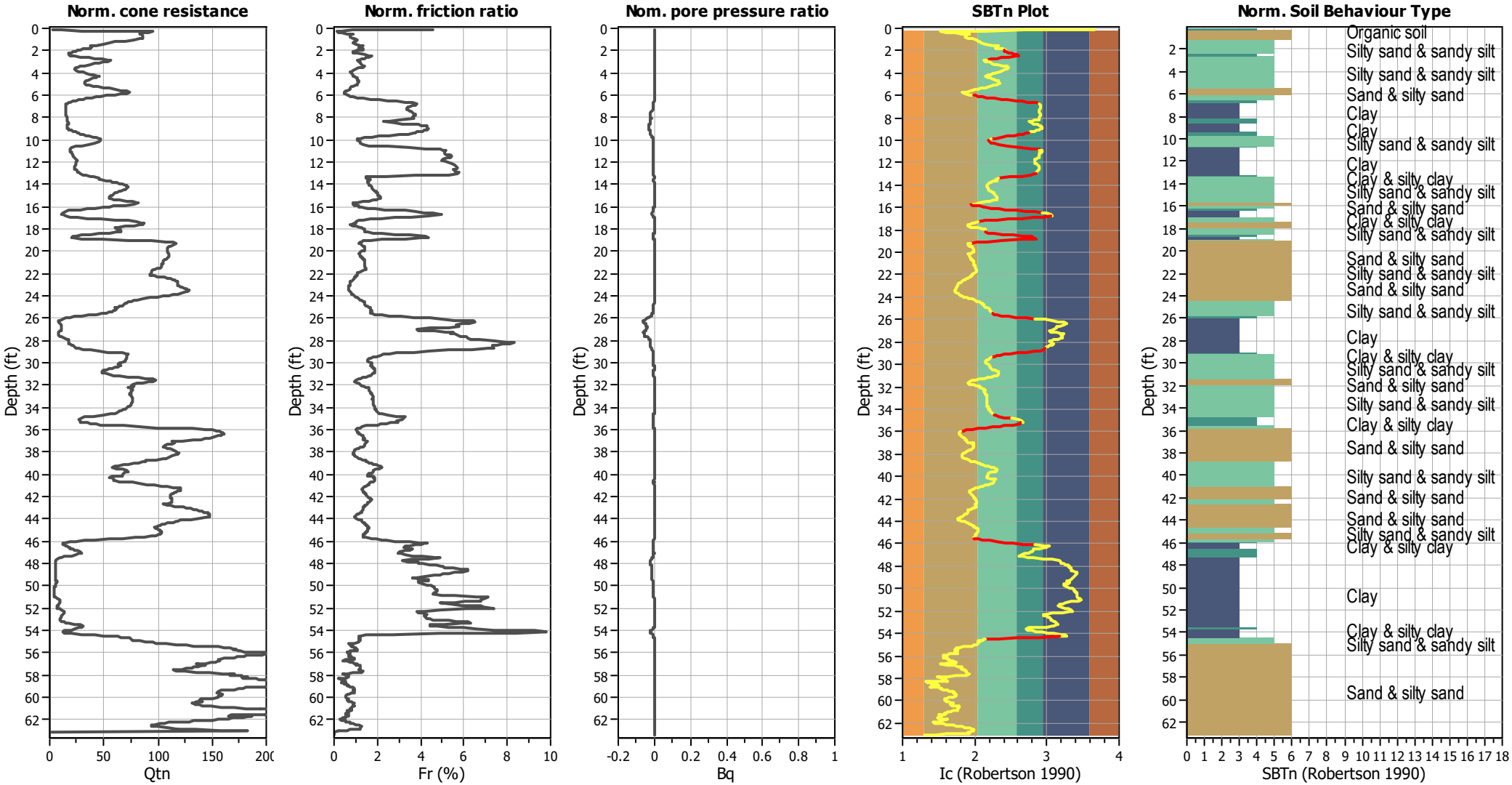
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



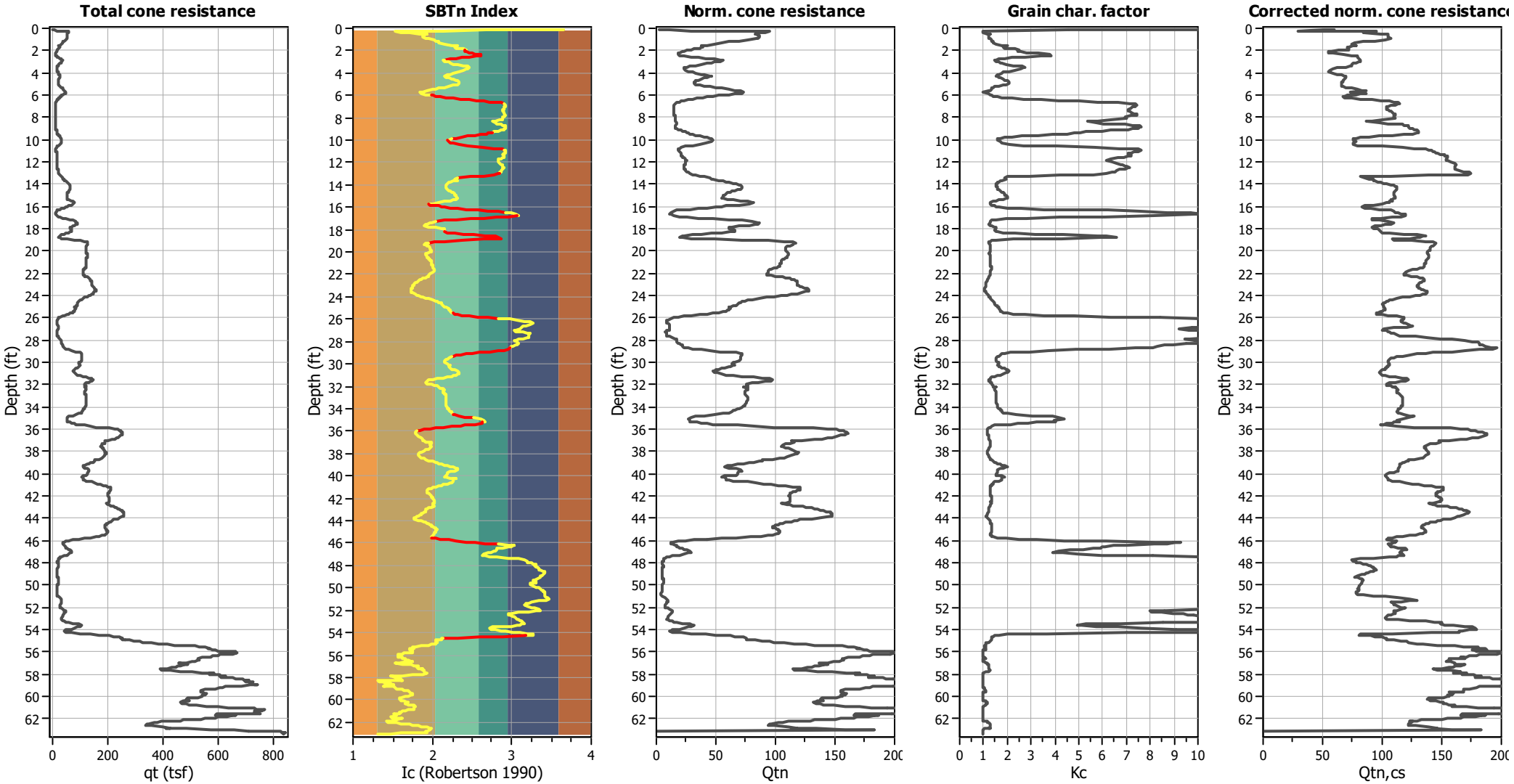
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

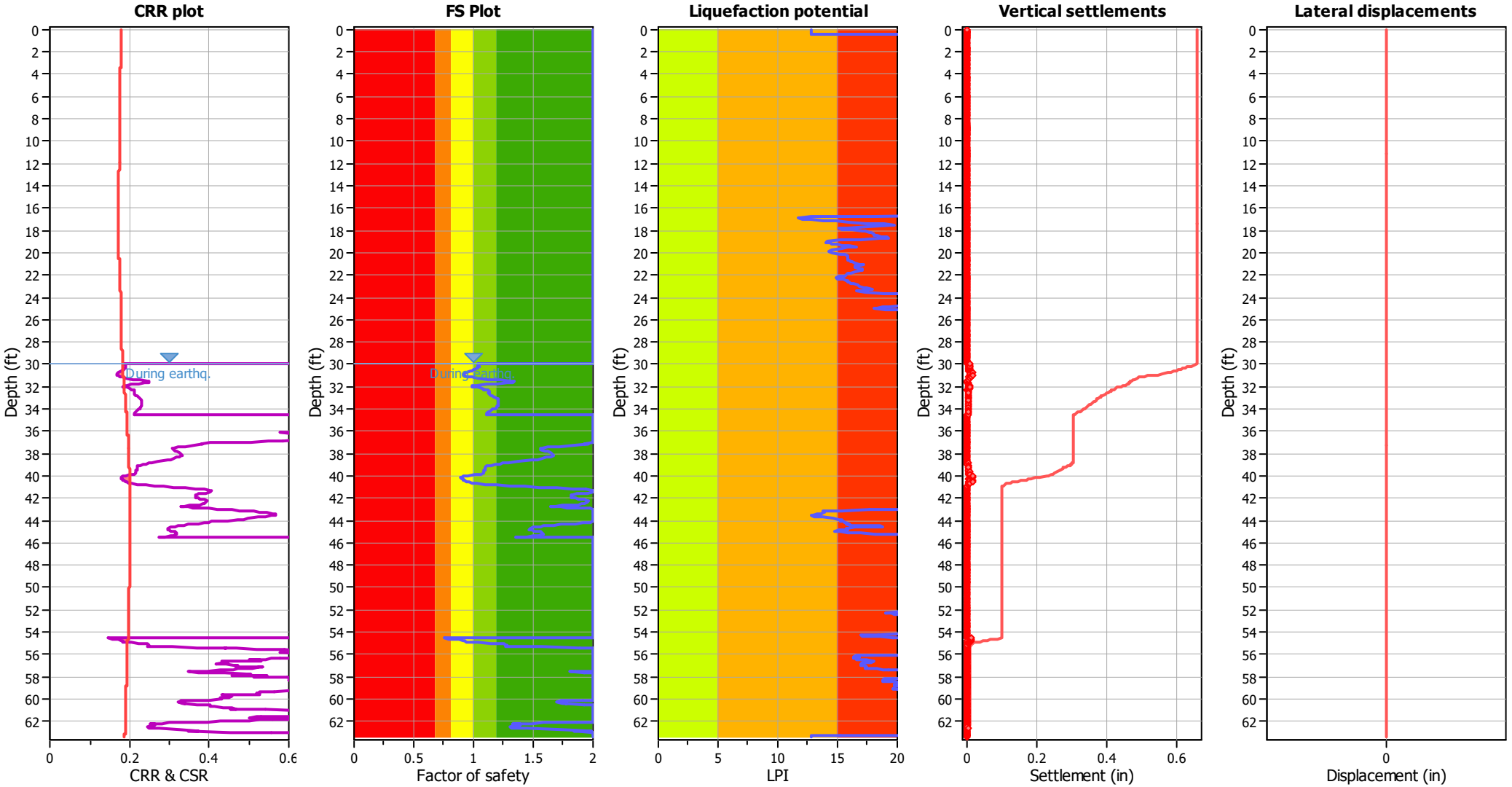
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

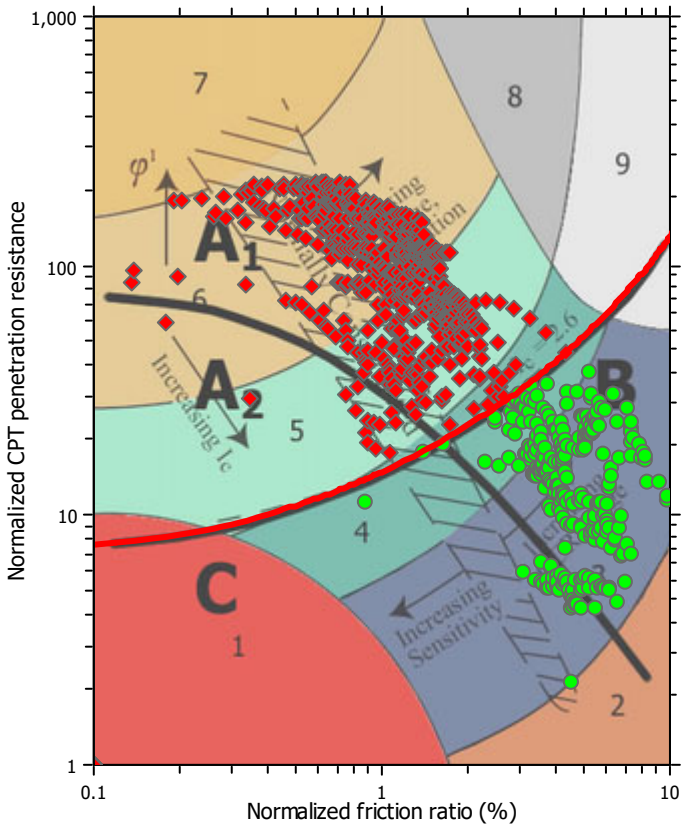
F.S. color scheme

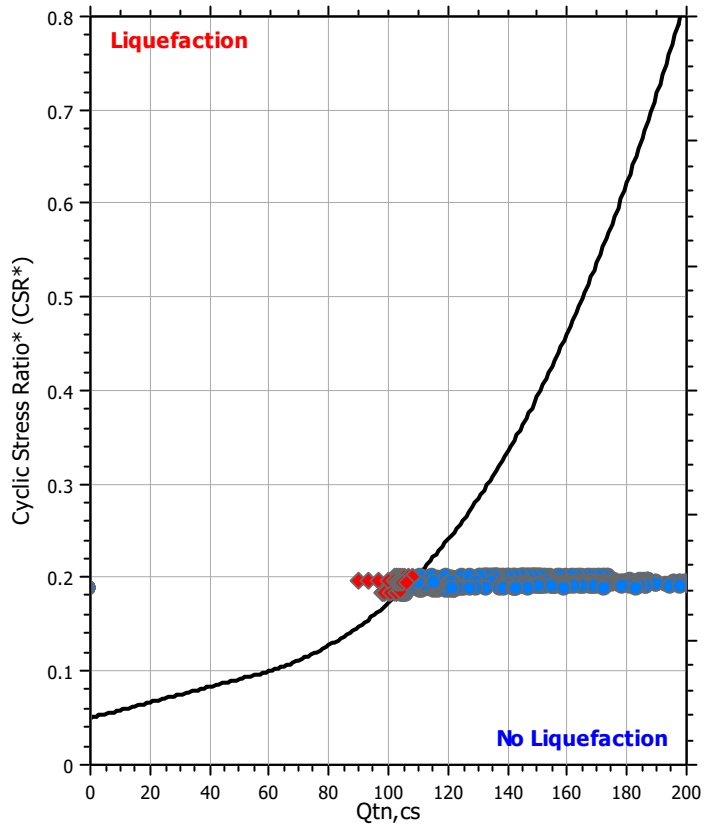
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

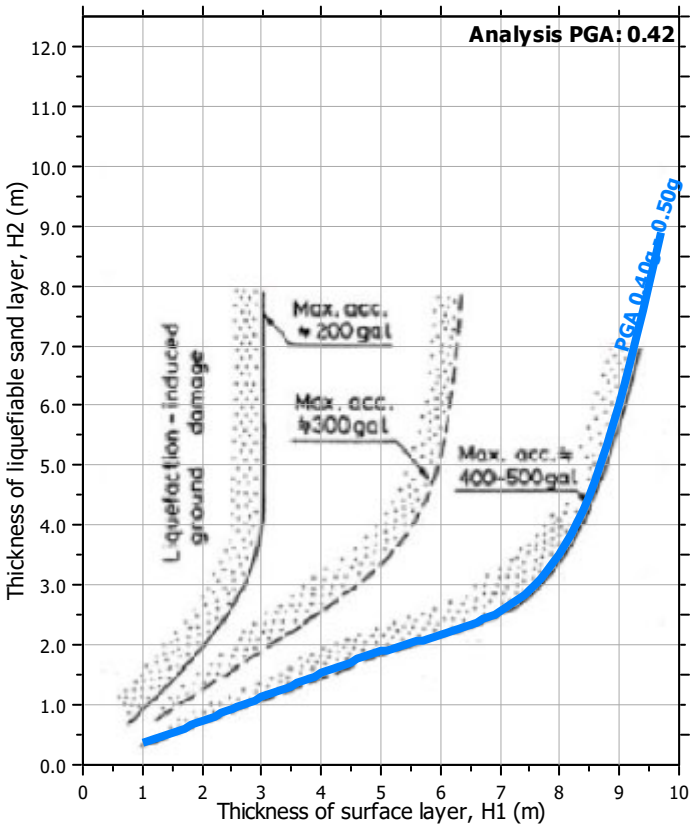
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



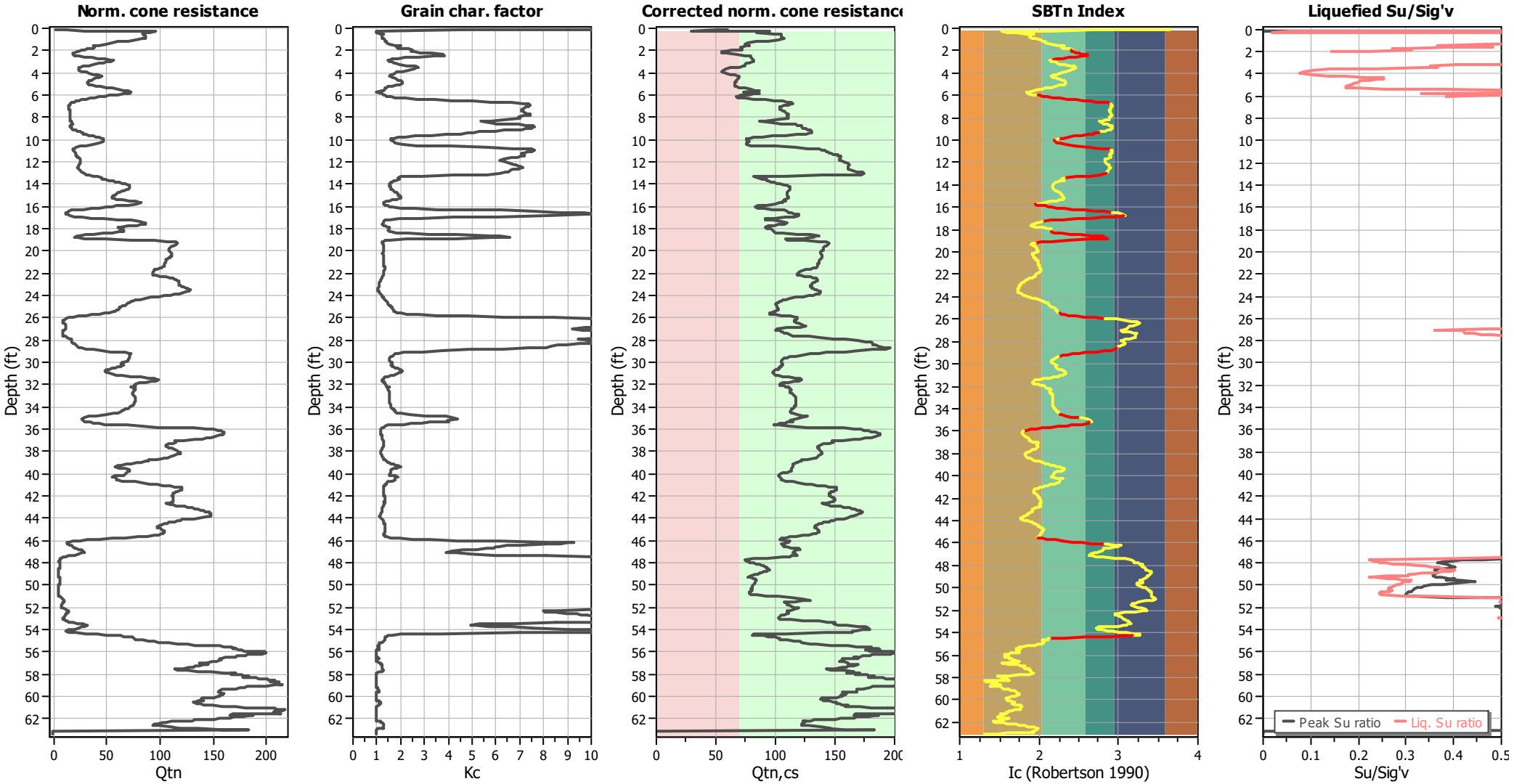




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

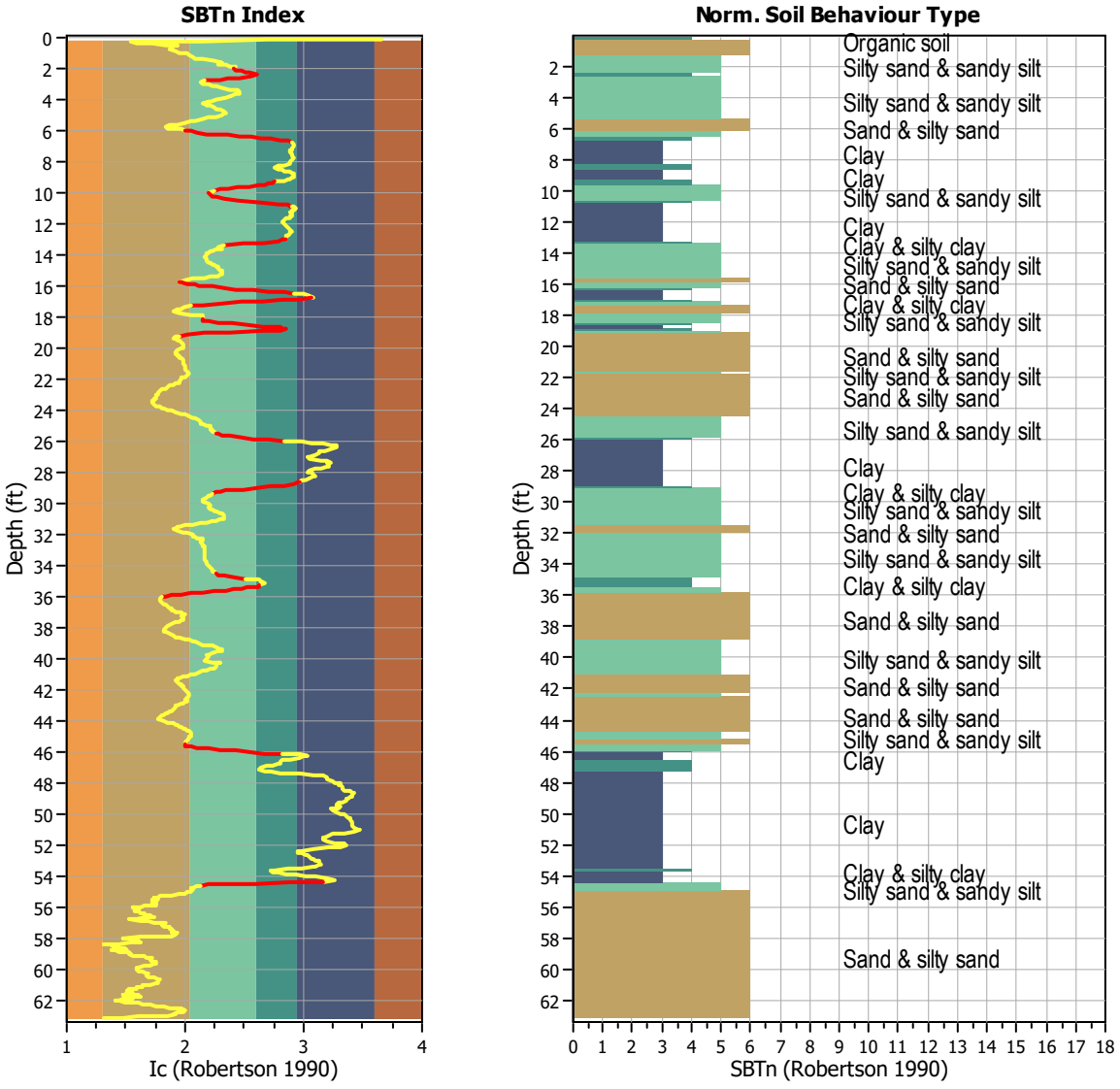
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1063
I_c maximum check value:	3.00	Total points excluded:	146
I_c change ratio value:	0.0250	Exclusion percentage:	13.73%
Minimum number of points in layer:	4	Number of layers detected:	16

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	6	Start depth: 2.05 (ft)	5	Silty sand & sandy silt
		End depth: 2.34 (ft)	4	Clay & silty clay
Transition layer 2	8	Start depth: 2.44 (ft)	4	Clay & silty clay
		End depth: 2.89 (ft)	5	Silty sand & sandy silt
Transition layer 3	14	Start depth: 6.02 (ft)	6	Sand & silty sand
		End depth: 6.83 (ft)	3	Clay
Transition layer 4	10	Start depth: 9.38 (ft)	4	Clay & silty clay
		End depth: 9.97 (ft)	5	Silty sand & sandy silt
Transition layer 5	10	Start depth: 10.20 (ft)	5	Silty sand & sandy silt
		End depth: 10.89 (ft)	3	Clay
Transition layer 6	6	Start depth: 13.04 (ft)	3	Clay
		End depth: 13.47 (ft)	5	Silty sand & sandy silt
Transition layer 7	13	Start depth: 15.79 (ft)	6	Sand & silty sand
		End depth: 16.54 (ft)	3	Clay
Transition layer 8	8	Start depth: 16.86 (ft)	3	Clay
		End depth: 17.34 (ft)	6	Sand & silty sand
Transition layer 9	9	Start depth: 18.22 (ft)	5	Silty sand & sandy silt
		End depth: 18.76 (ft)	3	Clay
Transition layer 10	8	Start depth: 18.76 (ft)	3	Clay
		End depth: 19.24 (ft)	6	Sand & silty sand
Transition layer 11	8	Start depth: 25.52 (ft)	5	Silty sand & sandy silt
		End depth: 26.02 (ft)	3	Clay
Transition layer 12	12	Start depth: 28.67 (ft)	3	Clay
		End depth: 29.43 (ft)	5	Silty sand & sandy silt
Transition layer 13	5	Start depth: 34.55 (ft)	5	Silty sand & sandy silt
		End depth: 34.90 (ft)	4	Clay & silty clay
Transition layer 14	13	Start depth: 35.33 (ft)	4	Clay & silty clay
		End depth: 36.06 (ft)	6	Sand & silty sand
Transition layer 15	10	Start depth: 45.56 (ft)	6	Sand & silty sand
		End depth: 46.15 (ft)	3	Clay
Transition layer 16	6	Start depth: 54.34 (ft)	3	Clay
		End depth: 54.53 (ft)	5	Silty sand & sandy silt

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.01	0.00	0.01	0.00	N/A	120.90
2	0.04	0.00	0.03	0.00	N/A	120.90
3	0.09	0.00	0.06	0.00	N/A	120.90
4	0.11	0.00	0.06	0.00	N/A	120.90
5	0.14	0.00	0.06	0.00	N/A	120.90
6	0.14	0.00	0.06	0.00	100.00	90.58
7	0.18	4.04	0.06	0.00	39.81	94.62
8	0.23	16.88	0.06	0.00	5.00	97.10
9	0.24	33.66	0.06	0.00	5.00	99.09
10	0.28	59.84	0.07	0.00	4.02	100.70
11	0.33	65.70	0.08	0.00	3.32	101.83
12	0.38	52.26	0.09	0.00	4.29	104.01
13	0.42	51.86	0.16	0.00	5.00	107.23
14	0.47	52.21	0.28	0.00	8.85	111.04
15	0.51	51.45	0.45	0.00	10.39	113.09
16	0.52	52.16	0.45	0.00	11.07	113.95
17	0.57	52.66	0.42	0.00	10.65	113.68
18	0.61	53.17	0.40	0.00	10.18	113.34
19	0.67	53.88	0.39	0.00	9.91	113.08
20	0.73	53.37	0.38	0.00	9.72	112.99
21	0.81	54.28	0.39	-0.10	9.70	112.87
22	0.86	53.22	0.37	-0.10	10.78	114.14
23	0.98	53.07	0.60	-0.10	11.85	114.82
24	1.05	50.14	0.53	-0.10	13.47	114.97
25	1.15	41.44	0.44	-0.10	14.02	113.60
26	1.24	39.42	0.37	-0.10	14.97	111.74
27	1.34	32.75	0.28	-0.10	15.41	110.26
28	1.43	31.24	0.27	0.00	17.53	109.89
29	1.53	27.90	0.36	0.00	20.70	109.99
30	1.58	21.43	0.33	0.00	23.01	110.04
31	1.62	24.36	0.30	0.00	23.24	109.31
32	1.67	24.66	0.28	0.00	21.78	108.90
33	1.75	24.06	0.27	0.00	21.84	108.54
34	1.77	22.95	0.27	0.00	22.45	108.33
35	1.81	22.24	0.27	0.00	23.98	108.08
36	1.86	19.31	0.26	0.00	25.81	107.68
37	1.91	17.59	0.25	0.00	27.51	107.00
38	1.95	16.98	0.22	0.00	27.58	105.88
39	2.00	16.38	0.17	0.00	26.85	104.31
40	2.05	15.26	0.13	0.00	26.79	102.37
41	2.11	13.04	0.11	0.00	27.77	100.94
42	2.20	12.23	0.11	0.00	29.43	100.17
43	2.24	11.73	0.11	0.00	30.90	100.15
44	2.29	11.22	0.11	0.00	32.65	100.53
45	2.34	10.82	0.13	0.00	35.39	102.57
46	2.44	11.93	0.22	0.00	35.96	104.47
47	2.48	13.75	0.24	0.00	33.48	106.65
48	2.58	17.99	0.29	0.00	29.16	108.19

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	2.63	22.34	0.33	0.00	25.09	109.71
50	2.71	26.89	0.36	0.00	22.48	110.79
51	2.78	29.01	0.39	0.00	19.70	111.55
52	2.82	35.08	0.39	0.00	17.69	111.93
53	2.89	37.10	0.38	0.00	16.81	111.84
54	2.96	32.65	0.36	0.00	17.52	111.71
55	3.03	31.13	0.39	0.00	19.08	111.39
56	3.11	28.91	0.36	0.00	20.03	110.91
57	3.19	26.89	0.31	0.00	21.15	109.99
58	3.25	23.55	0.29	0.00	22.96	109.06
59	3.35	20.12	0.28	0.00	25.68	108.30
60	3.41	17.79	0.26	0.00	28.08	107.14
61	3.50	15.47	0.20	0.00	29.06	105.47
62	3.59	14.46	0.15	0.00	28.55	103.57
63	3.69	14.56	0.13	0.00	27.72	102.55
64	3.79	14.76	0.14	0.00	26.19	102.21
65	3.88	16.27	0.13	0.00	24.04	102.29
66	3.97	18.60	0.13	0.00	21.42	103.22
67	4.07	22.54	0.17	0.00	20.94	104.68
68	4.14	21.33	0.21	-0.08	19.71	106.20
69	4.17	26.59	0.22	-0.08	18.89	107.22
70	4.26	28.61	0.25	-0.08	17.51	107.99
71	4.32	29.21	0.26	-0.09	17.59	108.49
72	4.37	28.30	0.27	-0.09	18.27	108.68
73	4.42	26.79	0.27	-0.10	19.47	108.64
74	4.51	24.77	0.27	-0.19	20.53	108.32
75	4.61	23.65	0.25	-0.19	21.42	107.89
76	4.65	22.64	0.24	-0.19	22.24	107.37
77	4.74	20.82	0.23	-0.19	23.28	106.98
78	4.80	19.81	0.22	-0.19	23.69	106.69
79	4.89	20.82	0.22	-0.19	24.07	106.54
80	4.95	19.51	0.22	-0.19	23.69	106.58
81	5.04	20.82	0.22	-0.19	23.00	106.70
82	5.13	22.84	0.22	-0.29	21.27	106.93
83	5.18	24.77	0.22	-0.29	19.16	107.22
84	5.28	28.20	0.23	-0.29	17.18	107.58
85	5.32	31.24	0.23	-0.29	15.37	108.17
86	5.42	34.97	0.25	-0.29	14.24	109.03
87	5.51	37.81	0.29	-0.29	13.16	109.85
88	5.60	41.65	0.30	-0.29	11.39	109.42
89	5.66	44.38	0.19	-0.29	9.82	108.84
90	5.76	46.70	0.21	-0.29	5.00	108.20
91	5.85	46.50	0.23	-0.29	9.42	108.60
92	5.92	41.55	0.23	-0.29	10.81	108.56
93	5.95	35.28	0.23	-0.33	11.91	108.38
94	5.97	37.81	0.23	-0.33	12.79	108.24
95	6.02	35.38	0.23	-0.33	13.11	108.15
96	6.06	32.95	0.23	-0.38	14.35	107.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	6.16	29.92	0.22	-0.38	15.93	107.69
98	6.21	27.09	0.23	-0.38	18.25	107.74
99	6.26	23.96	0.26	-0.38	21.09	108.07
100	6.31	21.83	0.28	-0.48	24.86	108.67
101	6.40	19.10	0.33	-0.48	28.84	109.09
102	6.44	16.78	0.34	-0.48	33.47	109.42
103	6.52	14.86	0.37	-0.48	37.59	109.55
104	6.57	13.75	0.38	-0.48	41.98	109.58
105	6.64	11.83	0.39	-0.48	45.80	109.43
106	6.69	10.92	0.39	-0.48	49.59	109.18
107	6.78	10.21	0.38	-0.48	51.74	108.94
108	6.83	9.91	0.38	-0.48	52.73	108.51
109	6.92	9.60	0.34	-0.48	53.03	108.02
110	6.97	9.30	0.32	-0.57	52.79	107.48
111	7.03	9.30	0.31	-0.57	52.62	107.19
112	7.12	9.30	0.30	-0.57	52.17	107.05
113	7.22	9.40	0.30	-0.86	51.84	107.03
114	7.27	9.50	0.31	-0.95	51.49	107.14
115	7.36	9.70	0.31	-1.34	51.37	107.36
116	7.43	9.81	0.33	-2.10	51.48	107.59
117	7.50	9.81	0.33	-2.39	51.81	107.80
118	7.59	9.81	0.34	-2.48	52.08	107.91
119	7.64	9.81	0.34	-2.48	52.59	107.98
120	7.75	9.60	0.35	-2.48	53.06	108.03
121	7.79	9.60	0.35	-2.48	52.94	108.11
122	7.89	10.01	0.35	-2.58	51.93	108.20
123	7.99	10.41	0.35	-2.58	51.00	108.32
124	8.04	10.41	0.36	-2.58	50.93	108.47
125	8.13	10.31	0.37	-2.58	51.23	108.53
126	8.23	10.31	0.36	-2.67	48.25	107.10
127	8.32	10.31	0.16	-2.96	45.66	105.82
128	8.37	10.31	0.23	-3.15	43.57	105.27
129	8.46	11.12	0.30	-3.44	45.48	107.20
130	8.56	11.83	0.36	-3.53	46.89	108.35
131	8.59	11.12	0.37	-3.93	48.24	108.98
132	8.61	11.12	0.39	-3.93	49.87	109.23
133	8.67	11.02	0.41	-3.93	51.01	109.48
134	8.71	10.71	0.41	-4.39	52.13	109.59
135	8.72	10.51	0.42	-4.49	53.07	109.66
136	8.78	10.51	0.43	-4.58	53.51	109.72
137	8.80	10.51	0.43	-4.58	53.62	109.76
138	8.86	10.51	0.43	-4.58	53.65	109.77
139	8.90	10.51	0.43	-4.58	53.45	109.87
140	8.95	10.82	0.44	-4.58	53.21	110.02
141	8.96	10.92	0.45	-4.58	52.79	110.21
142	9.00	11.12	0.45	-4.58	52.52	110.39
143	9.05	11.32	0.47	-4.49	52.13	110.62
144	9.09	11.62	0.48	-4.49	51.55	110.83

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	9.10	11.93	0.48	-4.49	50.65	111.10
146	9.14	12.53	0.51	-4.49	49.64	111.46
147	9.20	13.14	0.53	-4.49	48.16	111.91
148	9.24	14.15	0.55	-4.49	46.46	112.37
149	9.29	15.16	0.57	-4.49	44.67	112.78
150	9.31	15.97	0.59	-4.49	43.27	113.20
151	9.38	16.78	0.62	-4.58	42.21	113.51
152	9.41	17.29	0.63	-4.77	40.91	113.67
153	9.47	18.09	0.60	-5.15	39.32	113.64
154	9.53	18.90	0.58	-5.25	36.22	113.38
155	9.62	21.23	0.52	-5.34	32.67	113.07
156	9.67	23.35	0.49	-5.54	28.33	112.63
157	9.77	26.79	0.43	-5.92	25.15	112.27
158	9.81	28.81	0.41	-3.34	22.18	111.77
159	9.90	31.03	0.36	-1.43	20.30	111.35
160	9.97	32.25	0.34	-1.24	18.94	111.09
161	10.06	33.56	0.35	-1.24	18.88	111.19
162	10.20	32.14	0.37	-1.24	19.84	111.65
163	10.30	30.73	0.42	-1.34	21.09	110.81
164	10.44	25.07	0.26	-1.34	23.79	110.16
165	10.54	20.82	0.33	-1.43	28.52	109.42
166	10.63	16.27	0.39	-1.40	37.17	110.42
167	10.74	12.64	0.49	-1.40	45.02	111.01
168	10.78	12.64	0.51	-1.37	49.84	111.50
169	10.83	12.64	0.53	-1.37	50.94	111.75
170	10.88	12.23	0.55	-1.34	52.01	111.93
171	10.89	12.13	0.55	-1.24	53.26	112.19
172	10.97	12.13	0.60	-1.24	53.74	112.49
173	11.02	12.53	0.61	-1.15	53.76	112.83
174	11.07	12.84	0.63	-1.15	53.28	113.04
175	11.11	13.04	0.63	-1.15	52.89	113.23
176	11.16	13.34	0.65	-1.05	52.38	113.46
177	11.21	13.85	0.67	-1.15	51.91	113.73
178	11.26	14.15	0.69	-1.15	51.53	114.03
179	11.30	14.46	0.72	-1.24	51.55	114.31
180	11.36	14.56	0.74	-1.24	51.71	114.56
181	11.40	14.66	0.76	-1.24	51.84	114.75
182	11.45	14.86	0.77	-1.24	51.87	114.90
183	11.50	14.96	0.78	-1.24	51.65	115.06
184	11.55	15.36	0.79	-1.24	51.39	115.24
185	11.60	15.67	0.81	-1.24	50.61	115.51
186	11.66	16.58	0.84	-1.24	49.52	115.80
187	11.74	17.49	0.86	-1.15	48.09	116.04
188	11.84	18.19	0.85	-1.15	47.34	116.23
189	11.93	18.30	0.88	-1.15	47.43	116.42
190	12.04	18.09	0.91	-1.15	48.38	116.63
191	12.13	17.79	0.93	-1.15	49.30	116.79
192	12.22	17.79	0.95	-1.15	50.08	116.85

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	12.27	17.49	0.95	-1.15	50.46	116.81
194	12.37	17.29	0.93	-1.15	51.02	116.74
195	12.41	17.08	0.93	-1.15	51.24	116.69
196	12.51	17.18	0.94	-1.15	51.67	116.70
197	12.56	16.98	0.94	-1.15	51.47	116.76
198	12.65	17.59	0.95	-1.05	50.92	116.90
199	12.71	18.40	0.97	-1.05	49.81	117.22
200	12.79	19.41	1.02	-1.05	49.34	117.71
201	12.89	19.91	1.11	-0.95	48.93	118.28
202	12.96	21.03	1.17	-0.95	48.62	118.87
203	13.04	22.04	1.25	-0.86	47.37	119.33
204	13.13	23.65	1.26	-1.05	44.91	119.65
205	13.23	26.69	1.23	-1.05	37.79	118.14
206	13.30	30.12	0.44	-1.05	30.22	116.19
207	13.37	34.27	0.48	-1.15	23.39	113.77
208	13.47	38.11	0.56	-1.24	22.02	114.92
209	13.57	42.66	0.63	-2.58	22.72	115.65
210	13.61	35.68	0.65	-1.72	23.01	116.05
211	13.62	39.32	0.66	-1.72	22.69	116.34
212	13.68	45.99	0.69	-1.72	21.00	116.83
213	13.73	47.71	0.72	-1.91	19.82	117.32
214	13.77	49.83	0.75	-1.72	19.40	117.84
215	13.87	52.77	0.82	-1.72	18.89	118.41
216	13.93	56.20	0.87	-1.72	18.50	119.05
217	14.00	58.43	0.92	-1.72	18.11	119.60
218	14.06	61.05	0.98	-1.72	17.96	120.09
219	14.12	62.47	1.02	-1.81	17.96	120.53
220	14.21	63.18	1.08	-1.81	18.11	120.86
221	14.25	63.58	1.10	-1.81	18.27	121.08
222	14.35	63.68	1.12	-1.81	18.46	121.16
223	14.45	62.87	1.11	-1.72	18.76	121.14
224	14.50	61.36	1.11	-1.72	19.22	121.02
225	14.59	59.03	1.09	-1.72	19.83	120.88
226	14.64	57.21	1.08	-1.72	20.46	120.71
227	14.74	55.39	1.07	-1.72	21.03	120.57
228	14.80	54.28	1.06	-1.72	21.53	120.45
229	14.88	53.07	1.06	-1.72	21.95	120.36
230	14.97	52.26	1.05	-1.72	22.36	120.29
231	15.05	51.45	1.05	-1.72	22.79	120.27
232	15.13	50.64	1.07	-1.72	23.16	120.29
233	15.21	50.54	1.07	-1.72	23.18	120.30
234	15.28	51.76	1.05	-1.81	22.62	120.34
235	15.36	54.48	1.06	-1.91	21.45	120.45
236	15.41	59.13	1.06	-1.91	19.60	120.68
237	15.50	67.12	1.06	-2.00	17.73	120.96
238	15.55	72.98	1.07	-2.48	14.99	120.29
239	15.65	78.34	0.69	-2.00	12.97	119.36
240	15.71	79.55	0.68	-2.29	11.49	118.07

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	15.79	76.72	0.66	-2.00	11.94	117.74
242	15.89	69.04	0.63	-1.81	13.58	117.28
243	15.90	56.20	0.63	-1.93	15.06	116.86
244	15.94	58.12	0.62	-1.93	16.49	116.54
245	16.00	54.38	0.60	-1.93	17.46	116.33
246	16.06	47.31	0.61	-1.81	19.74	116.08
247	16.14	41.44	0.62	-1.81	23.40	115.82
248	16.19	33.56	0.63	-1.81	27.82	115.40
249	16.26	27.39	0.61	-1.81	33.97	114.66
250	16.33	20.42	0.58	-1.81	40.60	113.74
251	16.38	16.88	0.54	-1.81	47.75	112.60
252	16.47	13.95	0.48	-1.81	53.58	111.81
253	16.54	12.53	0.50	-1.81	58.20	111.16
254	16.62	11.52	0.48	-1.81	61.95	111.19
255	16.70	11.42	0.52	-1.81	63.86	111.41
256	16.76	11.73	0.55	-1.72	62.72	112.21
257	16.86	13.75	0.62	-1.24	55.66	113.21
258	16.90	19.21	0.65	-0.86	46.99	114.45
259	16.98	25.07	0.71	-0.29	37.95	115.60
260	17.05	33.26	0.75	0.38	29.58	116.88
261	17.14	47.91	0.80	0.67	22.70	117.88
262	17.20	61.46	0.80	-1.15	17.44	118.65
263	17.29	75.11	0.79	-1.91	14.33	119.10
264	17.34	82.59	0.81	-1.91	12.57	119.56
265	17.44	88.35	0.86	-1.91	12.10	120.15
266	17.50	89.76	0.95	-1.91	11.17	119.56
267	17.58	88.65	0.59	-1.91	10.61	118.74
268	17.64	86.12	0.61	-1.91	10.36	117.68
269	17.75	80.36	0.68	-1.91	11.68	118.09
270	17.82	75.11	0.73	-1.91	14.12	118.45
271	17.89	60.85	0.79	-1.94	16.11	118.58
272	17.89	62.17	0.79	-1.94	17.43	118.74
273	17.96	65.10	0.82	-1.94	17.29	119.02
274	18.02	65.00	0.86	-1.91	17.38	119.46
275	18.07	66.01	0.93	-2.00	17.40	119.89
276	18.17	69.65	0.96	-2.00	17.19	120.21
277	18.22	70.76	0.96	-2.10	17.38	120.34
278	18.30	65.91	0.98	-2.10	18.63	120.33
279	18.36	59.03	1.01	-2.10	21.57	120.25
280	18.42	48.22	1.05	-2.00	25.82	120.15
281	18.50	40.43	1.10	-2.00	31.86	119.89
282	18.56	31.34	1.11	-2.00	38.47	119.44
283	18.62	25.47	1.08	-2.00	45.73	118.51
284	18.69	20.42	0.95	-2.00	47.28	117.84
285	18.76	26.08	0.90	-2.00	49.35	117.26
286	18.84	20.22	0.92	-1.91	46.20	117.56
287	18.89	26.69	0.98	-1.81	38.13	118.84
288	18.98	48.82	1.15	-1.53	25.23	120.89

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	19.05	83.09	1.28	-1.15	17.63	122.71
290	19.12	103.41	1.40	-2.00	13.45	123.88
291	19.18	118.98	1.44	-2.19	11.63	124.47
292	19.24	125.34	1.44	-2.00	10.70	124.75
293	19.32	127.97	1.47	-2.10	10.50	124.90
294	19.38	127.06	1.50	-2.00	10.78	125.14
295	19.46	124.64	1.59	-2.00	11.28	125.37
296	19.54	122.82	1.64	-2.10	11.83	125.56
297	19.62	120.49	1.66	-2.10	12.18	125.64
298	19.70	119.78	1.66	-2.10	12.37	125.65
299	19.80	119.78	1.65	-2.10	12.42	125.63
300	19.85	119.78	1.65	-2.10	12.39	125.59
301	19.94	119.78	1.64	-2.10	12.46	125.66
302	20.03	120.39	1.70	-2.10	11.91	125.24
303	20.13	122.11	1.36	-2.10	11.37	124.85
304	20.19	123.12	1.38	-2.10	10.74	124.42
305	20.29	124.84	1.43	-2.10	10.87	124.64
306	20.39	124.28	1.47	-2.15	11.01	124.81
307	20.43	124.49	1.48	-2.15	11.19	124.93
308	20.47	123.73	1.51	-2.15	11.32	125.04
309	20.52	124.13	1.54	-2.19	11.55	125.23
310	20.61	124.13	1.61	-2.19	11.79	125.44
311	20.66	123.73	1.64	-2.19	12.08	125.60
312	20.71	122.01	1.65	-2.19	12.32	125.65
313	20.77	121.00	1.66	-2.19	12.55	125.68
314	20.85	120.09	1.67	-2.19	12.67	125.69
315	20.91	120.59	1.67	-2.19	12.69	125.72
316	21.00	121.30	1.67	-2.19	12.68	125.74
317	21.05	121.20	1.68	-2.19	12.72	125.75
318	21.11	120.39	1.68	-2.19	12.82	125.76
319	21.19	119.99	1.69	-2.19	12.93	125.79
320	21.24	120.19	1.70	-2.19	12.99	125.84
321	21.34	120.59	1.71	-2.19	13.03	125.87
322	21.39	120.49	1.71	-2.19	13.11	125.88
323	21.48	118.98	1.71	-2.19	13.31	125.83
324	21.53	116.65	1.70	-2.19	13.57	125.71
325	21.64	113.62	1.66	-2.19	13.84	125.53
326	21.72	111.39	1.62	-2.19	13.51	124.89
327	21.81	110.48	1.31	-2.19	12.90	124.15
328	21.89	110.59	1.24	-2.29	12.18	123.40
329	21.97	110.59	1.21	-2.29	11.93	123.16
330	22.05	110.99	1.19	-2.29	11.80	123.03
331	22.12	110.94	1.17	-2.34	11.72	122.95
332	22.13	110.94	1.17	-2.34	11.70	122.93
333	22.18	110.89	1.18	-2.34	11.57	122.96
334	22.22	114.22	1.18	-2.39	11.23	123.02
335	22.28	118.47	1.17	-2.39	10.74	123.13
336	22.33	122.82	1.19	-2.39	10.28	123.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	22.38	126.46	1.20	-2.39	9.90	123.41
338	22.41	129.89	1.21	-2.39	9.50	123.49
339	22.51	133.73	1.20	-2.39	9.14	123.51
340	22.56	135.96	1.18	-2.39	8.79	123.46
341	22.61	137.98	1.16	-2.39	8.51	123.37
342	22.65	139.19	1.14	-2.39	8.23	123.24
343	22.71	140.61	1.11	-2.39	8.00	123.09
344	22.76	141.21	1.08	-2.39	7.75	122.87
345	22.85	141.72	1.03	-2.39	7.57	122.67
346	22.89	141.82	1.02	-2.39	7.41	122.48
347	22.99	141.92	1.00	-2.39	7.34	122.38
348	23.04	141.92	0.99	-2.39	7.26	122.31
349	23.12	142.83	0.99	-2.39	7.17	122.30
350	23.18	145.06	0.99	-2.39	7.02	122.35
351	23.24	147.58	1.00	-2.39	6.88	122.47
352	23.33	150.11	1.02	-2.39	6.74	122.61
353	23.38	153.24	1.03	-2.48	6.65	122.79
354	23.47	155.06	1.05	-2.48	6.58	122.94
355	23.52	156.58	1.07	-2.48	6.66	123.16
356	23.61	156.07	1.12	-2.48	6.86	123.36
357	23.68	153.95	1.15	-2.48	7.23	123.57
358	23.76	150.31	1.19	-2.48	7.68	123.69
359	23.83	145.46	1.20	-2.48	8.20	123.74
360	23.90	140.61	1.21	-2.48	8.71	123.73
361	23.97	136.36	1.22	-2.48	9.28	123.71
362	24.05	131.21	1.23	-2.48	9.97	123.67
363	24.10	123.63	1.24	-2.48	10.81	123.59
364	24.19	116.75	1.24	-2.48	11.87	123.44
365	24.27	108.16	1.24	-2.48	12.89	123.28
366	24.34	103.31	1.24	-2.48	13.89	123.13
367	24.43	98.56	1.23	-2.58	14.65	123.04
368	24.48	96.03	1.24	-2.58	15.39	123.04
369	24.57	93.50	1.28	-2.77	16.07	123.15
370	24.62	91.89	1.32	-2.86	16.33	122.96
371	24.72	90.17	1.17	-3.15	16.56	122.82
372	24.81	89.06	1.23	-3.53	16.74	122.68
373	24.86	88.15	1.26	-3.91	17.34	122.92
374	24.95	86.83	1.31	-4.58	18.26	123.01
375	25.01	80.77	1.32	-5.22	19.01	123.05
376	25.02	81.12	1.32	-5.22	19.54	123.03
377	25.05	81.47	1.33	-5.22	19.39	123.10
378	25.11	83.09	1.34	-6.01	19.35	123.16
379	25.15	82.69	1.35	-6.39	19.38	123.22
380	25.21	82.08	1.36	-6.87	19.61	123.23
381	25.25	81.27	1.36	-7.16	19.86	123.21
382	25.30	80.16	1.35	-7.45	20.12	123.10
383	25.40	78.24	1.31	-8.49	20.43	122.88
384	25.45	76.01	1.27	-8.88	20.89	122.49

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	25.52	71.57	1.20	-9.54	21.58	121.99
386	25.60	66.92	1.12	-9.93	23.10	121.43
387	25.66	58.73	1.10	-10.40	25.37	120.85
388	25.74	51.45	1.05	-10.50	29.28	120.35
389	25.80	42.15	1.06	-10.69	34.11	119.74
390	25.88	34.67	1.01	-10.79	40.89	119.02
391	25.94	26.89	0.97	-10.79	48.17	118.23
392	26.02	22.64	0.95	-10.79	56.96	117.39
393	26.09	19.00	0.88	-10.79	63.54	116.56
394	26.17	16.38	0.82	-10.69	70.12	115.68
395	26.23	14.15	0.78	-10.69	75.56	115.05
396	26.29	13.44	0.77	-10.69	79.02	114.78
397	26.37	13.55	0.78	-10.50	78.84	114.95
398	26.46	14.66	0.82	-10.50	75.43	115.54
399	26.55	17.08	0.90	-10.40	71.32	116.21
400	26.60	18.40	0.93	-10.31	68.23	116.84
401	26.70	19.10	0.98	-10.31	67.29	117.29
402	26.78	19.31	1.04	-10.31	67.28	117.57
403	26.87	19.31	1.03	-10.31	65.46	116.94
404	26.94	19.31	0.72	-10.31	62.21	115.56
405	27.03	19.00	0.56	-10.31	60.24	114.24
406	27.13	17.99	0.66	-10.31	61.72	113.90
407	27.18	16.98	0.66	-10.31	68.38	114.01
408	27.27	13.14	0.67	-10.20	73.05	113.89
409	27.32	14.15	0.68	-10.20	75.75	113.91
410	27.37	15.16	0.70	-10.20	73.86	114.24
411	27.41	15.16	0.73	-10.12	73.36	114.52
412	27.46	15.16	0.75	-10.12	74.03	114.74
413	27.51	15.16	0.76	-10.02	74.31	115.06
414	27.61	15.67	0.82	-10.02	73.92	115.57
415	27.66	16.68	0.89	-9.93	72.75	116.57
416	27.73	18.50	1.06	-9.93	69.00	118.04
417	27.80	23.15	1.28	-9.93	64.92	119.84
418	27.88	27.09	1.57	-9.93	61.75	121.59
419	27.96	29.72	1.88	-9.93	61.15	122.86
420	28.04	29.82	2.03	-10.02	62.65	123.82
421	28.12	29.21	2.29	-10.02	64.46	124.33
422	28.18	29.31	2.33	-10.02	64.94	124.77
423	28.27	31.24	2.40	-10.02	63.60	125.01
424	28.32	32.85	2.43	-10.02	61.44	125.31
425	28.42	34.87	2.48	-10.02	59.28	125.61
426	28.47	37.40	2.56	-10.02	57.63	126.07
427	28.61	39.22	2.75	-10.02	56.63	126.53
428	28.67	40.43	2.86	-10.02	55.75	127.05
429	28.75	43.16	3.02	-10.02	52.70	127.47
430	28.81	47.71	3.06	-9.93	47.96	127.92
431	28.90	58.12	3.04	-9.83	41.37	128.35
432	29.00	72.07	3.02	-9.93	35.34	128.76

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	29.05	82.28	3.02	-10.02	30.50	129.11
434	29.10	94.11	3.00	-10.21	27.19	129.31
435	29.15	101.79	2.92	-10.31	24.40	129.24
436	29.24	107.76	2.68	-10.98	22.48	128.87
437	29.29	108.56	2.46	-12.31	21.04	128.21
438	29.37	106.54	2.19	-13.08	20.19	127.50
439	29.43	105.43	2.02	-13.84	19.39	126.74
440	29.53	104.93	1.82	-14.22	18.65	126.11
441	29.62	104.93	1.70	-13.79	18.12	125.67
442	29.68	104.93	1.71	-13.74	17.48	125.18
443	29.80	104.93	1.48	-9.45	17.32	124.98
444	29.91	103.81	1.57	-4.29	17.30	124.83
445	30.00	102.90	1.62	-3.72	18.66	124.98
446	30.07	90.77	1.65	-4.39	19.24	125.07
447	30.15	98.76	1.66	-4.39	19.60	125.10
448	30.21	99.47	1.66	-4.39	19.01	125.18
449	30.26	99.06	1.66	-2.96	19.09	125.17
450	30.31	97.75	1.66	-2.96	19.36	125.12
451	30.38	95.83	1.65	-2.96	19.77	125.02
452	30.45	93.10	1.62	-2.86	20.38	124.87
453	30.50	89.06	1.61	-2.86	21.16	124.68
454	30.55	85.31	1.58	-2.86	22.05	124.38
455	30.64	80.56	1.51	-2.86	22.84	124.05
456	30.70	77.83	1.46	-2.86	23.38	123.62
457	30.79	75.51	1.39	-2.86	23.69	123.34
458	30.84	74.90	1.38	-2.86	23.72	123.20
459	30.93	76.12	1.39	-2.96	23.33	123.30
460	30.98	79.96	1.42	-3.05	22.53	123.52
461	31.05	84.51	1.45	-3.34	21.39	123.92
462	31.13	91.68	1.54	-3.63	20.20	124.38
463	31.17	98.66	1.60	-3.72	18.55	124.91
464	31.27	111.19	1.64	-3.91	16.70	125.32
465	31.32	123.12	1.65	-3.82	14.63	125.57
466	31.41	135.55	1.59	-3.44	13.02	125.62
467	31.46	141.82	1.54	-3.25	11.83	125.51
468	31.52	145.46	1.49	-3.05	11.07	125.22
469	31.61	145.97	1.37	-3.05	10.64	124.85
470	31.66	143.74	1.32	-3.05	10.61	124.43
471	31.75	136.87	1.28	-3.05	11.17	124.24
472	31.80	129.59	1.32	-3.05	12.39	124.35
473	31.90	121.10	1.46	-2.96	13.62	124.39
474	31.94	115.44	1.39	-2.96	14.62	124.45
475	32.04	114.12	1.42	-2.96	14.97	124.60
476	32.09	118.67	1.55	-2.96	15.15	125.24
477	32.20	124.84	1.74	-3.02	15.99	125.83
478	32.24	112.71	1.82	-3.02	16.70	126.23
479	32.28	115.74	1.85	-3.07	17.46	126.32
480	32.29	115.74	1.86	-3.07	17.17	126.42

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	32.30	118.77	1.87	-3.25	16.87	126.53
482	32.40	122.41	1.90	-3.05	16.70	126.62
483	32.45	120.49	1.91	-3.05	16.81	126.69
484	32.55	118.67	1.92	-3.05	17.10	126.69
485	32.59	118.37	1.92	-3.05	17.33	126.73
486	32.69	118.07	1.95	-3.05	17.51	126.82
487	32.76	118.07	1.99	-2.96	17.74	126.96
488	32.84	118.27	2.04	-2.96	17.92	127.13
489	32.90	118.98	2.08	-2.96	18.01	127.28
490	32.98	119.89	2.11	-2.96	17.99	127.39
491	33.06	121.10	2.12	-3.05	17.91	127.48
492	33.12	122.21	2.13	-3.05	17.81	127.55
493	33.22	123.12	2.15	-3.05	17.76	127.60
494	33.31	123.32	2.16	-3.05	17.76	127.64
495	33.37	123.32	2.16	-2.96	17.77	127.65
496	33.46	123.32	2.16	-2.96	17.80	127.65
497	33.55	123.32	2.17	-2.86	17.87	127.68
498	33.65	123.02	2.18	-2.96	17.99	127.72
499	33.70	122.72	2.20	-2.96	18.14	127.75
500	33.79	122.11	2.21	-2.96	18.29	127.77
501	33.89	121.40	2.21	-3.05	18.48	127.74
502	33.99	119.89	2.19	-3.25	18.70	127.68
503	34.04	118.17	2.18	-3.25	18.98	127.58
504	34.13	115.44	2.15	-3.15	19.34	127.46
505	34.23	113.01	2.13	-3.15	19.82	127.32
506	34.32	109.78	2.11	-3.15	20.27	127.22
507	34.37	108.16	2.10	-3.15	20.65	127.13
508	34.47	106.85	2.09	-3.15	21.01	127.08
509	34.55	104.93	2.10	-3.34	21.77	127.01
510	34.63	98.76	2.11	-3.53	23.58	126.91
511	34.73	86.43	2.14	-3.72	26.59	126.63
512	34.80	74.09	2.10	-3.91	31.19	126.00
513	34.90	57.92	1.93	-3.91	36.19	125.07
514	35.00	49.53	1.74	-3.91	37.59	123.92
515	35.12	57.47	1.42	-3.91	38.98	122.90
516	35.20	44.27	1.40	-3.72	36.68	122.71
517	35.33	57.01	1.55	-3.63	36.87	123.05
518	35.41	59.84	1.61	-4.20	32.11	123.80
519	35.44	73.57	1.62	-6.27	29.94	124.11
520	35.48	72.58	1.63	-6.27	26.74	124.41
521	35.57	84.61	1.62	-7.64	24.34	124.63
522	35.62	95.42	1.62	-8.78	20.42	125.05
523	35.67	116.45	1.64	-9.93	17.13	125.56
524	35.71	134.74	1.71	-10.60	14.14	126.40
525	35.82	161.84	1.91	-11.55	12.01	127.28
526	35.86	183.57	2.03	-11.17	10.22	128.24
527	35.93	210.36	2.20	-6.97	8.94	129.00
528	36.01	229.56	2.33	-4.49	8.16	129.62

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	36.06	236.44	2.41	-3.63	7.85	130.06
530	36.12	240.88	2.52	-3.34	7.80	130.37
531	36.18	244.83	2.59	-3.15	7.84	130.72
532	36.25	249.58	2.73	-3.15	7.88	131.01
533	36.30	251.80	2.80	-3.15	8.05	131.37
534	36.39	253.32	2.97	-3.25	8.23	131.64
535	36.44	253.52	3.03	-3.15	8.49	131.92
536	36.53	252.51	3.13	-3.25	8.77	132.08
537	36.59	248.57	3.20	-3.15	9.37	132.44
538	36.68	244.22	3.54	-3.25	9.70	132.41
539	36.75	237.75	3.16	-3.25	9.93	132.25
540	36.83	233.20	3.05	-3.25	9.92	131.78
541	36.90	225.32	3.02	-3.25	10.25	131.57
542	36.97	217.43	2.99	-3.25	10.78	131.42
543	37.02	208.94	2.97	-3.25	11.95	131.17
544	37.04	178.92	2.94	-3.25	12.56	130.99
545	37.08	193.37	2.89	-3.25	12.85	130.76
546	37.17	193.68	2.77	-3.25	12.27	130.55
547	37.27	188.42	2.66	-3.25	12.36	130.20
548	37.37	179.93	2.56	-3.15	12.63	129.85
549	37.42	175.89	2.48	-3.34	12.60	129.41
550	37.51	175.94	2.26	-3.34	12.21	128.93
551	37.58	175.99	2.11	-3.34	11.53	128.42
552	37.66	179.12	2.01	-3.34	10.87	128.00
553	37.76	182.05	1.88	-3.34	10.12	127.61
554	37.85	186.70	1.77	-3.25	9.43	127.24
555	37.93	189.63	1.70	-3.25	8.90	127.02
556	38.04	192.67	1.69	-3.25	8.61	126.94
557	38.13	194.59	1.69	-3.25	8.49	126.94
558	38.18	194.49	1.69	-3.25	8.53	126.96
559	38.28	191.76	1.70	-3.25	8.89	127.11
560	38.37	187.61	1.81	-3.25	9.47	127.34
561	38.47	182.96	1.89	-3.25	10.26	127.74
562	38.57	180.23	2.05	-3.25	10.93	128.06
563	38.62	178.11	2.10	-3.25	11.67	128.38
564	38.72	172.15	2.20	-3.25	12.92	128.49
565	38.78	152.33	2.27	-3.26	13.99	128.58
566	38.81	156.28	2.28	-3.25	14.73	128.61
567	38.86	157.49	2.30	-3.25	14.82	128.67
568	38.91	151.93	2.32	-3.25	15.34	128.70
569	38.95	146.77	2.36	-3.25	16.32	128.70
570	39.05	139.19	2.39	-3.25	17.39	128.67
571	39.09	132.82	2.40	-3.34	18.62	128.58
572	39.14	125.24	2.40	-3.34	19.92	128.44
573	39.24	117.26	2.39	-3.34	21.20	128.25
574	39.29	112.20	2.35	-3.34	22.35	128.02
575	39.39	107.15	2.30	-3.34	23.14	127.89
576	39.43	106.24	2.34	-3.34	23.05	127.94

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	39.53	114.22	2.38	-3.53	21.86	128.13
578	39.57	124.74	2.36	-3.63	20.02	128.31
579	39.68	133.73	2.34	-4.49	18.81	128.39
580	39.73	133.63	2.33	-3.67	18.53	128.37
581	39.81	128.68	2.32	-4.39	18.86	128.23
582	39.89	125.85	2.25	-3.72	18.82	127.76
583	39.96	124.74	1.96	-3.44	18.19	127.14
584	40.06	125.34	1.81	-3.34	17.66	126.63
585	40.15	123.63	1.86	-3.34	17.93	126.54
586	40.20	119.28	1.91	-3.44	19.75	126.53
587	40.24	100.48	1.93	-3.71	21.16	126.50
588	40.26	106.09	1.93	-3.71	22.23	126.44
589	40.27	106.09	1.94	-3.71	21.47	126.59
590	40.37	111.70	1.99	-3.91	21.22	126.73
591	40.42	111.70	2.01	-4.01	21.04	126.91
592	40.52	111.70	2.06	-4.20	21.09	127.05
593	40.56	113.92	2.09	-4.39	20.77	127.30
594	40.66	120.39	2.17	-4.49	19.70	127.64
595	40.70	132.62	2.24	-4.77	18.40	128.08
596	40.75	141.82	2.32	-5.25	17.09	128.59
597	40.85	153.55	2.47	-5.63	16.06	129.13
598	40.91	165.07	2.59	-5.63	15.13	129.61
599	40.96	173.76	2.65	-5.63	14.17	129.97
600	41.04	185.49	2.68	-5.63	13.29	130.19
601	41.09	193.78	2.70	-4.96	12.46	130.39
602	41.18	202.77	2.73	-4.20	11.82	130.54
603	41.23	209.35	2.74	-3.72	11.36	130.66
604	41.29	211.97	2.74	-3.63	11.10	130.71
605	41.38	213.59	2.74	-3.63	11.02	130.73
606	41.42	212.88	2.74	-3.53	11.10	130.74
607	41.52	209.95	2.77	-3.53	11.32	130.76
608	41.57	207.42	2.79	-3.53	11.64	130.80
609	41.62	204.59	2.83	-3.44	11.95	130.86
610	41.71	202.88	2.87	-3.44	12.22	130.92
611	41.76	202.07	2.89	-3.44	12.42	131.01
612	41.84	201.66	2.94	-3.44	12.59	131.09
613	41.91	201.36	2.97	-3.44	12.74	131.20
614	41.95	201.76	3.03	-3.53	12.88	131.32
615	42.01	202.27	3.09	-3.53	13.08	131.54
616	42.10	203.68	3.24	-3.53	13.30	131.80
617	42.15	204.90	3.34	-3.53	13.56	132.12
618	42.24	206.51	3.49	-3.53	13.76	132.35
619	42.28	206.82	3.55	-3.53	13.82	132.43
620	42.39	206.21	3.45	-3.53	13.78	132.37
621	42.43	205.91	3.41	-3.53	13.60	132.21
622	42.50	206.26	3.33	-3.53	13.33	131.99
623	42.58	206.31	3.14	-3.53	12.97	131.71
624	42.65	206.41	3.03	-3.53	13.30	131.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	42.70	184.28	2.97	-3.61	13.40	131.14
626	42.73	197.11	2.95	-3.61	13.48	131.01
627	42.77	199.94	2.91	-3.61	12.77	131.00
628	42.82	203.68	2.86	-3.62	12.36	130.97
629	42.87	208.03	2.85	-3.62	11.87	131.00
630	42.91	215.81	2.87	-3.63	11.40	131.10
631	42.97	222.69	2.90	-3.53	11.00	131.25
632	43.02	226.93	2.94	-3.44	10.78	131.43
633	43.06	230.98	3.03	-3.53	10.72	131.66
634	43.11	233.71	3.13	-3.53	10.67	131.89
635	43.17	238.46	3.19	-3.63	10.57	132.05
636	43.21	241.79	3.19	-3.63	10.32	132.13
637	43.29	246.54	3.17	-3.63	10.05	132.16
638	43.34	250.39	3.16	-3.63	9.74	132.17
639	43.39	254.83	3.15	-3.53	9.49	132.17
640	43.45	257.26	3.12	-3.53	9.24	132.11
641	43.51	258.67	3.05	-3.63	8.93	131.89
642	43.59	258.98	2.87	-3.63	8.66	131.64
643	43.64	258.27	2.81	-3.63	8.23	131.24
644	43.70	260.49	2.58	-3.63	7.80	130.79
645	43.78	259.28	2.37	-3.63	7.50	130.39
646	43.88	255.44	2.40	-3.63	7.60	130.26
647	43.94	250.99	2.49	-3.63	8.46	130.43
648	44.04	228.05	2.65	-3.66	9.36	130.60
649	44.07	225.92	2.69	-3.63	10.23	130.73
650	44.12	223.80	2.73	-3.66	10.49	130.79
651	44.16	221.17	2.75	-3.63	10.73	130.81
652	44.21	218.64	2.74	-3.63	11.01	130.81
653	44.26	214.50	2.77	-3.63	11.32	130.81
654	44.31	210.96	2.79	-3.63	11.70	130.81
655	44.35	207.12	2.80	-3.72	12.07	130.81
656	44.40	202.98	2.81	-3.72	12.44	130.79
657	44.45	199.84	2.82	-3.72	12.75	130.78
658	44.50	197.82	2.82	-3.72	12.98	130.76
659	44.54	196.00	2.82	-3.72	13.20	130.75
660	44.60	193.78	2.85	-3.72	13.50	130.78
661	44.64	190.75	2.88	-3.72	13.86	130.82
662	44.69	188.52	2.92	-3.72	14.21	130.87
663	44.74	186.60	2.94	-3.82	14.38	130.92
664	44.79	188.37	2.96	-3.82	14.49	130.94
665	44.83	186.70	2.95	-3.82	14.44	130.96
666	44.88	188.22	2.95	-3.82	14.34	130.97
667	44.93	191.76	2.96	-3.82	14.12	131.02
668	44.98	193.78	2.97	-3.72	13.90	131.07
669	45.03	195.70	2.97	-3.82	13.77	131.11
670	45.08	196.61	2.98	-3.72	13.68	131.13
671	45.16	197.32	2.98	-3.82	13.57	131.13
672	45.19	198.83	2.96	-3.72	13.41	131.06

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	45.27	198.73	2.88	-3.82	13.22	130.92
674	45.32	197.92	2.81	-3.82	13.07	130.71
675	45.37	196.20	2.73	-3.82	12.89	130.37
676	45.45	192.77	2.52	-3.82	12.75	129.96
677	45.51	188.52	2.41	-3.82	12.79	129.49
678	45.56	180.54	2.32	-3.82	13.16	129.13
679	45.61	172.65	2.26	-3.82	14.11	128.81
680	45.69	156.48	2.24	-3.82	15.78	128.59
681	45.75	140.00	2.30	-3.82	18.95	128.52
682	45.81	115.94	2.49	-3.91	22.57	127.65
683	45.89	90.17	1.83	-3.91	27.28	126.48
684	45.94	73.89	1.73	-3.91	32.45	124.69
685	46.04	56.20	1.58	-3.91	38.98	123.71
686	46.08	47.71	1.52	-3.91	47.47	122.68
687	46.15	36.09	1.45	-3.82	56.21	122.08
688	46.17	36.19	1.44	-3.53	60.34	121.69
689	46.18	36.19	1.43	-3.53	60.04	121.61
690	46.23	36.29	1.40	-3.53	59.44	121.53
691	46.27	37.10	1.38	-3.44	58.23	121.42
692	46.32	38.31	1.34	-3.15	56.14	121.33
693	46.41	40.64	1.30	-2.86	51.16	121.34
694	46.47	43.06	1.32	-2.77	48.66	121.54
695	46.52	45.89	1.37	-2.77	47.10	121.93
696	46.56	47.51	1.45	-2.77	46.43	122.56
697	46.65	49.43	1.62	-2.67	46.28	123.25
698	46.71	51.45	1.75	-2.58	46.04	123.95
699	46.76	53.78	1.86	-2.48	44.89	124.54
700	46.85	58.12	1.95	-2.39	42.94	124.99
701	46.90	62.77	1.97	-2.39	40.08	125.34
702	46.99	69.04	1.98	-2.48	37.61	125.55
703	47.04	71.97	1.98	-2.48	36.35	125.63
704	47.10	70.15	1.97	-2.77	36.71	125.56
705	47.16	66.51	1.95	-3.34	38.66	125.31
706	47.23	59.84	1.90	-3.82	41.64	124.83
707	47.30	52.66	1.77	-4.20	46.53	124.02
708	47.38	42.05	1.62	-4.58	55.83	123.02
709	47.43	33.76	1.52	-4.58	63.91	121.70
710	47.52	27.09	1.27	-4.77	70.43	120.03
711	47.59	23.86	0.95	-4.77	72.90	117.35
712	47.66	21.03	0.52	-4.77	72.89	114.76
713	47.77	19.51	0.53	-4.68	73.13	112.86
714	47.82	18.80	0.54	-4.58	76.41	112.94
715	47.91	18.19	0.56	-4.58	78.15	113.07
716	47.93	18.35	0.57	-4.36	81.01	113.17
717	47.97	16.68	0.58	-4.36	81.15	113.36
718	48.02	18.50	0.60	-4.36	81.66	113.65
719	48.07	18.60	0.64	-4.23	80.69	114.13
720	48.12	18.60	0.68	-4.10	82.08	114.75

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	48.19	18.80	0.77	-4.01	83.29	115.28
722	48.23	18.90	0.79	-4.01	83.94	115.75
723	48.31	19.21	0.82	-4.01	83.94	116.02
724	48.35	19.51	0.84	-3.91	83.94	116.26
725	48.40	19.51	0.86	-3.91	84.74	116.39
726	48.45	18.90	0.88	-3.91	86.54	116.45
727	48.50	18.19	0.88	-3.82	89.36	116.43
728	48.55	17.29	0.89	-3.72	90.62	116.47
729	48.59	18.09	0.90	-3.72	91.76	116.60
730	48.67	17.69	0.94	-3.53	91.23	116.72
731	48.73	17.99	0.92	-3.53	91.27	116.67
732	48.78	17.99	0.89	-3.53	89.99	116.42
733	48.83	18.09	0.84	-3.53	88.84	116.04
734	48.91	17.99	0.79	-3.44	87.70	115.60
735	48.98	17.89	0.74	-3.34	86.94	115.19
736	49.03	17.79	0.72	-3.15	86.65	114.95
737	49.12	17.69	0.72	-3.05	85.60	114.48
738	49.17	17.69	0.61	-2.96	83.33	113.76
739	49.27	17.99	0.53	-2.96	80.70	113.14
740	49.31	18.50	0.56	-2.86	79.11	113.26
741	49.38	19.31	0.62	-2.77	78.69	113.92
742	49.45	19.91	0.66	-2.67	78.67	114.51
743	49.51	20.01	0.70	-2.67	81.86	114.78
744	49.54	17.18	0.72	-2.34	81.23	115.10
745	49.59	21.23	0.74	-2.34	79.36	115.30
746	49.64	22.24	0.73	-2.34	75.47	115.37
747	49.73	21.23	0.70	-2.00	76.06	115.20
748	49.83	20.22	0.70	-2.00	78.94	114.89
749	49.92	18.70	0.68	-1.91	82.21	114.64
750	49.98	17.79	0.67	-1.81	85.18	114.35
751	50.07	17.18	0.66	-1.72	86.78	114.13
752	50.16	17.08	0.64	-1.62	87.78	113.97
753	50.24	16.78	0.64	-1.53	88.72	113.83
754	50.32	16.27	0.63	-1.43	89.58	113.75
755	50.41	16.38	0.63	-1.43	90.32	113.77
756	50.50	16.38	0.65	-1.34	90.32	113.80
757	50.56	16.38	0.64	-1.34	90.32	113.63
758	50.66	16.07	0.59	-1.24	90.38	113.36
759	50.74	15.87	0.59	-1.15	90.68	113.17
760	50.84	15.87	0.60	-1.15	92.49	113.65
761	50.93	15.87	0.71	-1.05	95.02	114.60
762	50.98	16.17	0.85	-1.05	96.87	116.37
763	51.08	18.30	1.14	-0.95	92.70	118.68
764	51.17	24.36	1.53	-0.76	84.52	120.98
765	51.24	30.73	1.80	-0.76	77.19	122.97
766	51.34	35.28	2.14	-0.57	74.02	124.16
767	51.41	34.97	2.26	-0.57	71.12	123.46
768	51.51	32.25	1.21	-0.57	70.63	122.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	51.58	31.24	1.48	-0.57	69.74	121.04
770	51.68	30.12	1.47	-0.38	72.97	121.32
771	51.79	28.51	1.42	-0.38	77.64	121.01
772	51.82	23.55	1.42	0.00	80.70	120.81
773	51.85	25.57	1.43	0.00	84.43	120.74
774	51.91	24.06	1.47	0.10	84.06	121.14
775	52.00	25.37	1.63	0.19	85.77	121.55
776	52.05	25.17	1.70	0.48	82.19	122.20
777	52.10	30.63	1.77	0.67	73.91	122.79
778	52.19	39.52	1.77	0.67	64.23	123.22
779	52.28	45.29	1.67	0.19	57.68	123.38
780	52.34	47.31	1.65	-0.10	55.15	123.36
781	52.42	46.50	1.68	-0.38	55.52	123.38
782	52.48	44.48	1.70	-0.29	57.37	123.35
783	52.57	42.05	1.69	-0.29	59.26	123.14
784	52.62	40.43	1.61	-0.19	60.78	122.72
785	52.69	38.31	1.49	0.00	61.59	122.10
786	52.77	36.79	1.37	0.10	62.55	121.57
787	52.87	35.58	1.36	0.19	63.92	121.31
788	52.91	34.27	1.39	0.19	65.28	120.93
789	53.01	32.35	1.22	0.19	67.19	120.67
790	53.10	31.03	1.28	0.29	68.16	120.77
791	53.16	33.16	1.47	0.38	69.53	122.45
792	53.25	37.91	2.14	0.48	67.34	124.27
793	53.29	44.98	2.40	0.57	65.53	126.29
794	53.38	49.94	3.03	0.67	63.67	127.54
795	53.42	51.76	3.26	1.15	57.59	128.96
796	53.47	76.22	3.60	1.34	50.04	130.26
797	53.52	95.93	4.09	1.43	43.49	131.46
798	53.58	106.44	4.29	1.24	41.58	132.45
799	53.66	106.44	4.88	-1.34	42.62	133.05
800	53.75	98.56	5.19	-2.86	45.49	133.37
801	53.81	91.08	5.18	-6.30	49.54	133.18
802	53.87	77.43	5.01	-9.74	53.77	132.67
803	53.95	68.54	4.74	-10.69	59.61	131.92
804	54.01	56.20	4.47	-11.74	65.69	131.12
805	54.06	47.81	4.22	-11.84	72.92	129.99
806	54.15	39.02	3.56	-11.84	77.78	129.07
807	54.20	39.02	3.50	-11.84	78.61	128.77
808	54.29	44.27	3.87	-11.84	70.76	129.29
809	54.34	59.94	3.77	-11.84	51.11	129.21
810	54.43	104.52	2.08	-12.22	34.79	128.49
811	54.45	137.17	1.94	-11.93	23.26	127.27
812	54.48	170.33	1.92	-12.60	19.04	127.74
813	54.52	191.25	2.08	-13.36	17.01	128.18
814	54.53	195.50	2.08	-13.08	16.36	128.98
815	54.58	210.36	2.46	-12.79	16.17	129.67
816	54.62	218.44	2.63	-8.30	15.74	130.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	54.65	230.47	2.63	-4.01	14.88	130.73
818	54.70	251.70	2.72	-3.63	14.37	131.15
819	54.76	252.00	2.98	-4.09	14.25	131.53
820	54.77	249.83	2.99	-3.42	14.61	131.77
821	54.82	247.96	3.02	-3.42	14.54	131.82
822	54.87	256.85	3.02	-3.42	14.47	131.87
823	54.88	254.53	3.03	-2.96	14.29	131.89
824	54.91	255.64	3.02	-3.09	14.24	131.96
825	54.96	261.81	3.08	-2.96	13.92	132.10
826	54.97	272.93	3.13	-2.77	13.35	132.49
827	55.03	295.47	3.37	-2.39	12.75	133.09
828	55.09	316.39	3.69	-2.96	11.80	133.38
829	55.15	333.88	3.31	-3.25	10.23	132.43
830	55.20	333.38	2.00	-3.05	9.28	131.93
831	55.25	347.93	3.01	-3.05	7.69	130.99
832	55.30	393.32	2.16	-3.05	7.43	132.16
833	55.34	419.40	3.03	-2.96	6.93	132.95
834	55.39	439.92	3.71	-2.77	7.32	134.46
835	55.40	460.94	4.01	-2.86	7.35	135.39
836	55.44	486.11	4.30	-2.67	7.07	135.83
837	55.44	501.48	4.26	-2.67	6.42	136.02
838	55.49	546.16	4.10	-2.64	6.52	136.38
839	55.54	505.72	4.89	-1.24	6.65	137.08
840	55.59	548.48	5.43	-1.05	7.22	137.28
841	55.63	550.81	5.64	-2.46	7.14	137.28
842	55.64	554.04	5.65	-2.46	7.12	137.28
843	55.68	555.66	5.52	-2.67	6.77	137.28
844	55.69	591.24	5.48	-2.60	6.62	137.28
845	55.69	564.35	5.44	-2.60	6.75	137.28
846	55.71	543.02	5.64	-2.53	7.10	137.28
847	55.76	577.59	6.17	-2.53	7.22	137.28
848	55.78	581.33	6.12	-2.39	7.02	137.28
849	55.81	581.74	5.86	-2.19	6.58	137.28
850	55.85	580.73	4.95	-2.67	5.96	137.28
851	55.86	590.13	4.53	-2.96	5.19	136.82
852	55.91	594.27	4.00	-2.96	4.62	136.29
853	55.92	611.66	3.93	-2.58	4.30	135.90
854	55.96	600.94	3.86	-2.48	3.98	135.87
855	55.97	644.61	3.85	-2.96	3.85	136.11
856	56.00	656.84	4.22	-3.15	3.75	136.51
857	56.01	661.80	4.40	-3.25	4.03	137.12
858	56.03	661.85	4.90	-3.25	4.27	137.28
859	56.05	661.85	5.01	-3.05	4.38	137.28
860	56.10	661.90	4.73	-2.86	4.31	137.28
861	56.12	671.50	4.82	-2.77	4.05	137.28
862	56.16	670.79	4.37	-2.67	3.91	137.12
863	56.17	660.89	4.28	-2.77	3.94	136.81
864	56.20	632.79	4.35	-2.77	4.25	136.76

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	56.22	611.76	4.41	-2.77	4.54	136.69
866	56.24	608.02	4.27	-2.67	4.60	136.52
867	56.30	605.70	4.12	-2.77	4.63	136.39
868	56.31	594.48	4.22	-2.67	4.86	136.51
869	56.34	587.00	4.54	-2.67	5.22	136.76
870	56.39	577.29	4.62	-2.67	5.42	136.81
871	56.45	572.94	4.38	-2.77	5.52	136.73
872	56.48	566.78	4.44	-2.58	5.63	136.67
873	56.49	556.57	4.57	-2.48	6.11	137.00
874	56.53	543.12	5.08	-2.39	6.65	137.27
875	56.58	526.85	5.09	-2.29	7.00	137.27
876	56.63	517.25	4.68	-2.39	5.57	135.21
877	56.68	530.19	1.47	-2.67	4.07	132.85
878	56.73	530.69	1.99	-2.19	3.28	131.52
879	56.78	533.22	3.31	-2.10	4.70	133.92
880	56.83	515.12	4.11	-2.10	5.98	135.53
881	56.89	505.72	4.38	-1.81	6.76	136.05
882	56.95	489.35	4.29	-1.72	7.57	136.39
883	56.99	460.13	4.89	-1.77	8.27	136.67
884	57.01	461.35	5.04	-1.81	8.73	136.83
885	57.04	461.35	4.71	-1.77	8.64	136.75
886	57.09	462.56	4.73	-1.77	8.37	136.69
887	57.11	480.76	4.85	-1.72	8.26	136.91
888	57.13	489.04	5.06	-1.72	8.28	137.28
889	57.18	496.12	5.48	-1.72	8.57	137.28
890	57.19	481.26	5.56	-1.72	9.17	137.28
891	57.21	456.09	5.75	-1.53	9.62	137.28
892	57.24	456.14	5.61	-1.53	9.80	137.28
893	57.28	456.19	5.36	-1.53	9.62	137.28
894	57.32	457.91	5.35	-1.53	9.68	137.28
895	57.35	438.71	5.32	-1.62	9.84	137.28
896	57.38	439.61	5.31	-1.43	10.12	137.28
897	57.43	428.50	5.24	-1.43	10.11	137.06
898	57.48	423.44	4.91	-1.62	10.27	136.57
899	57.52	392.11	4.48	-1.53	10.16	135.74
900	57.57	380.28	3.84	-1.53	10.70	135.89
901	57.62	396.35	5.29	-1.53	11.26	136.75
902	57.68	413.43	6.11	-1.53	10.99	137.28
903	57.76	472.77	5.74	-1.43	9.99	137.28
904	57.81	500.57	5.68	-1.72	7.13	136.51
905	57.86	543.23	2.17	-1.72	4.79	134.57
906	57.89	587.00	2.33	-1.72	2.67	131.65
907	57.91	587.40	2.22	-1.72	2.56	131.81
908	57.92	576.28	2.27	-1.72	2.86	132.23
909	57.95	567.79	2.76	-1.72	3.35	132.94
910	57.99	563.14	3.00	-1.72	3.71	133.65
911	58.01	581.13	3.08	-1.72	3.92	134.30
912	58.05	591.95	3.53	-1.72	3.96	134.78

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	58.05	600.54	3.58	-1.05	4.23	135.48
914	58.10	604.18	4.04	-1.43	4.36	135.85
915	58.13	609.64	4.08	-1.53	4.44	136.17
916	58.15	619.75	4.05	-1.53	4.30	136.16
917	58.17	626.22	3.98	-1.53	4.19	136.18
918	58.20	629.45	4.07	-1.53	4.24	136.22
919	58.21	614.69	4.13	-1.72	4.37	136.30
920	58.21	614.14	4.14	-1.72	4.48	136.33
921	58.23	614.14	4.16	-1.72	4.50	136.34
922	58.24	613.58	4.15	-1.81	4.62	136.36
923	58.25	596.70	4.21	-1.81	3.41	134.35
924	58.29	617.42	1.15	-1.72	2.07	131.70
925	58.31	627.93	1.23	-1.72	0.59	127.71
926	58.33	636.43	1.41	-1.72	0.81	129.01
927	58.38	652.70	1.86	-1.62	1.14	130.50
928	58.39	665.03	2.22	-1.70	1.43	131.67
929	58.43	667.96	2.33	-1.62	1.54	132.23
930	58.43	678.68	2.34	-1.70	1.38	132.20
931	58.48	701.62	2.15	-1.62	1.49	132.66
932	58.53	683.83	2.76	-1.62	1.70	133.35
933	58.56	697.78	3.03	-1.81	2.25	134.65
934	58.58	707.59	3.68	-1.91	2.48	135.33
935	58.59	707.99	3.65	-1.73	2.66	135.86
936	58.63	717.19	3.78	-1.54	2.76	135.95
937	58.63	696.42	3.83	-1.37	2.82	136.12
938	58.63	714.06	3.90	-1.37	2.92	135.93
939	58.68	675.65	3.56	-1.03	2.66	135.58
940	58.69	710.92	3.27	-1.03	2.12	134.51
941	58.72	719.11	2.44	-1.03	1.55	133.64
942	58.73	723.56	2.46	-0.91	1.34	133.28
943	58.74	726.19	2.85	-0.48	1.62	134.13
944	58.77	736.20	3.38	-0.85	2.06	135.06
945	58.81	718.51	3.65	-0.85	2.44	135.72
946	58.82	713.35	3.81	-0.85	2.73	136.05
947	58.83	710.01	3.91	-0.86	2.96	136.52
948	58.87	724.07	4.41	-0.86	3.17	137.07
949	58.91	732.96	4.71	-0.86	3.32	137.28
950	58.92	738.02	4.73	-0.76	3.35	137.28
951	58.93	742.66	4.76	-0.67	3.28	137.28
952	58.96	740.95	4.59	-0.57	3.26	137.28
953	59.01	733.57	4.60	-0.57	3.68	137.28
954	59.06	674.43	5.18	-1.24	4.25	137.28
955	59.08	653.91	5.10	-1.24	4.86	137.28
956	59.11	637.54	4.96	-1.24	5.19	137.28
957	59.15	625.41	5.36	-1.24	5.74	137.28
958	59.21	618.74	6.10	-1.43	6.20	137.28
959	59.26	610.75	5.85	-0.95	6.43	137.28
960	59.30	588.81	5.33	-0.67	6.35	137.28

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	59.35	577.39	5.07	-0.67	6.33	137.28
962	59.40	573.45	5.09	-0.67	6.60	137.28
963	59.42	537.46	5.10	-0.62	6.81	137.28
964	59.47	542.01	4.94	-0.62	7.03	137.28
965	59.51	538.58	4.99	-0.62	7.10	137.28
966	59.56	537.67	5.28	-0.48	7.14	137.28
967	59.61	537.67	4.95	-0.48	6.86	137.10
968	59.67	536.76	4.21	-0.48	6.15	136.33
969	59.71	551.52	3.80	-0.29	5.22	135.39
970	59.80	572.94	3.30	-0.29	4.51	134.34
971	59.85	543.02	2.68	-0.10	4.17	133.65
972	59.90	541.41	2.94	0.00	4.17	133.27
973	60.00	542.21	2.91	0.29	4.27	133.47
974	60.04	545.35	2.91	0.19	4.40	133.64
975	60.10	537.57	3.16	0.19	4.95	133.98
976	60.15	496.63	3.43	0.19	5.55	134.23
977	60.19	490.76	3.36	0.19	6.05	134.17
978	60.23	474.79	3.20	0.19	5.92	133.82
979	60.28	484.90	2.99	0.29	5.71	133.46
980	60.33	488.14	2.90	0.29	5.51	133.41
981	60.38	493.90	3.10	0.29	5.65	133.73
982	60.42	493.85	3.38	0.29	5.89	134.17
983	60.44	493.80	3.46	0.29	6.33	134.53
984	60.47	473.88	3.65	0.38	6.98	134.97
985	60.52	460.13	4.12	0.48	7.63	135.40
986	60.56	462.56	4.23	0.38	8.01	135.74
987	60.57	465.39	4.25	0.38	7.98	135.80
988	60.61	467.11	4.21	0.38	7.76	135.74
989	60.66	479.34	4.08	0.38	7.57	135.77
990	60.71	485.41	4.24	0.38	7.40	135.90
991	60.76	495.21	4.35	0.48	7.47	136.31
992	60.81	505.12	4.72	0.67	7.48	136.65
993	60.86	513.91	4.79	0.76	7.09	136.81
994	60.91	550.10	4.48	0.95	6.19	136.86
995	60.95	615.30	4.50	1.05	5.45	137.13
996	61.00	639.05	4.99	1.24	5.05	137.28
997	61.02	658.56	5.11	1.72	5.00	137.28
998	61.05	675.54	5.33	1.72	4.74	137.28
999	61.08	721.13	5.51	1.62	4.50	137.28
1000	61.09	733.97	5.54	1.62	4.27	137.28
1001	61.13	740.34	5.59	1.81	4.24	137.28
1002	61.14	739.43	5.66	1.91	4.28	137.28
1003	61.16	738.52	5.76	1.91	4.32	137.28
1004	61.20	746.30	5.81	1.91	4.05	137.28
1005	61.23	767.73	5.15	1.91	3.75	137.28
1006	61.24	772.28	5.21	1.81	3.14	137.28
1007	61.29	760.66	3.90	1.81	2.97	137.28
1008	61.30	743.57	4.26	1.72	3.09	137.25

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	61.33	728.41	5.05	1.81	3.50	137.28
1010	61.38	731.65	4.85	2.00	3.57	137.28
1011	61.43	732.56	4.32	1.81	3.24	137.17
1012	61.48	728.92	3.98	1.81	2.87	136.68
1013	61.53	753.18	3.97	1.62	2.61	136.51
1014	61.56	770.56	3.96	1.72	2.53	136.46
1015	61.58	740.54	3.88	1.72	2.82	136.29
1016	61.59	669.61	3.85	1.46	3.07	136.12
1017	61.62	696.97	3.82	0.67	4.53	135.66
1018	61.63	435.47	3.76	0.86	4.59	135.59
1019	61.67	653.41	3.77	1.34	4.68	135.51
1020	61.71	676.15	3.74	1.43	3.52	135.82
1021	61.76	658.36	3.79	1.34	3.57	135.69
1022	61.81	631.98	3.61	1.34	3.48	134.89
1023	61.86	611.66	2.70	1.53	3.19	133.76
1024	61.87	601.35	2.42	1.62	2.51	131.84
1025	61.91	589.42	1.65	1.72	2.08	130.34
1026	61.95	575.78	1.49	1.72	1.72	128.91
1027	61.96	568.80	1.46	1.62	1.77	128.59
1028	62.00	555.56	1.48	1.53	2.11	128.99
1029	62.04	536.66	1.77	1.43	2.73	129.80
1030	62.06	513.20	2.07	1.34	3.63	130.78
1031	62.10	482.98	2.34	1.34	4.36	131.39
1032	62.14	478.73	2.39	1.34	4.98	131.79
1033	62.20	464.78	2.54	1.34	5.42	131.98
1034	62.22	445.68	2.60	1.62	6.21	132.17
1035	62.27	407.07	2.72	1.43	7.02	132.25
1036	62.29	393.62	2.77	1.34	7.80	132.39
1037	62.34	388.36	2.89	1.43	8.52	132.51
1038	62.39	358.75	2.98	1.24	9.48	132.97
1039	62.43	352.68	3.46	1.43	11.11	133.79
1040	62.49	331.86	4.17	1.43	12.15	134.44
1041	62.57	335.80	4.05	1.43	12.81	134.86
1042	62.68	341.56	4.21	1.43	12.34	135.49
1043	62.75	394.13	5.02	1.53	11.19	136.33
1044	62.87	459.02	5.12	1.62	10.57	136.91
1045	62.88	425.46	5.04	1.53	11.01	136.62
1046	62.89	343.08	4.64	0.86	9.46	135.64
1047	62.93	504.41	3.12	1.53	6.80	134.88
1048	62.98	608.73	3.27	1.24	4.56	134.66
1049	63.02	602.56	3.75	1.53	2.42	132.17
1050	63.07	649.36	0.00	1.53	0.48	127.73
1051	63.12	723.66	0.00	1.62	N/A	87.36
1052	63.14	759.24	0.00	1.62	N/A	87.36
1053	63.17	774.10	0.00	1.72	N/A	87.36
1054	63.17	810.49	0.00	1.53	N/A	87.36
1055	63.20	813.42	0.00	1.53	N/A	87.36
1056	63.21	853.96	0.00	1.53	N/A	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1057	63.23	825.05	0.00	1.43	N/A	87.36
1058	63.26	849.66	0.00	0.99	N/A	87.36
1059	63.28	829.50	0.00	0.99	N/A	87.36
1060	63.31	845.37	0.00	0.29	N/A	87.36
1061	63.32	839.40	0.00	0.48	N/A	87.36
1062	63.36	833.34	0.00	0.57	N/A	87.36
1063	63.40	838.59	0.00	0.67	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.01	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
2	0.04	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
3	0.09	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
4	0.11	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
5	0.14	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
6	0.14	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
7	0.18	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
8	0.23	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
9	0.24	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
10	0.28	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
11	0.33	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
12	0.38	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
13	0.42	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
14	0.47	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
15	0.51	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
16	0.52	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
17	0.57	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
18	0.61	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
19	0.67	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
20	0.73	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
21	0.81	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
22	0.86	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
23	0.98	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
24	1.05	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
25	1.15	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
26	1.24	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
27	1.34	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
28	1.43	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
29	1.53	0.09	0.00	0.09	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
30	1.58	0.09	0.00	0.09	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
31	1.62	0.09	0.00	0.09	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
32	1.67	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
33	1.75	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
34	1.77	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
35	1.81	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
36	1.86	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
37	1.91	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
38	1.95	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
39	2.00	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
40	2.05	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
41	2.11	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
42	2.20	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
43	2.24	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
44	2.29	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
45	2.34	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
46	2.44	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
47	2.48	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
48	2.58	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	2.63	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
50	2.71	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
51	2.78	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
52	2.82	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
53	2.89	0.16	0.00	0.16	1.00	0.272	1.68	0.161	1.00	1.10	2.000	Yes
54	2.96	0.16	0.00	0.16	1.00	0.272	1.68	0.161	1.00	1.10	2.000	No
55	3.03	0.17	0.00	0.17	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
56	3.11	0.17	0.00	0.17	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
57	3.19	0.17	0.00	0.17	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
58	3.25	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
59	3.35	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
60	3.41	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
61	3.50	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
62	3.59	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
63	3.69	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
64	3.79	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
65	3.88	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
66	3.97	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
67	4.07	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
68	4.14	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
69	4.17	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
70	4.26	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
71	4.32	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
72	4.37	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
73	4.42	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
74	4.51	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
75	4.61	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
76	4.65	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
77	4.74	0.26	0.00	0.26	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
78	4.80	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
79	4.89	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
80	4.95	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
81	5.04	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
82	5.13	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
83	5.18	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
84	5.28	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
85	5.32	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
86	5.42	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
87	5.51	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
88	5.60	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
89	5.66	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
90	5.76	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
91	5.85	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
92	5.92	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
93	5.95	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
94	5.97	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
95	6.02	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
96	6.06	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	6.16	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
98	6.21	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
99	6.26	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
100	6.31	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	Yes
101	6.40	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
102	6.44	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
103	6.52	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
104	6.57	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
105	6.64	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
106	6.69	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
107	6.78	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
108	6.83	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
109	6.92	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
110	6.97	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
111	7.03	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
112	7.12	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
113	7.22	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
114	7.27	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
115	7.36	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
116	7.43	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
117	7.50	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
118	7.59	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
119	7.64	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
120	7.75	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
121	7.79	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
122	7.89	0.43	0.00	0.43	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
123	7.99	0.43	0.00	0.43	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
124	8.04	0.43	0.00	0.43	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
125	8.13	0.44	0.00	0.44	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
126	8.23	0.44	0.00	0.44	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
127	8.32	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
128	8.37	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
129	8.46	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
130	8.56	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
131	8.59	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
132	8.61	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
133	8.67	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
134	8.71	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
135	8.72	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
136	8.78	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
137	8.80	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
138	8.86	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
139	8.90	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
140	8.95	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
141	8.96	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
142	9.00	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
143	9.05	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
144	9.09	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	9.10	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
146	9.14	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
147	9.20	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
148	9.24	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
149	9.29	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
150	9.31	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
151	9.38	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
152	9.41	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
153	9.47	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
154	9.53	0.52	0.00	0.52	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
155	9.62	0.52	0.00	0.52	0.98	0.268	1.68	0.159	1.00	1.10	2.000	Yes
156	9.67	0.52	0.00	0.52	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
157	9.77	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
158	9.81	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
159	9.90	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
160	9.97	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
161	10.06	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
162	10.20	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
163	10.30	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
164	10.44	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
165	10.54	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
166	10.63	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
167	10.74	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
168	10.78	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
169	10.83	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
170	10.88	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
171	10.89	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	Yes
172	10.97	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
173	11.02	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
174	11.07	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
175	11.11	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
176	11.16	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
177	11.21	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
178	11.26	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
179	11.30	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
180	11.36	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
181	11.40	0.62	0.00	0.62	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
182	11.45	0.62	0.00	0.62	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
183	11.50	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
184	11.55	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
185	11.60	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
186	11.66	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
187	11.74	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
188	11.84	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
189	11.93	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
190	12.04	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
191	12.13	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
192	12.22	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	12.27	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
194	12.37	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
195	12.41	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
196	12.51	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
197	12.56	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
198	12.65	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
199	12.71	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
200	12.79	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
201	12.89	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
202	12.96	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
203	13.04	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	Yes
204	13.13	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	Yes
205	13.23	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	Yes
206	13.30	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	Yes
207	13.37	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	Yes
208	13.47	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	Yes
209	13.57	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
210	13.61	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
211	13.62	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
212	13.68	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
213	13.73	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
214	13.77	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
215	13.87	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
216	13.93	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
217	14.00	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
218	14.06	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
219	14.12	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
220	14.21	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
221	14.25	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
222	14.35	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
223	14.45	0.80	0.00	0.80	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
224	14.50	0.80	0.00	0.80	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
225	14.59	0.81	0.00	0.81	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
226	14.64	0.81	0.00	0.81	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
227	14.74	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
228	14.80	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
229	14.88	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
230	14.97	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
231	15.05	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
232	15.13	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
233	15.21	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
234	15.28	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
235	15.36	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
236	15.41	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
237	15.50	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
238	15.55	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
239	15.65	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
240	15.71	0.88	0.00	0.88	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	15.79	0.88	0.00	0.88	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
242	15.89	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
243	15.90	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
244	15.94	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
245	16.00	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
246	16.06	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
247	16.14	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
248	16.19	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
249	16.26	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
250	16.33	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
251	16.38	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
252	16.47	0.92	0.00	0.92	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
253	16.54	0.92	0.00	0.92	0.97	0.263	1.68	0.157	1.00	1.10	2.000	Yes
254	16.62	0.93	0.00	0.93	0.97	0.263	1.68	0.157	1.00	1.10	2.000	No
255	16.70	0.93	0.00	0.93	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
256	16.76	0.94	0.00	0.94	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
257	16.86	0.94	0.00	0.94	0.96	0.263	1.68	0.157	1.00	1.10	2.000	Yes
258	16.90	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
259	16.98	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
260	17.05	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
261	17.14	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
262	17.20	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
263	17.29	0.97	0.00	0.97	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
264	17.34	0.97	0.00	0.97	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
265	17.44	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
266	17.50	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
267	17.58	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
268	17.64	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
269	17.75	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
270	17.82	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
271	17.89	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
272	17.89	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
273	17.96	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
274	18.02	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
275	18.07	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
276	18.17	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
277	18.22	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
278	18.30	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
279	18.36	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
280	18.42	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
281	18.50	1.04	0.00	1.04	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
282	18.56	1.04	0.00	1.04	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
283	18.62	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
284	18.69	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
285	18.76	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
286	18.84	1.06	0.00	1.06	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
287	18.89	1.06	0.00	1.06	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
288	18.98	1.07	0.00	1.07	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	19.05	1.07	0.00	1.07	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
290	19.12	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
291	19.18	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
292	19.24	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
293	19.32	1.09	0.00	1.09	0.96	0.262	1.68	0.156	0.99	1.10	2.000	No
294	19.38	1.09	0.00	1.09	0.96	0.262	1.68	0.156	0.99	1.10	2.000	No
295	19.46	1.10	0.00	1.10	0.96	0.262	1.68	0.156	0.99	1.10	2.000	No
296	19.54	1.10	0.00	1.10	0.96	0.262	1.68	0.155	0.99	1.10	2.000	No
297	19.62	1.11	0.00	1.11	0.96	0.262	1.68	0.155	0.99	1.10	2.000	No
298	19.70	1.11	0.00	1.11	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
299	19.80	1.12	0.00	1.12	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
300	19.85	1.12	0.00	1.12	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
301	19.94	1.13	0.00	1.13	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
302	20.03	1.13	0.00	1.13	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
303	20.13	1.14	0.00	1.14	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
304	20.19	1.14	0.00	1.14	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
305	20.29	1.15	0.00	1.15	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
306	20.39	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
307	20.43	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
308	20.47	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
309	20.52	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
310	20.61	1.17	0.00	1.17	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
311	20.66	1.17	0.00	1.17	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
312	20.71	1.18	0.00	1.18	0.96	0.261	1.68	0.155	0.98	1.10	2.000	No
313	20.77	1.18	0.00	1.18	0.95	0.261	1.68	0.155	0.98	1.10	2.000	No
314	20.85	1.18	0.00	1.18	0.95	0.261	1.68	0.155	0.98	1.10	2.000	No
315	20.91	1.19	0.00	1.19	0.95	0.261	1.68	0.155	0.98	1.10	2.000	No
316	21.00	1.19	0.00	1.19	0.95	0.261	1.68	0.155	0.98	1.10	2.000	No
317	21.05	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
318	21.11	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
319	21.19	1.21	0.00	1.21	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
320	21.24	1.21	0.00	1.21	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
321	21.34	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
322	21.39	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
323	21.48	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
324	21.53	1.23	0.00	1.23	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
325	21.64	1.23	0.00	1.23	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
326	21.72	1.24	0.00	1.24	0.95	0.260	1.68	0.155	0.97	1.10	2.000	No
327	21.81	1.24	0.00	1.24	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
328	21.89	1.25	0.00	1.25	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
329	21.97	1.25	0.00	1.25	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
330	22.05	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
331	22.12	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
332	22.13	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
333	22.18	1.27	0.00	1.27	0.95	0.260	1.68	0.154	0.96	1.10	2.000	No
334	22.22	1.27	0.00	1.27	0.95	0.260	1.68	0.154	0.96	1.10	2.000	No
335	22.28	1.27	0.00	1.27	0.95	0.260	1.68	0.154	0.96	1.10	2.000	No
336	22.33	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	22.38	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
338	22.41	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
339	22.51	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
340	22.56	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
341	22.61	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
342	22.65	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
343	22.71	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
344	22.76	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
345	22.85	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
346	22.89	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
347	22.99	1.32	0.00	1.32	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
348	23.04	1.32	0.00	1.32	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
349	23.12	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
350	23.18	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
351	23.24	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
352	23.33	1.34	0.00	1.34	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
353	23.38	1.34	0.00	1.34	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
354	23.47	1.35	0.00	1.35	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
355	23.52	1.35	0.00	1.35	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
356	23.61	1.36	0.00	1.36	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
357	23.68	1.36	0.00	1.36	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
358	23.76	1.36	0.00	1.36	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
359	23.83	1.37	0.00	1.37	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
360	23.90	1.37	0.00	1.37	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
361	23.97	1.38	0.00	1.38	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
362	24.05	1.38	0.00	1.38	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
363	24.10	1.39	0.00	1.39	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
364	24.19	1.39	0.00	1.39	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
365	24.27	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
366	24.34	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
367	24.43	1.41	0.00	1.41	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
368	24.48	1.41	0.00	1.41	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
369	24.57	1.41	0.00	1.41	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
370	24.62	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
371	24.72	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
372	24.81	1.43	0.00	1.43	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
373	24.86	1.43	0.00	1.43	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
374	24.95	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
375	25.01	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
376	25.02	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
377	25.05	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
378	25.11	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
379	25.15	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
380	25.21	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
381	25.25	1.46	0.00	1.46	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
382	25.30	1.46	0.00	1.46	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
383	25.40	1.47	0.00	1.47	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
384	25.45	1.47	0.00	1.47	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	25.52	1.47	0.00	1.47	0.94	0.257	1.68	0.153	0.94	1.10	2.000	Yes
386	25.60	1.48	0.00	1.48	0.94	0.257	1.68	0.152	0.94	1.10	2.000	Yes
387	25.66	1.48	0.00	1.48	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
388	25.74	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
389	25.80	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
390	25.88	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
391	25.94	1.50	0.00	1.50	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
392	26.02	1.50	0.00	1.50	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
393	26.09	1.51	0.00	1.51	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
394	26.17	1.51	0.00	1.51	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
395	26.23	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
396	26.29	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
397	26.37	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
398	26.46	1.53	0.00	1.53	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
399	26.55	1.53	0.00	1.53	0.94	0.256	1.68	0.152	0.93	1.10	2.000	No
400	26.60	1.54	0.00	1.54	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
401	26.70	1.54	0.00	1.54	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
402	26.78	1.55	0.00	1.55	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
403	26.87	1.55	0.00	1.55	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
404	26.94	1.56	0.00	1.56	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
405	27.03	1.56	0.00	1.56	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
406	27.13	1.57	0.00	1.57	0.93	0.255	1.68	0.152	0.92	1.10	2.000	No
407	27.18	1.57	0.00	1.57	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
408	27.27	1.58	0.00	1.58	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
409	27.32	1.58	0.00	1.58	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
410	27.37	1.58	0.00	1.58	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
411	27.41	1.58	0.00	1.58	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
412	27.46	1.59	0.00	1.59	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
413	27.51	1.59	0.00	1.59	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
414	27.61	1.59	0.00	1.59	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
415	27.66	1.60	0.00	1.60	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
416	27.73	1.60	0.00	1.60	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
417	27.80	1.61	0.00	1.61	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
418	27.88	1.61	0.00	1.61	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
419	27.96	1.62	0.00	1.62	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
420	28.04	1.62	0.00	1.62	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
421	28.12	1.63	0.00	1.63	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
422	28.18	1.63	0.00	1.63	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
423	28.27	1.64	0.00	1.64	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
424	28.32	1.64	0.00	1.64	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
425	28.42	1.64	0.00	1.64	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
426	28.47	1.65	0.00	1.65	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
427	28.61	1.66	0.00	1.66	0.93	0.253	1.68	0.150	0.91	1.10	2.000	No
428	28.67	1.66	0.00	1.66	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
429	28.75	1.67	0.00	1.67	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
430	28.81	1.67	0.00	1.67	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
431	28.90	1.68	0.00	1.68	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
432	29.00	1.68	0.00	1.68	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	29.05	1.68	0.00	1.68	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
434	29.10	1.69	0.00	1.69	0.93	0.253	1.68	0.150	0.91	1.10	2.000	Yes
435	29.15	1.69	0.00	1.69	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
436	29.24	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
437	29.29	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
438	29.37	1.71	0.00	1.71	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
439	29.43	1.71	0.00	1.71	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
440	29.53	1.72	0.00	1.72	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
441	29.62	1.72	0.00	1.72	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
442	29.68	1.72	0.00	1.72	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
443	29.80	1.73	0.00	1.73	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
444	29.91	1.74	0.00	1.74	0.92	0.251	1.68	0.149	0.91	1.10	2.000	No
445	30.00	1.74	0.00	1.74	0.92	0.251	1.68	0.149	0.90	1.10	0.182	No
446	30.07	1.75	0.00	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
447	30.15	1.75	0.00	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
448	30.21	1.76	0.01	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
449	30.26	1.76	0.01	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
450	30.31	1.76	0.01	1.75	0.92	0.252	1.68	0.150	0.90	1.10	0.182	No
451	30.38	1.77	0.01	1.76	0.92	0.252	1.68	0.150	0.90	1.10	0.183	No
452	30.45	1.77	0.01	1.76	0.92	0.253	1.68	0.150	0.90	1.10	0.183	No
453	30.50	1.78	0.02	1.76	0.92	0.253	1.68	0.150	0.90	1.10	0.183	No
454	30.55	1.78	0.02	1.76	0.92	0.253	1.68	0.150	0.90	1.10	0.183	No
455	30.64	1.78	0.02	1.76	0.92	0.253	1.68	0.151	0.90	1.10	0.183	No
456	30.70	1.79	0.02	1.77	0.92	0.253	1.68	0.151	0.90	1.10	0.184	No
457	30.79	1.79	0.02	1.77	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
458	30.84	1.80	0.03	1.77	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
459	30.93	1.80	0.03	1.77	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
460	30.98	1.81	0.03	1.78	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
461	31.05	1.81	0.03	1.78	0.92	0.254	1.68	0.151	0.90	1.10	0.185	No
462	31.13	1.81	0.04	1.78	0.91	0.255	1.68	0.151	0.90	1.10	0.185	No
463	31.17	1.82	0.04	1.78	0.91	0.255	1.68	0.151	0.90	1.10	0.185	No
464	31.27	1.82	0.04	1.78	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
465	31.32	1.83	0.04	1.79	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
466	31.41	1.83	0.04	1.79	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
467	31.46	1.84	0.05	1.79	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
468	31.52	1.84	0.05	1.79	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
469	31.61	1.84	0.05	1.79	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
470	31.66	1.85	0.05	1.80	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
471	31.75	1.85	0.05	1.80	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
472	31.80	1.86	0.06	1.80	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
473	31.90	1.86	0.06	1.80	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
474	31.94	1.87	0.06	1.81	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
475	32.04	1.87	0.06	1.81	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
476	32.09	1.87	0.07	1.81	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
477	32.20	1.88	0.07	1.81	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
478	32.24	1.88	0.07	1.81	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
479	32.28	1.89	0.07	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
480	32.29	1.89	0.07	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	32.30	1.89	0.07	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
482	32.40	1.89	0.07	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
483	32.45	1.90	0.08	1.82	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
484	32.55	1.90	0.08	1.82	0.91	0.258	1.68	0.154	0.90	1.10	0.188	No
485	32.59	1.91	0.08	1.83	0.91	0.258	1.68	0.154	0.90	1.10	0.188	No
486	32.69	1.91	0.08	1.83	0.91	0.259	1.68	0.154	0.90	1.10	0.189	No
487	32.76	1.92	0.09	1.83	0.91	0.259	1.68	0.154	0.90	1.10	0.189	No
488	32.84	1.92	0.09	1.83	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
489	32.90	1.93	0.09	1.84	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
490	32.98	1.93	0.09	1.84	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
491	33.06	1.94	0.10	1.84	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
492	33.12	1.94	0.10	1.84	0.90	0.260	1.68	0.154	0.89	1.10	0.190	No
493	33.22	1.95	0.10	1.85	0.90	0.260	1.68	0.154	0.89	1.10	0.190	No
494	33.31	1.95	0.10	1.85	0.90	0.260	1.68	0.155	0.89	1.10	0.190	No
495	33.37	1.96	0.10	1.85	0.90	0.260	1.68	0.155	0.89	1.10	0.190	No
496	33.46	1.96	0.11	1.85	0.90	0.260	1.68	0.155	0.89	1.10	0.190	No
497	33.55	1.97	0.11	1.86	0.90	0.260	1.68	0.155	0.89	1.10	0.191	No
498	33.65	1.97	0.11	1.86	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
499	33.70	1.98	0.12	1.86	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
500	33.79	1.98	0.12	1.86	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
501	33.89	1.99	0.12	1.87	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
502	33.99	2.00	0.12	1.87	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
503	34.04	2.00	0.13	1.87	0.90	0.261	1.68	0.155	0.89	1.10	0.192	No
504	34.13	2.00	0.13	1.88	0.90	0.262	1.68	0.155	0.89	1.10	0.192	No
505	34.23	2.01	0.13	1.88	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
506	34.32	2.02	0.13	1.88	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
507	34.37	2.02	0.14	1.88	0.89	0.262	1.68	0.156	0.89	1.10	0.192	No
508	34.47	2.03	0.14	1.89	0.89	0.262	1.68	0.156	0.89	1.10	0.192	No
509	34.55	2.03	0.14	1.89	0.89	0.262	1.68	0.156	0.89	1.10	2.000	Yes
510	34.63	2.04	0.14	1.89	0.89	0.262	1.68	0.156	0.89	1.10	2.000	Yes
511	34.73	2.04	0.15	1.90	0.89	0.263	1.68	0.156	0.89	1.10	2.000	Yes
512	34.80	2.05	0.15	1.90	0.89	0.263	1.68	0.156	0.89	1.10	2.000	Yes
513	34.90	2.05	0.15	1.90	0.89	0.263	1.68	0.156	0.89	1.10	2.000	Yes
514	35.00	2.06	0.16	1.90	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
515	35.12	2.07	0.16	1.91	0.89	0.263	1.68	0.156	0.89	1.10	0.194	No
516	35.20	2.07	0.16	1.91	0.89	0.263	1.68	0.157	0.89	1.10	0.194	No
517	35.33	2.08	0.17	1.91	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
518	35.41	2.08	0.17	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
519	35.44	2.09	0.17	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
520	35.48	2.09	0.17	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
521	35.57	2.10	0.17	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
522	35.62	2.10	0.18	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
523	35.67	2.10	0.18	1.92	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
524	35.71	2.10	0.18	1.93	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
525	35.82	2.11	0.18	1.93	0.88	0.264	1.68	0.157	0.89	1.10	2.000	Yes
526	35.86	2.11	0.18	1.93	0.88	0.264	1.68	0.157	0.89	1.10	2.000	Yes
527	35.93	2.12	0.19	1.93	0.88	0.264	1.68	0.157	0.89	1.10	2.000	Yes
528	36.01	2.12	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	36.06	2.13	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
530	36.12	2.13	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	0.195	No
531	36.18	2.13	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	0.195	No
532	36.25	2.14	0.19	1.94	0.88	0.265	1.68	0.157	0.89	1.10	0.196	No
533	36.30	2.14	0.20	1.95	0.88	0.265	1.68	0.157	0.89	1.10	0.196	No
534	36.39	2.15	0.20	1.95	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
535	36.44	2.15	0.20	1.95	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
536	36.53	2.16	0.20	1.95	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
537	36.59	2.16	0.21	1.96	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
538	36.68	2.17	0.21	1.96	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
539	36.75	2.17	0.21	1.96	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
540	36.83	2.18	0.21	1.96	0.88	0.265	1.68	0.158	0.88	1.10	0.196	No
541	36.90	2.18	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
542	36.97	2.19	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
543	37.02	2.19	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
544	37.04	2.19	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
545	37.08	2.19	0.22	1.97	0.88	0.266	1.68	0.158	0.88	1.10	0.197	No
546	37.17	2.20	0.22	1.98	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
547	37.27	2.21	0.23	1.98	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
548	37.37	2.21	0.23	1.98	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
549	37.42	2.22	0.23	1.98	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
550	37.51	2.22	0.23	1.99	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
551	37.58	2.23	0.24	1.99	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
552	37.66	2.23	0.24	1.99	0.87	0.266	1.68	0.158	0.88	1.10	0.198	No
553	37.76	2.24	0.24	1.99	0.87	0.266	1.68	0.158	0.88	1.10	0.198	No
554	37.85	2.24	0.24	2.00	0.87	0.266	1.68	0.158	0.88	1.10	0.198	No
555	37.93	2.25	0.25	2.00	0.87	0.266	1.68	0.158	0.88	1.10	0.198	No
556	38.04	2.26	0.25	2.00	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
557	38.13	2.26	0.25	2.01	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
558	38.18	2.26	0.26	2.01	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
559	38.28	2.27	0.26	2.01	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
560	38.37	2.28	0.26	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
561	38.47	2.28	0.26	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
562	38.57	2.29	0.27	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
563	38.62	2.29	0.27	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
564	38.72	2.30	0.27	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
565	38.78	2.30	0.27	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
566	38.81	2.30	0.27	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
567	38.86	2.31	0.28	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
568	38.91	2.31	0.28	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
569	38.95	2.31	0.28	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
570	39.05	2.32	0.28	2.04	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
571	39.09	2.32	0.28	2.04	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
572	39.14	2.33	0.29	2.04	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
573	39.24	2.33	0.29	2.04	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
574	39.29	2.33	0.29	2.05	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
575	39.39	2.34	0.29	2.05	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
576	39.43	2.34	0.29	2.05	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	39.53	2.35	0.30	2.05	0.86	0.267	1.68	0.159	0.88	1.10	0.200	No
578	39.57	2.35	0.30	2.05	0.85	0.267	1.68	0.159	0.88	1.10	0.200	No
579	39.68	2.36	0.30	2.06	0.85	0.267	1.68	0.159	0.88	1.10	0.200	No
580	39.73	2.36	0.30	2.06	0.85	0.267	1.68	0.159	0.88	1.10	0.200	No
581	39.81	2.37	0.31	2.06	0.85	0.267	1.68	0.159	0.88	1.10	0.200	No
582	39.89	2.37	0.31	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
583	39.96	2.38	0.31	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
584	40.06	2.38	0.31	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
585	40.15	2.39	0.32	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
586	40.20	2.39	0.32	2.07	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
587	40.24	2.40	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
588	40.26	2.40	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
589	40.27	2.40	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
590	40.37	2.40	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
591	40.42	2.41	0.32	2.08	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
592	40.52	2.41	0.33	2.09	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
593	40.56	2.42	0.33	2.09	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
594	40.66	2.42	0.33	2.09	0.85	0.267	1.68	0.159	0.87	1.10	0.200	No
595	40.70	2.43	0.33	2.09	0.84	0.267	1.68	0.159	0.87	1.10	0.200	No
596	40.75	2.43	0.34	2.09	0.84	0.267	1.68	0.159	0.87	1.10	0.200	No
597	40.85	2.43	0.34	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.200	No
598	40.91	2.44	0.34	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
599	40.96	2.44	0.34	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
600	41.04	2.45	0.34	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
601	41.09	2.45	0.35	2.10	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
602	41.18	2.46	0.35	2.11	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
603	41.23	2.46	0.35	2.11	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
604	41.29	2.46	0.35	2.11	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
605	41.38	2.47	0.36	2.11	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
606	41.42	2.47	0.36	2.12	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
607	41.52	2.48	0.36	2.12	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
608	41.57	2.48	0.36	2.12	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
609	41.62	2.49	0.36	2.12	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
610	41.71	2.49	0.37	2.13	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
611	41.76	2.49	0.37	2.13	0.84	0.267	1.68	0.159	0.87	1.10	0.201	No
612	41.84	2.50	0.37	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
613	41.91	2.50	0.37	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
614	41.95	2.51	0.37	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
615	42.01	2.51	0.37	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
616	42.10	2.52	0.38	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
617	42.15	2.52	0.38	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
618	42.24	2.53	0.38	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
619	42.28	2.53	0.38	2.15	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
620	42.39	2.54	0.39	2.15	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
621	42.43	2.54	0.39	2.15	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
622	42.50	2.54	0.39	2.15	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
623	42.58	2.55	0.39	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
624	42.65	2.55	0.39	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	42.70	2.56	0.40	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
626	42.73	2.56	0.40	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
627	42.77	2.56	0.40	2.16	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
628	42.82	2.56	0.40	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
629	42.87	2.57	0.40	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
630	42.91	2.57	0.40	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
631	42.97	2.57	0.40	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
632	43.02	2.58	0.41	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
633	43.06	2.58	0.41	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
634	43.11	2.58	0.41	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
635	43.17	2.59	0.41	2.18	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
636	43.21	2.59	0.41	2.18	0.82	0.267	1.68	0.158	0.87	1.10	0.201	No
637	43.29	2.59	0.41	2.18	0.82	0.267	1.68	0.158	0.87	1.10	0.201	No
638	43.34	2.60	0.42	2.18	0.82	0.267	1.68	0.158	0.87	1.10	0.201	No
639	43.39	2.60	0.42	2.18	0.82	0.267	1.68	0.158	0.87	1.10	0.201	No
640	43.45	2.61	0.42	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
641	43.51	2.61	0.42	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
642	43.59	2.61	0.42	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
643	43.64	2.62	0.43	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
644	43.70	2.62	0.43	2.19	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
645	43.78	2.63	0.43	2.20	0.82	0.266	1.68	0.158	0.86	1.10	0.201	No
646	43.88	2.63	0.43	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
647	43.94	2.64	0.43	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
648	44.04	2.64	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
649	44.07	2.65	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
650	44.12	2.65	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
651	44.16	2.65	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
652	44.21	2.65	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
653	44.26	2.66	0.44	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
654	44.31	2.66	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
655	44.35	2.66	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
656	44.40	2.67	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
657	44.45	2.67	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
658	44.50	2.67	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
659	44.54	2.68	0.45	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
660	44.60	2.68	0.46	2.22	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
661	44.64	2.68	0.46	2.23	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
662	44.69	2.69	0.46	2.23	0.81	0.266	1.68	0.158	0.86	1.10	0.202	No
663	44.74	2.69	0.46	2.23	0.81	0.265	1.68	0.158	0.86	1.10	0.202	No
664	44.79	2.69	0.46	2.23	0.81	0.265	1.68	0.158	0.86	1.10	0.201	No
665	44.83	2.70	0.46	2.23	0.81	0.265	1.68	0.158	0.86	1.10	0.201	No
666	44.88	2.70	0.46	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
667	44.93	2.70	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
668	44.98	2.71	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
669	45.03	2.71	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
670	45.08	2.71	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
671	45.16	2.72	0.47	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
672	45.19	2.72	0.47	2.25	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	45.27	2.72	0.48	2.25	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
674	45.32	2.73	0.48	2.25	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
675	45.37	2.73	0.48	2.25	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
676	45.45	2.74	0.48	2.25	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
677	45.51	2.74	0.48	2.26	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
678	45.56	2.74	0.49	2.26	0.80	0.265	1.68	0.157	0.86	1.10	2.000	Yes
679	45.61	2.75	0.49	2.26	0.80	0.265	1.68	0.157	0.86	1.10	2.000	Yes
680	45.69	2.75	0.49	2.26	0.80	0.265	1.68	0.157	0.86	1.10	2.000	Yes
681	45.75	2.76	0.49	2.26	0.80	0.265	1.68	0.157	0.86	1.10	2.000	Yes
682	45.81	2.76	0.49	2.27	0.80	0.264	1.68	0.157	0.86	1.10	2.000	Yes
683	45.89	2.76	0.50	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
684	45.94	2.77	0.50	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
685	46.04	2.77	0.50	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
686	46.08	2.78	0.50	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
687	46.15	2.78	0.50	2.28	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
688	46.17	2.78	0.50	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
689	46.18	2.78	0.50	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
690	46.23	2.79	0.51	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
691	46.27	2.79	0.51	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
692	46.32	2.79	0.51	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
693	46.41	2.80	0.51	2.28	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
694	46.47	2.80	0.51	2.29	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
695	46.52	2.80	0.52	2.29	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
696	46.56	2.81	0.52	2.29	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
697	46.65	2.81	0.52	2.29	0.79	0.264	1.68	0.157	0.86	1.10	0.201	No
698	46.71	2.81	0.52	2.29	0.79	0.263	1.68	0.157	0.86	1.10	0.201	No
699	46.76	2.82	0.52	2.29	0.79	0.263	1.68	0.157	0.86	1.10	0.201	No
700	46.85	2.82	0.53	2.30	0.78	0.263	1.68	0.157	0.86	1.10	0.201	No
701	46.90	2.83	0.53	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
702	46.99	2.83	0.53	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
703	47.04	2.84	0.53	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
704	47.10	2.84	0.53	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
705	47.16	2.84	0.54	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
706	47.23	2.85	0.54	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
707	47.30	2.85	0.54	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
708	47.38	2.86	0.54	2.31	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
709	47.43	2.86	0.54	2.32	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
710	47.52	2.86	0.55	2.32	0.78	0.263	1.68	0.156	0.85	1.10	0.201	No
711	47.59	2.87	0.55	2.32	0.78	0.262	1.68	0.156	0.85	1.10	0.201	No
712	47.66	2.87	0.55	2.32	0.78	0.262	1.68	0.156	0.85	1.10	0.201	No
713	47.77	2.88	0.55	2.32	0.78	0.262	1.68	0.156	0.85	1.10	0.201	No
714	47.82	2.88	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
715	47.91	2.89	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
716	47.93	2.89	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
717	47.97	2.89	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
718	48.02	2.89	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
719	48.07	2.90	0.56	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No
720	48.12	2.90	0.57	2.33	0.77	0.262	1.68	0.156	0.85	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	48.19	2.90	0.57	2.34	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
722	48.23	2.91	0.57	2.34	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
723	48.31	2.91	0.57	2.34	0.77	0.262	1.68	0.155	0.85	1.10	0.200	No
724	48.35	2.91	0.57	2.34	0.77	0.262	1.68	0.155	0.85	1.10	0.200	No
725	48.40	2.92	0.57	2.34	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
726	48.45	2.92	0.58	2.34	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
727	48.50	2.92	0.58	2.34	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
728	48.55	2.92	0.58	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
729	48.59	2.93	0.58	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
730	48.67	2.93	0.58	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
731	48.73	2.93	0.58	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
732	48.78	2.94	0.59	2.35	0.77	0.261	1.68	0.155	0.85	1.10	0.200	No
733	48.83	2.94	0.59	2.35	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
734	48.91	2.94	0.59	2.35	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
735	48.98	2.95	0.59	2.36	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
736	49.03	2.95	0.59	2.36	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
737	49.12	2.96	0.60	2.36	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
738	49.17	2.96	0.60	2.36	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
739	49.27	2.97	0.60	2.36	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
740	49.31	2.97	0.60	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
741	49.38	2.97	0.60	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
742	49.45	2.98	0.61	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
743	49.51	2.98	0.61	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
744	49.54	2.98	0.61	2.37	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
745	49.59	2.98	0.61	2.37	0.76	0.260	1.68	0.154	0.85	1.10	0.200	No
746	49.64	2.99	0.61	2.37	0.76	0.260	1.68	0.154	0.85	1.10	0.200	No
747	49.73	2.99	0.62	2.38	0.76	0.260	1.68	0.154	0.85	1.10	0.200	No
748	49.83	3.00	0.62	2.38	0.75	0.260	1.68	0.154	0.85	1.10	0.200	No
749	49.92	3.00	0.62	2.38	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
750	49.98	3.01	0.62	2.38	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
751	50.07	3.01	0.63	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
752	50.16	3.02	0.63	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
753	50.24	3.02	0.63	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
754	50.32	3.03	0.63	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
755	50.41	3.03	0.64	2.39	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
756	50.50	3.04	0.64	2.40	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
757	50.56	3.04	0.64	2.40	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
758	50.66	3.04	0.64	2.40	0.75	0.258	1.68	0.154	0.85	1.10	0.199	No
759	50.74	3.05	0.65	2.40	0.75	0.258	1.68	0.153	0.85	1.10	0.199	No
760	50.84	3.05	0.65	2.40	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
761	50.93	3.06	0.65	2.41	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
762	50.98	3.06	0.65	2.41	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
763	51.08	3.07	0.66	2.41	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
764	51.17	3.07	0.66	2.41	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
765	51.24	3.08	0.66	2.42	0.74	0.257	1.68	0.153	0.85	1.10	0.199	No
766	51.34	3.09	0.67	2.42	0.74	0.257	1.68	0.153	0.85	1.10	0.199	No
767	51.41	3.09	0.67	2.42	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No
768	51.51	3.10	0.67	2.42	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	51.58	3.10	0.67	2.43	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No
770	51.68	3.11	0.68	2.43	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No
771	51.79	3.11	0.68	2.43	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
772	51.82	3.11	0.68	2.43	0.73	0.257	1.68	0.152	0.85	1.10	0.198	No
773	51.85	3.12	0.68	2.43	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
774	51.91	3.12	0.68	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
775	52.00	3.13	0.69	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
776	52.05	3.13	0.69	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
777	52.10	3.13	0.69	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
778	52.19	3.14	0.69	2.44	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
779	52.28	3.14	0.70	2.45	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
780	52.34	3.15	0.70	2.45	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
781	52.42	3.15	0.70	2.45	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
782	52.48	3.15	0.70	2.45	0.73	0.255	1.68	0.152	0.85	1.10	0.198	No
783	52.57	3.16	0.70	2.46	0.73	0.255	1.68	0.152	0.84	1.10	0.198	No
784	52.62	3.16	0.71	2.46	0.73	0.255	1.68	0.152	0.84	1.10	0.198	No
785	52.69	3.17	0.71	2.46	0.73	0.255	1.68	0.152	0.84	1.10	0.197	No
786	52.77	3.17	0.71	2.46	0.72	0.255	1.68	0.152	0.84	1.10	0.197	No
787	52.87	3.18	0.71	2.46	0.72	0.255	1.68	0.151	0.84	1.10	0.197	No
788	52.91	3.18	0.71	2.47	0.72	0.255	1.68	0.151	0.84	1.10	0.197	No
789	53.01	3.19	0.72	2.47	0.72	0.255	1.68	0.151	0.84	1.10	0.197	No
790	53.10	3.19	0.72	2.47	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
791	53.16	3.20	0.72	2.47	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
792	53.25	3.20	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
793	53.29	3.20	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
794	53.38	3.21	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
795	53.42	3.21	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
796	53.47	3.22	0.73	2.48	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
797	53.52	3.22	0.73	2.49	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
798	53.58	3.22	0.74	2.49	0.72	0.254	1.68	0.151	0.84	1.10	0.197	No
799	53.66	3.23	0.74	2.49	0.72	0.253	1.68	0.151	0.84	1.10	0.197	No
800	53.75	3.23	0.74	2.49	0.72	0.253	1.68	0.151	0.84	1.10	0.197	No
801	53.81	3.24	0.74	2.50	0.71	0.253	1.68	0.151	0.84	1.10	0.197	No
802	53.87	3.24	0.74	2.50	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
803	53.95	3.25	0.75	2.50	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
804	54.01	3.25	0.75	2.50	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
805	54.06	3.26	0.75	2.50	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
806	54.15	3.26	0.75	2.51	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
807	54.20	3.26	0.76	2.51	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
808	54.29	3.27	0.76	2.51	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
809	54.34	3.27	0.76	2.51	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
810	54.43	3.28	0.76	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
811	54.45	3.28	0.76	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
812	54.48	3.28	0.76	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
813	54.52	3.28	0.76	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
814	54.53	3.29	0.77	2.52	0.71	0.252	1.68	0.150	0.84	1.10	2.000	Yes
815	54.58	3.29	0.77	2.52	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
816	54.62	3.29	0.77	2.52	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	54.65	3.29	0.77	2.52	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
818	54.70	3.30	0.77	2.53	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
819	54.76	3.30	0.77	2.53	0.71	0.252	1.68	0.149	0.84	1.10	0.196	No
820	54.77	3.30	0.77	2.53	0.71	0.251	1.68	0.149	0.84	1.10	0.196	No
821	54.82	3.30	0.77	2.53	0.71	0.251	1.68	0.149	0.84	1.10	0.196	No
822	54.87	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
823	54.88	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
824	54.91	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
825	54.96	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
826	54.97	3.31	0.78	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.196	No
827	55.03	3.32	0.78	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
828	55.09	3.32	0.78	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
829	55.15	3.33	0.78	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
830	55.20	3.33	0.79	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
831	55.25	3.33	0.79	2.54	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
832	55.30	3.34	0.79	2.55	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
833	55.34	3.34	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
834	55.39	3.34	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
835	55.40	3.34	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
836	55.44	3.34	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
837	55.44	3.35	0.79	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
838	55.49	3.35	0.80	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
839	55.54	3.35	0.80	2.56	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
840	55.59	3.36	0.80	2.56	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
841	55.63	3.36	0.80	2.56	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
842	55.64	3.36	0.80	2.56	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
843	55.68	3.36	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
844	55.69	3.36	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
845	55.69	3.36	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
846	55.71	3.36	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
847	55.76	3.37	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
848	55.78	3.37	0.80	2.56	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
849	55.81	3.37	0.81	2.57	0.70	0.250	1.68	0.148	0.84	1.10	0.195	No
850	55.85	3.37	0.81	2.57	0.70	0.249	1.68	0.148	0.84	1.10	0.195	No
851	55.86	3.37	0.81	2.57	0.70	0.249	1.68	0.148	0.84	1.10	0.195	No
852	55.91	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
853	55.92	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
854	55.96	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
855	55.97	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
856	56.00	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
857	56.01	3.38	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
858	56.03	3.39	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
859	56.05	3.39	0.81	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
860	56.10	3.39	0.81	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
861	56.12	3.39	0.81	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
862	56.16	3.39	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
863	56.17	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
864	56.20	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	56.22	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
866	56.24	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
867	56.30	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
868	56.31	3.40	0.82	2.58	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
869	56.34	3.41	0.82	2.59	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
870	56.39	3.41	0.82	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
871	56.45	3.41	0.83	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
872	56.48	3.42	0.83	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
873	56.49	3.42	0.83	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
874	56.53	3.42	0.83	2.59	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
875	56.58	3.42	0.83	2.59	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
876	56.63	3.43	0.83	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
877	56.68	3.43	0.83	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
878	56.73	3.43	0.83	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
879	56.78	3.44	0.84	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
880	56.83	3.44	0.84	2.60	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
881	56.89	3.44	0.84	2.61	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
882	56.95	3.45	0.84	2.61	0.69	0.247	1.68	0.147	0.83	1.10	0.194	No
883	56.99	3.45	0.84	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
884	57.01	3.45	0.84	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
885	57.04	3.45	0.84	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
886	57.09	3.46	0.85	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
887	57.11	3.46	0.85	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
888	57.13	3.46	0.85	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
889	57.18	3.46	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
890	57.19	3.46	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
891	57.21	3.47	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
892	57.24	3.47	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.194	No
893	57.28	3.47	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
894	57.32	3.47	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
895	57.35	3.48	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
896	57.38	3.48	0.85	2.62	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
897	57.43	3.48	0.86	2.63	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
898	57.48	3.48	0.86	2.63	0.68	0.246	1.68	0.147	0.83	1.10	0.193	No
899	57.52	3.49	0.86	2.63	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
900	57.57	3.49	0.86	2.63	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
901	57.62	3.49	0.86	2.63	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
902	57.68	3.50	0.86	2.63	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
903	57.76	3.50	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
904	57.81	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
905	57.86	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
906	57.89	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
907	57.91	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
908	57.92	3.51	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
909	57.95	3.52	0.87	2.64	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
910	57.99	3.52	0.87	2.65	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
911	58.01	3.52	0.87	2.65	0.68	0.245	1.68	0.146	0.83	1.10	0.193	No
912	58.05	3.52	0.88	2.65	0.68	0.245	1.68	0.146	0.83	1.10	0.193	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	58.05	3.52	0.88	2.65	0.68	0.245	1.68	0.146	0.83	1.10	0.193	No
914	58.10	3.53	0.88	2.65	0.68	0.245	1.68	0.146	0.83	1.10	0.193	No
915	58.13	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
916	58.15	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
917	58.17	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
918	58.20	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
919	58.21	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
920	58.21	3.53	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
921	58.23	3.54	0.88	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
922	58.24	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
923	58.25	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
924	58.29	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
925	58.31	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
926	58.33	3.54	0.88	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
927	58.38	3.55	0.89	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
928	58.39	3.55	0.89	2.66	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
929	58.43	3.55	0.89	2.66	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
930	58.43	3.55	0.89	2.66	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
931	58.48	3.55	0.89	2.66	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
932	58.53	3.56	0.89	2.67	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
933	58.56	3.56	0.89	2.67	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
934	58.58	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
935	58.59	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
936	58.63	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
937	58.63	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
938	58.63	3.56	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
939	58.68	3.57	0.89	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
940	58.69	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
941	58.72	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
942	58.73	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
943	58.74	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
944	58.77	3.57	0.90	2.67	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
945	58.81	3.57	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
946	58.82	3.57	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
947	58.83	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
948	58.87	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
949	58.91	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
950	58.92	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
951	58.93	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
952	58.96	3.58	0.90	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
953	59.01	3.59	0.91	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
954	59.06	3.59	0.91	2.68	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
955	59.08	3.59	0.91	2.69	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
956	59.11	3.59	0.91	2.69	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
957	59.15	3.60	0.91	2.69	0.67	0.243	1.68	0.145	0.83	1.10	0.192	No
958	59.21	3.60	0.91	2.69	0.67	0.243	1.68	0.145	0.83	1.10	0.192	No
959	59.26	3.60	0.91	2.69	0.67	0.243	1.68	0.145	0.83	1.10	0.192	No
960	59.30	3.61	0.91	2.69	0.66	0.243	1.68	0.145	0.83	1.10	0.192	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	59.35	3.61	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.192	No
962	59.40	3.61	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.192	No
963	59.42	3.62	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.192	No
964	59.47	3.62	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.192	No
965	59.51	3.62	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
966	59.56	3.63	0.92	2.70	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
967	59.61	3.63	0.92	2.71	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
968	59.67	3.63	0.93	2.71	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
969	59.71	3.64	0.93	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
970	59.80	3.64	0.93	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
971	59.85	3.65	0.93	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
972	59.90	3.65	0.93	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
973	60.00	3.65	0.94	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
974	60.04	3.66	0.94	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
975	60.10	3.66	0.94	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
976	60.15	3.67	0.94	2.72	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
977	60.19	3.67	0.94	2.73	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
978	60.23	3.67	0.94	2.73	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
979	60.28	3.67	0.94	2.73	0.66	0.241	1.68	0.144	0.83	1.10	0.191	No
980	60.33	3.68	0.95	2.73	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
981	60.38	3.68	0.95	2.73	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
982	60.42	3.68	0.95	2.73	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
983	60.44	3.68	0.95	2.73	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
984	60.47	3.69	0.95	2.74	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
985	60.52	3.69	0.95	2.74	0.66	0.241	1.68	0.143	0.83	1.10	0.191	No
986	60.56	3.69	0.95	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
987	60.57	3.69	0.95	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
988	60.61	3.70	0.96	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
989	60.66	3.70	0.96	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
990	60.71	3.70	0.96	2.74	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
991	60.76	3.71	0.96	2.75	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
992	60.81	3.71	0.96	2.75	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
993	60.86	3.71	0.96	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
994	60.91	3.72	0.96	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
995	60.95	3.72	0.97	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
996	61.00	3.72	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
997	61.02	3.72	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
998	61.05	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
999	61.08	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1000	61.09	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1001	61.13	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1002	61.14	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1003	61.16	3.73	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1004	61.20	3.74	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1005	61.23	3.74	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1006	61.24	3.74	0.97	2.76	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
1007	61.29	3.74	0.98	2.77	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
1008	61.30	3.74	0.98	2.77	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	61.33	3.75	0.98	2.77	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
1010	61.38	3.75	0.98	2.77	0.65	0.240	1.68	0.142	0.82	1.10	0.190	No
1011	61.43	3.75	0.98	2.77	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1012	61.48	3.76	0.98	2.77	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1013	61.53	3.76	0.98	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1014	61.56	3.76	0.98	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1015	61.58	3.76	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1016	61.59	3.76	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1017	61.62	3.76	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1018	61.63	3.77	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1019	61.67	3.77	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1020	61.71	3.77	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1021	61.76	3.77	0.99	2.78	0.65	0.239	1.68	0.142	0.82	1.10	0.190	No
1022	61.81	3.78	0.99	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1023	61.86	3.78	0.99	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1024	61.87	3.78	0.99	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1025	61.91	3.78	1.00	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1026	61.95	3.79	1.00	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1027	61.96	3.79	1.00	2.79	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
1028	62.00	3.79	1.00	2.79	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1029	62.04	3.79	1.00	2.79	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1030	62.06	3.79	1.00	2.79	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1031	62.10	3.80	1.00	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1032	62.14	3.80	1.00	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1033	62.20	3.80	1.00	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1034	62.22	3.80	1.01	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1035	62.27	3.81	1.01	2.80	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
1036	62.29	3.81	1.01	2.80	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1037	62.34	3.81	1.01	2.80	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1038	62.39	3.82	1.01	2.81	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1039	62.43	3.82	1.01	2.81	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1040	62.49	3.82	1.01	2.81	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1041	62.57	3.83	1.02	2.81	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
1042	62.68	3.84	1.02	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1043	62.75	3.84	1.02	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1044	62.87	3.85	1.03	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1045	62.88	3.85	1.03	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1046	62.89	3.85	1.03	2.82	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1047	62.93	3.85	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1048	62.98	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1049	63.02	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
1050	63.07	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.188	No
1051	63.12	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.188	No
1052	63.14	3.86	1.03	2.83	0.64	0.237	1.68	0.141	0.82	1.10	0.188	No
1053	63.17	3.87	1.03	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1054	63.17	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1055	63.20	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1056	63.21	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1057	63.23	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1058	63.26	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1059	63.28	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1060	63.31	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1061	63.32	3.87	1.04	2.83	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
1062	63.36	3.87	1.04	2.83	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
1063	63.40	3.88	1.04	2.83	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.01	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
2	0.04	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
3	0.09	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
4	0.11	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
5	0.14	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
6	0.14	1.35	3.66	4.59	1.00	2.15	27.82	59.81	4.000	No	Yes	2.00
7	0.18	6.97	2.69	0.89	0.81	11.19	4.58	51.24	4.000	No	Yes	2.00
8	0.23	18.19	2.14	0.35	0.65	29.21	1.00	29.21	4.000	No	No	2.00
9	0.24	36.79	1.76	0.18	0.54	59.09	1.00	59.09	4.000	No	No	2.00
10	0.28	53.07	1.58	0.14	0.50	85.23	1.00	85.23	4.000	No	No	2.00
11	0.33	59.27	1.53	0.14	0.50	95.19	1.00	95.19	4.000	No	No	2.00
12	0.38	56.61	1.60	0.20	0.50	90.91	1.00	90.91	4.000	No	No	2.00
13	0.42	52.11	1.72	0.34	0.52	83.69	1.00	83.69	4.000	No	No	2.00
14	0.47	51.84	1.83	0.58	0.56	83.25	1.19	98.77	4.000	No	No	2.00
15	0.51	51.94	1.90	0.76	0.58	83.40	1.24	103.16	4.000	No	No	2.00
16	0.52	52.09	1.93	0.85	0.59	83.64	1.26	104.99	4.000	No	No	2.00
17	0.57	52.66	1.91	0.81	0.58	84.56	1.24	105.20	4.000	No	No	2.00
18	0.61	53.24	1.89	0.76	0.58	85.48	1.23	105.23	4.000	No	No	2.00
19	0.67	53.47	1.88	0.73	0.57	85.85	1.22	105.00	4.000	No	No	2.00
20	0.73	53.84	1.87	0.71	0.57	86.44	1.22	105.23	4.000	No	No	2.00
21	0.81	53.62	1.87	0.71	0.57	86.08	1.22	104.72	4.000	No	No	2.00
22	0.86	53.52	1.92	0.84	0.58	85.91	1.25	107.16	4.000	No	No	2.00
23	0.98	52.14	1.96	0.96	0.60	83.69	1.28	106.78	4.000	No	No	2.00
24	1.05	48.22	2.02	1.08	0.61	77.37	1.32	102.42	4.000	No	No	2.00
25	1.15	43.67	2.04	1.03	0.62	70.05	1.34	94.07	4.000	No	No	2.00
26	1.24	37.87	2.07	0.96	0.63	60.73	1.38	83.84	4.000	No	No	2.00
27	1.34	34.47	2.09	0.89	0.63	55.26	1.40	77.37	4.000	No	No	2.00
28	1.43	30.63	2.16	0.99	0.65	49.08	1.51	74.33	4.000	No	No	2.00
29	1.53	26.86	2.25	1.20	0.68	43.01	1.75	75.37	4.000	No	No	2.00
30	1.58	24.56	2.31	1.36	0.70	39.32	1.98	77.68	4.000	No	No	2.00
31	1.62	23.48	2.32	1.31	0.70	37.59	2.00	75.15	4.000	No	No	2.00
32	1.67	24.36	2.28	1.18	0.69	38.99	1.85	72.19	4.000	No	No	2.00
33	1.75	23.89	2.28	1.15	0.69	38.23	1.86	70.99	4.000	No	No	2.00
34	1.77	23.08	2.30	1.17	0.70	36.93	1.92	70.79	4.000	No	No	2.00
35	1.81	21.50	2.34	1.25	0.71	34.38	2.08	71.55	4.000	No	No	2.00
36	1.86	19.71	2.39	1.32	0.72	31.51	2.30	72.37	4.000	No	No	2.00
37	1.91	17.96	2.43	1.37	0.74	28.69	2.52	72.24	4.000	No	No	2.00
38	1.95	16.98	2.43	1.26	0.74	27.11	2.53	68.54	4.000	No	No	2.00
39	2.00	16.21	2.41	1.09	0.73	25.86	2.43	62.85	4.000	No	No	2.00
40	2.05	14.89	2.41	0.93	0.73	23.75	2.42	57.52	4.000	Yes	No	2.00
41	2.11	13.51	2.43	0.88	0.74	21.52	2.55	54.95	4.000	Yes	No	2.00
42	2.20	12.33	2.47	0.89	0.75	19.62	2.79	54.76	4.000	Yes	No	2.00
43	2.24	11.73	2.50	0.95	0.76	18.64	3.01	56.15	4.000	Yes	No	2.00
44	2.29	11.26	2.54	1.06	0.77	17.88	3.29	58.85	4.000	Yes	No	2.00
45	2.34	11.32	2.60	1.39	0.79	17.99	3.76	67.59	4.000	Yes	Yes	2.00
46	2.44	12.17	2.61	1.64	0.79	19.33	3.86	74.63	4.000	Yes	Yes	2.00
47	2.48	14.56	2.56	1.73	0.78	23.17	3.43	79.44	4.000	Yes	No	2.00
48	2.58	18.03	2.47	1.60	0.75	28.74	2.75	79.05	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	2.63	22.41	2.37	1.48	0.72	35.77	2.21	79.01	4.000	Yes	No	2.00
50	2.71	26.08	2.30	1.39	0.70	41.66	1.92	80.03	4.000	Yes	No	2.00
51	2.78	30.33	2.22	1.27	0.67	48.48	1.67	80.89	4.000	Yes	No	2.00
52	2.82	33.73	2.16	1.16	0.66	53.95	1.52	82.21	4.000	Yes	No	2.00
53	2.89	34.94	2.13	1.09	0.65	55.89	1.47	82.24	4.000	Yes	No	2.00
54	2.96	33.63	2.16	1.13	0.65	53.77	1.51	81.39	4.000	No	No	2.00
55	3.03	30.90	2.20	1.21	0.67	49.37	1.62	80.00	4.000	No	No	2.00
56	3.11	28.98	2.23	1.23	0.68	46.28	1.70	78.46	4.000	No	No	2.00
57	3.19	26.45	2.26	1.23	0.69	42.22	1.79	75.65	4.000	No	No	2.00
58	3.25	23.52	2.31	1.27	0.70	37.50	1.97	73.87	4.000	No	No	2.00
59	3.35	20.49	2.38	1.38	0.72	32.62	2.28	74.42	4.000	No	No	2.00
60	3.41	17.79	2.44	1.42	0.74	28.29	2.60	73.49	4.000	No	No	2.00
61	3.50	15.91	2.46	1.31	0.75	25.25	2.74	69.10	4.000	No	No	2.00
62	3.59	14.83	2.45	1.11	0.74	23.51	2.66	62.63	4.000	No	No	2.00
63	3.69	14.59	2.43	0.99	0.74	23.12	2.55	58.90	4.000	No	No	2.00
64	3.79	15.20	2.39	0.89	0.73	24.09	2.35	56.48	4.000	No	No	2.00
65	3.88	16.54	2.34	0.81	0.71	26.24	2.09	54.78	4.000	No	No	2.00
66	3.97	19.14	2.27	0.75	0.69	30.40	1.82	55.25	4.000	No	No	2.00
67	4.07	20.82	2.26	0.82	0.68	33.10	1.77	58.69	4.000	No	No	2.00
68	4.14	23.49	2.22	0.86	0.67	37.37	1.67	62.38	4.000	No	No	2.00
69	4.17	25.51	2.20	0.89	0.67	40.62	1.61	65.25	4.000	No	No	2.00
70	4.26	28.14	2.15	0.86	0.65	44.83	1.51	67.83	4.000	No	No	2.00
71	4.32	28.71	2.16	0.90	0.66	45.74	1.52	69.43	4.000	No	No	2.00
72	4.37	28.10	2.18	0.95	0.66	44.77	1.56	69.94	4.000	No	No	2.00
73	4.42	26.62	2.21	1.02	0.67	42.38	1.65	69.93	4.000	No	No	2.00
74	4.51	25.07	2.24	1.05	0.68	39.88	1.74	69.30	4.000	No	No	2.00
75	4.61	23.68	2.27	1.07	0.69	37.65	1.82	68.42	4.000	No	No	2.00
76	4.65	22.37	2.29	1.08	0.70	35.53	1.90	67.38	4.000	No	No	2.00
77	4.74	21.09	2.32	1.11	0.70	33.47	2.00	67.06	4.000	No	No	2.00
78	4.80	20.48	2.33	1.11	0.71	32.49	2.05	66.55	4.000	No	No	2.00
79	4.89	20.04	2.34	1.12	0.71	31.78	2.09	66.46	4.000	No	No	2.00
80	4.95	20.38	2.33	1.10	0.71	32.32	2.05	66.20	4.000	No	No	2.00
81	5.04	21.05	2.31	1.07	0.70	33.39	1.97	65.92	4.000	No	No	2.00
82	5.13	22.81	2.27	0.99	0.69	36.20	1.80	65.26	4.000	No	No	2.00
83	5.18	25.27	2.20	0.90	0.67	40.14	1.63	65.28	4.000	No	No	2.00
84	5.28	28.07	2.14	0.82	0.65	44.63	1.49	66.64	4.000	No	No	2.00
85	5.32	31.47	2.09	0.76	0.63	50.09	1.40	70.04	4.000	No	No	2.00
86	5.42	34.67	2.05	0.75	0.62	55.23	1.35	74.62	4.000	No	No	2.00
87	5.51	38.14	2.01	0.74	0.61	60.80	1.31	79.86	4.000	No	No	2.00
88	5.60	41.28	1.94	0.63	0.59	65.83	1.26	83.18	4.000	No	No	2.00
89	5.66	44.24	1.88	0.53	0.57	70.58	1.22	86.14	4.000	No	No	2.00
90	5.76	45.86	1.83	0.46	0.56	73.17	1.00	73.17	4.000	No	No	2.00
91	5.85	44.91	1.86	0.50	0.57	71.65	1.21	86.53	4.000	No	No	2.00
92	5.92	41.11	1.92	0.56	0.58	65.53	1.25	81.79	4.000	No	No	2.00
93	5.95	38.21	1.96	0.61	0.60	60.87	1.28	77.76	4.000	No	No	2.00
94	5.97	36.15	1.99	0.64	0.61	57.56	1.30	74.97	4.000	No	No	2.00
95	6.02	35.37	2.01	0.65	0.61	56.31	1.31	73.90	4.000	Yes	No	2.00
96	6.06	32.74	2.05	0.70	0.62	52.08	1.36	70.59	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	6.16	29.98	2.10	0.76	0.64	47.63	1.42	67.87	4.000	Yes	No	2.00
98	6.21	26.98	2.18	0.88	0.66	42.82	1.56	66.83	4.000	Yes	No	2.00
99	6.26	24.29	2.26	1.07	0.69	38.48	1.79	68.74	4.000	Yes	No	2.00
100	6.31	21.62	2.36	1.35	0.72	34.19	2.18	74.63	4.000	Yes	No	2.00
101	6.40	19.23	2.46	1.68	0.75	30.34	2.70	82.06	4.000	Yes	No	2.00
102	6.44	16.91	2.56	2.09	0.78	26.60	3.43	91.18	4.000	Yes	No	2.00
103	6.52	15.12	2.64	2.48	0.80	23.73	4.16	98.65	4.000	Yes	Yes	2.00
104	6.57	13.47	2.73	2.91	0.83	21.08	5.01	105.63	4.000	Yes	Yes	2.00
105	6.64	12.16	2.80	3.29	0.85	18.96	5.81	110.19	4.000	Yes	Yes	2.00
106	6.69	10.98	2.86	3.65	0.87	17.06	6.65	113.46	4.000	Yes	Yes	2.00
107	6.78	10.34	2.90	3.84	0.88	16.02	7.15	114.49	4.000	Yes	Yes	2.00
108	6.83	9.90	2.91	3.84	0.88	15.31	7.38	112.96	4.000	Yes	Yes	2.00
109	6.92	9.60	2.92	3.75	0.88	14.82	7.45	110.37	4.000	No	Yes	2.00
110	6.97	9.39	2.91	3.59	0.88	14.48	7.39	107.07	4.000	No	Yes	2.00
111	7.03	9.29	2.91	3.50	0.88	14.32	7.35	105.27	4.000	No	Yes	2.00
112	7.12	9.32	2.90	3.42	0.88	14.36	7.25	104.07	4.000	No	Yes	2.00
113	7.22	9.39	2.90	3.38	0.88	14.46	7.17	103.64	4.000	No	Yes	2.00
114	7.27	9.52	2.89	3.37	0.88	14.66	7.09	103.89	4.000	No	Yes	2.00
115	7.36	9.65	2.89	3.41	0.87	14.86	7.06	104.93	4.000	No	Yes	2.00
116	7.43	9.75	2.89	3.48	0.88	15.01	7.08	106.34	4.000	No	Yes	2.00
117	7.50	9.78	2.90	3.56	0.88	15.06	7.16	107.82	4.000	No	Yes	2.00
118	7.59	9.77	2.90	3.61	0.88	15.04	7.22	108.69	4.000	No	Yes	2.00
119	7.64	9.70	2.91	3.69	0.88	14.93	7.34	109.64	4.000	No	Yes	2.00
120	7.75	9.63	2.92	3.75	0.88	14.81	7.46	110.40	4.000	No	Yes	2.00
121	7.79	9.70	2.92	3.76	0.88	14.91	7.43	110.74	4.000	No	Yes	2.00
122	7.89	9.97	2.90	3.67	0.88	15.33	7.19	110.22	4.000	No	Yes	2.00
123	7.99	10.24	2.88	3.59	0.87	15.76	6.97	109.89	4.000	No	Yes	2.00
124	8.04	10.34	2.88	3.62	0.87	15.91	6.96	110.71	4.000	No	Yes	2.00
125	8.13	10.31	2.89	3.67	0.87	15.85	7.03	111.39	4.000	No	Yes	2.00
126	8.23	10.27	2.84	3.03	0.86	15.79	6.35	100.23	4.000	No	Yes	2.00
127	8.32	10.27	2.79	2.55	0.85	15.77	5.78	91.18	4.000	No	Yes	2.00
128	8.37	10.53	2.76	2.28	0.84	16.20	5.34	86.47	4.000	No	Yes	2.00
129	8.46	11.04	2.79	2.79	0.85	17.00	5.74	97.61	4.000	No	Yes	2.00
130	8.56	11.30	2.82	3.16	0.85	17.42	6.05	105.35	4.000	No	Yes	2.00
131	8.59	11.30	2.84	3.44	0.86	17.41	6.35	110.51	4.000	No	Yes	2.00
132	8.61	11.03	2.87	3.69	0.87	16.97	6.71	113.97	4.000	No	Yes	2.00
133	8.67	10.89	2.88	3.88	0.87	16.75	6.98	116.82	4.000	No	Yes	2.00
134	8.71	10.69	2.90	4.05	0.88	16.41	7.24	118.78	4.000	No	Yes	2.00
135	8.72	10.51	2.92	4.18	0.88	16.13	7.46	120.30	4.000	No	Yes	2.00
136	8.78	10.44	2.92	4.25	0.89	16.02	7.56	121.13	4.000	No	Yes	2.00
137	8.80	10.44	2.93	4.28	0.89	16.02	7.59	121.54	4.000	No	Yes	2.00
138	8.86	10.44	2.93	4.29	0.89	16.01	7.60	121.62	4.000	No	Yes	2.00
139	8.90	10.55	2.92	4.29	0.88	16.17	7.55	122.08	4.000	No	Yes	2.00
140	8.95	10.68	2.92	4.30	0.88	16.39	7.49	122.77	4.000	No	Yes	2.00
141	8.96	10.89	2.91	4.30	0.88	16.71	7.39	123.54	4.000	No	Yes	2.00
142	9.00	11.05	2.91	4.31	0.88	16.98	7.33	124.43	4.000	No	Yes	2.00
143	9.05	11.29	2.90	4.33	0.88	17.35	7.24	125.55	4.000	No	Yes	2.00
144	9.09	11.56	2.89	4.31	0.88	17.78	7.10	126.26	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	9.10	11.96	2.88	4.27	0.87	18.43	6.89	127.03	4.000	No	Yes	2.00
146	9.14	12.47	2.86	4.24	0.87	19.24	6.66	128.15	4.000	No	Yes	2.00
147	9.20	13.21	2.84	4.16	0.86	20.42	6.33	129.23	4.000	No	Yes	2.00
148	9.24	14.09	2.81	4.06	0.85	21.83	5.95	129.98	4.000	No	Yes	2.00
149	9.29	15.03	2.78	3.93	0.84	23.34	5.57	129.97	4.000	No	Yes	2.00
150	9.31	15.90	2.75	3.85	0.83	24.74	5.28	130.54	4.000	No	Yes	2.00
151	9.38	16.61	2.73	3.79	0.83	25.88	5.06	130.87	4.000	Yes	Yes	2.00
152	9.41	17.32	2.71	3.66	0.82	27.00	4.80	129.53	4.000	Yes	Yes	2.00
153	9.47	18.02	2.68	3.45	0.81	28.13	4.48	126.15	4.000	Yes	Yes	2.00
154	9.53	19.33	2.62	3.03	0.79	30.23	3.91	118.10	4.000	Yes	Yes	2.00
155	9.62	21.08	2.54	2.58	0.77	33.03	3.29	108.83	4.000	Yes	No	2.00
156	9.67	23.71	2.45	2.07	0.74	36.88	2.63	97.08	4.000	Yes	No	2.00
157	9.77	26.25	2.37	1.72	0.72	39.96	2.22	88.55	4.000	Yes	No	2.00
158	9.81	28.83	2.29	1.42	0.70	43.12	1.89	81.52	4.000	Yes	No	2.00
159	9.90	30.67	2.24	1.23	0.68	45.16	1.72	77.57	4.000	Yes	No	2.00
160	9.97	32.26	2.20	1.11	0.67	46.92	1.61	75.55	4.000	Yes	No	2.00
161	10.06	32.63	2.20	1.11	0.67	47.13	1.61	75.67	4.000	No	No	2.00
162	10.20	32.13	2.22	1.20	0.68	46.19	1.68	77.59	4.000	Yes	No	2.00
163	10.30	29.29	2.26	1.22	0.69	42.06	1.79	75.15	4.000	Yes	No	2.00
164	10.44	25.52	2.33	1.34	0.71	36.67	2.06	75.52	4.000	Yes	No	2.00
165	10.54	20.70	2.45	1.61	0.74	30.03	2.66	79.87	4.000	Yes	No	2.00
166	10.63	16.56	2.64	2.51	0.80	24.49	4.08	99.92	4.000	Yes	Yes	2.00
167	10.74	13.83	2.78	3.48	0.84	20.66	5.64	116.62	4.000	Yes	Yes	2.00
168	10.78	12.62	2.86	4.22	0.87	18.99	6.71	127.39	4.000	Yes	Yes	2.00
169	10.83	12.48	2.88	4.44	0.87	18.76	6.96	130.59	4.000	Yes	Yes	2.00
170	10.88	12.31	2.90	4.63	0.88	18.47	7.21	133.16	4.000	Yes	Yes	2.00
171	10.89	12.15	2.92	4.89	0.88	18.24	7.50	136.86	4.000	Yes	Yes	2.00
172	10.97	12.25	2.93	5.04	0.89	18.30	7.62	139.36	4.000	No	Yes	2.00
173	11.02	12.48	2.93	5.14	0.89	18.59	7.62	141.70	4.000	No	Yes	2.00
174	11.07	12.79	2.92	5.12	0.88	18.96	7.51	142.37	4.000	No	Yes	2.00
175	11.11	13.06	2.91	5.11	0.88	19.28	7.42	143.00	4.000	No	Yes	2.00
176	11.16	13.39	2.91	5.09	0.88	19.70	7.30	143.71	4.000	No	Yes	2.00
177	11.21	13.76	2.90	5.09	0.88	20.15	7.19	144.81	4.000	No	Yes	2.00
178	11.26	14.14	2.89	5.11	0.88	20.62	7.10	146.37	4.000	No	Yes	2.00
179	11.30	14.37	2.89	5.20	0.88	20.90	7.10	148.42	4.000	No	Yes	2.00
180	11.36	14.54	2.90	5.29	0.88	21.07	7.14	150.43	4.000	No	Yes	2.00
181	11.40	14.68	2.90	5.36	0.88	21.19	7.17	151.92	4.000	No	Yes	2.00
182	11.45	14.81	2.90	5.40	0.88	21.32	7.18	152.97	4.000	No	Yes	2.00
183	11.50	15.04	2.89	5.41	0.88	21.57	7.12	153.64	4.000	No	Yes	2.00
184	11.55	15.31	2.89	5.41	0.88	21.86	7.06	154.44	4.000	No	Yes	2.00
185	11.60	15.85	2.88	5.35	0.87	22.53	6.88	155.07	4.000	No	Yes	2.00
186	11.66	16.56	2.86	5.25	0.87	23.39	6.63	155.14	4.000	No	Yes	2.00
187	11.74	17.40	2.84	5.06	0.86	24.38	6.31	153.92	4.000	No	Yes	2.00
188	11.84	17.98	2.82	4.98	0.86	24.97	6.15	153.46	4.000	No	Yes	2.00
189	11.93	18.18	2.82	5.03	0.86	25.08	6.17	154.65	4.000	No	Yes	2.00
190	12.04	18.04	2.84	5.23	0.86	24.73	6.38	157.76	4.000	No	Yes	2.00
191	12.13	17.87	2.86	5.42	0.87	24.37	6.58	160.42	4.000	No	Yes	2.00
192	12.22	17.67	2.87	5.55	0.87	23.94	6.76	161.87	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	12.27	17.51	2.88	5.59	0.87	23.64	6.85	161.93	4.000	No	Yes	2.00
194	12.37	17.27	2.88	5.64	0.87	23.16	6.98	161.58	4.000	No	Yes	2.00
195	12.41	17.17	2.89	5.65	0.87	22.94	7.03	161.26	4.000	No	Yes	2.00
196	12.51	17.06	2.89	5.71	0.88	22.65	7.13	161.48	4.000	No	Yes	2.00
197	12.56	17.23	2.89	5.68	0.88	22.78	7.08	161.37	4.000	No	Yes	2.00
198	12.65	17.64	2.88	5.61	0.87	23.15	6.96	161.03	4.000	No	Yes	2.00
199	12.71	18.45	2.86	5.51	0.87	24.09	6.70	161.44	4.000	No	Yes	2.00
200	12.79	19.23	2.86	5.57	0.87	24.96	6.59	164.56	4.000	No	Yes	2.00
201	12.89	20.10	2.85	5.67	0.86	25.92	6.50	168.54	4.000	No	Yes	2.00
202	12.96	20.98	2.84	5.80	0.86	26.96	6.43	173.33	4.000	No	Yes	2.00
203	13.04	22.23	2.82	5.70	0.86	28.37	6.15	174.57	4.000	Yes	Yes	2.00
204	13.13	24.11	2.78	5.33	0.84	30.49	5.62	171.40	4.000	Yes	Yes	2.00
205	13.23	26.80	2.65	3.76	0.80	33.27	4.19	139.58	4.000	Yes	Yes	2.00
206	13.30	30.34	2.49	2.43	0.76	36.95	2.91	107.47	4.000	Yes	No	2.00
207	13.37	34.15	2.32	1.49	0.70	40.77	2.02	82.17	4.000	Yes	No	2.00
208	13.47	38.32	2.29	1.49	0.69	45.44	1.87	85.15	4.000	Yes	No	2.00
209	13.57	38.79	2.31	1.62	0.70	45.84	1.94	89.15	4.000	No	No	2.00
210	13.61	39.19	2.31	1.69	0.70	46.27	1.98	91.39	4.000	No	No	2.00
211	13.62	40.31	2.30	1.69	0.70	47.52	1.94	92.31	4.000	No	No	2.00
212	13.68	44.31	2.26	1.59	0.69	51.92	1.78	92.36	4.000	No	No	2.00
213	13.73	47.82	2.22	1.53	0.68	55.76	1.68	93.57	4.000	No	No	2.00
214	13.77	50.08	2.21	1.55	0.67	58.23	1.65	95.79	4.000	No	No	2.00
215	13.87	52.91	2.20	1.55	0.67	61.16	1.61	98.26	4.000	No	No	2.00
216	13.93	55.78	2.19	1.58	0.66	64.26	1.58	101.41	4.000	No	No	2.00
217	14.00	58.54	2.17	1.60	0.66	67.15	1.55	104.21	4.000	No	No	2.00
218	14.06	60.62	2.17	1.63	0.66	69.33	1.54	106.89	4.000	No	No	2.00
219	14.12	62.21	2.17	1.67	0.66	70.95	1.54	109.37	4.000	No	No	2.00
220	14.21	63.05	2.17	1.71	0.66	71.63	1.55	111.13	4.000	No	No	2.00
221	14.25	63.45	2.18	1.75	0.66	71.96	1.56	112.44	4.000	No	No	2.00
222	14.35	63.35	2.18	1.78	0.66	71.51	1.58	112.67	4.000	No	No	2.00
223	14.45	62.61	2.19	1.80	0.67	70.37	1.60	112.38	4.000	No	No	2.00
224	14.50	61.06	2.21	1.83	0.67	68.50	1.63	111.75	4.000	No	No	2.00
225	14.59	59.18	2.22	1.87	0.68	66.15	1.68	111.04	4.000	No	No	2.00
226	14.64	57.19	2.24	1.92	0.68	63.82	1.73	110.49	4.000	No	No	2.00
227	14.74	55.60	2.26	1.95	0.69	61.79	1.78	110.08	4.000	No	No	2.00
228	14.80	54.22	2.27	1.99	0.69	60.12	1.83	109.86	4.000	No	No	2.00
229	14.88	53.18	2.28	2.02	0.69	58.73	1.87	109.70	4.000	No	No	2.00
230	14.97	52.24	2.30	2.05	0.70	57.45	1.91	109.62	4.000	No	No	2.00
231	15.05	51.43	2.31	2.08	0.70	56.38	1.95	110.04	4.000	No	No	2.00
232	15.13	50.85	2.32	2.12	0.70	55.53	1.99	110.56	4.000	No	No	2.00
233	15.21	50.95	2.32	2.12	0.70	55.42	1.99	110.46	4.000	No	No	2.00
234	15.28	52.23	2.30	2.06	0.70	56.58	1.93	109.48	4.000	No	No	2.00
235	15.36	55.10	2.27	1.95	0.69	59.37	1.82	108.07	4.000	No	No	2.00
236	15.41	60.22	2.22	1.78	0.67	64.61	1.66	107.30	4.000	No	No	2.00
237	15.50	66.38	2.16	1.62	0.66	70.74	1.53	108.00	4.000	No	No	2.00
238	15.55	72.78	2.07	1.31	0.63	77.07	1.38	106.45	4.000	No	No	2.00
239	15.65	76.92	2.00	1.07	0.61	80.83	1.31	105.71	4.000	No	No	2.00
240	15.71	78.17	1.94	0.88	0.59	81.68	1.27	103.43	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	15.79	75.07	1.96	0.89	0.60	78.22	1.28	99.99	4.000	Yes	No	2.00
242	15.89	67.29	2.02	0.97	0.61	69.97	1.33	92.88	4.000	Yes	No	2.00
243	15.90	61.09	2.07	1.04	0.63	63.58	1.38	88.03	4.000	Yes	No	2.00
244	15.94	56.21	2.12	1.11	0.64	58.47	1.45	84.99	4.000	Yes	No	2.00
245	16.00	53.24	2.15	1.16	0.65	55.28	1.51	83.45	4.000	Yes	No	2.00
246	16.06	47.68	2.22	1.30	0.67	49.45	1.67	82.65	4.000	Yes	No	2.00
247	16.14	40.74	2.32	1.56	0.71	42.17	2.02	85.02	4.000	Yes	No	2.00
248	16.19	34.10	2.43	1.87	0.74	35.24	2.56	90.26	4.000	Yes	No	2.00
249	16.26	27.10	2.57	2.32	0.78	27.88	3.51	97.89	4.000	Yes	No	2.00
250	16.33	21.54	2.70	2.80	0.82	22.01	4.74	104.24	4.000	Yes	Yes	2.00
251	16.38	17.06	2.83	3.31	0.86	17.28	6.24	107.80	4.000	Yes	Yes	2.00
252	16.47	14.43	2.93	3.75	0.89	14.45	7.58	109.50	4.000	Yes	Yes	2.00
253	16.54	12.64	3.00	4.14	1.00	12.69	8.71	110.54	4.000	Yes	Yes	2.00
254	16.62	11.80	3.05	4.58	1.00	11.71	9.67	113.31	4.000	No	Yes	2.00
255	16.70	11.53	3.08	4.88	1.00	11.36	10.18	115.66	4.000	No	Yes	2.00
256	16.76	12.28	3.06	4.98	1.00	12.12	9.88	119.66	4.000	No	Yes	2.00
257	16.86	14.88	2.96	4.36	1.00	14.80	8.08	119.59	4.000	Yes	Yes	2.00
258	16.90	19.33	2.82	3.59	0.85	19.15	6.07	116.24	4.000	Yes	Yes	2.00
259	16.98	25.84	2.65	2.82	0.80	25.69	4.22	108.51	4.000	Yes	Yes	2.00
260	17.05	35.42	2.48	2.18	0.75	35.23	2.81	99.11	4.000	Yes	No	2.00
261	17.14	47.54	2.30	1.68	0.70	47.19	1.94	91.71	4.000	Yes	No	2.00
262	17.20	61.48	2.15	1.32	0.65	60.90	1.51	91.88	4.000	Yes	No	2.00
263	17.29	73.03	2.05	1.11	0.62	72.03	1.35	97.56	4.000	Yes	No	2.00
264	17.34	81.99	1.99	1.01	0.60	80.70	1.30	104.58	4.000	Yes	No	2.00
265	17.44	86.87	1.97	1.01	0.60	85.21	1.28	109.31	4.000	No	No	2.00
266	17.50	88.89	1.93	0.91	0.59	86.96	1.26	109.36	4.000	No	No	2.00
267	17.58	88.15	1.91	0.82	0.58	85.91	1.24	106.78	4.000	No	No	2.00
268	17.64	85.02	1.90	0.75	0.58	82.63	1.24	102.13	4.000	No	No	2.00
269	17.75	80.50	1.95	0.85	0.59	77.97	1.27	99.12	4.000	No	No	2.00
270	17.82	72.08	2.04	1.03	0.62	69.66	1.35	93.80	4.000	No	No	2.00
271	17.89	66.02	2.11	1.19	0.64	63.60	1.43	91.18	4.000	No	No	2.00
272	17.89	62.68	2.15	1.30	0.65	60.37	1.51	91.04	4.000	No	No	2.00
273	17.96	64.06	2.15	1.31	0.65	61.55	1.50	92.30	4.000	No	No	2.00
274	18.02	65.34	2.15	1.35	0.65	62.67	1.51	94.33	4.000	No	No	2.00
275	18.07	66.86	2.15	1.39	0.65	64.01	1.51	96.43	4.000	No	No	2.00
276	18.17	68.78	2.14	1.40	0.65	65.62	1.49	98.02	4.000	No	No	2.00
277	18.22	68.74	2.15	1.43	0.65	65.47	1.51	98.54	4.000	Yes	No	2.00
278	18.30	65.20	2.19	1.53	0.66	61.85	1.59	98.20	4.000	Yes	No	2.00
279	18.36	57.69	2.27	1.79	0.69	54.52	1.83	99.83	4.000	Yes	No	2.00
280	18.42	49.20	2.39	2.19	0.72	46.28	2.30	106.36	4.000	Yes	No	2.00
281	18.50	39.97	2.53	2.80	0.77	37.31	3.16	118.00	4.000	Yes	No	2.00
282	18.56	32.38	2.66	3.50	0.81	29.97	4.32	129.55	4.000	Yes	Yes	2.00
283	18.62	25.71	2.80	4.24	0.85	23.53	5.80	136.40	4.000	Yes	Yes	2.00
284	18.69	23.96	2.82	4.26	0.85	21.78	6.13	133.60	4.000	Yes	Yes	2.00
285	18.76	22.21	2.86	4.37	0.87	20.05	6.60	132.24	4.000	Yes	Yes	2.00
286	18.84	24.30	2.80	4.02	0.85	21.95	5.90	129.41	4.000	Yes	Yes	2.00
287	18.89	31.88	2.66	3.30	0.80	29.04	4.26	123.66	4.000	Yes	Yes	2.00
288	18.98	52.85	2.37	2.20	0.72	48.61	2.23	108.20	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	19.05	78.42	2.16	1.65	0.66	72.48	1.52	110.23	4.000	Yes	No	2.00
290	19.12	101.80	2.02	1.36	0.61	94.21	1.32	124.65	4.000	Yes	No	2.00
291	19.18	115.88	1.95	1.24	0.59	107.18	1.27	136.09	4.000	Yes	No	2.00
292	19.24	124.07	1.91	1.18	0.58	114.61	1.25	142.72	4.000	Yes	No	2.00
293	19.32	126.76	1.90	1.17	0.58	116.83	1.24	144.84	4.000	No	No	2.00
294	19.38	126.53	1.92	1.21	0.58	116.38	1.25	145.16	4.000	No	No	2.00
295	19.46	124.81	1.94	1.27	0.59	114.42	1.26	144.25	4.000	No	No	2.00
296	19.54	122.62	1.96	1.34	0.60	112.08	1.28	142.92	4.000	No	No	2.00
297	19.62	121.00	1.97	1.38	0.60	110.26	1.28	141.68	4.000	No	No	2.00
298	19.70	119.99	1.98	1.40	0.60	109.01	1.29	140.65	4.000	No	No	2.00
299	19.80	119.75	1.98	1.39	0.60	108.41	1.29	140.01	4.000	No	No	2.00
300	19.85	119.75	1.98	1.39	0.60	108.23	1.29	139.71	4.000	No	No	2.00
301	19.94	119.95	1.98	1.40	0.60	108.07	1.29	139.71	4.000	No	No	2.00
302	20.03	120.73	1.96	1.31	0.60	108.50	1.28	138.61	4.000	No	No	2.00
303	20.13	121.84	1.94	1.23	0.59	109.19	1.26	137.92	4.000	No	No	2.00
304	20.19	123.33	1.91	1.14	0.58	110.40	1.25	137.60	4.000	No	No	2.00
305	20.29	124.05	1.92	1.16	0.58	110.67	1.25	138.32	4.000	No	No	2.00
306	20.39	124.51	1.93	1.18	0.59	110.70	1.25	138.76	4.000	No	No	2.00
307	20.43	124.14	1.93	1.21	0.59	110.23	1.26	138.70	4.000	No	No	2.00
308	20.47	124.09	1.94	1.23	0.59	109.99	1.26	138.78	4.000	No	No	2.00
309	20.52	123.97	1.95	1.26	0.59	109.69	1.27	139.06	4.000	No	No	2.00
310	20.61	123.97	1.96	1.30	0.59	109.33	1.27	139.29	4.000	No	No	2.00
311	20.66	123.26	1.97	1.34	0.60	108.48	1.28	139.08	4.000	No	No	2.00
312	20.71	122.22	1.98	1.36	0.60	107.35	1.29	138.34	4.000	No	No	2.00
313	20.77	121.00	1.99	1.39	0.60	106.04	1.30	137.35	4.000	No	No	2.00
314	20.85	120.53	1.99	1.40	0.60	105.33	1.30	136.79	4.000	No	No	2.00
315	20.91	120.63	1.99	1.40	0.61	105.23	1.30	136.74	4.000	No	No	2.00
316	21.00	121.00	1.99	1.40	0.61	105.23	1.30	136.71	4.000	No	No	2.00
317	21.05	120.93	1.99	1.40	0.61	105.01	1.30	136.53	4.000	No	No	2.00
318	21.11	120.50	2.00	1.41	0.61	104.40	1.30	136.06	4.000	No	No	2.00
319	21.19	120.16	2.00	1.42	0.61	103.82	1.31	135.66	4.000	No	No	2.00
320	21.24	120.23	2.00	1.43	0.61	103.70	1.31	135.67	4.000	No	No	2.00
321	21.34	120.39	2.00	1.43	0.61	103.52	1.31	135.57	4.000	No	No	2.00
322	21.39	119.99	2.01	1.44	0.61	103.00	1.31	135.16	4.000	No	No	2.00
323	21.48	118.68	2.01	1.45	0.61	101.52	1.32	133.84	4.000	No	No	2.00
324	21.53	116.39	2.02	1.47	0.61	99.34	1.33	131.86	4.000	No	No	2.00
325	21.64	113.86	2.03	1.47	0.62	96.79	1.34	129.36	4.000	No	No	2.00
326	21.72	111.80	2.02	1.38	0.61	94.83	1.33	125.65	4.000	No	No	2.00
327	21.81	110.79	2.00	1.27	0.61	93.80	1.31	122.48	4.000	No	No	2.00
328	21.89	110.52	1.97	1.15	0.60	93.48	1.28	120.09	4.000	No	No	2.00
329	21.97	110.69	1.96	1.11	0.60	93.44	1.28	119.40	4.000	No	No	2.00
330	22.05	110.81	1.96	1.09	0.60	93.32	1.27	118.94	4.000	No	No	2.00
331	22.12	110.92	1.95	1.07	0.59	93.25	1.27	118.64	4.000	No	No	2.00
332	22.13	110.89	1.95	1.07	0.59	93.20	1.27	118.54	4.000	No	No	2.00
333	22.18	111.98	1.95	1.06	0.59	94.01	1.27	119.22	4.000	No	No	2.00
334	22.22	114.49	1.93	1.04	0.59	96.10	1.26	121.02	4.000	No	No	2.00
335	22.28	118.47	1.91	1.01	0.58	99.41	1.25	123.90	4.000	No	No	2.00
336	22.33	122.55	1.90	0.98	0.58	102.85	1.23	126.89	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	22.38	126.36	1.88	0.96	0.57	106.02	1.22	129.64	4.000	No	No	2.00
338	22.41	129.99	1.86	0.93	0.57	109.11	1.21	132.05	4.000	No	No	2.00
339	22.51	133.16	1.85	0.91	0.56	111.59	1.20	133.67	4.000	No	No	2.00
340	22.56	135.86	1.83	0.88	0.56	113.83	1.18	134.77	4.000	No	No	2.00
341	22.61	137.68	1.82	0.85	0.55	115.29	1.17	135.13	4.000	No	No	2.00
342	22.65	139.23	1.81	0.82	0.55	116.56	1.16	135.07	4.000	No	No	2.00
343	22.71	140.30	1.79	0.80	0.55	117.38	1.15	134.57	4.000	No	No	2.00
344	22.76	141.15	1.78	0.77	0.54	118.01	1.13	133.54	4.000	No	No	2.00
345	22.85	141.55	1.77	0.74	0.54	118.16	1.12	132.33	4.000	No	No	2.00
346	22.89	141.79	1.77	0.72	0.54	118.28	1.11	131.19	4.000	No	No	2.00
347	22.99	141.85	1.76	0.71	0.54	118.07	1.10	130.38	4.000	No	No	2.00
348	23.04	142.19	1.76	0.71	0.54	118.24	1.10	129.89	4.000	No	No	2.00
349	23.12	143.24	1.75	0.70	0.53	118.92	1.09	129.72	4.000	No	No	2.00
350	23.18	145.12	1.75	0.69	0.53	120.36	1.08	129.86	4.000	No	No	2.00
351	23.24	147.55	1.74	0.69	0.53	122.28	1.07	130.48	4.000	No	No	2.00
352	23.33	150.28	1.73	0.68	0.53	124.35	1.05	131.06	4.000	No	No	2.00
353	23.38	152.77	1.73	0.68	0.53	126.31	1.04	131.98	4.000	No	No	2.00
354	23.47	154.92	1.72	0.68	0.53	127.86	1.04	132.70	4.000	No	No	2.00
355	23.52	155.87	1.73	0.70	0.53	128.46	1.05	134.34	4.000	No	No	2.00
356	23.61	155.50	1.74	0.72	0.53	127.76	1.06	136.02	4.000	No	No	2.00
357	23.68	153.41	1.76	0.76	0.54	125.65	1.10	137.67	4.000	No	No	2.00
358	23.76	149.87	1.78	0.79	0.54	122.29	1.13	137.84	4.000	No	No	2.00
359	23.83	145.42	1.80	0.83	0.55	118.19	1.16	136.72	4.000	No	No	2.00
360	23.90	140.77	1.83	0.87	0.56	113.95	1.18	134.56	4.000	No	No	2.00
361	23.97	136.02	1.85	0.91	0.56	109.66	1.20	131.87	4.000	No	No	2.00
362	24.05	130.36	1.88	0.95	0.57	104.58	1.22	128.11	4.000	No	No	2.00
363	24.10	123.83	1.92	1.01	0.58	98.86	1.25	123.41	4.000	No	No	2.00
364	24.19	116.14	1.96	1.08	0.60	92.13	1.28	117.58	4.000	No	No	2.00
365	24.27	109.37	2.00	1.15	0.61	86.22	1.31	112.54	4.000	No	No	2.00
366	24.34	103.31	2.03	1.21	0.62	80.98	1.34	108.37	4.000	No	No	2.00
367	24.43	99.26	2.06	1.26	0.63	77.39	1.37	105.81	4.000	No	No	2.00
368	24.48	95.99	2.09	1.32	0.63	74.54	1.40	104.29	4.000	No	No	2.00
369	24.57	93.77	2.11	1.39	0.64	72.46	1.43	103.72	4.000	No	No	2.00
370	24.62	91.81	2.12	1.39	0.64	70.77	1.45	102.28	4.000	No	No	2.00
371	24.72	90.33	2.12	1.39	0.65	69.37	1.46	101.12	4.000	No	No	2.00
372	24.81	89.08	2.13	1.39	0.65	68.17	1.47	100.03	4.000	No	No	2.00
373	24.86	87.96	2.15	1.46	0.65	67.09	1.50	100.81	4.000	No	No	2.00
374	24.95	85.18	2.18	1.55	0.66	64.60	1.56	100.88	4.000	No	No	2.00
375	25.01	82.83	2.20	1.62	0.67	62.55	1.62	101.05	4.000	No	No	2.00
376	25.02	81.04	2.22	1.66	0.67	61.07	1.66	101.09	4.000	No	No	2.00
377	25.05	81.81	2.21	1.65	0.67	61.63	1.64	101.34	4.000	No	No	2.00
378	25.11	82.33	2.21	1.65	0.67	61.92	1.64	101.59	4.000	No	No	2.00
379	25.15	82.53	2.21	1.66	0.67	61.99	1.64	101.87	4.000	No	No	2.00
380	25.21	81.92	2.22	1.68	0.67	61.38	1.66	101.94	4.000	No	No	2.00
381	25.25	81.07	2.23	1.70	0.68	60.61	1.68	101.90	4.000	No	No	2.00
382	25.30	79.78	2.23	1.71	0.68	59.50	1.70	101.32	4.000	No	No	2.00
383	25.40	78.02	2.24	1.71	0.68	57.95	1.73	100.17	4.000	No	No	2.00
384	25.45	75.14	2.25	1.71	0.68	55.63	1.77	98.38	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	25.52	71.36	2.27	1.71	0.69	52.56	1.83	96.28	4.000	Yes	No	2.00
386	25.60	65.60	2.32	1.78	0.70	47.92	1.99	95.12	4.000	Yes	No	2.00
387	25.66	58.89	2.37	1.90	0.72	42.57	2.24	95.48	4.000	Yes	No	2.00
388	25.74	50.63	2.47	2.18	0.75	36.01	2.77	99.69	4.000	Yes	No	2.00
389	25.80	42.60	2.57	2.54	0.78	29.74	3.54	105.15	4.000	Yes	No	2.00
390	25.88	34.42	2.71	3.09	0.82	23.44	4.79	112.31	4.000	Yes	Yes	2.00
391	25.94	27.91	2.84	3.70	0.86	18.51	6.33	117.20	4.000	Yes	Yes	2.00
392	26.02	22.69	2.98	4.41	1.00	14.10	8.40	118.43	4.000	Yes	Yes	2.00
393	26.09	19.19	3.07	4.99	1.00	11.73	10.09	118.41	4.000	No	Yes	2.00
394	26.17	16.36	3.16	5.56	1.00	9.82	11.90	116.89	4.000	No	Yes	2.00
395	26.23	14.50	3.23	6.07	1.00	8.57	13.49	115.61	4.000	No	Yes	2.00
396	26.29	13.56	3.28	6.45	1.00	7.93	14.54	115.33	4.000	No	Yes	2.00
397	26.37	13.73	3.27	6.48	1.00	8.01	14.49	116.10	4.000	No	Yes	2.00
398	26.46	14.95	3.23	6.22	1.00	8.78	13.45	118.10	4.000	No	Yes	2.00
399	26.55	16.56	3.18	5.88	1.00	9.80	12.25	120.00	4.000	No	Yes	2.00
400	26.60	18.04	3.14	5.67	1.00	10.74	11.37	122.14	4.000	No	Yes	2.00
401	26.70	18.79	3.12	5.69	1.00	11.18	11.11	124.24	4.000	No	Yes	2.00
402	26.78	19.09	3.12	5.78	1.00	11.34	11.11	125.96	4.000	No	Yes	2.00
403	26.87	19.16	3.10	5.28	1.00	11.34	10.61	120.33	4.000	No	Yes	2.00
404	26.94	19.06	3.05	4.41	1.00	11.25	9.74	109.55	4.000	No	Yes	2.00
405	27.03	18.62	3.03	3.81	1.00	10.92	9.23	100.80	4.000	No	Yes	2.00
406	27.13	17.84	3.05	3.86	1.00	10.38	9.61	99.83	4.000	No	Yes	2.00
407	27.18	15.89	3.14	4.63	1.00	9.12	11.41	104.10	4.000	No	Yes	2.00
408	27.27	14.61	3.20	5.14	1.00	8.27	12.75	105.48	4.000	No	Yes	2.00
409	27.32	14.00	3.23	5.49	1.00	7.87	13.55	106.67	4.000	No	Yes	2.00
410	27.37	14.68	3.21	5.36	1.00	8.28	12.99	107.59	4.000	No	Yes	2.00
411	27.41	15.01	3.20	5.40	1.00	8.48	12.84	108.89	4.000	No	Yes	2.00
412	27.46	15.01	3.21	5.56	1.00	8.47	13.04	110.36	4.000	No	Yes	2.00
413	27.51	15.19	3.22	5.71	1.00	8.56	13.12	112.25	4.000	No	Yes	2.00
414	27.61	15.69	3.21	5.85	1.00	8.84	13.00	114.96	4.000	No	Yes	2.00
415	27.66	16.81	3.20	6.07	1.00	9.52	12.66	120.53	4.000	No	Yes	2.00
416	27.73	19.30	3.15	6.09	1.00	11.05	11.59	128.02	4.000	No	Yes	2.00
417	27.80	22.77	3.09	6.16	1.00	13.18	10.46	137.91	4.000	No	Yes	2.00
418	27.88	26.51	3.05	6.33	1.00	15.46	9.62	148.75	4.000	No	Yes	2.00
419	27.96	28.73	3.04	6.73	1.00	16.78	9.46	158.82	4.000	No	Yes	2.00
420	28.04	29.44	3.06	7.42	1.00	17.16	9.86	169.19	4.000	No	Yes	2.00
421	28.12	29.30	3.09	8.01	1.00	17.02	10.34	175.99	4.000	No	Yes	2.00
422	28.18	29.78	3.09	8.32	1.00	17.27	10.47	180.83	4.000	No	Yes	2.00
423	28.27	30.99	3.07	8.13	1.00	17.95	10.11	181.45	4.000	No	Yes	2.00
424	28.32	32.84	3.04	7.81	1.00	19.04	9.54	181.70	4.000	No	Yes	2.00
425	28.42	34.90	3.01	7.49	1.00	20.22	8.98	181.66	4.000	No	Yes	2.00
426	28.47	37.02	2.99	7.35	1.00	21.47	8.57	183.98	4.000	No	Yes	2.00
427	28.61	38.87	2.97	7.32	1.00	22.47	8.32	186.93	4.000	No	Yes	2.00
428	28.67	40.79	2.96	7.36	1.00	23.57	8.10	190.99	4.000	Yes	Yes	2.00
429	28.75	43.62	2.91	7.10	0.88	26.58	7.37	195.90	4.000	Yes	Yes	2.00
430	28.81	49.52	2.83	6.35	0.86	30.58	6.28	192.19	4.000	Yes	Yes	2.00
431	28.90	59.16	2.72	5.28	0.82	37.21	4.89	181.92	4.000	Yes	Yes	2.00
432	29.00	70.68	2.60	4.38	0.79	45.27	3.75	169.71	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	29.05	82.68	2.50	3.72	0.76	53.82	2.95	158.84	4.000	Yes	No	2.00
434	29.10	92.58	2.42	3.28	0.73	60.99	2.48	151.03	4.000	Yes	No	2.00
435	29.15	101.07	2.35	2.88	0.71	67.24	2.13	143.11	4.000	Yes	No	2.00
436	29.24	105.88	2.30	2.58	0.70	70.82	1.92	136.02	4.000	Yes	No	2.00
437	29.29	107.45	2.26	2.31	0.69	72.19	1.78	128.66	4.000	Yes	No	2.00
438	29.37	106.66	2.23	2.12	0.68	71.76	1.71	122.57	4.000	Yes	No	2.00
439	29.43	105.44	2.21	1.94	0.67	71.05	1.64	116.77	4.000	Yes	No	2.00
440	29.53	104.90	2.19	1.79	0.66	70.72	1.59	112.38	4.000	No	No	2.00
441	29.62	104.73	2.17	1.69	0.66	70.61	1.55	109.62	4.000	No	No	2.00
442	29.68	104.75	2.15	1.58	0.65	70.73	1.51	106.89	4.000	No	No	2.00
443	29.80	104.42	2.15	1.54	0.65	70.36	1.50	105.63	4.000	No	No	2.00
444	29.91	103.80	2.15	1.52	0.65	69.74	1.50	104.61	4.000	No	No	2.00
445	30.00	99.10	2.19	1.66	0.66	65.97	1.59	104.86	0.187	No	No	1.03
446	30.07	97.42	2.21	1.72	0.67	64.55	1.63	105.36	0.189	No	No	1.04
447	30.15	96.27	2.22	1.75	0.67	63.56	1.66	105.54	0.189	No	No	1.04
448	30.21	99.04	2.20	1.70	0.67	65.49	1.62	105.77	0.190	No	No	1.04
449	30.26	98.71	2.20	1.71	0.67	65.16	1.62	105.66	0.190	No	No	1.04
450	30.31	97.50	2.21	1.73	0.67	64.21	1.64	105.39	0.189	No	No	1.03
451	30.38	95.52	2.22	1.75	0.67	62.65	1.67	104.86	0.187	No	No	1.02
452	30.45	92.62	2.24	1.79	0.68	60.44	1.72	104.23	0.185	No	No	1.01
453	30.50	89.12	2.26	1.84	0.69	57.84	1.79	103.72	0.184	No	No	1.00
454	30.55	84.94	2.29	1.88	0.69	54.79	1.88	102.88	0.181	No	No	0.99
455	30.64	81.19	2.31	1.91	0.70	52.03	1.96	101.83	0.178	No	No	0.97
456	30.70	77.93	2.32	1.91	0.70	49.71	2.01	100.16	0.173	No	No	0.94
457	30.79	76.04	2.33	1.90	0.71	48.30	2.05	98.96	0.170	No	No	0.93
458	30.84	75.47	2.33	1.88	0.71	47.86	2.05	98.19	0.168	No	No	0.91
459	30.93	76.95	2.32	1.86	0.70	48.79	2.01	98.05	0.168	No	No	0.91
460	30.98	80.15	2.30	1.81	0.70	50.98	1.93	98.14	0.168	No	No	0.91
461	31.05	85.34	2.27	1.76	0.69	54.54	1.81	98.98	0.170	No	No	0.92
462	31.13	91.57	2.24	1.70	0.68	58.82	1.71	100.51	0.174	No	No	0.94
463	31.17	100.46	2.19	1.61	0.66	65.08	1.58	102.97	0.182	No	No	0.98
464	31.27	110.94	2.13	1.49	0.65	72.52	1.47	106.25	0.192	No	No	1.03
465	31.32	123.23	2.06	1.34	0.63	81.52	1.37	111.37	0.208	No	No	1.13
466	31.41	133.45	2.00	1.21	0.61	89.03	1.31	116.56	0.227	No	No	1.23
467	31.46	140.90	1.96	1.11	0.60	94.67	1.28	120.72	0.244	No	No	1.31
468	31.52	144.37	1.93	1.03	0.59	97.40	1.26	122.24	0.250	No	No	1.35
469	31.61	145.01	1.91	0.97	0.58	97.95	1.24	121.83	0.248	No	No	1.33
470	31.66	142.15	1.91	0.95	0.58	95.90	1.24	119.20	0.238	No	No	1.28
471	31.75	136.69	1.93	0.97	0.59	91.66	1.26	115.29	0.223	No	No	1.19
472	31.80	129.14	1.98	1.06	0.60	85.76	1.29	110.68	0.206	No	No	1.11
473	31.90	122.00	2.02	1.16	0.62	80.16	1.33	106.52	0.192	No	No	1.03
474	31.94	116.84	2.06	1.24	0.63	76.18	1.37	104.07	0.185	No	No	0.99
475	32.04	116.03	2.07	1.27	0.63	75.33	1.38	104.00	0.185	No	No	0.99
476	32.09	119.17	2.08	1.34	0.63	77.25	1.39	107.23	0.195	No	No	1.04
477	32.20	118.70	2.11	1.46	0.64	76.38	1.43	109.06	0.201	No	No	1.07
478	32.24	117.72	2.13	1.56	0.65	75.37	1.47	110.44	0.205	No	No	1.09
479	32.28	114.69	2.15	1.64	0.65	73.02	1.51	110.26	0.205	No	No	1.09
480	32.29	116.70	2.14	1.62	0.65	74.43	1.49	111.09	0.207	No	No	1.11

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	32.30	118.93	2.13	1.60	0.65	75.98	1.47	112.06	0.211	No	No	1.12
482	32.40	120.51	2.13	1.59	0.65	76.91	1.47	112.71	0.213	No	No	1.13
483	32.45	120.48	2.13	1.61	0.65	76.77	1.47	112.95	0.214	No	No	1.14
484	32.55	119.13	2.14	1.63	0.65	75.61	1.49	112.51	0.212	No	No	1.13
485	32.59	118.33	2.15	1.66	0.65	74.91	1.50	112.50	0.212	No	No	1.13
486	32.69	118.13	2.15	1.68	0.65	74.54	1.51	112.79	0.213	No	No	1.13
487	32.76	118.09	2.16	1.72	0.66	74.31	1.53	113.51	0.216	No	No	1.14
488	32.84	118.40	2.17	1.75	0.66	74.31	1.54	114.35	0.219	No	No	1.16
489	32.90	119.00	2.17	1.77	0.66	74.55	1.55	115.19	0.222	No	No	1.17
490	32.98	119.95	2.17	1.78	0.66	75.02	1.54	115.83	0.225	No	No	1.19
491	33.06	121.02	2.17	1.78	0.66	75.61	1.54	116.33	0.226	No	No	1.19
492	33.12	122.10	2.16	1.78	0.66	76.23	1.53	116.77	0.228	No	No	1.20
493	33.22	122.84	2.16	1.78	0.66	76.56	1.53	117.03	0.229	No	No	1.21
494	33.31	123.21	2.16	1.78	0.66	76.64	1.53	117.14	0.229	No	No	1.21
495	33.37	123.28	2.16	1.78	0.66	76.59	1.53	117.11	0.229	No	No	1.21
496	33.46	123.28	2.16	1.78	0.66	76.41	1.53	117.00	0.229	No	No	1.20
497	33.55	123.18	2.17	1.79	0.66	76.17	1.54	117.00	0.229	No	No	1.20
498	33.65	122.98	2.17	1.80	0.66	75.83	1.54	117.07	0.229	No	No	1.20
499	33.70	122.57	2.17	1.82	0.66	75.42	1.55	117.18	0.230	No	No	1.20
500	33.79	122.03	2.18	1.84	0.66	74.86	1.56	117.10	0.229	No	No	1.20
501	33.89	121.09	2.18	1.85	0.66	74.04	1.58	116.76	0.228	No	No	1.19
502	33.99	119.77	2.19	1.86	0.67	72.98	1.59	116.20	0.226	No	No	1.18
503	34.04	117.79	2.20	1.88	0.67	71.55	1.61	115.43	0.223	No	No	1.16
504	34.13	115.49	2.21	1.89	0.67	69.85	1.64	114.59	0.220	No	No	1.15
505	34.23	112.70	2.22	1.92	0.68	67.80	1.68	113.76	0.217	No	No	1.13
506	34.32	110.27	2.24	1.95	0.68	66.01	1.71	113.20	0.215	No	No	1.12
507	34.37	108.22	2.25	1.98	0.68	64.55	1.75	112.84	0.214	No	No	1.11
508	34.47	106.60	2.26	2.00	0.69	63.31	1.78	112.69	0.213	No	No	1.11
509	34.55	103.47	2.28	2.07	0.69	61.05	1.85	112.96	4.000	Yes	No	2.00
510	34.63	96.66	2.33	2.24	0.71	56.31	2.04	114.64	4.000	Yes	No	2.00
511	34.73	86.37	2.40	2.51	0.73	49.33	2.40	118.21	4.000	Yes	No	2.00
512	34.80	72.76	2.51	2.91	0.76	40.42	3.06	123.59	4.000	Yes	No	2.00
513	34.90	60.46	2.62	3.30	0.79	32.62	3.90	127.28	4.000	Yes	Yes	2.00
514	35.00	54.92	2.64	3.21	0.80	29.29	4.16	121.79	3.600	No	Yes	2.00
515	35.12	50.37	2.67	3.15	0.81	26.54	4.42	117.31	3.600	No	Yes	2.00
516	35.20	52.86	2.63	2.87	0.80	28.11	3.99	112.19	3.600	No	Yes	2.00
517	35.33	53.65	2.63	2.95	0.80	28.43	4.02	114.42	4.000	Yes	Yes	2.00
518	35.41	63.41	2.53	2.60	0.77	34.44	3.20	110.34	4.000	Yes	No	2.00
519	35.44	68.58	2.48	2.43	0.75	37.68	2.87	108.02	4.000	Yes	No	2.00
520	35.48	76.82	2.41	2.17	0.73	42.96	2.42	103.82	4.000	Yes	No	2.00
521	35.57	84.09	2.35	1.98	0.71	47.63	2.12	101.05	4.000	Yes	No	2.00
522	35.62	98.70	2.24	1.69	0.68	57.30	1.73	98.99	4.000	Yes	No	2.00
523	35.67	115.40	2.14	1.46	0.65	68.51	1.49	102.07	4.000	Yes	No	2.00
524	35.71	137.52	2.04	1.30	0.62	83.52	1.35	112.52	4.000	Yes	No	2.00
525	35.82	159.89	1.96	1.19	0.60	98.71	1.28	126.36	4.000	Yes	No	2.00
526	35.86	185.11	1.89	1.12	0.58	116.11	1.23	143.07	4.000	Yes	No	2.00
527	35.93	207.72	1.84	1.06	0.56	131.80	1.19	156.85	4.000	Yes	No	2.00
528	36.01	225.38	1.80	1.04	0.55	144.00	1.16	166.33	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	36.06	235.57	1.79	1.04	0.54	150.92	1.14	171.69	4.000	Yes	No	2.00
530	36.12	240.67	1.78	1.05	0.54	154.12	1.13	174.89	0.578	No	No	2.00
531	36.18	245.05	1.79	1.08	0.54	156.73	1.14	178.20	0.606	No	No	2.00
532	36.25	248.69	1.79	1.10	0.54	158.84	1.14	180.98	0.631	No	No	2.00
533	36.30	251.52	1.80	1.14	0.55	160.26	1.15	184.12	0.661	No	No	2.00
534	36.39	252.83	1.81	1.17	0.55	160.54	1.16	185.99	0.678	No	No	2.00
535	36.44	253.07	1.82	1.21	0.55	160.15	1.17	187.57	0.694	No	No	2.00
536	36.53	251.49	1.83	1.25	0.56	158.45	1.18	187.51	0.693	No	No	2.00
537	36.59	248.39	1.86	1.34	0.57	155.45	1.21	187.43	0.692	No	No	2.00
538	36.68	243.47	1.87	1.37	0.57	151.62	1.22	184.49	0.664	No	No	2.00
539	36.75	238.34	1.88	1.38	0.57	147.93	1.22	180.99	0.631	No	No	2.00
540	36.83	232.04	1.88	1.34	0.57	143.78	1.22	175.91	0.586	No	No	2.00
541	36.90	225.27	1.89	1.35	0.58	138.95	1.23	171.34	0.548	No	No	2.00
542	36.97	217.18	1.92	1.39	0.58	133.11	1.25	166.05	0.506	No	No	2.00
543	37.02	201.72	1.96	1.49	0.60	122.19	1.28	156.23	0.435	No	No	2.00
544	37.04	193.70	1.99	1.53	0.60	116.64	1.30	151.13	0.401	No	No	2.00
545	37.08	188.61	2.00	1.54	0.61	113.19	1.30	147.61	0.379	No	No	1.93
546	37.17	191.78	1.97	1.46	0.60	115.46	1.29	148.65	0.385	No	No	1.96
547	37.27	187.30	1.98	1.44	0.60	112.45	1.29	145.04	0.364	No	No	1.85
548	37.37	181.37	1.99	1.43	0.60	108.42	1.30	140.68	0.339	No	No	1.72
549	37.42	177.21	1.99	1.39	0.60	105.83	1.30	137.22	0.320	No	No	1.62
550	37.51	175.89	1.97	1.32	0.60	105.19	1.29	135.25	0.310	No	No	1.57
551	37.58	176.97	1.95	1.22	0.59	106.34	1.27	134.76	0.308	No	No	1.56
552	37.66	179.01	1.92	1.13	0.58	108.07	1.25	135.08	0.309	No	No	1.57
553	37.76	182.58	1.89	1.05	0.57	110.83	1.23	136.26	0.315	No	No	1.59
554	37.85	186.08	1.86	0.97	0.57	113.57	1.21	137.18	0.320	No	No	1.62
555	37.93	189.62	1.84	0.92	0.56	116.22	1.19	138.14	0.325	No	No	1.64
556	38.04	192.25	1.82	0.89	0.55	117.99	1.18	138.80	0.329	No	No	1.66
557	38.13	193.87	1.82	0.88	0.55	118.97	1.17	139.30	0.331	No	No	1.67
558	38.18	193.57	1.82	0.88	0.55	118.63	1.17	139.16	0.331	No	No	1.67
559	38.28	191.24	1.84	0.92	0.56	116.58	1.19	138.51	0.327	No	No	1.65
560	38.37	187.40	1.86	0.97	0.57	113.37	1.21	137.08	0.320	No	No	1.61
561	38.47	183.55	1.89	1.06	0.58	109.99	1.23	135.63	0.312	No	No	1.57
562	38.57	180.39	1.92	1.13	0.58	107.19	1.25	134.14	0.304	No	No	1.53
563	38.62	176.78	1.95	1.21	0.59	104.23	1.27	132.48	0.296	No	No	1.49
564	38.72	167.48	2.00	1.33	0.61	97.43	1.31	127.27	0.272	No	No	1.37
565	38.78	160.21	2.04	1.42	0.62	92.19	1.34	123.72	0.256	No	No	1.29
566	38.81	155.32	2.06	1.49	0.63	88.77	1.37	121.63	0.247	No	No	1.24
567	38.86	155.19	2.07	1.50	0.63	88.54	1.37	121.68	0.248	No	No	1.24
568	38.91	152.02	2.08	1.55	0.63	86.27	1.40	120.51	0.243	No	No	1.22
569	38.95	145.92	2.12	1.64	0.64	82.06	1.44	118.55	0.235	No	No	1.18
570	39.05	139.55	2.15	1.74	0.65	77.66	1.51	116.91	0.229	No	No	1.15
571	39.09	132.37	2.19	1.84	0.66	72.88	1.59	115.64	0.224	No	No	1.12
572	39.14	125.06	2.23	1.95	0.68	68.10	1.69	114.83	0.221	No	No	1.11
573	39.24	118.19	2.26	2.05	0.69	63.61	1.80	114.32	0.219	No	No	1.10
574	39.29	112.16	2.30	2.14	0.70	59.80	1.91	114.03	0.218	No	No	1.09
575	39.39	108.48	2.32	2.20	0.70	57.39	1.99	114.16	0.218	No	No	1.10
576	39.43	109.15	2.31	2.19	0.70	57.74	1.98	114.28	0.219	No	No	1.10

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	39.53	115.02	2.28	2.10	0.69	61.25	1.86	113.89	0.217	No	No	1.09
578	39.57	124.17	2.23	1.94	0.68	67.01	1.69	113.55	0.216	No	No	1.08
579	39.68	130.64	2.19	1.83	0.67	71.04	1.60	113.69	0.217	No	No	1.09
580	39.73	131.95	2.19	1.80	0.66	71.83	1.58	113.53	0.216	No	No	1.08
581	39.81	129.33	2.20	1.81	0.67	70.10	1.60	112.48	0.212	No	No	1.06
582	39.89	126.37	2.19	1.75	0.67	68.39	1.60	109.51	0.202	No	No	1.01
583	39.96	125.26	2.18	1.63	0.66	68.01	1.56	105.89	0.190	No	No	0.95
584	40.06	124.52	2.16	1.53	0.66	67.75	1.52	103.14	0.182	No	No	0.91
585	40.15	122.70	2.17	1.55	0.66	66.50	1.54	102.38	0.180	No	No	0.90
586	40.20	114.41	2.22	1.70	0.67	61.03	1.67	102.07	0.179	No	No	0.89
587	40.24	108.56	2.26	1.81	0.69	57.23	1.79	102.62	0.181	No	No	0.90
588	40.26	104.17	2.29	1.90	0.70	54.45	1.90	103.22	0.182	No	No	0.91
589	40.27	107.91	2.27	1.85	0.69	56.72	1.82	103.36	0.183	No	No	0.91
590	40.37	109.77	2.26	1.84	0.69	57.73	1.80	103.81	0.184	No	No	0.92
591	40.42	111.64	2.26	1.85	0.69	58.75	1.78	104.71	0.187	No	No	0.93
592	40.52	112.38	2.26	1.87	0.69	59.02	1.79	105.44	0.189	No	No	0.94
593	40.56	115.27	2.25	1.87	0.68	60.66	1.76	106.63	0.193	No	No	0.96
594	40.66	122.24	2.22	1.81	0.67	64.78	1.67	108.06	0.197	No	No	0.99
595	40.70	131.54	2.18	1.74	0.66	70.42	1.57	110.67	0.206	No	No	1.03
596	40.75	142.59	2.14	1.67	0.65	77.15	1.49	114.79	0.221	No	No	1.10
597	40.85	153.40	2.11	1.63	0.64	83.66	1.43	119.75	0.240	No	No	1.20
598	40.91	164.05	2.08	1.59	0.63	90.16	1.39	125.10	0.262	No	No	1.31
599	40.96	174.69	2.04	1.53	0.62	96.83	1.35	130.56	0.287	No	No	1.43
600	41.04	184.27	2.01	1.47	0.61	102.87	1.32	135.59	0.312	No	No	1.55
601	41.09	193.94	1.98	1.41	0.60	109.10	1.29	141.03	0.341	No	No	1.70
602	41.18	201.90	1.96	1.36	0.60	114.17	1.28	145.57	0.367	No	No	1.83
603	41.23	207.97	1.94	1.33	0.59	118.08	1.26	149.12	0.388	No	No	1.94
604	41.29	211.58	1.93	1.31	0.59	120.37	1.26	151.17	0.401	No	No	2.00
605	41.38	212.76	1.93	1.30	0.59	120.98	1.25	151.67	0.404	No	No	2.00
606	41.42	212.09	1.93	1.31	0.59	120.40	1.26	151.21	0.402	No	No	2.00
607	41.52	210.03	1.94	1.33	0.59	118.76	1.26	149.86	0.393	No	No	1.96
608	41.57	207.27	1.95	1.36	0.59	116.72	1.27	148.26	0.383	No	No	1.91
609	41.62	204.91	1.96	1.40	0.60	114.93	1.28	146.93	0.375	No	No	1.87
610	41.71	203.13	1.97	1.43	0.60	113.45	1.29	145.89	0.369	No	No	1.84
611	41.76	202.15	1.98	1.45	0.60	112.60	1.29	145.43	0.366	No	No	1.82
612	41.84	201.65	1.99	1.47	0.60	111.98	1.30	145.17	0.364	No	No	1.81
613	41.91	201.54	1.99	1.50	0.61	111.64	1.30	145.22	0.365	No	No	1.81
614	41.95	201.75	2.00	1.52	0.61	111.52	1.31	145.53	0.367	No	No	1.82
615	42.01	202.52	2.00	1.56	0.61	111.63	1.31	146.36	0.372	No	No	1.85
616	42.10	203.57	2.01	1.60	0.61	111.82	1.32	147.40	0.378	No	No	1.88
617	42.15	204.98	2.02	1.66	0.61	112.23	1.33	148.90	0.387	No	No	1.92
618	42.24	206.03	2.03	1.70	0.62	112.44	1.33	149.94	0.394	No	No	1.96
619	42.28	206.46	2.03	1.71	0.62	112.53	1.34	150.31	0.396	No	No	1.97
620	42.39	206.26	2.03	1.70	0.62	112.27	1.33	149.81	0.393	No	No	1.95
621	42.43	206.08	2.02	1.67	0.62	112.28	1.33	149.14	0.389	No	No	1.93
622	42.50	206.11	2.01	1.62	0.61	112.45	1.32	148.36	0.384	No	No	1.91
623	42.58	206.28	2.00	1.56	0.61	112.80	1.31	147.54	0.379	No	No	1.88
624	42.65	198.95	2.01	1.55	0.61	108.28	1.32	142.73	0.350	No	No	1.74

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	42.70	195.88	2.02	1.54	0.61	106.39	1.32	140.58	0.338	No	No	1.68
626	42.73	193.72	2.02	1.54	0.61	105.08	1.32	139.14	0.331	No	No	1.64
627	42.77	200.19	1.99	1.47	0.61	109.31	1.30	142.31	0.348	No	No	1.73
628	42.82	203.83	1.98	1.43	0.60	111.68	1.29	144.06	0.358	No	No	1.78
629	42.87	209.12	1.96	1.39	0.60	115.10	1.28	146.92	0.375	No	No	1.86
630	42.91	215.46	1.94	1.35	0.59	119.14	1.26	150.57	0.397	No	No	1.97
631	42.97	221.76	1.92	1.32	0.59	123.09	1.25	154.27	0.421	No	No	2.00
632	43.02	226.82	1.92	1.32	0.58	126.14	1.25	157.35	0.442	No	No	2.00
633	43.06	230.49	1.91	1.33	0.58	128.19	1.25	159.72	0.459	No	No	2.00
634	43.11	234.33	1.91	1.34	0.58	130.34	1.24	162.21	0.477	No	No	2.00
635	43.17	237.93	1.91	1.35	0.58	132.40	1.24	164.40	0.493	No	No	2.00
636	43.21	242.21	1.90	1.33	0.58	135.09	1.23	166.83	0.512	No	No	2.00
637	43.29	246.19	1.89	1.30	0.57	137.59	1.23	168.85	0.528	No	No	2.00
638	43.34	250.53	1.87	1.28	0.57	140.43	1.22	171.05	0.545	No	No	2.00
639	43.39	254.11	1.86	1.25	0.57	142.76	1.21	172.71	0.559	No	No	2.00
640	43.45	256.87	1.85	1.22	0.56	144.64	1.20	173.74	0.568	No	No	2.00
641	43.51	258.25	1.84	1.18	0.56	145.84	1.19	173.50	0.566	No	No	2.00
642	43.59	258.59	1.82	1.14	0.56	146.35	1.18	172.47	0.557	No	No	2.00
643	43.64	259.19	1.80	1.07	0.55	147.38	1.16	170.73	0.543	No	No	2.00
644	43.70	259.29	1.78	1.01	0.54	148.12	1.13	168.10	0.522	No	No	2.00
645	43.78	258.35	1.77	0.96	0.54	147.98	1.12	165.08	0.498	No	No	2.00
646	43.88	255.18	1.77	0.96	0.54	145.77	1.12	163.55	0.487	No	No	2.00
647	43.94	244.77	1.82	1.04	0.55	138.10	1.17	161.52	0.472	No	No	2.00
648	44.04	234.93	1.86	1.12	0.57	130.84	1.21	157.74	0.445	No	No	2.00
649	44.07	225.87	1.89	1.21	0.58	124.41	1.23	153.31	0.415	No	No	2.00
650	44.12	223.58	1.90	1.23	0.58	122.68	1.24	152.08	0.407	No	No	2.00
651	44.16	221.15	1.91	1.25	0.58	120.94	1.25	150.70	0.398	No	No	1.98
652	44.21	218.05	1.93	1.28	0.59	118.76	1.25	148.86	0.387	No	No	1.92
653	44.26	214.65	1.94	1.30	0.59	116.39	1.26	146.86	0.375	No	No	1.86
654	44.31	210.81	1.95	1.34	0.59	113.73	1.27	144.63	0.361	No	No	1.79
655	44.35	206.97	1.97	1.37	0.60	111.11	1.28	142.44	0.349	No	No	1.73
656	44.40	203.26	1.98	1.40	0.60	108.60	1.29	140.32	0.337	No	No	1.67
657	44.45	200.16	1.99	1.43	0.61	106.49	1.30	138.56	0.327	No	No	1.62
658	44.50	197.83	2.00	1.45	0.61	104.91	1.31	137.24	0.320	No	No	1.59
659	44.54	195.81	2.01	1.47	0.61	103.53	1.32	136.15	0.315	No	No	1.56
660	44.60	193.46	2.02	1.49	0.61	101.86	1.32	134.97	0.309	No	No	1.53
661	44.64	190.96	2.03	1.53	0.62	100.11	1.34	133.85	0.303	No	No	1.50
662	44.69	188.57	2.05	1.57	0.62	98.42	1.35	132.85	0.298	No	No	1.48
663	44.74	187.78	2.05	1.59	0.62	97.76	1.36	132.59	0.297	No	No	1.47
664	44.79	187.17	2.06	1.60	0.62	97.27	1.36	132.34	0.296	No	No	1.47
665	44.83	187.71	2.05	1.60	0.62	97.52	1.36	132.53	0.296	No	No	1.47
666	44.88	188.84	2.05	1.59	0.62	98.15	1.35	132.96	0.299	No	No	1.48
667	44.93	191.20	2.04	1.57	0.62	99.52	1.35	134.02	0.304	No	No	1.51
668	44.98	193.69	2.03	1.55	0.62	100.99	1.34	135.20	0.310	No	No	1.54
669	45.03	195.31	2.03	1.54	0.62	101.90	1.33	135.95	0.314	No	No	1.56
670	45.08	196.49	2.03	1.54	0.62	102.54	1.33	136.45	0.316	No	No	1.57
671	45.16	197.53	2.02	1.52	0.62	103.08	1.33	136.81	0.318	No	No	1.58
672	45.19	198.24	2.02	1.50	0.61	103.58	1.32	136.91	0.319	No	No	1.58

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	45.27	198.44	2.01	1.47	0.61	103.76	1.32	136.53	0.317	No	No	1.57
674	45.32	197.56	2.00	1.44	0.61	103.38	1.31	135.53	0.312	No	No	1.55
675	45.37	195.58	2.00	1.39	0.61	102.45	1.31	133.73	0.302	No	No	1.50
676	45.45	192.44	1.99	1.35	0.61	100.80	1.30	131.17	0.290	No	No	1.44
677	45.51	187.22	1.99	1.31	0.61	97.91	1.30	127.52	0.273	No	No	1.35
678	45.56	180.52	2.01	1.31	0.61	93.92	1.31	123.37	4.000	Yes	No	2.00
679	45.61	169.84	2.04	1.36	0.62	87.34	1.35	117.60	4.000	Yes	No	2.00
680	45.69	156.32	2.10	1.48	0.64	78.89	1.42	111.79	4.000	Yes	No	2.00
681	45.75	137.42	2.20	1.74	0.67	67.17	1.61	108.19	4.000	Yes	No	2.00
682	45.81	115.31	2.30	1.96	0.70	54.45	1.93	105.04	4.000	Yes	No	2.00
683	45.89	93.28	2.42	2.23	0.73	42.25	2.49	105.10	4.000	Yes	No	2.00
684	45.94	73.36	2.54	2.43	0.77	31.83	3.26	103.73	4.000	Yes	No	2.00
685	46.04	59.21	2.67	2.85	0.81	24.44	4.42	108.05	4.000	Yes	Yes	2.00
686	46.08	46.61	2.83	3.46	0.86	18.15	6.18	112.07	4.000	Yes	Yes	2.00
687	46.15	39.94	2.97	3.96	1.00	13.37	8.22	109.85	4.000	Yes	Yes	2.00
688	46.17	36.10	3.03	4.33	1.00	11.98	9.26	110.89	3.600	No	Yes	2.00
689	46.18	36.17	3.02	4.27	1.00	12.00	9.18	110.17	3.600	No	Yes	2.00
690	46.23	36.48	3.01	4.17	1.00	12.10	9.03	109.18	3.600	No	Yes	2.00
691	46.27	37.18	3.00	4.00	1.00	12.34	8.72	107.58	3.600	No	Yes	2.00
692	46.32	38.64	2.96	3.74	1.00	12.85	8.20	105.33	3.600	No	Yes	2.00
693	46.41	40.63	2.89	3.49	0.87	15.29	7.01	107.19	3.600	No	Yes	2.00
694	46.47	43.16	2.85	3.30	0.86	16.49	6.44	106.19	3.600	No	Yes	2.00
695	46.52	45.45	2.82	3.23	0.85	17.54	6.09	106.89	3.600	No	Yes	2.00
696	46.56	47.57	2.81	3.31	0.85	18.46	5.95	109.81	3.600	No	Yes	2.00
697	46.65	49.42	2.80	3.44	0.85	19.21	5.91	113.60	3.600	No	Yes	2.00
698	46.71	51.52	2.80	3.58	0.85	20.07	5.86	117.68	3.600	No	Yes	2.00
699	46.76	54.41	2.78	3.59	0.84	21.37	5.62	120.04	3.600	No	Yes	2.00
700	46.85	58.19	2.75	3.48	0.83	23.13	5.21	120.43	3.600	No	Yes	2.00
701	46.90	63.28	2.69	3.26	0.82	25.63	4.63	118.71	3.600	No	Yes	2.00
702	46.99	67.89	2.65	3.04	0.80	27.93	4.16	116.19	3.600	No	Yes	2.00
703	47.04	70.35	2.62	2.93	0.79	29.16	3.93	114.63	3.600	No	Yes	2.00
704	47.10	69.50	2.63	2.95	0.80	28.71	4.00	114.71	3.600	No	Yes	2.00
705	47.16	65.45	2.67	3.09	0.81	26.63	4.36	116.10	3.600	No	Yes	2.00
706	47.23	59.62	2.72	3.30	0.82	23.71	4.94	117.23	3.600	No	Yes	2.00
707	47.30	51.46	2.81	3.62	0.85	19.76	5.97	117.96	3.600	No	Yes	2.00
708	47.38	42.76	2.96	4.09	1.00	13.97	8.12	113.48	3.600	No	Yes	2.00
709	47.43	34.23	3.08	4.68	1.00	10.97	10.19	111.84	3.600	No	Yes	2.00
710	47.52	28.17	3.17	4.93	1.00	8.83	11.99	105.92	3.600	No	Yes	2.00
711	47.59	23.92	3.20	4.34	1.00	7.34	12.70	93.23	3.600	No	Yes	2.00
712	47.66	21.40	3.20	3.59	1.00	6.45	12.70	81.89	3.600	No	Yes	2.00
713	47.77	19.71	3.20	3.13	1.00	5.85	12.77	74.67	3.600	No	Yes	2.00
714	47.82	18.77	3.24	3.41	1.00	5.51	13.75	75.76	3.600	No	Yes	2.00
715	47.91	18.38	3.26	3.59	1.00	5.37	14.28	76.63	3.600	No	Yes	2.00
716	47.93	17.68	3.30	3.86	1.00	5.12	15.17	77.65	3.600	No	Yes	2.00
717	47.97	17.78	3.30	3.92	1.00	5.15	15.21	78.37	3.600	No	Yes	2.00
718	48.02	17.86	3.31	4.05	1.00	5.17	15.38	79.56	3.600	No	Yes	2.00
719	48.07	18.51	3.30	4.11	1.00	5.39	15.07	81.21	3.600	No	Yes	2.00
720	48.12	18.61	3.31	4.43	1.00	5.42	15.51	84.04	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	48.19	18.71	3.33	4.73	1.00	5.44	15.90	86.54	3.600	No	Yes	2.00
722	48.23	18.91	3.33	4.96	1.00	5.51	16.11	88.74	3.600	No	Yes	2.00
723	48.31	19.15	3.33	5.05	1.00	5.58	16.11	89.88	3.600	No	Yes	2.00
724	48.35	19.35	3.33	5.13	1.00	5.64	16.11	90.92	3.600	No	Yes	2.00
725	48.40	19.25	3.34	5.27	1.00	5.60	16.37	91.72	3.600	No	Yes	2.00
726	48.45	18.81	3.36	5.50	1.00	5.45	16.96	92.39	3.600	No	Yes	2.00
727	48.50	18.07	3.40	5.83	1.00	5.19	17.92	92.93	3.600	No	Yes	2.00
728	48.55	17.80	3.41	6.00	1.00	5.09	18.35	93.37	3.600	No	Yes	2.00
729	48.59	17.64	3.42	6.20	1.00	5.03	18.75	94.24	3.600	No	Yes	2.00
730	48.67	17.87	3.42	6.18	1.00	5.10	18.56	94.62	3.600	No	Yes	2.00
731	48.73	17.84	3.42	6.16	1.00	5.08	18.58	94.36	3.600	No	Yes	2.00
732	48.78	17.97	3.40	5.89	1.00	5.12	18.13	92.80	3.600	No	Yes	2.00
733	48.83	17.97	3.39	5.58	1.00	5.11	17.74	90.68	3.600	No	Yes	2.00
734	48.91	17.94	3.38	5.27	1.00	5.09	17.35	88.35	3.600	No	Yes	2.00
735	48.98	17.84	3.37	5.04	1.00	5.05	17.10	86.35	3.600	No	Yes	2.00
736	49.03	17.74	3.37	4.91	1.00	5.01	17.00	85.19	3.600	No	Yes	2.00
737	49.12	17.68	3.35	4.63	1.00	4.98	16.65	82.90	3.600	No	Yes	2.00
738	49.17	17.75	3.33	4.17	1.00	5.00	15.91	79.48	3.600	No	Yes	2.00
739	49.27	18.02	3.30	3.75	1.00	5.08	15.07	76.51	3.600	No	Yes	2.00
740	49.31	18.56	3.28	3.65	1.00	5.25	14.57	76.55	3.600	No	Yes	2.00
741	49.38	19.20	3.27	3.79	1.00	5.46	14.44	78.88	3.600	No	Yes	2.00
742	49.45	19.70	3.27	3.95	1.00	5.62	14.44	81.15	3.600	No	Yes	2.00
743	49.51	19.00	3.31	4.33	1.00	5.38	15.44	83.00	3.600	No	Yes	2.00
744	49.54	19.44	3.30	4.37	1.00	5.52	15.24	84.13	3.600	No	Yes	2.00
745	49.59	20.18	3.28	4.25	1.00	5.76	14.65	84.45	3.600	No	Yes	2.00
746	49.64	21.53	3.23	3.89	1.00	6.21	13.47	83.63	3.600	No	Yes	2.00
747	49.73	21.20	3.24	3.89	1.00	6.09	13.64	83.01	3.600	No	Yes	2.00
748	49.83	20.02	3.27	4.07	1.00	5.68	14.52	82.47	3.600	No	Yes	2.00
749	49.92	18.88	3.31	4.30	1.00	5.29	15.55	82.19	3.600	No	Yes	2.00
750	49.98	17.86	3.35	4.49	1.00	4.94	16.51	81.62	3.600	No	Yes	2.00
751	50.07	17.33	3.37	4.57	1.00	4.75	17.04	81.01	3.600	No	Yes	2.00
752	50.16	16.99	3.38	4.61	1.00	4.63	17.38	80.51	3.600	No	Yes	2.00
753	50.24	16.69	3.39	4.65	1.00	4.52	17.70	80.06	3.600	No	Yes	2.00
754	50.32	16.46	3.40	4.71	1.00	4.44	17.99	79.87	3.600	No	Yes	2.00
755	50.41	16.32	3.41	4.79	1.00	4.39	18.25	80.02	3.600	No	Yes	2.00
756	50.50	16.36	3.41	4.79	1.00	4.39	18.25	80.09	3.600	No	Yes	2.00
757	50.56	16.26	3.41	4.73	1.00	4.35	18.25	79.36	3.600	No	Yes	2.00
758	50.66	16.09	3.41	4.63	1.00	4.28	18.27	78.27	3.600	No	Yes	2.00
759	50.74	15.92	3.41	4.59	1.00	4.22	18.37	77.53	3.600	No	Yes	2.00
760	50.84	15.85	3.43	4.94	1.00	4.19	19.00	79.62	3.600	No	Yes	2.00
761	50.93	15.95	3.46	5.57	1.00	4.21	19.91	83.88	3.600	No	Yes	2.00
762	50.98	16.77	3.48	6.56	1.00	4.47	20.59	92.08	3.600	No	Yes	2.00
763	51.08	19.60	3.43	7.08	1.00	5.39	19.08	102.75	3.600	No	Yes	2.00
764	51.17	24.45	3.34	6.97	1.00	6.95	16.30	113.31	3.600	No	Yes	2.00
765	51.24	30.11	3.25	6.75	1.00	8.78	13.98	122.80	3.600	No	Yes	2.00
766	51.34	33.65	3.21	6.76	1.00	9.91	13.03	129.12	3.600	No	Yes	2.00
767	51.41	34.16	3.18	6.01	1.00	10.06	12.19	122.59	3.600	No	Yes	2.00
768	51.51	32.81	3.17	5.54	1.00	9.60	12.05	115.66	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	51.58	31.20	3.16	4.92	1.00	9.06	11.80	106.93	3.600	No	Yes	2.00
770	51.68	29.95	3.20	5.43	1.00	8.64	12.73	109.98	3.600	No	Yes	2.00
771	51.79	27.39	3.26	5.93	1.00	7.80	14.12	110.16	3.600	No	Yes	2.00
772	51.82	25.87	3.30	6.27	1.00	7.31	15.07	110.15	3.600	No	Yes	2.00
773	51.85	24.39	3.34	6.78	1.00	6.83	16.27	111.07	3.600	No	Yes	2.00
774	51.91	25.00	3.34	6.90	1.00	7.01	16.14	113.23	3.600	No	Yes	2.00
775	52.00	24.87	3.36	7.36	1.00	6.96	16.71	116.25	3.600	No	Yes	2.00
776	52.05	27.06	3.31	7.10	1.00	7.65	15.54	118.92	3.600	No	Yes	2.00
777	52.10	31.78	3.21	6.10	1.00	9.15	13.00	118.95	3.600	No	Yes	2.00
778	52.19	38.49	3.08	4.92	1.00	11.27	10.28	115.81	3.600	No	Yes	2.00
779	52.28	44.04	2.99	4.15	1.00	13.02	8.58	111.69	3.600	No	Yes	2.00
780	52.34	46.37	2.95	3.85	1.00	13.74	7.96	109.32	3.600	No	Yes	2.00
781	52.42	46.09	2.96	3.90	1.00	13.63	8.05	109.66	3.600	No	Yes	2.00
782	52.48	44.34	2.98	4.10	1.00	13.05	8.50	111.03	3.600	No	Yes	2.00
783	52.57	42.32	3.01	4.26	1.00	12.39	8.98	111.27	3.600	No	Yes	2.00
784	52.62	40.26	3.03	4.31	1.00	11.73	9.37	109.88	3.600	No	Yes	2.00
785	52.69	38.51	3.05	4.22	1.00	11.16	9.58	106.89	3.600	No	Yes	2.00
786	52.77	36.89	3.06	4.17	1.00	10.63	9.83	104.50	3.600	No	Yes	2.00
787	52.87	35.55	3.08	4.24	1.00	10.19	10.19	103.83	3.600	No	Yes	2.00
788	52.91	34.07	3.10	4.28	1.00	9.71	10.56	102.56	3.600	No	Yes	2.00
789	53.01	32.55	3.12	4.42	1.00	9.21	11.08	102.13	3.600	No	Yes	2.00
790	53.10	32.18	3.14	4.56	1.00	9.08	11.35	103.11	3.600	No	Yes	2.00
791	53.16	34.04	3.15	5.28	1.00	9.65	11.74	113.26	3.600	No	Yes	2.00
792	53.25	38.69	3.13	5.64	1.00	11.08	11.13	123.32	3.600	No	Yes	2.00
793	53.29	44.28	3.10	6.15	1.00	12.82	10.63	136.25	3.600	No	Yes	2.00
794	53.38	48.90	3.07	6.34	1.00	14.23	10.13	144.18	3.600	No	Yes	2.00
795	53.42	59.32	2.99	5.88	1.00	17.47	8.56	149.47	3.600	No	Yes	2.00
796	53.47	74.66	2.87	5.11	1.00	22.21	6.75	150.02	3.600	No	Yes	2.00
797	53.52	92.88	2.76	4.46	1.00	27.85	5.32	148.22	3.600	No	Yes	2.00
798	53.58	102.94	2.72	4.44	1.00	30.94	4.93	152.55	3.600	No	Yes	2.00
799	53.66	103.80	2.74	4.76	1.00	31.15	5.14	160.18	3.600	No	Yes	2.00
800	53.75	98.64	2.79	5.33	1.00	29.50	5.74	169.41	3.600	No	Yes	2.00
801	53.81	88.93	2.86	5.98	1.00	26.46	6.64	175.67	3.600	No	Yes	2.00
802	53.87	78.89	2.93	6.58	1.00	23.33	7.63	177.89	3.600	No	Yes	2.00
803	53.95	67.24	3.02	7.41	1.00	19.70	9.07	178.71	3.600	No	Yes	2.00
804	54.01	57.35	3.10	8.28	1.00	16.64	10.67	177.57	3.600	No	Yes	2.00
805	54.06	47.51	3.20	9.23	1.00	13.60	12.71	172.90	3.600	No	Yes	2.00
806	54.15	41.78	3.26	9.77	1.00	11.83	14.16	167.57	3.600	No	Yes	2.00
807	54.20	40.60	3.27	9.77	1.00	11.46	14.42	165.24	3.600	No	Yes	2.00
808	54.29	47.57	3.17	8.38	1.00	13.59	12.09	164.23	3.600	No	Yes	2.00
809	54.34	69.40	2.89	4.90	1.00	20.27	7.00	141.87	4.000	Yes	Yes	2.00
810	54.43	100.37	2.59	2.67	1.00	29.73	3.65	108.63	4.000	Yes	No	2.00
811	54.45	137.16	2.32	1.48	1.00	41.00	2.00	82.07	4.000	Yes	No	2.00
812	54.48	166.07	2.20	1.22	1.00	49.83	1.62	80.59	4.000	Yes	No	2.00
813	54.52	185.51	2.14	1.11	1.00	55.76	1.48	82.69	4.000	Yes	No	2.00
814	54.53	198.85	2.12	1.13	1.00	59.83	1.45	86.57	4.000	Yes	No	2.00
815	54.58	207.94	2.11	1.17	1.00	62.58	1.44	89.91	0.148	No	No	0.75
816	54.62	219.64	2.10	1.19	1.00	66.13	1.42	93.59	0.156	No	No	0.80

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	54.65	233.46	2.07	1.16	1.00	70.33	1.38	96.81	0.164	No	No	0.84
818	54.70	244.67	2.05	1.15	1.00	73.72	1.36	99.98	0.173	No	No	0.88
819	54.76	251.12	2.05	1.17	1.00	75.64	1.35	102.23	0.179	No	No	0.92
820	54.77	249.88	2.06	1.22	1.00	75.25	1.37	102.77	0.181	No	No	0.92
821	54.82	251.50	2.06	1.21	1.00	75.71	1.36	103.16	0.182	No	No	0.93
822	54.87	253.07	2.05	1.21	1.00	76.14	1.36	103.55	0.183	No	No	0.94
823	54.88	255.63	2.05	1.20	1.00	76.92	1.35	104.08	0.185	No	No	0.94
824	54.91	257.28	2.05	1.20	1.00	77.39	1.35	104.56	0.186	No	No	0.95
825	54.96	263.42	2.04	1.18	1.00	79.22	1.34	106.09	0.191	No	No	0.98
826	54.97	276.70	2.01	1.17	1.00	83.26	1.32	109.90	0.203	No	No	1.04
827	55.03	294.89	1.99	1.17	1.00	88.74	1.30	115.47	0.223	No	No	1.14
828	55.09	315.21	1.96	1.11	1.00	94.86	1.27	120.89	0.244	No	No	1.25
829	55.15	327.84	1.89	0.92	1.00	98.63	1.23	121.55	0.247	No	No	1.26
830	55.20	338.35	1.85	0.83	1.00	101.77	1.20	122.41	0.251	No	No	1.28
831	55.25	358.17	1.78	0.67	1.00	107.74	1.13	121.49	0.247	No	No	1.26
832	55.30	386.84	1.77	0.71	1.00	116.38	1.11	129.28	0.281	No	No	1.44
833	55.34	417.50	1.74	0.72	1.00	125.63	1.07	134.62	0.307	No	No	1.57
834	55.39	440.05	1.76	0.82	1.00	132.40	1.10	146.03	0.370	No	No	1.89
835	55.40	462.28	1.76	0.87	1.00	139.13	1.10	153.71	0.418	No	No	2.00
836	55.44	482.80	1.75	0.87	1.00	145.29	1.08	157.35	0.442	No	No	2.00
837	55.44	511.21	1.72	0.83	1.00	153.88	1.02	157.04	0.440	No	No	2.00
838	55.49	517.76	1.72	0.86	1.00	155.78	1.03	160.78	0.467	No	No	2.00
839	55.54	533.43	1.73	0.91	1.00	160.44	1.05	167.71	0.519	No	No	2.00
840	55.59	534.98	1.76	1.00	1.00	160.82	1.10	176.17	0.588	No	No	2.00
841	55.63	551.08	1.75	1.02	1.00	165.61	1.09	180.34	0.625	No	No	2.00
842	55.64	553.47	1.75	1.02	1.00	166.31	1.09	180.79	0.630	No	No	2.00
843	55.68	566.94	1.73	0.98	1.00	170.31	1.06	179.92	0.622	No	No	2.00
844	55.69	570.38	1.73	0.97	1.00	171.33	1.04	178.50	0.609	No	No	2.00
845	55.69	566.17	1.73	0.98	1.00	170.04	1.05	179.38	0.617	No	No	2.00
846	55.71	561.62	1.75	1.03	1.00	168.63	1.09	183.08	0.651	No	No	2.00
847	55.76	567.28	1.76	1.06	1.00	170.25	1.10	186.45	0.683	No	No	2.00
848	55.78	580.19	1.75	1.05	1.00	174.11	1.08	187.85	0.696	No	No	2.00
849	55.81	581.23	1.72	0.98	1.00	174.36	1.04	180.96	0.631	No	No	2.00
850	55.85	584.16	1.69	0.88	1.00	175.16	1.00	175.16	0.580	No	No	2.00
851	55.86	588.34	1.65	0.77	1.00	176.41	1.00	176.41	0.591	No	No	2.00
852	55.91	598.65	1.62	0.70	1.00	179.42	1.00	179.42	0.617	No	No	2.00
853	55.92	602.25	1.60	0.66	1.00	180.48	1.00	180.48	0.627	No	No	2.00
854	55.96	619.03	1.58	0.63	1.00	185.46	1.00	185.46	0.673	No	No	2.00
855	55.97	634.09	1.57	0.63	1.00	189.98	1.00	189.98	0.718	No	No	2.00
856	56.00	654.37	1.56	0.64	1.00	196.01	1.00	196.01	0.780	No	No	2.00
857	56.01	660.12	1.58	0.69	1.00	197.72	1.00	197.72	0.799	No	No	2.00
858	56.03	661.79	1.59	0.72	1.00	198.18	1.00	198.18	0.804	No	No	2.00
859	56.05	661.82	1.60	0.74	1.00	198.14	1.00	198.14	0.803	No	No	2.00
860	56.10	665.04	1.60	0.73	1.00	198.99	1.00	198.99	0.813	No	No	2.00
861	56.12	668.02	1.58	0.70	1.00	199.86	1.00	199.86	0.822	No	No	2.00
862	56.16	667.69	1.57	0.68	1.00	199.67	1.00	199.67	0.820	No	No	2.00
863	56.17	654.78	1.57	0.67	1.00	195.76	1.00	195.76	0.778	No	No	2.00
864	56.20	635.11	1.59	0.69	1.00	189.78	1.00	189.78	0.716	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	56.22	617.48	1.61	0.71	1.00	184.46	1.00	184.46	0.664	No	No	2.00
866	56.24	608.45	1.61	0.71	1.00	181.69	1.00	181.69	0.638	No	No	2.00
867	56.30	602.69	1.62	0.70	1.00	179.84	1.00	179.84	0.621	No	No	2.00
868	56.31	595.69	1.63	0.72	1.00	177.72	1.00	177.72	0.602	No	No	2.00
869	56.34	586.22	1.65	0.77	1.00	174.82	1.00	174.82	0.577	No	No	2.00
870	56.39	579.04	1.66	0.78	1.00	172.57	1.00	172.57	0.558	No	No	2.00
871	56.45	572.30	1.67	0.79	1.00	170.44	1.00	170.44	0.540	No	No	2.00
872	56.48	565.39	1.67	0.79	1.00	168.31	1.00	168.31	0.523	No	No	2.00
873	56.49	555.45	1.70	0.85	1.00	165.32	1.00	165.32	0.500	No	No	2.00
874	56.53	542.15	1.73	0.91	1.00	161.25	1.05	168.57	0.525	No	No	2.00
875	56.58	529.04	1.75	0.94	1.00	157.24	1.08	169.38	0.532	No	No	2.00
876	56.63	524.73	1.67	0.72	1.00	155.86	1.00	155.86	0.432	No	No	2.00
877	56.68	526.01	1.58	0.52	1.00	156.17	1.00	156.17	0.434	No	No	2.00
878	56.73	531.33	1.53	0.43	1.00	157.68	1.00	157.68	0.445	No	No	2.00
879	56.78	526.31	1.62	0.60	1.00	156.09	1.00	156.09	0.434	No	No	2.00
880	56.83	517.99	1.69	0.76	1.00	153.53	1.00	153.53	0.417	No	No	2.00
881	56.89	503.37	1.73	0.85	1.00	149.05	1.06	157.35	0.442	No	No	2.00
882	56.95	485.04	1.77	0.94	1.00	143.50	1.12	160.76	0.466	No	No	2.00
883	56.99	470.25	1.81	1.02	1.00	139.02	1.16	161.37	0.471	No	No	2.00
884	57.01	460.92	1.83	1.07	1.00	136.23	1.18	160.98	0.468	No	No	2.00
885	57.04	461.73	1.82	1.05	1.00	136.41	1.18	160.65	0.466	No	No	2.00
886	57.09	468.20	1.81	1.02	1.00	138.26	1.17	161.13	0.469	No	No	2.00
887	57.11	477.43	1.81	1.03	1.00	140.98	1.16	163.57	0.487	No	No	2.00
888	57.13	488.62	1.81	1.06	1.00	144.26	1.16	167.47	0.517	No	No	2.00
889	57.18	488.78	1.82	1.11	1.00	144.24	1.17	169.44	0.532	No	No	2.00
890	57.19	477.80	1.85	1.18	1.00	140.96	1.20	168.95	0.529	No	No	2.00
891	57.21	464.47	1.87	1.22	1.00	136.96	1.21	166.30	0.508	No	No	2.00
892	57.24	456.12	1.88	1.23	1.00	134.45	1.22	164.00	0.490	No	No	2.00
893	57.28	456.72	1.87	1.20	1.00	134.56	1.21	163.35	0.485	No	No	2.00
894	57.32	450.91	1.87	1.19	1.00	132.78	1.22	161.45	0.471	No	No	2.00
895	57.35	445.39	1.88	1.21	1.00	131.08	1.22	160.03	0.461	No	No	2.00
896	57.38	435.59	1.89	1.22	1.00	128.14	1.23	157.50	0.443	No	No	2.00
897	57.43	430.50	1.89	1.21	1.00	126.56	1.23	155.53	0.430	No	No	2.00
898	57.48	414.66	1.90	1.19	1.00	121.80	1.23	150.26	0.396	No	No	2.00
899	57.52	398.59	1.89	1.12	1.00	116.98	1.23	143.92	0.357	No	No	1.85
900	57.57	389.56	1.91	1.18	1.00	114.25	1.25	142.28	0.348	No	No	1.80
901	57.62	396.66	1.94	1.29	1.00	116.29	1.26	146.53	0.373	No	No	1.93
902	57.68	427.50	1.92	1.35	1.00	125.32	1.25	157.03	0.440	No	No	2.00
903	57.76	462.23	1.88	1.27	1.00	135.46	1.23	166.00	0.505	No	No	2.00
904	57.81	505.50	1.75	0.90	1.00	148.16	1.09	161.17	0.469	No	No	2.00
905	57.86	543.58	1.63	0.63	1.00	159.31	1.00	159.31	0.456	No	No	2.00
906	57.89	572.52	1.49	0.39	1.00	167.80	1.00	167.80	0.519	No	No	2.00
907	57.91	583.54	1.48	0.39	1.00	171.02	1.00	171.02	0.545	No	No	2.00
908	57.92	577.13	1.50	0.42	1.00	169.11	1.00	169.11	0.530	No	No	2.00
909	57.95	569.05	1.54	0.47	1.00	166.67	1.00	166.67	0.511	No	No	2.00
910	57.99	570.66	1.56	0.52	1.00	167.08	1.00	167.08	0.514	No	No	2.00
911	58.01	578.72	1.57	0.56	1.00	169.42	1.00	169.42	0.532	No	No	2.00
912	58.05	591.19	1.58	0.58	1.00	173.02	1.00	173.02	0.562	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	58.05	598.87	1.59	0.62	1.00	175.27	1.00	175.27	0.581	No	No	2.00
914	58.10	604.77	1.60	0.65	1.00	176.91	1.00	176.91	0.595	No	No	2.00
915	58.13	611.17	1.60	0.67	1.00	178.73	1.00	178.73	0.611	No	No	2.00
916	58.15	618.51	1.60	0.66	1.00	180.87	1.00	180.87	0.630	No	No	2.00
917	58.17	625.12	1.59	0.65	1.00	182.75	1.00	182.75	0.648	No	No	2.00
918	58.20	623.43	1.59	0.66	1.00	182.21	1.00	182.21	0.643	No	No	2.00
919	58.21	619.40	1.60	0.67	1.00	181.00	1.00	181.00	0.632	No	No	2.00
920	58.21	614.30	1.61	0.68	1.00	179.50	1.00	179.50	0.618	No	No	2.00
921	58.23	613.93	1.61	0.68	1.00	179.34	1.00	179.34	0.616	No	No	2.00
922	58.24	608.11	1.62	0.69	1.00	177.62	1.00	177.62	0.601	No	No	2.00
923	58.25	609.21	1.54	0.52	1.00	177.92	1.00	177.92	0.604	No	No	2.00
924	58.29	613.99	1.44	0.36	1.00	179.26	1.00	179.26	0.616	No	No	2.00
925	58.31	627.24	1.32	0.20	1.00	183.11	1.00	183.11	0.651	No	No	2.00
926	58.33	639.00	1.34	0.24	1.00	186.52	1.00	186.52	0.683	No	No	2.00
927	58.38	651.36	1.37	0.28	1.00	190.06	1.00	190.06	0.718	No	No	2.00
928	58.39	661.87	1.39	0.32	1.00	193.13	1.00	193.13	0.750	No	No	2.00
929	58.43	670.53	1.40	0.34	1.00	195.59	1.00	195.59	0.776	No	No	2.00
930	58.43	682.73	1.39	0.33	1.00	199.15	1.00	199.15	0.815	No	No	2.00
931	58.48	688.02	1.40	0.35	1.00	200.60	1.00	200.60	4.000	No	No	2.00
932	58.53	694.39	1.41	0.38	1.00	202.36	1.00	202.36	4.000	No	No	2.00
933	58.56	696.37	1.46	0.46	1.00	202.90	1.00	202.90	4.000	No	No	2.00
934	58.58	704.43	1.47	0.49	1.00	205.20	1.00	205.20	4.000	No	No	2.00
935	58.59	710.90	1.49	0.52	1.00	207.06	1.00	207.06	4.000	No	No	2.00
936	58.63	707.18	1.49	0.53	1.00	205.90	1.00	205.90	4.000	No	No	2.00
937	58.63	709.20	1.50	0.54	1.00	206.49	1.00	206.49	4.000	No	No	2.00
938	58.63	695.36	1.51	0.54	1.00	202.42	1.00	202.42	4.000	No	No	2.00
939	58.68	700.19	1.49	0.51	1.00	203.74	1.00	203.74	4.000	No	No	2.00
940	58.69	701.88	1.45	0.44	1.00	204.22	1.00	204.22	4.000	No	No	2.00
941	58.72	717.85	1.40	0.38	1.00	208.81	1.00	208.81	4.000	No	No	2.00
942	58.73	722.94	1.38	0.36	1.00	210.28	1.00	210.28	4.000	No	No	2.00
943	58.74	728.64	1.41	0.40	1.00	211.92	1.00	211.92	4.000	No	No	2.00
944	58.77	726.96	1.44	0.45	1.00	211.36	1.00	211.36	4.000	No	No	2.00
945	58.81	722.67	1.47	0.50	1.00	210.02	1.00	210.02	4.000	No	No	2.00
946	58.82	713.94	1.49	0.53	1.00	207.44	1.00	207.44	4.000	No	No	2.00
947	58.83	715.80	1.51	0.57	1.00	207.97	1.00	207.97	4.000	No	No	2.00
948	58.87	722.33	1.52	0.60	1.00	209.78	1.00	209.78	4.000	No	No	2.00
949	58.91	731.67	1.53	0.63	1.00	212.41	1.00	212.41	4.000	No	No	2.00
950	58.92	737.87	1.54	0.64	1.00	214.21	1.00	214.21	4.000	No	No	2.00
951	58.93	740.53	1.53	0.64	1.00	214.95	1.00	214.95	4.000	No	No	2.00
952	58.96	739.05	1.53	0.63	1.00	214.44	1.00	214.44	4.000	No	No	2.00
953	59.01	716.31	1.56	0.67	1.00	207.70	1.00	207.70	4.000	No	No	2.00
954	59.06	687.29	1.59	0.73	1.00	199.13	1.00	199.13	0.814	No	No	2.00
955	59.08	655.28	1.63	0.78	1.00	189.77	1.00	189.77	0.716	No	No	2.00
956	59.11	638.94	1.65	0.81	1.00	184.95	1.00	184.95	0.668	No	No	2.00
957	59.15	627.21	1.68	0.88	1.00	181.46	1.00	181.46	0.636	No	No	2.00
958	59.21	618.28	1.70	0.94	1.00	178.75	1.00	178.75	0.611	No	No	2.00
959	59.26	606.09	1.72	0.96	1.00	175.11	1.02	178.89	0.612	No	No	2.00
960	59.30	592.31	1.71	0.92	1.00	171.02	1.01	173.20	0.563	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	59.35	579.87	1.71	0.90	1.00	167.32	1.01	169.07	0.529	No	No	2.00
962	59.40	562.76	1.73	0.91	1.00	162.26	1.04	168.73	0.527	No	No	2.00
963	59.42	550.96	1.74	0.92	1.00	158.81	1.06	168.34	0.524	No	No	2.00
964	59.47	539.34	1.75	0.93	1.00	155.35	1.08	167.78	0.519	No	No	2.00
965	59.51	539.41	1.75	0.95	1.00	155.29	1.09	168.63	0.526	No	No	2.00
966	59.56	537.97	1.75	0.95	1.00	154.79	1.09	168.59	0.526	No	No	2.00
967	59.61	537.36	1.74	0.90	1.00	154.53	1.06	164.50	0.494	No	No	2.00
968	59.67	541.98	1.70	0.80	1.00	155.77	1.00	155.77	0.432	No	No	2.00
969	59.71	553.73	1.65	0.69	1.00	159.11	1.00	159.11	0.455	No	No	2.00
970	59.80	555.82	1.61	0.59	1.00	159.56	1.00	159.56	0.458	No	No	2.00
971	59.85	552.45	1.59	0.54	1.00	158.50	1.00	158.50	0.450	No	No	2.00
972	59.90	542.21	1.59	0.53	1.00	155.47	1.00	155.47	0.429	No	No	2.00
973	60.00	542.99	1.59	0.54	1.00	155.53	1.00	155.53	0.430	No	No	2.00
974	60.04	541.71	1.60	0.56	1.00	155.09	1.00	155.09	0.427	No	No	2.00
975	60.10	526.52	1.63	0.60	1.00	150.62	1.00	150.62	0.398	No	No	2.00
976	60.15	508.32	1.67	0.66	1.00	145.30	1.00	145.30	0.365	No	No	1.91
977	60.19	487.40	1.70	0.69	1.00	139.22	1.00	139.22	0.331	No	No	1.73
978	60.23	483.49	1.69	0.66	1.00	138.03	1.00	138.03	0.325	No	No	1.70
979	60.28	482.61	1.68	0.63	1.00	137.71	1.00	137.71	0.323	No	No	1.69
980	60.33	488.98	1.67	0.62	1.00	139.47	1.00	139.47	0.332	No	No	1.74
981	60.38	491.97	1.67	0.64	1.00	140.26	1.00	140.26	0.337	No	No	1.77
982	60.42	493.85	1.69	0.68	1.00	140.74	1.00	140.74	0.339	No	No	1.78
983	60.44	487.18	1.71	0.72	1.00	138.79	1.01	140.24	0.337	No	No	1.76
984	60.47	475.94	1.74	0.79	1.00	135.53	1.08	145.72	0.368	No	No	1.93
985	60.52	465.53	1.78	0.87	1.00	132.47	1.12	148.94	0.387	No	No	2.00
986	60.56	462.70	1.79	0.92	1.00	131.60	1.15	150.90	0.400	No	No	2.00
987	60.57	465.03	1.79	0.92	1.00	132.25	1.15	151.48	0.403	No	No	2.00
988	60.61	470.62	1.78	0.89	1.00	133.80	1.13	151.48	0.403	No	No	2.00
989	60.66	477.29	1.77	0.88	1.00	135.64	1.12	151.98	0.406	No	No	2.00
990	60.71	486.66	1.77	0.87	1.00	138.25	1.11	153.21	0.414	No	No	2.00
991	60.76	495.25	1.77	0.90	1.00	140.63	1.11	156.59	0.437	No	No	2.00
992	60.81	504.76	1.77	0.92	1.00	143.27	1.11	159.58	0.458	No	No	2.00
993	60.86	523.05	1.75	0.90	1.00	148.43	1.08	161.02	0.468	No	No	2.00
994	60.91	559.78	1.70	0.83	1.00	158.84	1.00	158.84	0.453	No	No	2.00
995	60.95	601.50	1.66	0.78	1.00	170.69	1.00	170.69	0.542	No	No	2.00
996	61.00	637.66	1.64	0.77	1.00	180.91	1.00	180.91	0.631	No	No	2.00
997	61.02	657.74	1.64	0.79	1.00	186.60	1.00	186.60	0.684	No	No	2.00
998	61.05	685.10	1.62	0.78	1.00	194.34	1.00	194.34	0.763	No	No	2.00
999	61.08	710.24	1.61	0.77	1.00	201.44	1.00	201.44	4.000	No	No	2.00
1000	61.09	731.84	1.59	0.76	1.00	207.57	1.00	207.57	4.000	No	No	2.00
1001	61.13	737.94	1.59	0.76	1.00	209.24	1.00	209.24	4.000	No	No	2.00
1002	61.14	739.46	1.60	0.77	1.00	209.63	1.00	209.63	4.000	No	No	2.00
1003	61.16	741.44	1.60	0.78	1.00	210.15	1.00	210.15	4.000	No	No	2.00
1004	61.20	750.88	1.58	0.75	1.00	212.77	1.00	212.77	4.000	No	No	2.00
1005	61.23	762.13	1.56	0.71	1.00	215.88	1.00	215.88	4.000	No	No	2.00
1006	61.24	766.92	1.52	0.62	1.00	217.23	1.00	217.23	4.000	No	No	2.00
1007	61.29	758.86	1.51	0.59	1.00	214.83	1.00	214.83	4.000	No	No	2.00
1008	61.30	744.24	1.52	0.59	1.00	210.65	1.00	210.65	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	61.33	734.57	1.55	0.65	1.00	207.82	1.00	207.82	4.000	No	No	2.00
1010	61.38	730.90	1.55	0.65	1.00	206.66	1.00	206.66	4.000	No	No	2.00
1011	61.43	731.07	1.53	0.60	1.00	206.60	1.00	206.60	4.000	No	No	2.00
1012	61.48	738.25	1.50	0.56	1.00	208.54	1.00	208.54	4.000	No	No	2.00
1013	61.53	750.91	1.48	0.53	1.00	212.02	1.00	212.02	4.000	No	No	2.00
1014	61.56	754.78	1.48	0.52	1.00	213.05	1.00	213.05	4.000	No	No	2.00
1015	61.58	726.93	1.50	0.54	1.00	205.10	1.00	205.10	4.000	No	No	2.00
1016	61.59	702.39	1.52	0.55	1.00	198.13	1.00	198.13	0.803	No	No	2.00
1017	61.62	600.70	1.61	0.64	1.00	169.24	1.00	169.24	0.531	No	No	2.00
1018	61.63	595.30	1.61	0.64	1.00	167.67	1.00	167.67	0.518	No	No	2.00
1019	61.67	588.36	1.62	0.64	1.00	165.65	1.00	165.65	0.503	No	No	2.00
1020	61.71	662.66	1.55	0.57	1.00	186.61	1.00	186.61	0.684	No	No	2.00
1021	61.76	655.52	1.55	0.57	1.00	184.50	1.00	184.50	0.664	No	No	2.00
1022	61.81	634.02	1.54	0.53	1.00	178.32	1.00	178.32	0.607	No	No	2.00
1023	61.86	615.02	1.52	0.48	1.00	172.85	1.00	172.85	0.560	No	No	2.00
1024	61.87	600.83	1.48	0.38	1.00	168.83	1.00	168.83	0.528	No	No	2.00
1025	61.91	588.87	1.44	0.32	1.00	165.39	1.00	165.39	0.501	No	No	2.00
1026	61.95	578.02	1.42	0.27	1.00	162.25	1.00	162.25	0.477	No	No	2.00
1027	61.96	566.74	1.42	0.26	1.00	159.04	1.00	159.04	0.454	No	No	2.00
1028	62.00	553.70	1.45	0.29	1.00	155.30	1.00	155.30	0.428	No	No	2.00
1029	62.04	535.16	1.49	0.33	1.00	150.01	1.00	150.01	0.394	No	No	2.00
1030	62.06	510.97	1.55	0.41	1.00	143.15	1.00	143.15	0.353	No	No	1.86
1031	62.10	491.66	1.60	0.47	1.00	137.65	1.00	137.65	0.323	No	No	1.70
1032	62.14	475.52	1.64	0.51	1.00	133.04	1.00	133.04	0.299	No	No	1.58
1033	62.20	463.08	1.66	0.55	1.00	129.46	1.00	129.46	0.282	No	No	1.49
1034	62.22	439.20	1.71	0.60	1.00	122.70	1.00	122.70	0.252	No	No	1.33
1035	62.27	415.48	1.75	0.66	1.00	115.96	1.08	125.13	0.262	No	No	1.39
1036	62.29	396.37	1.78	0.71	1.00	110.55	1.13	125.44	0.264	No	No	1.39
1037	62.34	380.26	1.82	0.77	1.00	105.96	1.17	124.22	0.258	No	No	1.37
1038	62.39	366.62	1.86	0.86	1.00	102.08	1.21	123.46	0.255	No	No	1.35
1039	62.43	347.78	1.93	1.03	1.00	96.73	1.26	121.51	0.247	No	No	1.31
1040	62.49	340.13	1.97	1.16	1.00	94.52	1.28	121.38	0.246	No	No	1.30
1041	62.57	336.43	1.99	1.25	1.00	93.40	1.30	121.70	0.248	No	No	1.31
1042	62.68	357.18	1.98	1.25	1.00	99.12	1.29	127.79	0.274	No	No	1.45
1043	62.75	398.26	1.93	1.21	1.00	110.56	1.26	139.12	0.330	No	No	1.75
1044	62.87	426.23	1.91	1.20	1.00	118.25	1.24	146.86	0.375	No	No	1.99
1045	62.88	409.21	1.93	1.22	1.00	113.48	1.25	142.25	0.348	No	No	1.84
1046	62.89	424.34	1.86	1.01	1.00	117.70	1.21	142.29	0.348	No	No	1.84
1047	62.93	485.42	1.74	0.76	1.00	134.75	1.06	142.80	0.351	No	No	1.86
1048	62.98	571.92	1.61	0.59	1.00	158.87	1.00	158.87	0.453	No	No	2.00
1049	63.02	620.24	1.47	0.38	1.00	172.30	1.00	172.30	0.556	No	No	2.00
1050	63.07	658.55	1.31	0.19	1.00	182.93	1.00	182.93	0.649	No	No	2.00
1051	63.12	710.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1052	63.14	752.36	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1053	63.17	781.30	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1054	63.17	799.36	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1055	63.20	825.98	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1056	63.21	830.83	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	63.23	842.91	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1058	63.26	834.75	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1059	63.28	841.52	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1060	63.31	838.10	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1061	63.32	839.38	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1062	63.36	837.12	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1063	63.40	836.85	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.01	2.00	0.00	0.00	0.02	0.00	0.04	2.00	0.00	0.00	0.02	0.00
0.09	2.00	0.00	0.00	0.05	0.00	0.11	2.00	0.00	0.00	0.02	0.00
0.14	2.00	0.00	0.00	0.03	0.00	0.14	2.00	0.00	0.00	0.01	0.00
0.18	2.00	0.00	0.00	0.04	0.00	0.23	2.00	0.00	0.00	0.05	0.00
0.24	2.00	0.00	0.00	0.01	0.00	0.28	2.00	0.00	0.00	0.04	0.00
0.33	2.00	0.00	0.00	0.05	0.00	0.38	2.00	0.00	0.00	0.05	0.00
0.42	2.00	0.00	0.00	0.05	0.00	0.47	2.00	0.00	0.00	0.05	0.00
0.51	2.00	0.00	0.00	0.04	0.00	0.52	2.00	0.00	0.00	0.01	0.00
0.57	2.00	0.00	0.00	0.05	0.00	0.61	2.00	0.00	0.00	0.04	0.00
0.67	2.00	0.00	0.00	0.05	0.00	0.73	2.00	0.00	0.00	0.06	0.00
0.81	2.00	0.00	0.00	0.08	0.00	0.86	2.00	0.00	0.00	0.05	0.00
0.98	2.00	0.00	0.00	0.12	0.00	1.05	2.00	0.00	0.00	0.07	0.00
1.15	2.00	0.00	0.00	0.10	0.00	1.24	2.00	0.00	0.00	0.09	0.00
1.34	2.00	0.00	0.00	0.10	0.00	1.43	2.00	0.00	0.00	0.09	0.00
1.53	2.00	0.00	0.00	0.10	0.00	1.58	2.00	0.00	0.00	0.05	0.00
1.62	2.00	0.00	0.00	0.04	0.00	1.67	2.00	0.00	0.00	0.05	0.00
1.75	2.00	0.00	0.00	0.07	0.00	1.77	2.00	0.00	0.00	0.03	0.00
1.81	2.00	0.00	0.00	0.04	0.00	1.86	2.00	0.00	0.00	0.04	0.00
1.91	2.00	0.00	0.00	0.05	0.00	1.95	2.00	0.00	0.00	0.04	0.00
2.00	2.00	0.00	0.00	0.05	0.00	2.05	2.00	0.00	0.00	0.05	0.00
2.11	2.00	0.00	0.00	0.06	0.00	2.20	2.00	0.00	0.00	0.09	0.00
2.24	2.00	0.00	0.00	0.05	0.00	2.29	2.00	0.00	0.00	0.05	0.00
2.34	2.00	0.00	0.00	0.05	0.00	2.44	2.00	0.00	0.00	0.10	0.00
2.48	2.00	0.00	0.00	0.05	0.00	2.58	2.00	0.00	0.00	0.10	0.00
2.63	2.00	0.00	0.00	0.05	0.00	2.71	2.00	0.00	0.00	0.08	0.00
2.78	2.00	0.00	0.00	0.07	0.00	2.82	2.00	0.00	0.00	0.04	0.00
2.89	2.00	0.00	0.00	0.07	0.00	2.96	2.00	0.00	0.00	0.08	0.00
3.03	2.00	0.00	0.00	0.07	0.00	3.11	2.00	0.00	0.00	0.08	0.00
3.19	2.00	0.00	0.00	0.09	0.00	3.25	2.00	0.00	0.00	0.06	0.00
3.35	2.00	0.00	0.00	0.10	0.00	3.41	2.00	0.00	0.00	0.05	0.00
3.50	2.00	0.00	0.00	0.09	0.00	3.59	2.00	0.00	0.00	0.09	0.00
3.69	2.00	0.00	0.00	0.10	0.00	3.79	2.00	0.00	0.00	0.09	0.00
3.88	2.00	0.00	0.00	0.09	0.00	3.97	2.00	0.00	0.00	0.10	0.00
4.07	2.00	0.00	0.00	0.09	0.00	4.14	2.00	0.00	0.00	0.07	0.00
4.17	2.00	0.00	0.00	0.04	0.00	4.26	2.00	0.00	0.00	0.09	0.00
4.32	2.00	0.00	0.00	0.05	0.00	4.37	2.00	0.00	0.00	0.05	0.00
4.42	2.00	0.00	0.00	0.06	0.00	4.51	2.00	0.00	0.00	0.08	0.00
4.61	2.00	0.00	0.00	0.10	0.00	4.65	2.00	0.00	0.00	0.05	0.00
4.74	2.00	0.00	0.00	0.09	0.00	4.80	2.00	0.00	0.00	0.06	0.00
4.89	2.00	0.00	0.00	0.09	0.00	4.95	2.00	0.00	0.00	0.05	0.00
5.04	2.00	0.00	0.00	0.09	0.00	5.13	2.00	0.00	0.00	0.09	0.00
5.18	2.00	0.00	0.00	0.05	0.00	5.28	2.00	0.00	0.00	0.10	0.00
5.32	2.00	0.00	0.00	0.04	0.00	5.42	2.00	0.00	0.00	0.10	0.00
5.51	2.00	0.00	0.00	0.09	0.00	5.60	2.00	0.00	0.00	0.09	0.00
5.66	2.00	0.00	0.00	0.06	0.00	5.76	2.00	0.00	0.00	0.09	0.00
5.85	2.00	0.00	0.00	0.09	0.00	5.92	2.00	0.00	0.00	0.07	0.00
5.95	2.00	0.00	0.00	0.03	0.00	5.97	2.00	0.00	0.00	0.02	0.00
6.02	2.00	0.00	0.00	0.06	0.00	6.06	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
6.16	2.00	0.00	0.00	0.10	0.00	6.21	2.00	0.00	0.00	0.04	0.00
6.26	2.00	0.00	0.00	0.06	0.00	6.31	2.00	0.00	0.00	0.04	0.00
6.40	2.00	0.00	0.00	0.09	0.00	6.44	2.00	0.00	0.00	0.04	0.00
6.52	2.00	0.00	0.00	0.08	0.00	6.57	2.00	0.00	0.00	0.05	0.00
6.64	2.00	0.00	0.00	0.07	0.00	6.69	2.00	0.00	0.00	0.05	0.00
6.78	2.00	0.00	0.00	0.09	0.00	6.83	2.00	0.00	0.00	0.05	0.00
6.92	2.00	0.00	0.00	0.09	0.00	6.97	2.00	0.00	0.00	0.05	0.00
7.03	2.00	0.00	0.00	0.05	0.00	7.12	2.00	0.00	0.00	0.09	0.00
7.22	2.00	0.00	0.00	0.10	0.00	7.27	2.00	0.00	0.00	0.05	0.00
7.36	2.00	0.00	0.00	0.09	0.00	7.43	2.00	0.00	0.00	0.08	0.00
7.50	2.00	0.00	0.00	0.07	0.00	7.59	2.00	0.00	0.00	0.09	0.00
7.64	2.00	0.00	0.00	0.05	0.00	7.75	2.00	0.00	0.00	0.10	0.00
7.79	2.00	0.00	0.00	0.04	0.00	7.89	2.00	0.00	0.00	0.10	0.00
7.99	2.00	0.00	0.00	0.10	0.00	8.04	2.00	0.00	0.00	0.05	0.00
8.13	2.00	0.00	0.00	0.09	0.00	8.23	2.00	0.00	0.00	0.10	0.00
8.32	2.00	0.00	0.00	0.09	0.00	8.37	2.00	0.00	0.00	0.05	0.00
8.46	2.00	0.00	0.00	0.09	0.00	8.56	2.00	0.00	0.00	0.10	0.00
8.59	2.00	0.00	0.00	0.02	0.00	8.61	2.00	0.00	0.00	0.03	0.00
8.67	2.00	0.00	0.00	0.05	0.00	8.71	2.00	0.00	0.00	0.04	0.00
8.72	2.00	0.00	0.00	0.01	0.00	8.78	2.00	0.00	0.00	0.06	0.00
8.80	2.00	0.00	0.00	0.02	0.00	8.86	2.00	0.00	0.00	0.05	0.00
8.90	2.00	0.00	0.00	0.04	0.00	8.95	2.00	0.00	0.00	0.05	0.00
8.96	2.00	0.00	0.00	0.01	0.00	9.00	2.00	0.00	0.00	0.04	0.00
9.05	2.00	0.00	0.00	0.05	0.00	9.09	2.00	0.00	0.00	0.04	0.00
9.10	2.00	0.00	0.00	0.01	0.00	9.14	2.00	0.00	0.00	0.05	0.00
9.20	2.00	0.00	0.00	0.05	0.00	9.24	2.00	0.00	0.00	0.04	0.00
9.29	2.00	0.00	0.00	0.05	0.00	9.31	2.00	0.00	0.00	0.02	0.00
9.38	2.00	0.00	0.00	0.07	0.00	9.41	2.00	0.00	0.00	0.03	0.00
9.47	2.00	0.00	0.00	0.06	0.00	9.53	2.00	0.00	0.00	0.05	0.00
9.62	2.00	0.00	0.00	0.09	0.00	9.67	2.00	0.00	0.00	0.05	0.00
9.77	2.00	0.00	0.00	0.10	0.00	9.81	2.00	0.00	0.00	0.05	0.00
9.90	2.00	0.00	0.00	0.08	0.00	9.97	2.00	0.00	0.00	0.08	0.00
10.06	2.00	0.00	0.00	0.09	0.00	10.20	2.00	0.00	0.00	0.14	0.00
10.30	2.00	0.00	0.00	0.09	0.00	10.44	2.00	0.00	0.00	0.14	0.00
10.54	2.00	0.00	0.00	0.10	0.00	10.63	2.00	0.00	0.00	0.09	0.00
10.74	2.00	0.00	0.00	0.11	0.00	10.78	2.00	0.00	0.00	0.04	0.00
10.83	2.00	0.00	0.00	0.05	0.00	10.88	2.00	0.00	0.00	0.05	0.00
10.89	2.00	0.00	0.00	0.02	0.00	10.97	2.00	0.00	0.00	0.08	0.00
11.02	2.00	0.00	0.00	0.05	0.00	11.07	2.00	0.00	0.00	0.05	0.00
11.11	2.00	0.00	0.00	0.05	0.00	11.16	2.00	0.00	0.00	0.05	0.00
11.21	2.00	0.00	0.00	0.05	0.00	11.26	2.00	0.00	0.00	0.04	0.00
11.30	2.00	0.00	0.00	0.05	0.00	11.36	2.00	0.00	0.00	0.05	0.00
11.40	2.00	0.00	0.00	0.05	0.00	11.45	2.00	0.00	0.00	0.04	0.00
11.50	2.00	0.00	0.00	0.05	0.00	11.55	2.00	0.00	0.00	0.05	0.00
11.60	2.00	0.00	0.00	0.05	0.00	11.66	2.00	0.00	0.00	0.07	0.00
11.74	2.00	0.00	0.00	0.08	0.00	11.84	2.00	0.00	0.00	0.10	0.00
11.93	2.00	0.00	0.00	0.09	0.00	12.04	2.00	0.00	0.00	0.11	0.00
12.13	2.00	0.00	0.00	0.09	0.00	12.22	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
12.27	2.00	0.00	0.00	0.04	0.00	12.37	2.00	0.00	0.00	0.10	0.00
12.41	2.00	0.00	0.00	0.05	0.00	12.51	2.00	0.00	0.00	0.09	0.00
12.56	2.00	0.00	0.00	0.05	0.00	12.65	2.00	0.00	0.00	0.09	0.00
12.71	2.00	0.00	0.00	0.06	0.00	12.79	2.00	0.00	0.00	0.08	0.00
12.89	2.00	0.00	0.00	0.10	0.00	12.96	2.00	0.00	0.00	0.06	0.00
13.04	2.00	0.00	0.00	0.08	0.00	13.13	2.00	0.00	0.00	0.09	0.00
13.23	2.00	0.00	0.00	0.10	0.00	13.30	2.00	0.00	0.00	0.07	0.00
13.37	2.00	0.00	0.00	0.07	0.00	13.47	2.00	0.00	0.00	0.10	0.00
13.57	2.00	0.00	0.00	0.10	0.00	13.61	2.00	0.00	0.00	0.04	0.00
13.62	2.00	0.00	0.00	0.02	0.00	13.68	2.00	0.00	0.00	0.06	0.00
13.73	2.00	0.00	0.00	0.05	0.00	13.77	2.00	0.00	0.00	0.04	0.00
13.87	2.00	0.00	0.00	0.10	0.00	13.93	2.00	0.00	0.00	0.06	0.00
14.00	2.00	0.00	0.00	0.07	0.00	14.06	2.00	0.00	0.00	0.06	0.00
14.12	2.00	0.00	0.00	0.06	0.00	14.21	2.00	0.00	0.00	0.09	0.00
14.25	2.00	0.00	0.00	0.05	0.00	14.35	2.00	0.00	0.00	0.10	0.00
14.45	2.00	0.00	0.00	0.09	0.00	14.50	2.00	0.00	0.00	0.05	0.00
14.59	2.00	0.00	0.00	0.09	0.00	14.64	2.00	0.00	0.00	0.05	0.00
14.74	2.00	0.00	0.00	0.10	0.00	14.80	2.00	0.00	0.00	0.06	0.00
14.88	2.00	0.00	0.00	0.09	0.00	14.97	2.00	0.00	0.00	0.09	0.00
15.05	2.00	0.00	0.00	0.08	0.00	15.13	2.00	0.00	0.00	0.09	0.00
15.21	2.00	0.00	0.00	0.08	0.00	15.28	2.00	0.00	0.00	0.07	0.00
15.36	2.00	0.00	0.00	0.08	0.00	15.41	2.00	0.00	0.00	0.04	0.00
15.50	2.00	0.00	0.00	0.10	0.00	15.55	2.00	0.00	0.00	0.05	0.00
15.65	2.00	0.00	0.00	0.10	0.00	15.71	2.00	0.00	0.00	0.06	0.00
15.79	2.00	0.00	0.00	0.08	0.00	15.89	2.00	0.00	0.00	0.10	0.00
15.90	2.00	0.00	0.00	0.01	0.00	15.94	2.00	0.00	0.00	0.04	0.00
16.00	2.00	0.00	0.00	0.06	0.00	16.06	2.00	0.00	0.00	0.06	0.00
16.14	2.00	0.00	0.00	0.08	0.00	16.19	2.00	0.00	0.00	0.05	0.00
16.26	2.00	0.00	0.00	0.07	0.00	16.33	2.00	0.00	0.00	0.07	0.00
16.38	2.00	0.00	0.00	0.05	0.00	16.47	2.00	0.00	0.00	0.09	0.00
16.54	2.00	0.00	0.00	0.06	0.00	16.62	2.00	0.00	0.00	0.08	0.00
16.70	2.00	0.00	0.00	0.09	0.00	16.76	2.00	0.00	0.00	0.06	0.00
16.86	2.00	0.00	0.00	0.10	0.00	16.90	2.00	0.00	0.00	0.04	0.00
16.98	2.00	0.00	0.00	0.08	0.00	17.05	2.00	0.00	0.00	0.07	0.00
17.14	2.00	0.00	0.00	0.09	0.00	17.20	2.00	0.00	0.00	0.05	0.00
17.29	2.00	0.00	0.00	0.10	0.00	17.34	2.00	0.00	0.00	0.05	0.00
17.44	2.00	0.00	0.00	0.10	0.00	17.50	2.00	0.00	0.00	0.06	0.00
17.58	2.00	0.00	0.00	0.09	0.00	17.64	2.00	0.00	0.00	0.06	0.00
17.75	2.00	0.00	0.00	0.11	0.00	17.82	2.00	0.00	0.00	0.06	0.00
17.89	2.00	0.00	0.00	0.07	0.00	17.89	2.00	0.00	0.00	0.00	0.00
17.96	2.00	0.00	0.00	0.07	0.00	18.02	2.00	0.00	0.00	0.05	0.00
18.07	2.00	0.00	0.00	0.05	0.00	18.17	2.00	0.00	0.00	0.10	0.00
18.22	2.00	0.00	0.00	0.05	0.00	18.30	2.00	0.00	0.00	0.09	0.00
18.36	2.00	0.00	0.00	0.06	0.00	18.42	2.00	0.00	0.00	0.06	0.00
18.50	2.00	0.00	0.00	0.08	0.00	18.56	2.00	0.00	0.00	0.06	0.00
18.62	2.00	0.00	0.00	0.06	0.00	18.69	2.00	0.00	0.00	0.07	0.00
18.76	2.00	0.00	0.00	0.07	0.00	18.84	2.00	0.00	0.00	0.08	0.00
18.89	2.00	0.00	0.00	0.05	0.00	18.98	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
19.05	2.00	0.00	0.00	0.06	0.00	19.12	2.00	0.00	0.00	0.07	0.00
19.18	2.00	0.00	0.00	0.06	0.00	19.24	2.00	0.00	0.00	0.06	0.00
19.32	2.00	0.00	0.00	0.07	0.00	19.38	2.00	0.00	0.00	0.06	0.00
19.46	2.00	0.00	0.00	0.09	0.00	19.54	2.00	0.00	0.00	0.07	0.00
19.62	2.00	0.00	0.00	0.08	0.00	19.70	2.00	0.00	0.00	0.08	0.00
19.80	2.00	0.00	0.00	0.10	0.00	19.85	2.00	0.00	0.00	0.05	0.00
19.94	2.00	0.00	0.00	0.09	0.00	20.03	2.00	0.00	0.00	0.09	0.00
20.13	2.00	0.00	0.00	0.10	0.00	20.19	2.00	0.00	0.00	0.06	0.00
20.29	2.00	0.00	0.00	0.10	0.00	20.39	2.00	0.00	0.00	0.10	0.00
20.43	2.00	0.00	0.00	0.03	0.00	20.47	2.00	0.00	0.00	0.05	0.00
20.52	2.00	0.00	0.00	0.05	0.00	20.61	2.00	0.00	0.00	0.09	0.00
20.66	2.00	0.00	0.00	0.05	0.00	20.71	2.00	0.00	0.00	0.05	0.00
20.77	2.00	0.00	0.00	0.06	0.00	20.85	2.00	0.00	0.00	0.08	0.00
20.91	2.00	0.00	0.00	0.05	0.00	21.00	2.00	0.00	0.00	0.09	0.00
21.05	2.00	0.00	0.00	0.05	0.00	21.11	2.00	0.00	0.00	0.06	0.00
21.19	2.00	0.00	0.00	0.08	0.00	21.24	2.00	0.00	0.00	0.05	0.00
21.34	2.00	0.00	0.00	0.09	0.00	21.39	2.00	0.00	0.00	0.05	0.00
21.48	2.00	0.00	0.00	0.10	0.00	21.53	2.00	0.00	0.00	0.05	0.00
21.64	2.00	0.00	0.00	0.11	0.00	21.72	2.00	0.00	0.00	0.08	0.00
21.81	2.00	0.00	0.00	0.09	0.00	21.89	2.00	0.00	0.00	0.08	0.00
21.97	2.00	0.00	0.00	0.08	0.00	22.05	2.00	0.00	0.00	0.09	0.00
22.12	2.00	0.00	0.00	0.07	0.00	22.13	2.00	0.00	0.00	0.01	0.00
22.18	2.00	0.00	0.00	0.05	0.00	22.22	2.00	0.00	0.00	0.04	0.00
22.28	2.00	0.00	0.00	0.06	0.00	22.33	2.00	0.00	0.00	0.05	0.00
22.38	2.00	0.00	0.00	0.05	0.00	22.41	2.00	0.00	0.00	0.03	0.00
22.51	2.00	0.00	0.00	0.10	0.00	22.56	2.00	0.00	0.00	0.05	0.00
22.61	2.00	0.00	0.00	0.05	0.00	22.65	2.00	0.00	0.00	0.04	0.00
22.71	2.00	0.00	0.00	0.05	0.00	22.76	2.00	0.00	0.00	0.06	0.00
22.85	2.00	0.00	0.00	0.08	0.00	22.89	2.00	0.00	0.00	0.05	0.00
22.99	2.00	0.00	0.00	0.10	0.00	23.04	2.00	0.00	0.00	0.05	0.00
23.12	2.00	0.00	0.00	0.08	0.00	23.18	2.00	0.00	0.00	0.07	0.00
23.24	2.00	0.00	0.00	0.06	0.00	23.33	2.00	0.00	0.00	0.09	0.00
23.38	2.00	0.00	0.00	0.05	0.00	23.47	2.00	0.00	0.00	0.09	0.00
23.52	2.00	0.00	0.00	0.05	0.00	23.61	2.00	0.00	0.00	0.09	0.00
23.68	2.00	0.00	0.00	0.07	0.00	23.76	2.00	0.00	0.00	0.08	0.00
23.83	2.00	0.00	0.00	0.07	0.00	23.90	2.00	0.00	0.00	0.08	0.00
23.97	2.00	0.00	0.00	0.07	0.00	24.05	2.00	0.00	0.00	0.08	0.00
24.10	2.00	0.00	0.00	0.05	0.00	24.19	2.00	0.00	0.00	0.09	0.00
24.27	2.00	0.00	0.00	0.08	0.00	24.34	2.00	0.00	0.00	0.07	0.00
24.43	2.00	0.00	0.00	0.09	0.00	24.48	2.00	0.00	0.00	0.05	0.00
24.57	2.00	0.00	0.00	0.09	0.00	24.62	2.00	0.00	0.00	0.05	0.00
24.72	2.00	0.00	0.00	0.09	0.00	24.81	2.00	0.00	0.00	0.10	0.00
24.86	2.00	0.00	0.00	0.05	0.00	24.95	2.00	0.00	0.00	0.09	0.00
25.01	2.00	0.00	0.00	0.06	0.00	25.02	2.00	0.00	0.00	0.01	0.00
25.05	2.00	0.00	0.00	0.03	0.00	25.11	2.00	0.00	0.00	0.06	0.00
25.15	2.00	0.00	0.00	0.04	0.00	25.21	2.00	0.00	0.00	0.06	0.00
25.25	2.00	0.00	0.00	0.04	0.00	25.30	2.00	0.00	0.00	0.05	0.00
25.40	2.00	0.00	0.00	0.10	0.00	25.45	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
25.52	2.00	0.00	0.00	0.07	0.00	25.60	2.00	0.00	0.00	0.07	0.00
25.66	2.00	0.00	0.00	0.06	0.00	25.74	2.00	0.00	0.00	0.08	0.00
25.80	2.00	0.00	0.00	0.06	0.00	25.88	2.00	0.00	0.00	0.07	0.00
25.94	2.00	0.00	0.00	0.07	0.00	26.02	2.00	0.00	0.00	0.08	0.00
26.09	2.00	0.00	0.00	0.07	0.00	26.17	2.00	0.00	0.00	0.08	0.00
26.23	2.00	0.00	0.00	0.06	0.00	26.29	2.00	0.00	0.00	0.06	0.00
26.37	2.00	0.00	0.00	0.08	0.00	26.46	2.00	0.00	0.00	0.08	0.00
26.55	2.00	0.00	0.00	0.09	0.00	26.60	2.00	0.00	0.00	0.05	0.00
26.70	2.00	0.00	0.00	0.10	0.00	26.78	2.00	0.00	0.00	0.08	0.00
26.87	2.00	0.00	0.00	0.09	0.00	26.94	2.00	0.00	0.00	0.06	0.00
27.03	2.00	0.00	0.00	0.10	0.00	27.13	2.00	0.00	0.00	0.10	0.00
27.18	2.00	0.00	0.00	0.05	0.00	27.27	2.00	0.00	0.00	0.09	0.00
27.32	2.00	0.00	0.00	0.05	0.00	27.37	2.00	0.00	0.00	0.05	0.00
27.41	2.00	0.00	0.00	0.05	0.00	27.46	2.00	0.00	0.00	0.05	0.00
27.51	2.00	0.00	0.00	0.05	0.00	27.61	2.00	0.00	0.00	0.09	0.00
27.66	2.00	0.00	0.00	0.05	0.00	27.73	2.00	0.00	0.00	0.07	0.00
27.80	2.00	0.00	0.00	0.07	0.00	27.88	2.00	0.00	0.00	0.08	0.00
27.96	2.00	0.00	0.00	0.09	0.00	28.04	2.00	0.00	0.00	0.08	0.00
28.12	2.00	0.00	0.00	0.08	0.00	28.18	2.00	0.00	0.00	0.06	0.00
28.27	2.00	0.00	0.00	0.09	0.00	28.32	2.00	0.00	0.00	0.05	0.00
28.42	2.00	0.00	0.00	0.10	0.00	28.47	2.00	0.00	0.00	0.05	0.00
28.61	2.00	0.00	0.00	0.14	0.00	28.67	2.00	0.00	0.00	0.06	0.00
28.75	2.00	0.00	0.00	0.09	0.00	28.81	2.00	0.00	0.00	0.05	0.00
28.90	2.00	0.00	0.00	0.10	0.00	29.00	2.00	0.00	0.00	0.09	0.00
29.05	2.00	0.00	0.00	0.05	0.00	29.10	2.00	0.00	0.00	0.05	0.00
29.15	2.00	0.00	0.00	0.05	0.00	29.24	2.00	0.00	0.00	0.09	0.00
29.29	2.00	0.00	0.00	0.05	0.00	29.37	2.00	0.00	0.00	0.07	0.00
29.43	2.00	0.00	0.00	0.06	0.00	29.53	2.00	0.00	0.00	0.10	0.00
29.62	2.00	0.00	0.00	0.09	0.00	29.68	2.00	0.00	0.00	0.06	0.00
29.80	2.00	0.00	0.00	0.12	0.00	29.91	2.00	0.00	0.00	0.12	0.00
30.00	1.03	0.00	0.00	0.09	0.00	30.07	1.04	0.00	0.00	0.07	0.00
30.15	1.04	0.00	0.00	0.08	0.00	30.21	1.04	0.00	0.00	0.07	0.00
30.26	1.04	0.00	0.00	0.05	0.00	30.31	1.03	0.00	0.00	0.05	0.00
30.38	1.02	0.00	0.00	0.07	0.00	30.45	1.01	0.00	0.00	0.07	0.00
30.50	1.00	0.00	0.00	0.05	0.00	30.55	0.99	0.01	1521965149 4	0.05	0.00
30.64	0.97	0.03	956.57	0.09	0.00	30.70	0.94	0.06	33.53	0.05	0.00
30.79	0.93	0.07	12.83	0.09	0.01	30.84	0.91	0.09	8.56	0.05	0.01
30.93	0.91	0.09	7.83	0.09	0.01	30.98	0.91	0.09	7.97	0.05	0.01
31.05	0.92	0.08	11.40	0.06	0.01	31.13	0.94	0.06	32.36	0.08	0.01
31.17	0.98	0.02	54585.68	0.05	0.00	31.27	1.03	0.00	0.00	0.10	0.00
31.32	1.13	0.00	0.00	0.05	0.00	31.41	1.23	0.00	0.00	0.10	0.00
31.46	1.31	0.00	0.00	0.05	0.00	31.52	1.35	0.00	0.00	0.06	0.00
31.61	1.33	0.00	0.00	0.08	0.00	31.66	1.28	0.00	0.00	0.06	0.00
31.75	1.19	0.00	0.00	0.09	0.00	31.80	1.11	0.00	0.00	0.05	0.00
31.90	1.03	0.00	0.00	0.10	0.00	31.94	0.99	0.01	83727543. 34	0.05	0.00
32.04	0.99	0.01	2535344.1 6	0.10	0.00	32.09	1.04	0.00	0.00	0.04	0.00
32.20	1.07	0.00	0.00	0.11	0.00	32.24	1.09	0.00	0.00	0.04	0.00
32.28	1.09	0.00	0.00	0.04	0.00	32.29	1.11	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
32.30	1.12	0.00	0.00	0.01	0.00	32.40	1.13	0.00	0.00	0.10	0.00
32.45	1.14	0.00	0.00	0.04	0.00	32.55	1.13	0.00	0.00	0.10	0.00
32.59	1.13	0.00	0.00	0.05	0.00	32.69	1.13	0.00	0.00	0.10	0.00
32.76	1.14	0.00	0.00	0.07	0.00	32.84	1.16	0.00	0.00	0.08	0.00
32.90	1.17	0.00	0.00	0.07	0.00	32.98	1.19	0.00	0.00	0.08	0.00
33.06	1.19	0.00	0.00	0.08	0.00	33.12	1.20	0.00	0.00	0.06	0.00
33.22	1.21	0.00	0.00	0.10	0.00	33.31	1.21	0.00	0.00	0.09	0.00
33.37	1.21	0.00	0.00	0.05	0.00	33.46	1.20	0.00	0.00	0.09	0.00
33.55	1.20	0.00	0.00	0.09	0.00	33.65	1.20	0.00	0.00	0.10	0.00
33.70	1.20	0.00	0.00	0.05	0.00	33.79	1.20	0.00	0.00	0.09	0.00
33.89	1.19	0.00	0.00	0.10	0.00	33.99	1.18	0.00	0.00	0.09	0.00
34.04	1.16	0.00	0.00	0.05	0.00	34.13	1.15	0.00	0.00	0.09	0.00
34.23	1.13	0.00	0.00	0.10	0.00	34.32	1.12	0.00	0.00	0.09	0.00
34.37	1.11	0.00	0.00	0.05	0.00	34.47	1.11	0.00	0.00	0.10	0.00
34.55	2.00	0.00	0.00	0.08	0.00	34.63	2.00	0.00	0.00	0.08	0.00
34.73	2.00	0.00	0.00	0.10	0.00	34.80	2.00	0.00	0.00	0.08	0.00
34.90	2.00	0.00	0.00	0.09	0.00	35.00	2.00	0.00	0.00	0.10	0.00
35.12	2.00	0.00	0.00	0.13	0.00	35.20	2.00	0.00	0.00	0.07	0.00
35.33	2.00	0.00	0.00	0.13	0.00	35.41	2.00	0.00	0.00	0.07	0.00
35.44	2.00	0.00	0.00	0.03	0.00	35.48	2.00	0.00	0.00	0.05	0.00
35.57	2.00	0.00	0.00	0.09	0.00	35.62	2.00	0.00	0.00	0.05	0.00
35.67	2.00	0.00	0.00	0.05	0.00	35.71	2.00	0.00	0.00	0.04	0.00
35.82	2.00	0.00	0.00	0.10	0.00	35.86	2.00	0.00	0.00	0.05	0.00
35.93	2.00	0.00	0.00	0.07	0.00	36.01	2.00	0.00	0.00	0.08	0.00
36.06	2.00	0.00	0.00	0.05	0.00	36.12	2.00	0.00	0.00	0.06	0.00
36.18	2.00	0.00	0.00	0.06	0.00	36.25	2.00	0.00	0.00	0.07	0.00
36.30	2.00	0.00	0.00	0.05	0.00	36.39	2.00	0.00	0.00	0.10	0.00
36.44	2.00	0.00	0.00	0.05	0.00	36.53	2.00	0.00	0.00	0.09	0.00
36.59	2.00	0.00	0.00	0.05	0.00	36.68	2.00	0.00	0.00	0.09	0.00
36.75	2.00	0.00	0.00	0.07	0.00	36.83	2.00	0.00	0.00	0.08	0.00
36.90	2.00	0.00	0.00	0.07	0.00	36.97	2.00	0.00	0.00	0.07	0.00
37.02	2.00	0.00	0.00	0.05	0.00	37.04	2.00	0.00	0.00	0.02	0.00
37.08	1.93	0.00	0.00	0.04	0.00	37.17	1.96	0.00	0.00	0.09	0.00
37.27	1.85	0.00	0.00	0.10	0.00	37.37	1.72	0.00	0.00	0.09	0.00
37.42	1.62	0.00	0.00	0.05	0.00	37.51	1.57	0.00	0.00	0.09	0.00
37.58	1.56	0.00	0.00	0.07	0.00	37.66	1.57	0.00	0.00	0.07	0.00
37.76	1.59	0.00	0.00	0.10	0.00	37.85	1.62	0.00	0.00	0.09	0.00
37.93	1.64	0.00	0.00	0.08	0.00	38.04	1.66	0.00	0.00	0.11	0.00
38.13	1.67	0.00	0.00	0.09	0.00	38.18	1.67	0.00	0.00	0.05	0.00
38.28	1.65	0.00	0.00	0.10	0.00	38.37	1.61	0.00	0.00	0.09	0.00
38.47	1.57	0.00	0.00	0.09	0.00	38.57	1.53	0.00	0.00	0.10	0.00
38.62	1.49	0.00	0.00	0.04	0.00	38.72	1.37	0.00	0.00	0.10	0.00
38.78	1.29	0.00	0.00	0.06	0.00	38.81	1.24	0.00	0.00	0.02	0.00
38.86	1.24	0.00	0.00	0.05	0.00	38.91	1.22	0.00	0.00	0.05	0.00
38.95	1.18	0.00	0.00	0.05	0.00	39.05	1.15	0.00	0.00	0.10	0.00
39.09	1.12	0.00	0.00	0.05	0.00	39.14	1.11	0.00	0.00	0.05	0.00
39.24	1.10	0.00	0.00	0.10	0.00	39.29	1.09	0.00	0.00	0.05	0.00
39.39	1.10	0.00	0.00	0.10	0.00	39.43	1.10	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
39.53	1.09	0.00	0.00	0.10	0.00	39.57	1.08	0.00	0.00	0.04	0.00
39.68	1.09	0.00	0.00	0.10	0.00	39.73	1.08	0.00	0.00	0.05	0.00
39.81	1.06	0.00	0.00	0.08	0.00	39.89	1.01	0.00	0.00	0.08	0.00
39.96	0.95	0.05	61.50	0.07	0.00	40.06	0.91	0.09	7.89	0.10	0.01
40.15	0.90	0.10	5.93	0.09	0.01	40.20	0.89	0.11	5.36	0.06	0.01
40.24	0.90	0.10	6.39	0.04	0.00	40.26	0.91	0.09	8.01	0.01	0.00
40.27	0.91	0.09	8.48	0.02	0.00	40.37	0.92	0.08	10.34	0.09	0.01
40.42	0.93	0.07	17.38	0.05	0.00	40.52	0.94	0.06	31.57	0.10	0.01
40.56	0.96	0.04	178.66	0.04	0.00	40.66	0.99	0.01	470504.39	0.10	0.00
40.70	1.03	0.00	0.00	0.05	0.00	40.75	1.10	0.00	0.00	0.05	0.00
40.85	1.20	0.00	0.00	0.10	0.00	40.91	1.31	0.00	0.00	0.06	0.00
40.96	1.43	0.00	0.00	0.05	0.00	41.04	1.55	0.00	0.00	0.08	0.00
41.09	1.70	0.00	0.00	0.05	0.00	41.18	1.83	0.00	0.00	0.09	0.00
41.23	1.94	0.00	0.00	0.05	0.00	41.29	2.00	0.00	0.00	0.06	0.00
41.38	2.00	0.00	0.00	0.09	0.00	41.42	2.00	0.00	0.00	0.05	0.00
41.52	1.96	0.00	0.00	0.10	0.00	41.57	1.91	0.00	0.00	0.05	0.00
41.62	1.87	0.00	0.00	0.05	0.00	41.71	1.84	0.00	0.00	0.09	0.00
41.76	1.82	0.00	0.00	0.04	0.00	41.84	1.81	0.00	0.00	0.09	0.00
41.91	1.81	0.00	0.00	0.07	0.00	41.95	1.82	0.00	0.00	0.05	0.00
42.01	1.85	0.00	0.00	0.06	0.00	42.10	1.88	0.00	0.00	0.08	0.00
42.15	1.92	0.00	0.00	0.05	0.00	42.24	1.96	0.00	0.00	0.09	0.00
42.28	1.97	0.00	0.00	0.04	0.00	42.39	1.95	0.00	0.00	0.10	0.00
42.43	1.93	0.00	0.00	0.04	0.00	42.50	1.91	0.00	0.00	0.07	0.00
42.58	1.88	0.00	0.00	0.08	0.00	42.65	1.74	0.00	0.00	0.07	0.00
42.70	1.68	0.00	0.00	0.06	0.00	42.73	1.64	0.00	0.00	0.02	0.00
42.77	1.73	0.00	0.00	0.04	0.00	42.82	1.78	0.00	0.00	0.05	0.00
42.87	1.86	0.00	0.00	0.05	0.00	42.91	1.97	0.00	0.00	0.04	0.00
42.97	2.00	0.00	0.00	0.05	0.00	43.02	2.00	0.00	0.00	0.05	0.00
43.06	2.00	0.00	0.00	0.05	0.00	43.11	2.00	0.00	0.00	0.04	0.00
43.17	2.00	0.00	0.00	0.06	0.00	43.21	2.00	0.00	0.00	0.04	0.00
43.29	2.00	0.00	0.00	0.08	0.00	43.34	2.00	0.00	0.00	0.05	0.00
43.39	2.00	0.00	0.00	0.06	0.00	43.45	2.00	0.00	0.00	0.05	0.00
43.51	2.00	0.00	0.00	0.06	0.00	43.59	2.00	0.00	0.00	0.08	0.00
43.64	2.00	0.00	0.00	0.05	0.00	43.70	2.00	0.00	0.00	0.06	0.00
43.78	2.00	0.00	0.00	0.09	0.00	43.88	2.00	0.00	0.00	0.10	0.00
43.94	2.00	0.00	0.00	0.06	0.00	44.04	2.00	0.00	0.00	0.10	0.00
44.07	2.00	0.00	0.00	0.03	0.00	44.12	2.00	0.00	0.00	0.05	0.00
44.16	1.98	0.00	0.00	0.04	0.00	44.21	1.92	0.00	0.00	0.05	0.00
44.26	1.86	0.00	0.00	0.05	0.00	44.31	1.79	0.00	0.00	0.05	0.00
44.35	1.73	0.00	0.00	0.04	0.00	44.40	1.67	0.00	0.00	0.05	0.00
44.45	1.62	0.00	0.00	0.05	0.00	44.50	1.59	0.00	0.00	0.05	0.00
44.54	1.56	0.00	0.00	0.04	0.00	44.60	1.53	0.00	0.00	0.06	0.00
44.64	1.50	0.00	0.00	0.05	0.00	44.69	1.48	0.00	0.00	0.05	0.00
44.74	1.47	0.00	0.00	0.05	0.00	44.79	1.47	0.00	0.00	0.04	0.00
44.83	1.47	0.00	0.00	0.05	0.00	44.88	1.48	0.00	0.00	0.05	0.00
44.93	1.51	0.00	0.00	0.05	0.00	44.98	1.54	0.00	0.00	0.05	0.00
45.03	1.56	0.00	0.00	0.05	0.00	45.08	1.57	0.00	0.00	0.06	0.00
45.16	1.58	0.00	0.00	0.08	0.00	45.19	1.58	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
45.27	1.57	0.00	0.00	0.08	0.00	45.32	1.55	0.00	0.00	0.05	0.00
45.37	1.50	0.00	0.00	0.05	0.00	45.45	1.44	0.00	0.00	0.09	0.00
45.51	1.35	0.00	0.00	0.05	0.00	45.56	2.00	0.00	0.00	0.05	0.00
45.61	2.00	0.00	0.00	0.05	0.00	45.69	2.00	0.00	0.00	0.08	0.00
45.75	2.00	0.00	0.00	0.06	0.00	45.81	2.00	0.00	0.00	0.07	0.00
45.89	2.00	0.00	0.00	0.08	0.00	45.94	2.00	0.00	0.00	0.05	0.00
46.04	2.00	0.00	0.00	0.10	0.00	46.08	2.00	0.00	0.00	0.04	0.00
46.15	2.00	0.00	0.00	0.06	0.00	46.17	2.00	0.00	0.00	0.02	0.00
46.18	2.00	0.00	0.00	0.01	0.00	46.23	2.00	0.00	0.00	0.05	0.00
46.27	2.00	0.00	0.00	0.05	0.00	46.32	2.00	0.00	0.00	0.05	0.00
46.41	2.00	0.00	0.00	0.09	0.00	46.47	2.00	0.00	0.00	0.06	0.00
46.52	2.00	0.00	0.00	0.05	0.00	46.56	2.00	0.00	0.00	0.04	0.00
46.65	2.00	0.00	0.00	0.09	0.00	46.71	2.00	0.00	0.00	0.06	0.00
46.76	2.00	0.00	0.00	0.05	0.00	46.85	2.00	0.00	0.00	0.09	0.00
46.90	2.00	0.00	0.00	0.05	0.00	46.99	2.00	0.00	0.00	0.09	0.00
47.04	2.00	0.00	0.00	0.06	0.00	47.10	2.00	0.00	0.00	0.05	0.00
47.16	2.00	0.00	0.00	0.06	0.00	47.23	2.00	0.00	0.00	0.07	0.00
47.30	2.00	0.00	0.00	0.06	0.00	47.38	2.00	0.00	0.00	0.09	0.00
47.43	2.00	0.00	0.00	0.05	0.00	47.52	2.00	0.00	0.00	0.09	0.00
47.59	2.00	0.00	0.00	0.07	0.00	47.66	2.00	0.00	0.00	0.07	0.00
47.77	2.00	0.00	0.00	0.10	0.00	47.82	2.00	0.00	0.00	0.05	0.00
47.91	2.00	0.00	0.00	0.08	0.00	47.93	2.00	0.00	0.00	0.03	0.00
47.97	2.00	0.00	0.00	0.04	0.00	48.02	2.00	0.00	0.00	0.05	0.00
48.07	2.00	0.00	0.00	0.05	0.00	48.12	2.00	0.00	0.00	0.05	0.00
48.19	2.00	0.00	0.00	0.07	0.00	48.23	2.00	0.00	0.00	0.04	0.00
48.31	2.00	0.00	0.00	0.08	0.00	48.35	2.00	0.00	0.00	0.05	0.00
48.40	2.00	0.00	0.00	0.05	0.00	48.45	2.00	0.00	0.00	0.05	0.00
48.50	2.00	0.00	0.00	0.05	0.00	48.55	2.00	0.00	0.00	0.05	0.00
48.59	2.00	0.00	0.00	0.04	0.00	48.67	2.00	0.00	0.00	0.08	0.00
48.73	2.00	0.00	0.00	0.05	0.00	48.78	2.00	0.00	0.00	0.06	0.00
48.83	2.00	0.00	0.00	0.05	0.00	48.91	2.00	0.00	0.00	0.07	0.00
48.98	2.00	0.00	0.00	0.07	0.00	49.03	2.00	0.00	0.00	0.05	0.00
49.12	2.00	0.00	0.00	0.09	0.00	49.17	2.00	0.00	0.00	0.05	0.00
49.27	2.00	0.00	0.00	0.09	0.00	49.31	2.00	0.00	0.00	0.05	0.00
49.38	2.00	0.00	0.00	0.06	0.00	49.45	2.00	0.00	0.00	0.08	0.00
49.51	2.00	0.00	0.00	0.05	0.00	49.54	2.00	0.00	0.00	0.03	0.00
49.59	2.00	0.00	0.00	0.05	0.00	49.64	2.00	0.00	0.00	0.05	0.00
49.73	2.00	0.00	0.00	0.10	0.00	49.83	2.00	0.00	0.00	0.10	0.00
49.92	2.00	0.00	0.00	0.10	0.00	49.98	2.00	0.00	0.00	0.05	0.00
50.07	2.00	0.00	0.00	0.09	0.00	50.16	2.00	0.00	0.00	0.09	0.00
50.24	2.00	0.00	0.00	0.09	0.00	50.32	2.00	0.00	0.00	0.08	0.00
50.41	2.00	0.00	0.00	0.09	0.00	50.50	2.00	0.00	0.00	0.09	0.00
50.56	2.00	0.00	0.00	0.06	0.00	50.66	2.00	0.00	0.00	0.10	0.00
50.74	2.00	0.00	0.00	0.09	0.00	50.84	2.00	0.00	0.00	0.10	0.00
50.93	2.00	0.00	0.00	0.09	0.00	50.98	2.00	0.00	0.00	0.05	0.00
51.08	2.00	0.00	0.00	0.09	0.00	51.17	2.00	0.00	0.00	0.10	0.00
51.24	2.00	0.00	0.00	0.06	0.00	51.34	2.00	0.00	0.00	0.10	0.00
51.41	2.00	0.00	0.00	0.07	0.00	51.51	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
51.58	2.00	0.00	0.00	0.07	0.00	51.68	2.00	0.00	0.00	0.10	0.00
51.79	2.00	0.00	0.00	0.11	0.00	51.82	2.00	0.00	0.00	0.03	0.00
51.85	2.00	0.00	0.00	0.03	0.00	51.91	2.00	0.00	0.00	0.06	0.00
52.00	2.00	0.00	0.00	0.09	0.00	52.05	2.00	0.00	0.00	0.05	0.00
52.10	2.00	0.00	0.00	0.06	0.00	52.19	2.00	0.00	0.00	0.09	0.00
52.28	2.00	0.00	0.00	0.09	0.00	52.34	2.00	0.00	0.00	0.06	0.00
52.42	2.00	0.00	0.00	0.08	0.00	52.48	2.00	0.00	0.00	0.06	0.00
52.57	2.00	0.00	0.00	0.09	0.00	52.62	2.00	0.00	0.00	0.05	0.00
52.69	2.00	0.00	0.00	0.07	0.00	52.77	2.00	0.00	0.00	0.08	0.00
52.87	2.00	0.00	0.00	0.10	0.00	52.91	2.00	0.00	0.00	0.04	0.00
53.01	2.00	0.00	0.00	0.10	0.00	53.10	2.00	0.00	0.00	0.09	0.00
53.16	2.00	0.00	0.00	0.06	0.00	53.25	2.00	0.00	0.00	0.09	0.00
53.29	2.00	0.00	0.00	0.04	0.00	53.38	2.00	0.00	0.00	0.09	0.00
53.42	2.00	0.00	0.00	0.04	0.00	53.47	2.00	0.00	0.00	0.05	0.00
53.52	2.00	0.00	0.00	0.05	0.00	53.58	2.00	0.00	0.00	0.05	0.00
53.66	2.00	0.00	0.00	0.08	0.00	53.75	2.00	0.00	0.00	0.09	0.00
53.81	2.00	0.00	0.00	0.05	0.00	53.87	2.00	0.00	0.00	0.06	0.00
53.95	2.00	0.00	0.00	0.08	0.00	54.01	2.00	0.00	0.00	0.06	0.00
54.06	2.00	0.00	0.00	0.05	0.00	54.15	2.00	0.00	0.00	0.08	0.00
54.20	2.00	0.00	0.00	0.06	0.00	54.29	2.00	0.00	0.00	0.08	0.00
54.34	2.00	0.00	0.00	0.05	0.00	54.43	2.00	0.00	0.00	0.09	0.00
54.45	2.00	0.00	0.00	0.02	0.00	54.48	2.00	0.00	0.00	0.03	0.00
54.52	2.00	0.00	0.00	0.03	0.00	54.53	2.00	0.00	0.00	0.01	0.00
54.58	0.75	0.25	1.21	0.05	0.01	54.62	0.80	0.20	1.63	0.04	0.00
54.65	0.84	0.16	2.38	0.03	0.00	54.70	0.88	0.12	4.34	0.04	0.00
54.76	0.92	0.08	9.38	0.06	0.00	54.77	0.92	0.08	12.33	0.01	0.00
54.82	0.93	0.07	15.78	0.05	0.00	54.87	0.94	0.06	21.07	0.05	0.00
54.88	0.94	0.06	33.79	0.01	0.00	54.91	0.95	0.05	61.01	0.03	0.00
54.96	0.98	0.02	4897.12	0.05	0.00	54.97	1.04	0.00	0.00	0.01	0.00
55.03	1.14	0.00	0.00	0.06	0.00	55.09	1.25	0.00	0.00	0.06	0.00
55.15	1.26	0.00	0.00	0.06	0.00	55.20	1.28	0.00	0.00	0.05	0.00
55.25	1.26	0.00	0.00	0.05	0.00	55.30	1.44	0.00	0.00	0.05	0.00
55.34	1.57	0.00	0.00	0.05	0.00	55.39	1.89	0.00	0.00	0.04	0.00
55.40	2.00	0.00	0.00	0.01	0.00	55.44	2.00	0.00	0.00	0.04	0.00
55.44	2.00	0.00	0.00	0.01	0.00	55.49	2.00	0.00	0.00	0.05	0.00
55.54	2.00	0.00	0.00	0.05	0.00	55.59	2.00	0.00	0.00	0.05	0.00
55.63	2.00	0.00	0.00	0.04	0.00	55.64	2.00	0.00	0.00	0.01	0.00
55.68	2.00	0.00	0.00	0.04	0.00	55.69	2.00	0.00	0.00	0.01	0.00
55.69	2.00	0.00	0.00	0.01	0.00	55.71	2.00	0.00	0.00	0.02	0.00
55.76	2.00	0.00	0.00	0.05	0.00	55.78	2.00	0.00	0.00	0.02	0.00
55.81	2.00	0.00	0.00	0.04	0.00	55.85	2.00	0.00	0.00	0.04	0.00
55.86	2.00	0.00	0.00	0.01	0.00	55.91	2.00	0.00	0.00	0.05	0.00
55.92	2.00	0.00	0.00	0.01	0.00	55.96	2.00	0.00	0.00	0.04	0.00
55.97	2.00	0.00	0.00	0.01	0.00	56.00	2.00	0.00	0.00	0.03	0.00
56.01	2.00	0.00	0.00	0.01	0.00	56.03	2.00	0.00	0.00	0.02	0.00
56.05	2.00	0.00	0.00	0.02	0.00	56.10	2.00	0.00	0.00	0.05	0.00
56.12	2.00	0.00	0.00	0.02	0.00	56.16	2.00	0.00	0.00	0.04	0.00
56.17	2.00	0.00	0.00	0.02	0.00	56.20	2.00	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
56.22	2.00	0.00	0.00	0.02	0.00	56.24	2.00	0.00	0.00	0.03	0.00
56.30	2.00	0.00	0.00	0.06	0.00	56.31	2.00	0.00	0.00	0.01	0.00
56.34	2.00	0.00	0.00	0.03	0.00	56.39	2.00	0.00	0.00	0.05	0.00
56.45	2.00	0.00	0.00	0.06	0.00	56.48	2.00	0.00	0.00	0.03	0.00
56.49	2.00	0.00	0.00	0.01	0.00	56.53	2.00	0.00	0.00	0.04	0.00
56.58	2.00	0.00	0.00	0.05	0.00	56.63	2.00	0.00	0.00	0.05	0.00
56.68	2.00	0.00	0.00	0.04	0.00	56.73	2.00	0.00	0.00	0.05	0.00
56.78	2.00	0.00	0.00	0.05	0.00	56.83	2.00	0.00	0.00	0.05	0.00
56.89	2.00	0.00	0.00	0.07	0.00	56.95	2.00	0.00	0.00	0.06	0.00
56.99	2.00	0.00	0.00	0.04	0.00	57.01	2.00	0.00	0.00	0.01	0.00
57.04	2.00	0.00	0.00	0.04	0.00	57.09	2.00	0.00	0.00	0.05	0.00
57.11	2.00	0.00	0.00	0.02	0.00	57.13	2.00	0.00	0.00	0.03	0.00
57.18	2.00	0.00	0.00	0.04	0.00	57.19	2.00	0.00	0.00	0.01	0.00
57.21	2.00	0.00	0.00	0.03	0.00	57.24	2.00	0.00	0.00	0.02	0.00
57.28	2.00	0.00	0.00	0.05	0.00	57.32	2.00	0.00	0.00	0.04	0.00
57.35	2.00	0.00	0.00	0.04	0.00	57.38	2.00	0.00	0.00	0.03	0.00
57.43	2.00	0.00	0.00	0.04	0.00	57.48	2.00	0.00	0.00	0.05	0.00
57.52	1.85	0.00	0.00	0.05	0.00	57.57	1.80	0.00	0.00	0.05	0.00
57.62	1.93	0.00	0.00	0.05	0.00	57.68	2.00	0.00	0.00	0.06	0.00
57.76	2.00	0.00	0.00	0.08	0.00	57.81	2.00	0.00	0.00	0.05	0.00
57.86	2.00	0.00	0.00	0.05	0.00	57.89	2.00	0.00	0.00	0.03	0.00
57.91	2.00	0.00	0.00	0.02	0.00	57.92	2.00	0.00	0.00	0.01	0.00
57.95	2.00	0.00	0.00	0.03	0.00	57.99	2.00	0.00	0.00	0.04	0.00
58.01	2.00	0.00	0.00	0.02	0.00	58.05	2.00	0.00	0.00	0.04	0.00
58.05	2.00	0.00	0.00	0.01	0.00	58.10	2.00	0.00	0.00	0.05	0.00
58.13	2.00	0.00	0.00	0.03	0.00	58.15	2.00	0.00	0.00	0.01	0.00
58.17	2.00	0.00	0.00	0.03	0.00	58.20	2.00	0.00	0.00	0.02	0.00
58.21	2.00	0.00	0.00	0.01	0.00	58.21	2.00	0.00	0.00	0.00	0.00
58.23	2.00	0.00	0.00	0.02	0.00	58.24	2.00	0.00	0.00	0.01	0.00
58.25	2.00	0.00	0.00	0.01	0.00	58.29	2.00	0.00	0.00	0.04	0.00
58.31	2.00	0.00	0.00	0.02	0.00	58.33	2.00	0.00	0.00	0.02	0.00
58.38	2.00	0.00	0.00	0.05	0.00	58.39	2.00	0.00	0.00	0.01	0.00
58.43	2.00	0.00	0.00	0.04	0.00	58.43	2.00	0.00	0.00	0.01	0.00
58.48	2.00	0.00	0.00	0.05	0.00	58.53	2.00	0.00	0.00	0.05	0.00
58.56	2.00	0.00	0.00	0.02	0.00	58.58	2.00	0.00	0.00	0.03	0.00
58.59	2.00	0.00	0.00	0.01	0.00	58.63	2.00	0.00	0.00	0.03	0.00
58.63	2.00	0.00	0.00	0.00	0.00	58.63	2.00	0.00	0.00	0.01	0.00
58.68	2.00	0.00	0.00	0.04	0.00	58.69	2.00	0.00	0.00	0.01	0.00
58.72	2.00	0.00	0.00	0.03	0.00	58.73	2.00	0.00	0.00	0.01	0.00
58.74	2.00	0.00	0.00	0.01	0.00	58.77	2.00	0.00	0.00	0.03	0.00
58.81	2.00	0.00	0.00	0.04	0.00	58.82	2.00	0.00	0.00	0.01	0.00
58.83	2.00	0.00	0.00	0.01	0.00	58.87	2.00	0.00	0.00	0.04	0.00
58.91	2.00	0.00	0.00	0.04	0.00	58.92	2.00	0.00	0.00	0.01	0.00
58.93	2.00	0.00	0.00	0.01	0.00	58.96	2.00	0.00	0.00	0.03	0.00
59.01	2.00	0.00	0.00	0.05	0.00	59.06	2.00	0.00	0.00	0.05	0.00
59.08	2.00	0.00	0.00	0.02	0.00	59.11	2.00	0.00	0.00	0.03	0.00
59.15	2.00	0.00	0.00	0.04	0.00	59.21	2.00	0.00	0.00	0.05	0.00
59.26	2.00	0.00	0.00	0.05	0.00	59.30	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
59.35	2.00	0.00	0.00	0.05	0.00	59.40	2.00	0.00	0.00	0.05	0.00
59.42	2.00	0.00	0.00	0.02	0.00	59.47	2.00	0.00	0.00	0.05	0.00
59.51	2.00	0.00	0.00	0.05	0.00	59.56	2.00	0.00	0.00	0.05	0.00
59.61	2.00	0.00	0.00	0.05	0.00	59.67	2.00	0.00	0.00	0.05	0.00
59.71	2.00	0.00	0.00	0.04	0.00	59.80	2.00	0.00	0.00	0.09	0.00
59.85	2.00	0.00	0.00	0.05	0.00	59.90	2.00	0.00	0.00	0.05	0.00
60.00	2.00	0.00	0.00	0.10	0.00	60.04	2.00	0.00	0.00	0.05	0.00
60.10	2.00	0.00	0.00	0.06	0.00	60.15	1.91	0.00	0.00	0.05	0.00
60.19	1.73	0.00	0.00	0.03	0.00	60.23	1.70	0.00	0.00	0.05	0.00
60.28	1.69	0.00	0.00	0.05	0.00	60.33	1.74	0.00	0.00	0.05	0.00
60.38	1.77	0.00	0.00	0.04	0.00	60.42	1.78	0.00	0.00	0.04	0.00
60.44	1.76	0.00	0.00	0.02	0.00	60.47	1.93	0.00	0.00	0.02	0.00
60.52	2.00	0.00	0.00	0.05	0.00	60.56	2.00	0.00	0.00	0.04	0.00
60.57	2.00	0.00	0.00	0.01	0.00	60.61	2.00	0.00	0.00	0.04	0.00
60.66	2.00	0.00	0.00	0.05	0.00	60.71	2.00	0.00	0.00	0.05	0.00
60.76	2.00	0.00	0.00	0.05	0.00	60.81	2.00	0.00	0.00	0.05	0.00
60.86	2.00	0.00	0.00	0.05	0.00	60.91	2.00	0.00	0.00	0.05	0.00
60.95	2.00	0.00	0.00	0.04	0.00	61.00	2.00	0.00	0.00	0.05	0.00
61.02	2.00	0.00	0.00	0.02	0.00	61.05	2.00	0.00	0.00	0.03	0.00
61.08	2.00	0.00	0.00	0.03	0.00	61.09	2.00	0.00	0.00	0.02	0.00
61.13	2.00	0.00	0.00	0.03	0.00	61.14	2.00	0.00	0.00	0.02	0.00
61.16	2.00	0.00	0.00	0.02	0.00	61.20	2.00	0.00	0.00	0.03	0.00
61.23	2.00	0.00	0.00	0.04	0.00	61.24	2.00	0.00	0.00	0.01	0.00
61.29	2.00	0.00	0.00	0.05	0.00	61.30	2.00	0.00	0.00	0.01	0.00
61.33	2.00	0.00	0.00	0.04	0.00	61.38	2.00	0.00	0.00	0.05	0.00
61.43	2.00	0.00	0.00	0.05	0.00	61.48	2.00	0.00	0.00	0.04	0.00
61.53	2.00	0.00	0.00	0.05	0.00	61.56	2.00	0.00	0.00	0.03	0.00
61.58	2.00	0.00	0.00	0.02	0.00	61.59	2.00	0.00	0.00	0.01	0.00
61.62	2.00	0.00	0.00	0.03	0.00	61.63	2.00	0.00	0.00	0.02	0.00
61.67	2.00	0.00	0.00	0.03	0.00	61.71	2.00	0.00	0.00	0.05	0.00
61.76	2.00	0.00	0.00	0.05	0.00	61.81	2.00	0.00	0.00	0.05	0.00
61.86	2.00	0.00	0.00	0.05	0.00	61.87	2.00	0.00	0.00	0.01	0.00
61.91	2.00	0.00	0.00	0.04	0.00	61.95	2.00	0.00	0.00	0.04	0.00
61.96	2.00	0.00	0.00	0.01	0.00	62.00	2.00	0.00	0.00	0.04	0.00
62.04	2.00	0.00	0.00	0.04	0.00	62.06	1.86	0.00	0.00	0.02	0.00
62.10	1.70	0.00	0.00	0.04	0.00	62.14	1.58	0.00	0.00	0.04	0.00
62.20	1.49	0.00	0.00	0.05	0.00	62.22	1.33	0.00	0.00	0.02	0.00
62.27	1.39	0.00	0.00	0.05	0.00	62.29	1.39	0.00	0.00	0.02	0.00
62.34	1.37	0.00	0.00	0.05	0.00	62.39	1.35	0.00	0.00	0.04	0.00
62.43	1.31	0.00	0.00	0.05	0.00	62.49	1.30	0.00	0.00	0.06	0.00
62.57	1.31	0.00	0.00	0.08	0.00	62.68	1.45	0.00	0.00	0.10	0.00
62.75	1.75	0.00	0.00	0.08	0.00	62.87	1.99	0.00	0.00	0.12	0.00
62.88	1.84	0.00	0.00	0.01	0.00	62.89	1.84	0.00	0.00	0.01	0.00
62.93	1.86	0.00	0.00	0.04	0.00	62.98	2.00	0.00	0.00	0.05	0.00
63.02	2.00	0.00	0.00	0.05	0.00	63.07	2.00	0.00	0.00	0.05	0.00
63.12	2.00	0.00	0.00	0.05	0.00	63.14	2.00	0.00	0.00	0.02	0.00
63.17	2.00	0.00	0.00	0.03	0.00	63.17	2.00	0.00	0.00	0.01	0.00
63.20	2.00	0.00	0.00	0.02	0.00	63.21	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
63.23	2.00	0.00	0.00	0.02	0.00	63.26	2.00	0.00	0.00	0.03	0.00
63.28	2.00	0.00	0.00	0.02	0.00	63.31	2.00	0.00	0.00	0.03	0.00
63.32	2.00	0.00	0.00	0.01	0.00	63.36	2.00	0.00	0.00	0.04	0.00
63.40	2.00	0.00	0.00	0.04	0.00						

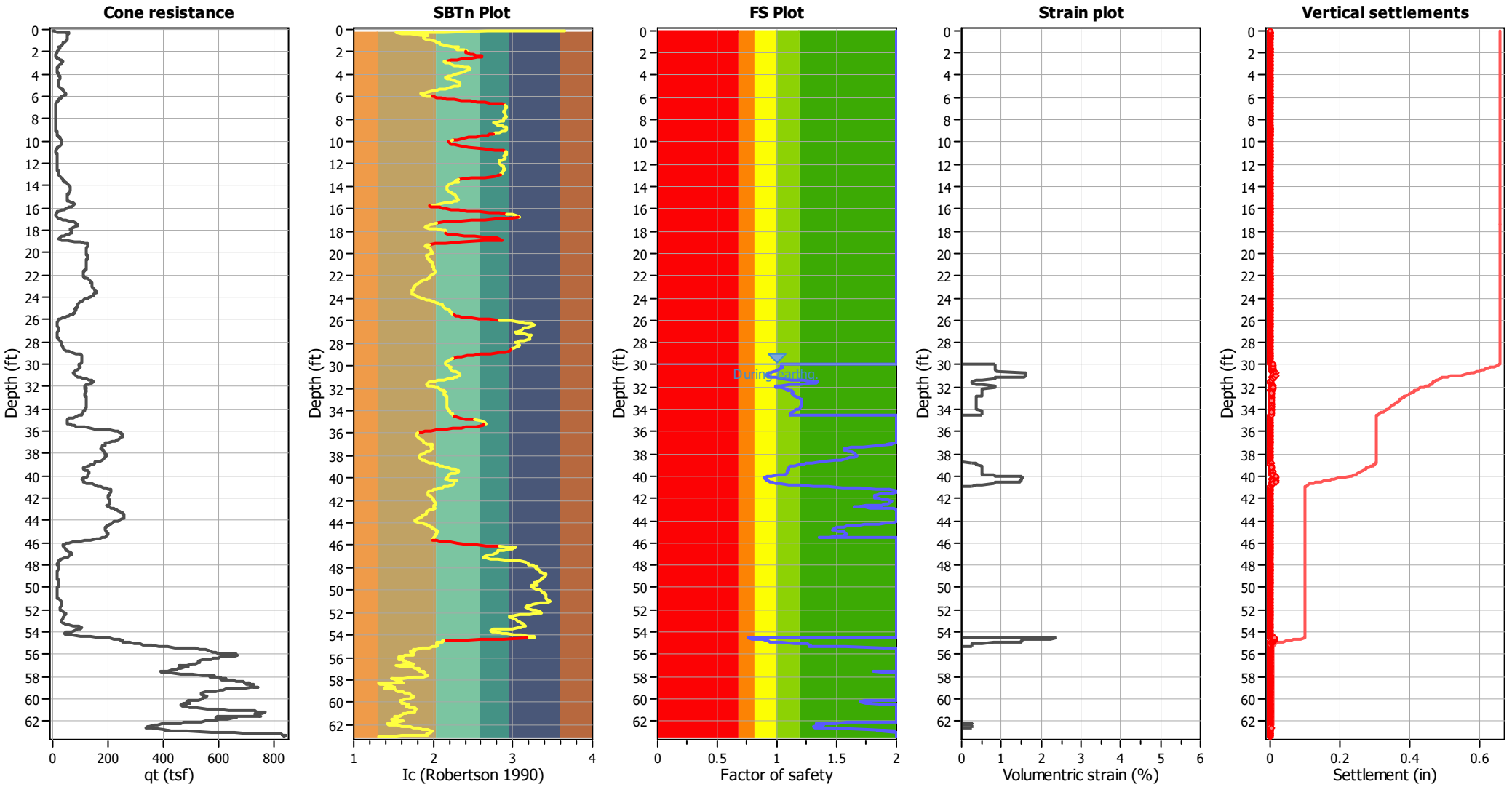
Overall liquefaction potential: 0.15

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.00	104.86	1.03	0.85	1.00	0.01	30.07	105.36	1.04	0.84	1.00	0.01
30.15	105.54	1.04	0.84	1.00	0.01	30.21	105.77	1.04	0.84	1.00	0.01
30.26	105.66	1.04	0.84	1.00	0.00	30.31	105.39	1.03	0.84	1.00	0.00
30.38	104.86	1.02	0.85	1.00	0.01	30.45	104.23	1.01	0.85	1.00	0.01
30.50	103.72	1.00	0.85	1.00	0.00	30.55	102.88	0.99	0.86	1.00	0.01
30.64	101.83	0.97	0.87	1.00	0.01	30.70	100.16	0.94	1.56	1.00	0.01
30.79	98.96	0.93	1.59	1.00	0.02	30.84	98.19	0.91	1.61	1.00	0.01
30.93	98.05	0.91	1.61	1.00	0.02	30.98	98.14	0.91	1.61	1.00	0.01
31.05	98.98	0.92	1.59	1.00	0.01	31.13	100.51	0.94	1.56	1.00	0.01
31.17	102.97	0.98	0.86	1.00	0.00	31.27	106.25	1.03	0.84	1.00	0.01
31.32	111.37	1.13	0.51	1.00	0.00	31.41	116.56	1.23	0.36	1.00	0.00
31.46	120.72	1.31	0.25	1.00	0.00	31.52	122.24	1.35	0.25	1.00	0.00
31.61	121.83	1.33	0.25	1.00	0.00	31.66	119.20	1.28	0.26	1.00	0.00
31.75	115.29	1.19	0.37	1.00	0.00	31.80	110.68	1.11	0.52	1.00	0.00
31.90	106.52	1.03	0.83	1.00	0.01	31.94	104.07	0.99	0.85	1.00	0.00
32.04	104.00	0.99	0.85	1.00	0.01	32.09	107.23	1.04	0.83	1.00	0.00
32.20	109.06	1.07	0.52	1.00	0.01	32.24	110.44	1.09	0.52	1.00	0.00
32.28	110.26	1.09	0.52	1.00	0.00	32.29	111.09	1.11	0.51	1.00	0.00
32.30	112.06	1.12	0.51	1.00	0.00	32.40	112.71	1.13	0.51	1.00	0.01
32.45	112.95	1.14	0.51	1.00	0.00	32.55	112.51	1.13	0.51	1.00	0.01
32.59	112.50	1.13	0.51	1.00	0.00	32.69	112.79	1.13	0.51	1.00	0.01
32.76	113.51	1.14	0.51	1.00	0.00	32.84	114.35	1.16	0.37	1.00	0.00
32.90	115.19	1.17	0.37	1.00	0.00	32.98	115.83	1.19	0.37	1.00	0.00
33.06	116.33	1.19	0.36	1.00	0.00	33.12	116.77	1.20	0.36	1.00	0.00
33.22	117.03	1.21	0.36	1.00	0.00	33.31	117.14	1.21	0.36	1.00	0.00
33.37	117.11	1.21	0.36	1.00	0.00	33.46	117.00	1.20	0.36	1.00	0.00
33.55	117.00	1.20	0.36	1.00	0.00	33.65	117.07	1.20	0.36	1.00	0.00
33.70	117.18	1.20	0.36	1.00	0.00	33.79	117.10	1.20	0.36	1.00	0.00
33.89	116.76	1.19	0.36	1.00	0.00	33.99	116.20	1.18	0.36	1.00	0.00
34.04	115.43	1.16	0.37	1.00	0.00	34.13	114.59	1.15	0.50	1.00	0.01
34.23	113.76	1.13	0.51	1.00	0.01	34.32	113.20	1.12	0.51	1.00	0.01
34.37	112.84	1.11	0.51	1.00	0.00	34.47	112.69	1.11	0.51	1.00	0.01
34.55	112.96	2.00	0.00	1.00	0.00	34.63	114.64	2.00	0.00	1.00	0.00
34.73	118.21	2.00	0.00	1.00	0.00	34.80	123.59	2.00	0.00	1.00	0.00
34.90	127.28	2.00	0.00	1.00	0.00	35.00	121.79	2.00	0.00	1.00	0.00
35.12	117.31	2.00	0.00	1.00	0.00	35.20	112.19	2.00	0.00	1.00	0.00
35.33	114.42	2.00	0.00	1.00	0.00	35.41	110.34	2.00	0.00	1.00	0.00
35.44	108.02	2.00	0.00	1.00	0.00	35.48	103.82	2.00	0.00	1.00	0.00
35.57	101.05	2.00	0.00	1.00	0.00	35.62	98.99	2.00	0.00	1.00	0.00
35.67	102.07	2.00	0.00	1.00	0.00	35.71	112.52	2.00	0.00	1.00	0.00
35.82	126.36	2.00	0.00	1.00	0.00	35.86	143.07	2.00	0.00	1.00	0.00
35.93	156.85	2.00	0.00	1.00	0.00	36.01	166.33	2.00	0.00	1.00	0.00
36.06	171.69	2.00	0.00	1.00	0.00	36.12	174.89	2.00	0.00	1.00	0.00
36.18	178.20	2.00	0.00	1.00	0.00	36.25	180.98	2.00	0.00	1.00	0.00
36.30	184.12	2.00	0.00	1.00	0.00	36.39	185.99	2.00	0.00	1.00	0.00
36.44	187.57	2.00	0.00	1.00	0.00	36.53	187.51	2.00	0.00	1.00	0.00
36.59	187.43	2.00	0.00	1.00	0.00	36.68	184.49	2.00	0.00	1.00	0.00
36.75	180.99	2.00	0.00	1.00	0.00	36.83	175.91	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
36.90	171.34	2.00	0.00	1.00	0.00	36.97	166.05	2.00	0.00	1.00	0.00
37.02	156.23	2.00	0.00	1.00	0.00	37.04	151.13	2.00	0.00	1.00	0.00
37.08	147.61	1.93	0.00	1.00	0.00	37.17	148.65	1.96	0.00	1.00	0.00
37.27	145.04	1.85	0.00	1.00	0.00	37.37	140.68	1.72	0.00	1.00	0.00
37.42	137.22	1.62	0.00	1.00	0.00	37.51	135.25	1.57	0.00	1.00	0.00
37.58	134.76	1.56	0.00	1.00	0.00	37.66	135.08	1.57	0.00	1.00	0.00
37.76	136.26	1.59	0.00	1.00	0.00	37.85	137.18	1.62	0.00	1.00	0.00
37.93	138.14	1.64	0.00	1.00	0.00	38.04	138.80	1.66	0.00	1.00	0.00
38.13	139.30	1.67	0.00	1.00	0.00	38.18	139.16	1.67	0.00	1.00	0.00
38.28	138.51	1.65	0.00	1.00	0.00	38.37	137.08	1.61	0.00	1.00	0.00
38.47	135.63	1.57	0.00	1.00	0.00	38.57	134.14	1.53	0.00	1.00	0.00
38.62	132.48	1.49	0.00	1.00	0.00	38.72	127.27	1.37	0.00	1.00	0.00
38.78	123.72	1.29	0.25	1.00	0.00	38.81	121.63	1.24	0.35	1.00	0.00
38.86	121.68	1.24	0.35	1.00	0.00	38.91	120.51	1.22	0.36	1.00	0.00
38.95	118.55	1.18	0.36	1.00	0.00	39.05	116.91	1.15	0.50	1.00	0.01
39.09	115.64	1.12	0.50	1.00	0.00	39.14	114.83	1.11	0.50	1.00	0.00
39.24	114.32	1.10	0.51	1.00	0.01	39.29	114.03	1.09	0.51	1.00	0.00
39.39	114.16	1.10	0.51	1.00	0.01	39.43	114.28	1.10	0.51	1.00	0.00
39.53	113.89	1.09	0.51	1.00	0.01	39.57	113.55	1.08	0.51	1.00	0.00
39.68	113.69	1.09	0.51	1.00	0.01	39.73	113.53	1.08	0.51	1.00	0.00
39.81	112.48	1.06	0.51	1.00	0.01	39.89	109.51	1.01	0.81	1.00	0.01
39.96	105.89	0.95	0.84	1.00	0.01	40.06	103.14	0.91	1.50	1.00	0.02
40.15	102.38	0.90	1.51	1.00	0.02	40.20	102.07	0.89	1.52	1.00	0.01
40.24	102.62	0.90	1.51	1.00	0.01	40.26	103.22	0.91	1.50	1.00	0.00
40.27	103.36	0.91	1.49	1.00	0.00	40.37	103.81	0.92	1.48	1.00	0.02
40.42	104.71	0.93	1.46	1.00	0.01	40.52	105.44	0.94	1.45	1.00	0.02
40.56	106.63	0.96	0.83	1.00	0.00	40.66	108.06	0.99	0.82	1.00	0.01
40.70	110.67	1.03	0.80	1.00	0.00	40.75	114.79	1.10	0.50	1.00	0.00
40.85	119.75	1.20	0.36	1.00	0.00	40.91	125.10	1.31	0.25	1.00	0.00
40.96	130.56	1.43	0.00	1.00	0.00	41.04	135.59	1.55	0.00	1.00	0.00
41.09	141.03	1.70	0.00	1.00	0.00	41.18	145.57	1.83	0.00	1.00	0.00
41.23	149.12	1.94	0.00	1.00	0.00	41.29	151.17	2.00	0.00	1.00	0.00
41.38	151.67	2.00	0.00	1.00	0.00	41.42	151.21	2.00	0.00	1.00	0.00
41.52	149.86	1.96	0.00	1.00	0.00	41.57	148.26	1.91	0.00	1.00	0.00
41.62	146.93	1.87	0.00	1.00	0.00	41.71	145.89	1.84	0.00	1.00	0.00
41.76	145.43	1.82	0.00	1.00	0.00	41.84	145.17	1.81	0.00	1.00	0.00
41.91	145.22	1.81	0.00	1.00	0.00	41.95	145.53	1.82	0.00	1.00	0.00
42.01	146.36	1.85	0.00	1.00	0.00	42.10	147.40	1.88	0.00	1.00	0.00
42.15	148.90	1.92	0.00	1.00	0.00	42.24	149.94	1.96	0.00	1.00	0.00
42.28	150.31	1.97	0.00	1.00	0.00	42.39	149.81	1.95	0.00	1.00	0.00
42.43	149.14	1.93	0.00	1.00	0.00	42.50	148.36	1.91	0.00	1.00	0.00
42.58	147.54	1.88	0.00	1.00	0.00	42.65	142.73	1.74	0.00	1.00	0.00
42.70	140.58	1.68	0.00	1.00	0.00	42.73	139.14	1.64	0.00	1.00	0.00
42.77	142.31	1.73	0.00	1.00	0.00	42.82	144.06	1.78	0.00	1.00	0.00
42.87	146.92	1.86	0.00	1.00	0.00	42.91	150.57	1.97	0.00	1.00	0.00
42.97	154.27	2.00	0.00	1.00	0.00	43.02	157.35	2.00	0.00	1.00	0.00
43.06	159.72	2.00	0.00	1.00	0.00	43.11	162.21	2.00	0.00	1.00	0.00
43.17	164.40	2.00	0.00	1.00	0.00	43.21	166.83	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
43.29	168.85	2.00	0.00	1.00	0.00	43.34	171.05	2.00	0.00	1.00	0.00
43.39	172.71	2.00	0.00	1.00	0.00	43.45	173.74	2.00	0.00	1.00	0.00
43.51	173.50	2.00	0.00	1.00	0.00	43.59	172.47	2.00	0.00	1.00	0.00
43.64	170.73	2.00	0.00	1.00	0.00	43.70	168.10	2.00	0.00	1.00	0.00
43.78	165.08	2.00	0.00	1.00	0.00	43.88	163.55	2.00	0.00	1.00	0.00
43.94	161.52	2.00	0.00	1.00	0.00	44.04	157.74	2.00	0.00	1.00	0.00
44.07	153.31	2.00	0.00	1.00	0.00	44.12	152.08	2.00	0.00	1.00	0.00
44.16	150.70	1.98	0.00	1.00	0.00	44.21	148.86	1.92	0.00	1.00	0.00
44.26	146.86	1.86	0.00	1.00	0.00	44.31	144.63	1.79	0.00	1.00	0.00
44.35	142.44	1.73	0.00	1.00	0.00	44.40	140.32	1.67	0.00	1.00	0.00
44.45	138.56	1.62	0.00	1.00	0.00	44.50	137.24	1.59	0.00	1.00	0.00
44.54	136.15	1.56	0.00	1.00	0.00	44.60	134.97	1.53	0.00	1.00	0.00
44.64	133.85	1.50	0.00	1.00	0.00	44.69	132.85	1.48	0.00	1.00	0.00
44.74	132.59	1.47	0.00	1.00	0.00	44.79	132.34	1.47	0.00	1.00	0.00
44.83	132.53	1.47	0.00	1.00	0.00	44.88	132.96	1.48	0.00	1.00	0.00
44.93	134.02	1.51	0.00	1.00	0.00	44.98	135.20	1.54	0.00	1.00	0.00
45.03	135.95	1.56	0.00	1.00	0.00	45.08	136.45	1.57	0.00	1.00	0.00
45.16	136.81	1.58	0.00	1.00	0.00	45.19	136.91	1.58	0.00	1.00	0.00
45.27	136.53	1.57	0.00	1.00	0.00	45.32	135.53	1.55	0.00	1.00	0.00
45.37	133.73	1.50	0.00	1.00	0.00	45.45	131.17	1.44	0.00	1.00	0.00
45.51	127.52	1.35	0.00	1.00	0.00	45.56	123.37	2.00	0.00	1.00	0.00
45.61	117.60	2.00	0.00	1.00	0.00	45.69	111.79	2.00	0.00	1.00	0.00
45.75	108.19	2.00	0.00	1.00	0.00	45.81	105.04	2.00	0.00	1.00	0.00
45.89	105.10	2.00	0.00	1.00	0.00	45.94	103.73	2.00	0.00	1.00	0.00
46.04	108.05	2.00	0.00	1.00	0.00	46.08	112.07	2.00	0.00	1.00	0.00
46.15	109.85	2.00	0.00	1.00	0.00	46.17	110.89	2.00	0.00	1.00	0.00
46.18	110.17	2.00	0.00	1.00	0.00	46.23	109.18	2.00	0.00	1.00	0.00
46.27	107.58	2.00	0.00	1.00	0.00	46.32	105.33	2.00	0.00	1.00	0.00
46.41	107.19	2.00	0.00	1.00	0.00	46.47	106.19	2.00	0.00	1.00	0.00
46.52	106.89	2.00	0.00	1.00	0.00	46.56	109.81	2.00	0.00	1.00	0.00
46.65	113.60	2.00	0.00	1.00	0.00	46.71	117.68	2.00	0.00	1.00	0.00
46.76	120.04	2.00	0.00	1.00	0.00	46.85	120.43	2.00	0.00	1.00	0.00
46.90	118.71	2.00	0.00	1.00	0.00	46.99	116.19	2.00	0.00	1.00	0.00
47.04	114.63	2.00	0.00	1.00	0.00	47.10	114.71	2.00	0.00	1.00	0.00
47.16	116.10	2.00	0.00	1.00	0.00	47.23	117.23	2.00	0.00	1.00	0.00
47.30	117.96	2.00	0.00	1.00	0.00	47.38	113.48	2.00	0.00	1.00	0.00
47.43	111.84	2.00	0.00	1.00	0.00	47.52	105.92	2.00	0.00	1.00	0.00
47.59	93.23	2.00	0.00	1.00	0.00	47.66	81.89	2.00	0.00	1.00	0.00
47.77	74.67	2.00	0.00	1.00	0.00	47.82	75.76	2.00	0.00	1.00	0.00
47.91	76.63	2.00	0.00	1.00	0.00	47.93	77.65	2.00	0.00	1.00	0.00
47.97	78.37	2.00	0.00	1.00	0.00	48.02	79.56	2.00	0.00	1.00	0.00
48.07	81.21	2.00	0.00	1.00	0.00	48.12	84.04	2.00	0.00	1.00	0.00
48.19	86.54	2.00	0.00	1.00	0.00	48.23	88.74	2.00	0.00	1.00	0.00
48.31	89.88	2.00	0.00	1.00	0.00	48.35	90.92	2.00	0.00	1.00	0.00
48.40	91.72	2.00	0.00	1.00	0.00	48.45	92.39	2.00	0.00	1.00	0.00
48.50	92.93	2.00	0.00	1.00	0.00	48.55	93.37	2.00	0.00	1.00	0.00
48.59	94.24	2.00	0.00	1.00	0.00	48.67	94.62	2.00	0.00	1.00	0.00
48.73	94.36	2.00	0.00	1.00	0.00	48.78	92.80	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
48.83	90.68	2.00	0.00	1.00	0.00	48.91	88.35	2.00	0.00	1.00	0.00
48.98	86.35	2.00	0.00	1.00	0.00	49.03	85.19	2.00	0.00	1.00	0.00
49.12	82.90	2.00	0.00	1.00	0.00	49.17	79.48	2.00	0.00	1.00	0.00
49.27	76.51	2.00	0.00	1.00	0.00	49.31	76.55	2.00	0.00	1.00	0.00
49.38	78.88	2.00	0.00	1.00	0.00	49.45	81.15	2.00	0.00	1.00	0.00
49.51	83.00	2.00	0.00	1.00	0.00	49.54	84.13	2.00	0.00	1.00	0.00
49.59	84.45	2.00	0.00	1.00	0.00	49.64	83.63	2.00	0.00	1.00	0.00
49.73	83.01	2.00	0.00	1.00	0.00	49.83	82.47	2.00	0.00	1.00	0.00
49.92	82.19	2.00	0.00	1.00	0.00	49.98	81.62	2.00	0.00	1.00	0.00
50.07	81.01	2.00	0.00	1.00	0.00	50.16	80.51	2.00	0.00	1.00	0.00
50.24	80.06	2.00	0.00	1.00	0.00	50.32	79.87	2.00	0.00	1.00	0.00
50.41	80.02	2.00	0.00	1.00	0.00	50.50	80.09	2.00	0.00	1.00	0.00
50.56	79.36	2.00	0.00	1.00	0.00	50.66	78.27	2.00	0.00	1.00	0.00
50.74	77.53	2.00	0.00	1.00	0.00	50.84	79.62	2.00	0.00	1.00	0.00
50.93	83.88	2.00	0.00	1.00	0.00	50.98	92.08	2.00	0.00	1.00	0.00
51.08	102.75	2.00	0.00	1.00	0.00	51.17	113.31	2.00	0.00	1.00	0.00
51.24	122.80	2.00	0.00	1.00	0.00	51.34	129.12	2.00	0.00	1.00	0.00
51.41	122.59	2.00	0.00	1.00	0.00	51.51	115.66	2.00	0.00	1.00	0.00
51.58	106.93	2.00	0.00	1.00	0.00	51.68	109.98	2.00	0.00	1.00	0.00
51.79	110.16	2.00	0.00	1.00	0.00	51.82	110.15	2.00	0.00	1.00	0.00
51.85	111.07	2.00	0.00	1.00	0.00	51.91	113.23	2.00	0.00	1.00	0.00
52.00	116.25	2.00	0.00	1.00	0.00	52.05	118.92	2.00	0.00	1.00	0.00
52.10	118.95	2.00	0.00	1.00	0.00	52.19	115.81	2.00	0.00	1.00	0.00
52.28	111.69	2.00	0.00	1.00	0.00	52.34	109.32	2.00	0.00	1.00	0.00
52.42	109.66	2.00	0.00	1.00	0.00	52.48	111.03	2.00	0.00	1.00	0.00
52.57	111.27	2.00	0.00	1.00	0.00	52.62	109.88	2.00	0.00	1.00	0.00
52.69	106.89	2.00	0.00	1.00	0.00	52.77	104.50	2.00	0.00	1.00	0.00
52.87	103.83	2.00	0.00	1.00	0.00	52.91	102.56	2.00	0.00	1.00	0.00
53.01	102.13	2.00	0.00	1.00	0.00	53.10	103.11	2.00	0.00	1.00	0.00
53.16	113.26	2.00	0.00	1.00	0.00	53.25	123.32	2.00	0.00	1.00	0.00
53.29	136.25	2.00	0.00	1.00	0.00	53.38	144.18	2.00	0.00	1.00	0.00
53.42	149.47	2.00	0.00	1.00	0.00	53.47	150.02	2.00	0.00	1.00	0.00
53.52	148.22	2.00	0.00	1.00	0.00	53.58	152.55	2.00	0.00	1.00	0.00
53.66	160.18	2.00	0.00	1.00	0.00	53.75	169.41	2.00	0.00	1.00	0.00
53.81	175.67	2.00	0.00	1.00	0.00	53.87	177.89	2.00	0.00	1.00	0.00
53.95	178.71	2.00	0.00	1.00	0.00	54.01	177.57	2.00	0.00	1.00	0.00
54.06	172.90	2.00	0.00	1.00	0.00	54.15	167.57	2.00	0.00	1.00	0.00
54.20	165.24	2.00	0.00	1.00	0.00	54.29	164.23	2.00	0.00	1.00	0.00
54.34	141.87	2.00	0.00	1.00	0.00	54.43	108.63	2.00	0.00	1.00	0.00
54.45	82.07	2.00	0.00	1.00	0.00	54.48	80.59	2.00	0.00	1.00	0.00
54.52	82.69	2.00	0.00	1.00	0.00	54.53	86.57	2.00	0.00	1.00	0.00
54.58	89.91	0.75	2.37	1.00	0.01	54.62	93.59	0.80	2.24	1.00	0.01
54.65	96.81	0.84	2.13	1.00	0.01	54.70	99.98	0.88	1.57	1.00	0.01
54.76	102.23	0.92	1.52	1.00	0.01	54.77	102.77	0.92	1.51	1.00	0.00
54.82	103.16	0.93	1.50	1.00	0.01	54.87	103.55	0.94	1.49	1.00	0.01
54.88	104.08	0.94	1.48	1.00	0.00	54.91	104.56	0.95	0.85	1.00	0.00
54.96	106.09	0.98	0.84	1.00	0.00	54.97	109.90	1.04	0.81	1.00	0.00
55.03	115.47	1.14	0.50	1.00	0.00	55.09	120.89	1.25	0.25	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
55.15	121.55	1.26	0.25	1.00	0.00	55.20	122.41	1.28	0.25	1.00	0.00
55.25	121.49	1.26	0.25	1.00	0.00	55.30	129.28	1.44	0.00	1.00	0.00
55.34	134.62	1.57	0.00	1.00	0.00	55.39	146.03	1.89	0.00	1.00	0.00
55.40	153.71	2.00	0.00	1.00	0.00	55.44	157.35	2.00	0.00	1.00	0.00
55.44	157.04	2.00	0.00	1.00	0.00	55.49	160.78	2.00	0.00	1.00	0.00
55.54	167.71	2.00	0.00	1.00	0.00	55.59	176.17	2.00	0.00	1.00	0.00
55.63	180.34	2.00	0.00	1.00	0.00	55.64	180.79	2.00	0.00	1.00	0.00
55.68	179.92	2.00	0.00	1.00	0.00	55.69	178.50	2.00	0.00	1.00	0.00
55.69	179.38	2.00	0.00	1.00	0.00	55.71	183.08	2.00	0.00	1.00	0.00
55.76	186.45	2.00	0.00	1.00	0.00	55.78	187.85	2.00	0.00	1.00	0.00
55.81	180.96	2.00	0.00	1.00	0.00	55.85	175.16	2.00	0.00	1.00	0.00
55.86	176.41	2.00	0.00	1.00	0.00	55.91	179.42	2.00	0.00	1.00	0.00
55.92	180.48	2.00	0.00	1.00	0.00	55.96	185.46	2.00	0.00	1.00	0.00
55.97	189.98	2.00	0.00	1.00	0.00	56.00	196.01	2.00	0.00	1.00	0.00
56.01	197.72	2.00	0.00	1.00	0.00	56.03	198.18	2.00	0.00	1.00	0.00
56.05	198.14	2.00	0.00	1.00	0.00	56.10	198.99	2.00	0.00	1.00	0.00
56.12	199.86	2.00	0.00	1.00	0.00	56.16	199.67	2.00	0.00	1.00	0.00
56.17	195.76	2.00	0.00	1.00	0.00	56.20	189.78	2.00	0.00	1.00	0.00
56.22	184.46	2.00	0.00	1.00	0.00	56.24	181.69	2.00	0.00	1.00	0.00
56.30	179.84	2.00	0.00	1.00	0.00	56.31	177.72	2.00	0.00	1.00	0.00
56.34	174.82	2.00	0.00	1.00	0.00	56.39	172.57	2.00	0.00	1.00	0.00
56.45	170.44	2.00	0.00	1.00	0.00	56.48	168.31	2.00	0.00	1.00	0.00
56.49	165.32	2.00	0.00	1.00	0.00	56.53	168.57	2.00	0.00	1.00	0.00
56.58	169.38	2.00	0.00	1.00	0.00	56.63	155.86	2.00	0.00	1.00	0.00
56.68	156.17	2.00	0.00	1.00	0.00	56.73	157.68	2.00	0.00	1.00	0.00
56.78	156.09	2.00	0.00	1.00	0.00	56.83	153.53	2.00	0.00	1.00	0.00
56.89	157.35	2.00	0.00	1.00	0.00	56.95	160.76	2.00	0.00	1.00	0.00
56.99	161.37	2.00	0.00	1.00	0.00	57.01	160.98	2.00	0.00	1.00	0.00
57.04	160.65	2.00	0.00	1.00	0.00	57.09	161.13	2.00	0.00	1.00	0.00
57.11	163.57	2.00	0.00	1.00	0.00	57.13	167.47	2.00	0.00	1.00	0.00
57.18	169.44	2.00	0.00	1.00	0.00	57.19	168.95	2.00	0.00	1.00	0.00
57.21	166.30	2.00	0.00	1.00	0.00	57.24	164.00	2.00	0.00	1.00	0.00
57.28	163.35	2.00	0.00	1.00	0.00	57.32	161.45	2.00	0.00	1.00	0.00
57.35	160.03	2.00	0.00	1.00	0.00	57.38	157.50	2.00	0.00	1.00	0.00
57.43	155.53	2.00	0.00	1.00	0.00	57.48	150.26	2.00	0.00	1.00	0.00
57.52	143.92	1.85	0.00	1.00	0.00	57.57	142.28	1.80	0.00	1.00	0.00
57.62	146.53	1.93	0.00	1.00	0.00	57.68	157.03	2.00	0.00	1.00	0.00
57.76	166.00	2.00	0.00	1.00	0.00	57.81	161.17	2.00	0.00	1.00	0.00
57.86	159.31	2.00	0.00	1.00	0.00	57.89	167.80	2.00	0.00	1.00	0.00
57.91	171.02	2.00	0.00	1.00	0.00	57.92	169.11	2.00	0.00	1.00	0.00
57.95	166.67	2.00	0.00	1.00	0.00	57.99	167.08	2.00	0.00	1.00	0.00
58.01	169.42	2.00	0.00	1.00	0.00	58.05	173.02	2.00	0.00	1.00	0.00
58.05	175.27	2.00	0.00	1.00	0.00	58.10	176.91	2.00	0.00	1.00	0.00
58.13	178.73	2.00	0.00	1.00	0.00	58.15	180.87	2.00	0.00	1.00	0.00
58.17	182.75	2.00	0.00	1.00	0.00	58.20	182.21	2.00	0.00	1.00	0.00
58.21	181.00	2.00	0.00	1.00	0.00	58.21	179.50	2.00	0.00	1.00	0.00
58.23	179.34	2.00	0.00	1.00	0.00	58.24	177.62	2.00	0.00	1.00	0.00
58.25	177.92	2.00	0.00	1.00	0.00	58.29	179.26	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
58.31	183.11	2.00	0.00	1.00	0.00	58.33	186.52	2.00	0.00	1.00	0.00
58.38	190.06	2.00	0.00	1.00	0.00	58.39	193.13	2.00	0.00	1.00	0.00
58.43	195.59	2.00	0.00	1.00	0.00	58.43	199.15	2.00	0.00	1.00	0.00
58.48	200.60	2.00	0.00	1.00	0.00	58.53	202.36	2.00	0.00	1.00	0.00
58.56	202.90	2.00	0.00	1.00	0.00	58.58	205.20	2.00	0.00	1.00	0.00
58.59	207.06	2.00	0.00	1.00	0.00	58.63	205.90	2.00	0.00	1.00	0.00
58.63	206.49	2.00	0.00	1.00	0.00	58.63	202.42	2.00	0.00	1.00	0.00
58.68	203.74	2.00	0.00	1.00	0.00	58.69	204.22	2.00	0.00	1.00	0.00
58.72	208.81	2.00	0.00	1.00	0.00	58.73	210.28	2.00	0.00	1.00	0.00
58.74	211.92	2.00	0.00	1.00	0.00	58.77	211.36	2.00	0.00	1.00	0.00
58.81	210.02	2.00	0.00	1.00	0.00	58.82	207.44	2.00	0.00	1.00	0.00
58.83	207.97	2.00	0.00	1.00	0.00	58.87	209.78	2.00	0.00	1.00	0.00
58.91	212.41	2.00	0.00	1.00	0.00	58.92	214.21	2.00	0.00	1.00	0.00
58.93	214.95	2.00	0.00	1.00	0.00	58.96	214.44	2.00	0.00	1.00	0.00
59.01	207.70	2.00	0.00	1.00	0.00	59.06	199.13	2.00	0.00	1.00	0.00
59.08	189.77	2.00	0.00	1.00	0.00	59.11	184.95	2.00	0.00	1.00	0.00
59.15	181.46	2.00	0.00	1.00	0.00	59.21	178.75	2.00	0.00	1.00	0.00
59.26	178.89	2.00	0.00	1.00	0.00	59.30	173.20	2.00	0.00	1.00	0.00
59.35	169.07	2.00	0.00	1.00	0.00	59.40	168.73	2.00	0.00	1.00	0.00
59.42	168.34	2.00	0.00	1.00	0.00	59.47	167.78	2.00	0.00	1.00	0.00
59.51	168.63	2.00	0.00	1.00	0.00	59.56	168.59	2.00	0.00	1.00	0.00
59.61	164.50	2.00	0.00	1.00	0.00	59.67	155.77	2.00	0.00	1.00	0.00
59.71	159.11	2.00	0.00	1.00	0.00	59.80	159.56	2.00	0.00	1.00	0.00
59.85	158.50	2.00	0.00	1.00	0.00	59.90	155.47	2.00	0.00	1.00	0.00
60.00	155.53	2.00	0.00	1.00	0.00	60.04	155.09	2.00	0.00	1.00	0.00
60.10	150.62	2.00	0.00	1.00	0.00	60.15	145.30	1.91	0.00	1.00	0.00
60.19	139.22	1.73	0.00	1.00	0.00	60.23	138.03	1.70	0.00	1.00	0.00
60.28	137.71	1.69	0.00	1.00	0.00	60.33	139.47	1.74	0.00	1.00	0.00
60.38	140.26	1.77	0.00	1.00	0.00	60.42	140.74	1.78	0.00	1.00	0.00
60.44	140.24	1.76	0.00	1.00	0.00	60.47	145.72	1.93	0.00	1.00	0.00
60.52	148.94	2.00	0.00	1.00	0.00	60.56	150.90	2.00	0.00	1.00	0.00
60.57	151.48	2.00	0.00	1.00	0.00	60.61	151.48	2.00	0.00	1.00	0.00
60.66	151.98	2.00	0.00	1.00	0.00	60.71	153.21	2.00	0.00	1.00	0.00
60.76	156.59	2.00	0.00	1.00	0.00	60.81	159.58	2.00	0.00	1.00	0.00
60.86	161.02	2.00	0.00	1.00	0.00	60.91	158.84	2.00	0.00	1.00	0.00
60.95	170.69	2.00	0.00	1.00	0.00	61.00	180.91	2.00	0.00	1.00	0.00
61.02	186.60	2.00	0.00	1.00	0.00	61.05	194.34	2.00	0.00	1.00	0.00
61.08	201.44	2.00	0.00	1.00	0.00	61.09	207.57	2.00	0.00	1.00	0.00
61.13	209.24	2.00	0.00	1.00	0.00	61.14	209.63	2.00	0.00	1.00	0.00
61.16	210.15	2.00	0.00	1.00	0.00	61.20	212.77	2.00	0.00	1.00	0.00
61.23	215.88	2.00	0.00	1.00	0.00	61.24	217.23	2.00	0.00	1.00	0.00
61.29	214.83	2.00	0.00	1.00	0.00	61.30	210.65	2.00	0.00	1.00	0.00
61.33	207.82	2.00	0.00	1.00	0.00	61.38	206.66	2.00	0.00	1.00	0.00
61.43	206.60	2.00	0.00	1.00	0.00	61.48	208.54	2.00	0.00	1.00	0.00
61.53	212.02	2.00	0.00	1.00	0.00	61.56	213.05	2.00	0.00	1.00	0.00
61.58	205.10	2.00	0.00	1.00	0.00	61.59	198.13	2.00	0.00	1.00	0.00
61.62	169.24	2.00	0.00	1.00	0.00	61.63	167.67	2.00	0.00	1.00	0.00
61.67	165.65	2.00	0.00	1.00	0.00	61.71	186.61	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
61.76	184.50	2.00	0.00	1.00	0.00	61.81	178.32	2.00	0.00	1.00	0.00
61.86	172.85	2.00	0.00	1.00	0.00	61.87	168.83	2.00	0.00	1.00	0.00
61.91	165.39	2.00	0.00	1.00	0.00	61.95	162.25	2.00	0.00	1.00	0.00
61.96	159.04	2.00	0.00	1.00	0.00	62.00	155.30	2.00	0.00	1.00	0.00
62.04	150.01	2.00	0.00	1.00	0.00	62.06	143.15	1.86	0.00	1.00	0.00
62.10	137.65	1.70	0.00	1.00	0.00	62.14	133.04	1.58	0.00	1.00	0.00
62.20	129.46	1.49	0.00	1.00	0.00	62.22	122.70	1.33	0.25	1.00	0.00
62.27	125.13	1.39	0.00	1.00	0.00	62.29	125.44	1.39	0.00	1.00	0.00
62.34	124.22	1.37	0.00	1.00	0.00	62.39	123.46	1.35	0.25	1.00	0.00
62.43	121.51	1.31	0.25	1.00	0.00	62.49	121.38	1.30	0.25	1.00	0.00
62.57	121.70	1.31	0.25	1.00	0.00	62.68	127.79	1.45	0.00	1.00	0.00
62.75	139.12	1.75	0.00	1.00	0.00	62.87	146.86	1.99	0.00	1.00	0.00
62.88	142.25	1.84	0.00	1.00	0.00	62.89	142.29	1.84	0.00	1.00	0.00
62.93	142.80	1.86	0.00	1.00	0.00	62.98	158.87	2.00	0.00	1.00	0.00
63.02	172.30	2.00	0.00	1.00	0.00	63.07	182.93	2.00	0.00	1.00	0.00
63.12	-1.00	2.00	0.00	1.00	0.00	63.14	-1.00	2.00	0.00	1.00	0.00
63.17	-1.00	2.00	0.00	1.00	0.00	63.17	-1.00	2.00	0.00	1.00	0.00
63.20	-1.00	2.00	0.00	1.00	0.00	63.21	-1.00	2.00	0.00	1.00	0.00
63.23	-1.00	2.00	0.00	1.00	0.00	63.26	-1.00	2.00	0.00	1.00	0.00
63.28	-1.00	2.00	0.00	1.00	0.00	63.31	-1.00	2.00	0.00	1.00	0.00
63.32	-1.00	2.00	0.00	1.00	0.00	63.36	-1.00	2.00	0.00	1.00	0.00
63.40	-1.00	2.00	0.00	1.00	0.00						

Total estimated settlement: 0.66

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.01	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.04	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.09	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.11	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.14	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.14	1.35	2.15	27.82	59.81	3.66	7.03	11.25
0.18	6.97	11.19	4.58	51.24	2.69	0.06	0.63
0.23	18.19	29.21	1.00	29.21	2.14	0.02	0.62
0.24	36.79	59.09	1.00	59.09	1.76	0.11	0.65
0.28	53.07	85.23	1.00	85.23	1.58	0.72	0.72
0.33	59.27	95.19	1.00	95.19	1.53	0.74	0.74
0.38	56.61	90.91	1.00	90.91	1.60	0.73	0.73
0.42	52.11	83.69	1.00	83.69	1.72	0.72	0.72
0.47	51.84	83.25	1.19	98.77	1.83	0.75	0.75
0.51	51.94	83.40	1.24	103.16	1.90	0.75	0.75
0.52	52.09	83.64	1.26	104.99	1.93	0.76	0.76
0.57	52.66	84.56	1.24	105.20	1.91	0.76	0.76
0.61	53.24	85.48	1.23	105.23	1.89	0.76	0.76
0.67	53.47	85.85	1.22	105.00	1.88	0.76	0.76
0.73	53.84	86.44	1.22	105.23	1.87	0.76	0.76
0.81	53.62	86.08	1.22	104.72	1.87	0.76	0.76
0.86	53.52	85.91	1.25	107.16	1.92	0.76	0.76
0.98	52.14	83.69	1.28	106.78	1.96	0.76	0.76
1.05	48.22	77.37	1.32	102.42	2.02	0.75	0.75
1.15	43.67	70.05	1.34	94.07	2.04	0.74	0.74
1.24	37.87	60.73	1.38	83.84	2.07	0.72	0.72
1.34	34.47	55.26	1.40	77.37	2.09	0.47	0.70
1.43	30.63	49.08	1.51	74.33	2.16	0.36	0.69
1.53	26.86	43.01	1.75	75.37	2.25	0.40	0.70
1.58	24.56	39.32	1.98	77.68	2.31	0.48	0.70
1.62	23.48	37.59	2.00	75.15	2.32	0.39	0.70
1.67	24.36	38.99	1.85	72.19	2.28	0.31	0.69
1.75	23.89	38.23	1.86	70.99	2.28	0.28	0.69
1.77	23.08	36.93	1.92	70.79	2.30	0.27	0.69
1.81	21.50	34.38	2.08	71.55	2.34	0.29	0.69
1.86	19.71	31.51	2.30	72.37	2.39	0.31	0.69
1.91	17.96	28.69	2.52	72.24	2.43	0.31	0.69
1.95	16.98	27.11	2.53	68.54	2.43	0.23	0.68
2.00	16.21	25.86	2.43	62.85	2.41	0.14	0.66
2.05	14.89	23.75	2.42	57.52	2.41	0.09	0.65
2.11	13.51	21.52	2.55	54.95	2.43	0.08	0.64
2.20	12.33	19.62	2.79	54.76	2.47	0.08	0.64
2.24	11.73	18.64	3.01	56.15	2.50	0.08	0.65
2.29	11.26	17.88	3.29	58.85	2.54	0.10	0.65
2.34	11.32	17.99	3.76	67.59	2.60	0.21	0.68
2.44	12.17	19.33	3.86	74.63	2.61	0.37	0.69
2.48	14.56	23.17	3.43	79.44	2.56	0.56	0.71
2.58	18.03	28.74	2.75	79.05	2.47	0.54	0.70

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
2.63	22.41	35.77	2.21	79.01	2.37	0.54	0.70
2.71	26.08	41.66	1.92	80.03	2.30	0.59	0.71
2.78	30.33	48.48	1.67	80.89	2.22	0.63	0.71
2.82	33.73	53.95	1.52	82.21	2.16	0.70	0.71
2.89	34.94	55.89	1.47	82.24	2.13	0.70	0.71
2.96	33.63	53.77	1.51	81.39	2.16	0.66	0.71
3.03	30.90	49.37	1.62	80.00	2.20	0.58	0.71
3.11	28.98	46.28	1.70	78.46	2.23	0.51	0.70
3.19	26.45	42.22	1.79	75.65	2.26	0.41	0.70
3.25	23.52	37.50	1.97	73.87	2.31	0.35	0.69
3.35	20.49	32.62	2.28	74.42	2.38	0.37	0.69
3.41	17.79	28.29	2.60	73.49	2.44	0.34	0.69
3.50	15.91	25.25	2.74	69.10	2.46	0.24	0.68
3.59	14.83	23.51	2.66	62.63	2.45	0.14	0.66
3.69	14.59	23.12	2.55	58.90	2.43	0.10	0.65
3.79	15.20	24.09	2.35	56.48	2.39	0.09	0.65
3.88	16.54	26.24	2.09	54.78	2.34	0.08	0.64
3.97	19.14	30.40	1.82	55.25	2.27	0.08	0.64
4.07	20.82	33.10	1.77	58.69	2.26	0.10	0.65
4.14	23.49	37.37	1.67	62.38	2.22	0.14	0.66
4.17	25.51	40.62	1.61	65.25	2.20	0.17	0.67
4.26	28.14	44.83	1.51	67.83	2.15	0.21	0.68
4.32	28.71	45.74	1.52	69.43	2.16	0.24	0.68
4.37	28.10	44.77	1.56	69.94	2.18	0.25	0.68
4.42	26.62	42.38	1.65	69.93	2.21	0.25	0.68
4.51	25.07	39.88	1.74	69.30	2.24	0.24	0.68
4.61	23.68	37.65	1.82	68.42	2.27	0.22	0.68
4.65	22.37	35.53	1.90	67.38	2.29	0.21	0.68
4.74	21.09	33.47	2.00	67.06	2.32	0.20	0.68
4.80	20.48	32.49	2.05	66.55	2.33	0.19	0.67
4.89	20.04	31.78	2.09	66.46	2.34	0.19	0.67
4.95	20.38	32.32	2.05	66.20	2.33	0.19	0.67
5.04	21.05	33.39	1.97	65.92	2.31	0.18	0.67
5.13	22.81	36.20	1.80	65.26	2.27	0.17	0.67
5.18	25.27	40.14	1.63	65.28	2.20	0.17	0.67
5.28	28.07	44.63	1.49	66.64	2.14	0.19	0.67
5.32	31.47	50.09	1.40	70.04	2.09	0.26	0.68
5.42	34.67	55.23	1.35	74.62	2.05	0.37	0.69
5.51	38.14	60.80	1.31	79.86	2.01	0.58	0.71
5.60	41.28	65.83	1.26	83.18	1.94	0.71	0.71
5.66	44.24	70.58	1.22	86.14	1.88	0.72	0.72
5.76	45.86	73.17	1.00	73.17	1.83	0.33	0.69
5.85	44.91	71.65	1.21	86.53	1.86	0.72	0.72
5.92	41.11	65.53	1.25	81.79	1.92	0.68	0.71
5.95	38.21	60.87	1.28	77.76	1.96	0.48	0.70
5.97	36.15	57.56	1.30	74.97	1.99	0.38	0.70
6.02	35.37	56.31	1.31	73.90	2.01	0.35	0.69
6.06	32.74	52.08	1.36	70.59	2.05	0.27	0.68

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.16	29.98	47.63	1.42	67.87	2.10	0.21	0.68
6.21	26.98	42.82	1.56	66.83	2.18	0.20	0.68
6.26	24.29	38.48	1.79	68.74	2.26	0.23	0.68
6.31	21.62	34.19	2.18	74.63	2.36	0.37	0.69
6.40	19.23	30.34	2.70	82.06	2.46	0.69	0.71
6.44	16.91	26.60	3.43	91.18	2.56	0.73	0.73
6.52	15.12	23.73	4.16	98.65	2.64	0.75	0.75
6.57	13.47	21.08	5.01	105.63	2.73	0.76	0.76
6.64	12.16	18.96	5.81	110.19	2.80	0.77	0.77
6.69	10.98	17.06	6.65	113.46	2.86	0.77	0.77
6.78	10.34	16.02	7.15	114.49	2.90	0.77	0.77
6.83	9.90	15.31	7.38	112.96	2.91	0.77	0.77
6.92	9.60	14.82	7.45	110.37	2.92	0.77	0.77
6.97	9.39	14.48	7.39	107.07	2.91	0.76	0.76
7.03	9.29	14.32	7.35	105.27	2.91	0.76	0.76
7.12	9.32	14.36	7.25	104.07	2.90	0.76	0.76
7.22	9.39	14.46	7.17	103.64	2.90	0.75	0.75
7.27	9.52	14.66	7.09	103.89	2.89	0.76	0.76
7.36	9.65	14.86	7.06	104.93	2.89	0.76	0.76
7.43	9.75	15.01	7.08	106.34	2.89	0.76	0.76
7.50	9.78	15.06	7.16	107.82	2.90	0.76	0.76
7.59	9.77	15.04	7.22	108.69	2.90	0.76	0.76
7.64	9.70	14.93	7.34	109.64	2.91	0.77	0.77
7.75	9.63	14.81	7.46	110.40	2.92	0.77	0.77
7.79	9.70	14.91	7.43	110.74	2.92	0.77	0.77
7.89	9.97	15.33	7.19	110.22	2.90	0.77	0.77
7.99	10.24	15.76	6.97	109.89	2.88	0.77	0.77
8.04	10.34	15.91	6.96	110.71	2.88	0.77	0.77
8.13	10.31	15.85	7.03	111.39	2.89	0.77	0.77
8.23	10.27	15.79	6.35	100.23	2.84	0.75	0.75
8.32	10.27	15.77	5.78	91.18	2.79	0.73	0.73
8.37	10.53	16.20	5.34	86.47	2.76	0.72	0.72
8.46	11.04	17.00	5.74	97.61	2.79	0.74	0.74
8.56	11.30	17.42	6.05	105.35	2.82	0.76	0.76
8.59	11.30	17.41	6.35	110.51	2.84	0.77	0.77
8.61	11.03	16.97	6.71	113.97	2.87	0.77	0.77
8.67	10.89	16.75	6.98	116.82	2.88	0.78	0.78
8.71	10.69	16.41	7.24	118.78	2.90	0.78	0.78
8.72	10.51	16.13	7.46	120.30	2.92	0.78	0.78
8.78	10.44	16.02	7.56	121.13	2.92	0.78	0.78
8.80	10.44	16.02	7.59	121.54	2.93	0.79	0.79
8.86	10.44	16.01	7.60	121.62	2.93	0.79	0.79
8.90	10.55	16.17	7.55	122.08	2.92	0.79	0.79
8.95	10.68	16.39	7.49	122.77	2.92	0.79	0.79
8.96	10.89	16.71	7.39	123.54	2.91	0.79	0.79
9.00	11.05	16.98	7.33	124.43	2.91	0.79	0.79
9.05	11.29	17.35	7.24	125.55	2.90	0.79	0.79
9.09	11.56	17.78	7.10	126.26	2.89	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.10	11.96	18.43	6.89	127.03	2.88	0.79	0.79
9.14	12.47	19.24	6.66	128.15	2.86	0.80	0.80
9.20	13.21	20.42	6.33	129.23	2.84	0.80	0.80
9.24	14.09	21.83	5.95	129.98	2.81	0.80	0.80
9.29	15.03	23.34	5.57	129.97	2.78	0.80	0.80
9.31	15.90	24.74	5.28	130.54	2.75	0.80	0.80
9.38	16.61	25.88	5.06	130.87	2.73	0.80	0.80
9.41	17.32	27.00	4.80	129.53	2.71	0.80	0.80
9.47	18.02	28.13	4.48	126.15	2.68	0.79	0.79
9.53	19.33	30.23	3.91	118.10	2.62	0.78	0.78
9.62	21.08	33.03	3.29	108.83	2.54	0.76	0.76
9.67	23.71	36.88	2.63	97.08	2.45	0.74	0.74
9.77	26.25	39.96	2.22	88.55	2.37	0.73	0.73
9.81	28.83	43.12	1.89	81.52	2.29	0.66	0.71
9.90	30.67	45.16	1.72	77.57	2.24	0.48	0.70
9.97	32.26	46.92	1.61	75.55	2.20	0.40	0.70
10.06	32.63	47.13	1.61	75.67	2.20	0.41	0.70
10.20	32.13	46.19	1.68	77.59	2.22	0.48	0.70
10.30	29.29	42.06	1.79	75.15	2.26	0.39	0.70
10.44	25.52	36.67	2.06	75.52	2.33	0.40	0.70
10.54	20.70	30.03	2.66	79.87	2.45	0.58	0.71
10.63	16.56	24.49	4.08	99.92	2.64	0.75	0.75
10.74	13.83	20.66	5.64	116.62	2.78	0.78	0.78
10.78	12.62	18.99	6.71	127.39	2.86	0.79	0.79
10.83	12.48	18.76	6.96	130.59	2.88	0.80	0.80
10.88	12.31	18.47	7.21	133.16	2.90	0.80	0.80
10.89	12.15	18.24	7.50	136.86	2.92	0.81	0.81
10.97	12.25	18.30	7.62	139.36	2.93	0.81	0.81
11.02	12.48	18.59	7.62	141.70	2.93	0.82	0.82
11.07	12.79	18.96	7.51	142.37	2.92	0.82	0.82
11.11	13.06	19.28	7.42	143.00	2.91	0.82	0.82
11.16	13.39	19.70	7.30	143.71	2.91	0.82	0.82
11.21	13.76	20.15	7.19	144.81	2.90	0.82	0.82
11.26	14.14	20.62	7.10	146.37	2.89	0.82	0.82
11.30	14.37	20.90	7.10	148.42	2.89	0.82	0.82
11.36	14.54	21.07	7.14	150.43	2.90	0.83	0.83
11.40	14.68	21.19	7.17	151.92	2.90	0.83	0.83
11.45	14.81	21.32	7.18	152.97	2.90	0.83	0.83
11.50	15.04	21.57	7.12	153.64	2.89	0.83	0.83
11.55	15.31	21.86	7.06	154.44	2.89	0.83	0.83
11.60	15.85	22.53	6.88	155.07	2.88	0.83	0.83
11.66	16.56	23.39	6.63	155.14	2.86	0.83	0.83
11.74	17.40	24.38	6.31	153.92	2.84	0.83	0.83
11.84	17.98	24.97	6.15	153.46	2.82	0.83	0.83
11.93	18.18	25.08	6.17	154.65	2.82	0.83	0.83
12.04	18.04	24.73	6.38	157.76	2.84	0.84	0.84
12.13	17.87	24.37	6.58	160.42	2.86	0.84	0.84
12.22	17.67	23.94	6.76	161.87	2.87	0.84	0.84

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.27	17.51	23.64	6.85	161.93	2.88	0.84	0.84
12.37	17.27	23.16	6.98	161.58	2.88	0.84	0.84
12.41	17.17	22.94	7.03	161.26	2.89	0.84	0.84
12.51	17.06	22.65	7.13	161.48	2.89	0.84	0.84
12.56	17.23	22.78	7.08	161.37	2.89	0.84	0.84
12.65	17.64	23.15	6.96	161.03	2.88	0.84	0.84
12.71	18.45	24.09	6.70	161.44	2.86	0.84	0.84
12.79	19.23	24.96	6.59	164.56	2.86	0.85	0.85
12.89	20.10	25.92	6.50	168.54	2.85	0.85	0.85
12.96	20.98	26.96	6.43	173.33	2.84	0.86	0.86
13.04	22.23	28.37	6.15	174.57	2.82	0.86	0.86
13.13	24.11	30.49	5.62	171.40	2.78	0.85	0.85
13.23	26.80	33.27	4.19	139.58	2.65	0.81	0.81
13.30	30.34	36.95	2.91	107.47	2.49	0.76	0.76
13.37	34.15	40.77	2.02	82.17	2.32	0.70	0.71
13.47	38.32	45.44	1.87	85.15	2.29	0.72	0.72
13.57	38.79	45.84	1.94	89.15	2.31	0.73	0.73
13.61	39.19	46.27	1.98	91.39	2.31	0.73	0.73
13.62	40.31	47.52	1.94	92.31	2.30	0.73	0.73
13.68	44.31	51.92	1.78	92.36	2.26	0.73	0.73
13.73	47.82	55.76	1.68	93.57	2.22	0.74	0.74
13.77	50.08	58.23	1.65	95.79	2.21	0.74	0.74
13.87	52.91	61.16	1.61	98.26	2.20	0.74	0.74
13.93	55.78	64.26	1.58	101.41	2.19	0.75	0.75
14.00	58.54	67.15	1.55	104.21	2.17	0.76	0.76
14.06	60.62	69.33	1.54	106.89	2.17	0.76	0.76
14.12	62.21	70.95	1.54	109.37	2.17	0.77	0.77
14.21	63.05	71.63	1.55	111.13	2.17	0.77	0.77
14.25	63.45	71.96	1.56	112.44	2.18	0.77	0.77
14.35	63.35	71.51	1.58	112.67	2.18	0.77	0.77
14.45	62.61	70.37	1.60	112.38	2.19	0.77	0.77
14.50	61.06	68.50	1.63	111.75	2.21	0.77	0.77
14.59	59.18	66.15	1.68	111.04	2.22	0.77	0.77
14.64	57.19	63.82	1.73	110.49	2.24	0.77	0.77
14.74	55.60	61.79	1.78	110.08	2.26	0.77	0.77
14.80	54.22	60.12	1.83	109.86	2.27	0.77	0.77
14.88	53.18	58.73	1.87	109.70	2.28	0.77	0.77
14.97	52.24	57.45	1.91	109.62	2.30	0.77	0.77
15.05	51.43	56.38	1.95	110.04	2.31	0.77	0.77
15.13	50.85	55.53	1.99	110.56	2.32	0.77	0.77
15.21	50.95	55.42	1.99	110.46	2.32	0.77	0.77
15.28	52.23	56.58	1.93	109.48	2.30	0.77	0.77
15.36	55.10	59.37	1.82	108.07	2.27	0.76	0.76
15.41	60.22	64.61	1.66	107.30	2.22	0.76	0.76
15.50	66.38	70.74	1.53	108.00	2.16	0.76	0.76
15.55	72.78	77.07	1.38	106.45	2.07	0.76	0.76
15.65	76.92	80.83	1.31	105.71	2.00	0.76	0.76
15.71	78.17	81.68	1.27	103.43	1.94	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.79	75.07	78.22	1.28	99.99	1.96	0.75	0.75
15.89	67.29	69.97	1.33	92.88	2.02	0.73	0.73
15.90	61.09	63.58	1.38	88.03	2.07	0.72	0.72
15.94	56.21	58.47	1.45	84.99	2.12	0.72	0.72
16.00	53.24	55.28	1.51	83.45	2.15	0.71	0.71
16.06	47.68	49.45	1.67	82.65	2.22	0.71	0.71
16.14	40.74	42.17	2.02	85.02	2.32	0.72	0.72
16.19	34.10	35.24	2.56	90.26	2.43	0.73	0.73
16.26	27.10	27.88	3.51	97.89	2.57	0.74	0.74
16.33	21.54	22.01	4.74	104.24	2.70	0.76	0.76
16.38	17.06	17.28	6.24	107.80	2.83	0.76	0.76
16.47	14.43	14.45	7.58	109.50	2.93	0.77	0.77
16.54	12.64	12.69	8.71	110.54	3.00	0.77	0.77
16.62	11.80	11.71	9.67	113.31	3.05	0.52	0.84
16.70	11.53	11.36	10.18	115.66	3.08	0.56	0.81
16.76	12.28	12.12	9.88	119.66	3.06	0.59	0.87
16.86	14.88	14.80	8.08	119.59	2.96	0.78	0.78
16.90	19.33	19.15	6.07	116.24	2.82	0.78	0.78
16.98	25.84	25.69	4.22	108.51	2.65	0.76	0.76
17.05	35.42	35.23	2.81	99.11	2.48	0.75	0.75
17.14	47.54	47.19	1.94	91.71	2.30	0.73	0.73
17.20	61.48	60.90	1.51	91.88	2.15	0.73	0.73
17.29	73.03	72.03	1.35	97.56	2.05	0.74	0.74
17.34	81.99	80.70	1.30	104.58	1.99	0.76	0.76
17.44	86.87	85.21	1.28	109.31	1.97	0.76	0.76
17.50	88.89	86.96	1.26	109.36	1.93	0.76	0.76
17.58	88.15	85.91	1.24	106.78	1.91	0.76	0.76
17.64	85.02	82.63	1.24	102.13	1.90	0.75	0.75
17.75	80.50	77.97	1.27	99.12	1.95	0.75	0.75
17.82	72.08	69.66	1.35	93.80	2.04	0.74	0.74
17.89	66.02	63.60	1.43	91.18	2.11	0.73	0.73
17.89	62.68	60.37	1.51	91.04	2.15	0.73	0.73
17.96	64.06	61.55	1.50	92.30	2.15	0.73	0.73
18.02	65.34	62.67	1.51	94.33	2.15	0.74	0.74
18.07	66.86	64.01	1.51	96.43	2.15	0.74	0.74
18.17	68.78	65.62	1.49	98.02	2.14	0.74	0.74
18.22	68.74	65.47	1.51	98.54	2.15	0.75	0.75
18.30	65.20	61.85	1.59	98.20	2.19	0.74	0.74
18.36	57.69	54.52	1.83	99.83	2.27	0.75	0.75
18.42	49.20	46.28	2.30	106.36	2.39	0.76	0.76
18.50	39.97	37.31	3.16	118.00	2.53	0.78	0.78
18.56	32.38	29.97	4.32	129.55	2.66	0.80	0.80
18.62	25.71	23.53	5.80	136.40	2.80	0.81	0.81
18.69	23.96	21.78	6.13	133.60	2.82	0.80	0.80
18.76	22.21	20.05	6.60	132.24	2.86	0.80	0.80
18.84	24.30	21.95	5.90	129.41	2.80	0.80	0.80
18.89	31.88	29.04	4.26	123.66	2.66	0.79	0.79
18.98	52.85	48.61	2.23	108.20	2.37	0.76	0.76

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
19.05	78.42	72.48	1.52	110.23	2.16	0.77	0.77
19.12	101.80	94.21	1.32	124.65	2.02	0.79	0.79
19.18	115.88	107.18	1.27	136.09	1.95	0.81	0.81
19.24	124.07	114.61	1.25	142.72	1.91	0.82	0.82
19.32	126.76	116.83	1.24	144.84	1.90	0.82	0.82
19.38	126.53	116.38	1.25	145.16	1.92	0.82	0.82
19.46	124.81	114.42	1.26	144.25	1.94	0.82	0.82
19.54	122.62	112.08	1.28	142.92	1.96	0.82	0.82
19.62	121.00	110.26	1.28	141.68	1.97	0.82	0.82
19.70	119.99	109.01	1.29	140.65	1.98	0.81	0.81
19.80	119.75	108.41	1.29	140.01	1.98	0.81	0.81
19.85	119.75	108.23	1.29	139.71	1.98	0.81	0.81
19.94	119.95	108.07	1.29	139.71	1.98	0.81	0.81
20.03	120.73	108.50	1.28	138.61	1.96	0.81	0.81
20.13	121.84	109.19	1.26	137.92	1.94	0.81	0.81
20.19	123.33	110.40	1.25	137.60	1.91	0.81	0.81
20.29	124.05	110.67	1.25	138.32	1.92	0.81	0.81
20.39	124.51	110.70	1.25	138.76	1.93	0.81	0.81
20.43	124.14	110.23	1.26	138.70	1.93	0.81	0.81
20.47	124.09	109.99	1.26	138.78	1.94	0.81	0.81
20.52	123.97	109.69	1.27	139.06	1.95	0.81	0.81
20.61	123.97	109.33	1.27	139.29	1.96	0.81	0.81
20.66	123.26	108.48	1.28	139.08	1.97	0.81	0.81
20.71	122.22	107.35	1.29	138.34	1.98	0.81	0.81
20.77	121.00	106.04	1.30	137.35	1.99	0.81	0.81
20.85	120.53	105.33	1.30	136.79	1.99	0.81	0.81
20.91	120.63	105.23	1.30	136.74	1.99	0.81	0.81
21.00	121.00	105.23	1.30	136.71	1.99	0.81	0.81
21.05	120.93	105.01	1.30	136.53	1.99	0.81	0.81
21.11	120.50	104.40	1.30	136.06	2.00	0.81	0.81
21.19	120.16	103.82	1.31	135.66	2.00	0.81	0.81
21.24	120.23	103.70	1.31	135.67	2.00	0.81	0.81
21.34	120.39	103.52	1.31	135.57	2.00	0.81	0.81
21.39	119.99	103.00	1.31	135.16	2.01	0.81	0.81
21.48	118.68	101.52	1.32	133.84	2.01	0.80	0.80
21.53	116.39	99.34	1.33	131.86	2.02	0.80	0.80
21.64	113.86	96.79	1.34	129.36	2.03	0.80	0.80
21.72	111.80	94.83	1.33	125.65	2.02	0.79	0.79
21.81	110.79	93.80	1.31	122.48	2.00	0.79	0.79
21.89	110.52	93.48	1.28	120.09	1.97	0.78	0.78
21.97	110.69	93.44	1.28	119.40	1.96	0.78	0.78
22.05	110.81	93.32	1.27	118.94	1.96	0.78	0.78
22.12	110.92	93.25	1.27	118.64	1.95	0.78	0.78
22.13	110.89	93.20	1.27	118.54	1.95	0.78	0.78
22.18	111.98	94.01	1.27	119.22	1.95	0.78	0.78
22.22	114.49	96.10	1.26	121.02	1.93	0.78	0.78
22.28	118.47	99.41	1.25	123.90	1.91	0.79	0.79
22.33	122.55	102.85	1.23	126.89	1.90	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.38	126.36	106.02	1.22	129.64	1.88	0.80	0.80
22.41	129.99	109.11	1.21	132.05	1.86	0.80	0.80
22.51	133.16	111.59	1.20	133.67	1.85	0.80	0.80
22.56	135.86	113.83	1.18	134.77	1.83	0.81	0.81
22.61	137.68	115.29	1.17	135.13	1.82	0.81	0.81
22.65	139.23	116.56	1.16	135.07	1.81	0.81	0.81
22.71	140.30	117.38	1.15	134.57	1.79	0.81	0.81
22.76	141.15	118.01	1.13	133.54	1.78	0.80	0.80
22.85	141.55	118.16	1.12	132.33	1.77	0.80	0.80
22.89	141.79	118.28	1.11	131.19	1.77	0.80	0.80
22.99	141.85	118.07	1.10	130.38	1.76	0.80	0.80
23.04	142.19	118.24	1.10	129.89	1.76	0.80	0.80
23.12	143.24	118.92	1.09	129.72	1.75	0.80	0.80
23.18	145.12	120.36	1.08	129.86	1.75	0.80	0.80
23.24	147.55	122.28	1.07	130.48	1.74	0.80	0.80
23.33	150.28	124.35	1.05	131.06	1.73	0.80	0.80
23.38	152.77	126.31	1.04	131.98	1.73	0.80	0.80
23.47	154.92	127.86	1.04	132.70	1.72	0.80	0.80
23.52	155.87	128.46	1.05	134.34	1.73	0.80	0.80
23.61	155.50	127.76	1.06	136.02	1.74	0.81	0.81
23.68	153.41	125.65	1.10	137.67	1.76	0.81	0.81
23.76	149.87	122.29	1.13	137.84	1.78	0.81	0.81
23.83	145.42	118.19	1.16	136.72	1.80	0.81	0.81
23.90	140.77	113.95	1.18	134.56	1.83	0.81	0.81
23.97	136.02	109.66	1.20	131.87	1.85	0.80	0.80
24.05	130.36	104.58	1.22	128.11	1.88	0.80	0.80
24.10	123.83	98.86	1.25	123.41	1.92	0.79	0.79
24.19	116.14	92.13	1.28	117.58	1.96	0.78	0.78
24.27	109.37	86.22	1.31	112.54	2.00	0.77	0.77
24.34	103.31	80.98	1.34	108.37	2.03	0.76	0.76
24.43	99.26	77.39	1.37	105.81	2.06	0.76	0.76
24.48	95.99	74.54	1.40	104.29	2.09	0.76	0.76
24.57	93.77	72.46	1.43	103.72	2.11	0.75	0.75
24.62	91.81	70.77	1.45	102.28	2.12	0.75	0.75
24.72	90.33	69.37	1.46	101.12	2.12	0.75	0.75
24.81	89.08	68.17	1.47	100.03	2.13	0.75	0.75
24.86	87.96	67.09	1.50	100.81	2.15	0.75	0.75
24.95	85.18	64.60	1.56	100.88	2.18	0.75	0.75
25.01	82.83	62.55	1.62	101.05	2.20	0.75	0.75
25.02	81.04	61.07	1.66	101.09	2.22	0.75	0.75
25.05	81.81	61.63	1.64	101.34	2.21	0.75	0.75
25.11	82.33	61.92	1.64	101.59	2.21	0.75	0.75
25.15	82.53	61.99	1.64	101.87	2.21	0.75	0.75
25.21	81.92	61.38	1.66	101.94	2.22	0.75	0.75
25.25	81.07	60.61	1.68	101.90	2.23	0.75	0.75
25.30	79.78	59.50	1.70	101.32	2.23	0.75	0.75
25.40	78.02	57.95	1.73	100.17	2.24	0.75	0.75
25.45	75.14	55.63	1.77	98.38	2.25	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.52	71.36	52.56	1.83	96.28	2.27	0.74	0.74
25.60	65.60	47.92	1.99	95.12	2.32	0.74	0.74
25.66	58.89	42.57	2.24	95.48	2.37	0.74	0.74
25.74	50.63	36.01	2.77	99.69	2.47	0.75	0.75
25.80	42.60	29.74	3.54	105.15	2.57	0.76	0.76
25.88	34.42	23.44	4.79	112.31	2.71	0.77	0.77
25.94	27.91	18.51	6.33	117.20	2.84	0.78	0.78
26.02	22.69	14.10	8.40	118.43	2.98	0.78	0.78
26.09	19.19	11.73	10.09	118.41	3.07	0.59	0.84
26.17	16.36	9.82	11.90	116.89	3.16	0.54	0.70
26.23	14.50	8.57	13.49	115.61	3.23	0.51	0.61
26.29	13.56	7.93	14.54	115.33	3.28	0.51	0.57
26.37	13.73	8.01	14.49	116.10	3.27	0.51	0.57
26.46	14.95	8.78	13.45	118.10	3.23	0.54	0.63
26.55	16.56	9.80	12.25	120.00	3.18	0.59	0.70
26.60	18.04	10.74	11.37	122.14	3.14	0.60	0.77
26.70	18.79	11.18	11.11	124.24	3.12	0.63	0.80
26.78	19.09	11.34	11.11	125.96	3.12	0.67	0.81
26.87	19.16	11.34	10.61	120.33	3.10	0.66	0.81
26.94	19.06	11.25	9.74	109.55	3.05	0.47	0.80
27.03	18.62	10.92	9.23	100.80	3.03	0.36	0.78
27.13	17.84	10.38	9.61	99.83	3.05	0.42	0.74
27.18	15.89	9.12	11.41	104.10	3.14	0.42	0.65
27.27	14.61	8.27	12.75	105.48	3.20	0.42	0.59
27.32	14.00	7.87	13.55	106.67	3.23	0.43	0.56
27.37	14.68	8.28	12.99	107.59	3.21	0.44	0.59
27.41	15.01	8.48	12.84	108.89	3.20	0.46	0.61
27.46	15.01	8.47	13.04	110.36	3.21	0.47	0.60
27.51	15.19	8.56	13.12	112.25	3.22	0.48	0.61
27.61	15.69	8.84	13.00	114.96	3.21	0.51	0.63
27.66	16.81	9.52	12.66	120.53	3.20	0.56	0.68
27.73	19.30	11.05	11.59	128.02	3.15	0.66	0.79
27.80	22.77	13.18	10.46	137.91	3.09	0.80	0.94
27.88	26.51	15.46	9.62	148.75	3.05	0.98	1.10
27.96	28.73	16.78	9.46	158.82	3.04	1.16	1.20
28.04	29.44	17.16	9.86	169.19	3.06	1.25	1.23
28.12	29.30	17.02	10.34	175.99	3.09	1.41	1.22
28.18	29.78	17.27	10.47	180.83	3.09	1.43	1.23
28.27	30.99	17.95	10.11	181.45	3.07	1.47	1.28
28.32	32.84	19.04	9.54	181.70	3.04	1.48	1.36
28.42	34.90	20.22	8.98	181.66	3.01	1.51	1.44
28.47	37.02	21.47	8.57	183.98	2.99	0.87	0.87
28.61	38.87	22.47	8.32	186.93	2.97	0.87	0.87
28.67	40.79	23.57	8.10	190.99	2.96	0.88	0.88
28.75	43.62	26.58	7.37	195.90	2.91	0.88	0.88
28.81	49.52	30.58	6.28	192.19	2.83	0.88	0.88
28.90	59.16	37.21	4.89	181.92	2.72	0.87	0.87
29.00	70.68	45.27	3.75	169.71	2.60	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
29.05	82.68	53.82	2.95	158.84	2.50	0.84	0.84
29.10	92.58	60.99	2.48	151.03	2.42	0.83	0.83
29.15	101.07	67.24	2.13	143.11	2.35	0.82	0.82
29.24	105.88	70.82	1.92	136.02	2.30	0.81	0.81
29.29	107.45	72.19	1.78	128.66	2.26	0.80	0.80
29.37	106.66	71.76	1.71	122.57	2.23	0.79	0.79
29.43	105.44	71.05	1.64	116.77	2.21	0.78	0.78
29.53	104.90	70.72	1.59	112.38	2.19	0.77	0.77
29.62	104.73	70.61	1.55	109.62	2.17	0.77	0.77
29.68	104.75	70.73	1.51	106.89	2.15	0.76	0.76
29.80	104.42	70.36	1.50	105.63	2.15	0.76	0.76
29.91	103.80	69.74	1.50	104.61	2.15	0.76	0.76
30.00	99.10	65.97	1.59	104.86	2.19	0.76	0.76
30.07	97.42	64.55	1.63	105.36	2.21	0.76	0.76
30.15	96.27	63.56	1.66	105.54	2.22	0.76	0.76
30.21	99.04	65.49	1.62	105.77	2.20	0.76	0.76
30.26	98.71	65.16	1.62	105.66	2.20	0.76	0.76
30.31	97.50	64.21	1.64	105.39	2.21	0.76	0.76
30.38	95.52	62.65	1.67	104.86	2.22	0.76	0.76
30.45	92.62	60.44	1.72	104.23	2.24	0.76	0.76
30.50	89.12	57.84	1.79	103.72	2.26	0.75	0.75
30.55	84.94	54.79	1.88	102.88	2.29	0.75	0.75
30.64	81.19	52.03	1.96	101.83	2.31	0.75	0.75
30.70	77.93	49.71	2.01	100.16	2.32	0.75	0.75
30.79	76.04	48.30	2.05	98.96	2.33	0.75	0.75
30.84	75.47	47.86	2.05	98.19	2.33	0.74	0.74
30.93	76.95	48.79	2.01	98.05	2.32	0.74	0.74
30.98	80.15	50.98	1.93	98.14	2.30	0.74	0.74
31.05	85.34	54.54	1.81	98.98	2.27	0.75	0.75
31.13	91.57	58.82	1.71	100.51	2.24	0.75	0.75
31.17	100.46	65.08	1.58	102.97	2.19	0.75	0.75
31.27	110.94	72.52	1.47	106.25	2.13	0.76	0.76
31.32	123.23	81.52	1.37	111.37	2.06	0.77	0.77
31.41	133.45	89.03	1.31	116.56	2.00	0.78	0.78
31.46	140.90	94.67	1.28	120.72	1.96	0.78	0.78
31.52	144.37	97.40	1.26	122.24	1.93	0.79	0.79
31.61	145.01	97.95	1.24	121.83	1.91	0.79	0.79
31.66	142.15	95.90	1.24	119.20	1.91	0.78	0.78
31.75	136.69	91.66	1.26	115.29	1.93	0.78	0.78
31.80	129.14	85.76	1.29	110.68	1.98	0.77	0.77
31.90	122.00	80.16	1.33	106.52	2.02	0.76	0.76
31.94	116.84	76.18	1.37	104.07	2.06	0.76	0.76
32.04	116.03	75.33	1.38	104.00	2.07	0.76	0.76
32.09	119.17	77.25	1.39	107.23	2.08	0.76	0.76
32.20	118.70	76.38	1.43	109.06	2.11	0.76	0.76
32.24	117.72	75.37	1.47	110.44	2.13	0.77	0.77
32.28	114.69	73.02	1.51	110.26	2.15	0.77	0.77
32.29	116.70	74.43	1.49	111.09	2.14	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
32.30	118.93	75.98	1.47	112.06	2.13	0.77	0.77
32.40	120.51	76.91	1.47	112.71	2.13	0.77	0.77
32.45	120.48	76.77	1.47	112.95	2.13	0.77	0.77
32.55	119.13	75.61	1.49	112.51	2.14	0.77	0.77
32.59	118.33	74.91	1.50	112.50	2.15	0.77	0.77
32.69	118.13	74.54	1.51	112.79	2.15	0.77	0.77
32.76	118.09	74.31	1.53	113.51	2.16	0.77	0.77
32.84	118.40	74.31	1.54	114.35	2.17	0.77	0.77
32.90	119.00	74.55	1.55	115.19	2.17	0.77	0.77
32.98	119.95	75.02	1.54	115.83	2.17	0.78	0.78
33.06	121.02	75.61	1.54	116.33	2.17	0.78	0.78
33.12	122.10	76.23	1.53	116.77	2.16	0.78	0.78
33.22	122.84	76.56	1.53	117.03	2.16	0.78	0.78
33.31	123.21	76.64	1.53	117.14	2.16	0.78	0.78
33.37	123.28	76.59	1.53	117.11	2.16	0.78	0.78
33.46	123.28	76.41	1.53	117.00	2.16	0.78	0.78
33.55	123.18	76.17	1.54	117.00	2.17	0.78	0.78
33.65	122.98	75.83	1.54	117.07	2.17	0.78	0.78
33.70	122.57	75.42	1.55	117.18	2.17	0.78	0.78
33.79	122.03	74.86	1.56	117.10	2.18	0.78	0.78
33.89	121.09	74.04	1.58	116.76	2.18	0.78	0.78
33.99	119.77	72.98	1.59	116.20	2.19	0.78	0.78
34.04	117.79	71.55	1.61	115.43	2.20	0.78	0.78
34.13	115.49	69.85	1.64	114.59	2.21	0.77	0.77
34.23	112.70	67.80	1.68	113.76	2.22	0.77	0.77
34.32	110.27	66.01	1.71	113.20	2.24	0.77	0.77
34.37	108.22	64.55	1.75	112.84	2.25	0.77	0.77
34.47	106.60	63.31	1.78	112.69	2.26	0.77	0.77
34.55	103.47	61.05	1.85	112.96	2.28	0.77	0.77
34.63	96.66	56.31	2.04	114.64	2.33	0.77	0.77
34.73	86.37	49.33	2.40	118.21	2.40	0.78	0.78
34.80	72.76	40.42	3.06	123.59	2.51	0.79	0.79
34.90	60.46	32.62	3.90	127.28	2.62	0.79	0.79
35.00	54.92	29.29	4.16	121.79	2.64	0.79	0.79
35.12	50.37	26.54	4.42	117.31	2.67	0.78	0.78
35.20	52.86	28.11	3.99	112.19	2.63	0.77	0.77
35.33	53.65	28.43	4.02	114.42	2.63	0.77	0.77
35.41	63.41	34.44	3.20	110.34	2.53	0.77	0.77
35.44	68.58	37.68	2.87	108.02	2.48	0.76	0.76
35.48	76.82	42.96	2.42	103.82	2.41	0.76	0.76
35.57	84.09	47.63	2.12	101.05	2.35	0.75	0.75
35.62	98.70	57.30	1.73	98.99	2.24	0.75	0.75
35.67	115.40	68.51	1.49	102.07	2.14	0.75	0.75
35.71	137.52	83.52	1.35	112.52	2.04	0.77	0.77
35.82	159.89	98.71	1.28	126.36	1.96	0.79	0.79
35.86	185.11	116.11	1.23	143.07	1.89	0.82	0.82
35.93	207.72	131.80	1.19	156.85	1.84	0.84	0.84
36.01	225.38	144.00	1.16	166.33	1.80	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
36.06	235.57	150.92	1.14	171.69	1.79	0.85	0.85
36.12	240.67	154.12	1.13	174.89	1.78	0.86	0.86
36.18	245.05	156.73	1.14	178.20	1.79	0.86	0.86
36.25	248.69	158.84	1.14	180.98	1.79	0.87	0.87
36.30	251.52	160.26	1.15	184.12	1.80	0.87	0.87
36.39	252.83	160.54	1.16	185.99	1.81	0.87	0.87
36.44	253.07	160.15	1.17	187.57	1.82	0.87	0.87
36.53	251.49	158.45	1.18	187.51	1.83	0.87	0.87
36.59	248.39	155.45	1.21	187.43	1.86	0.87	0.87
36.68	243.47	151.62	1.22	184.49	1.87	0.87	0.87
36.75	238.34	147.93	1.22	180.99	1.88	0.87	0.87
36.83	232.04	143.78	1.22	175.91	1.88	0.86	0.86
36.90	225.27	138.95	1.23	171.34	1.89	0.85	0.85
36.97	217.18	133.11	1.25	166.05	1.92	0.85	0.85
37.02	201.72	122.19	1.28	156.23	1.96	0.84	0.84
37.04	193.70	116.64	1.30	151.13	1.99	0.83	0.83
37.08	188.61	113.19	1.30	147.61	2.00	0.82	0.82
37.17	191.78	115.46	1.29	148.65	1.97	0.83	0.83
37.27	187.30	112.45	1.29	145.04	1.98	0.82	0.82
37.37	181.37	108.42	1.30	140.68	1.99	0.81	0.81
37.42	177.21	105.83	1.30	137.22	1.99	0.81	0.81
37.51	175.89	105.19	1.29	135.25	1.97	0.81	0.81
37.58	176.97	106.34	1.27	134.76	1.95	0.81	0.81
37.66	179.01	108.07	1.25	135.08	1.92	0.81	0.81
37.76	182.58	110.83	1.23	136.26	1.89	0.81	0.81
37.85	186.08	113.57	1.21	137.18	1.86	0.81	0.81
37.93	189.62	116.22	1.19	138.14	1.84	0.81	0.81
38.04	192.25	117.99	1.18	138.80	1.82	0.81	0.81
38.13	193.87	118.97	1.17	139.30	1.82	0.81	0.81
38.18	193.57	118.63	1.17	139.16	1.82	0.81	0.81
38.28	191.24	116.58	1.19	138.51	1.84	0.81	0.81
38.37	187.40	113.37	1.21	137.08	1.86	0.81	0.81
38.47	183.55	109.99	1.23	135.63	1.89	0.81	0.81
38.57	180.39	107.19	1.25	134.14	1.92	0.80	0.80
38.62	176.78	104.23	1.27	132.48	1.95	0.80	0.80
38.72	167.48	97.43	1.31	127.27	2.00	0.79	0.79
38.78	160.21	92.19	1.34	123.72	2.04	0.79	0.79
38.81	155.32	88.77	1.37	121.63	2.06	0.79	0.79
38.86	155.19	88.54	1.37	121.68	2.07	0.79	0.79
38.91	152.02	86.27	1.40	120.51	2.08	0.78	0.78
38.95	145.92	82.06	1.44	118.55	2.12	0.78	0.78
39.05	139.55	77.66	1.51	116.91	2.15	0.78	0.78
39.09	132.37	72.88	1.59	115.64	2.19	0.78	0.78
39.14	125.06	68.10	1.69	114.83	2.23	0.77	0.77
39.24	118.19	63.61	1.80	114.32	2.26	0.77	0.77
39.29	112.16	59.80	1.91	114.03	2.30	0.77	0.77
39.39	108.48	57.39	1.99	114.16	2.32	0.77	0.77
39.43	109.15	57.74	1.98	114.28	2.31	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.53	115.02	61.25	1.86	113.89	2.28	0.77	0.77
39.57	124.17	67.01	1.69	113.55	2.23	0.77	0.77
39.68	130.64	71.04	1.60	113.69	2.19	0.77	0.77
39.73	131.95	71.83	1.58	113.53	2.19	0.77	0.77
39.81	129.33	70.10	1.60	112.48	2.20	0.77	0.77
39.89	126.37	68.39	1.60	109.51	2.19	0.77	0.77
39.96	125.26	68.01	1.56	105.89	2.18	0.76	0.76
40.06	124.52	67.75	1.52	103.14	2.16	0.75	0.75
40.15	122.70	66.50	1.54	102.38	2.17	0.75	0.75
40.20	114.41	61.03	1.67	102.07	2.22	0.75	0.75
40.24	108.56	57.23	1.79	102.62	2.26	0.75	0.75
40.26	104.17	54.45	1.90	103.22	2.29	0.75	0.75
40.27	107.91	56.72	1.82	103.36	2.27	0.75	0.75
40.37	109.77	57.73	1.80	103.81	2.26	0.76	0.76
40.42	111.64	58.75	1.78	104.71	2.26	0.76	0.76
40.52	112.38	59.02	1.79	105.44	2.26	0.76	0.76
40.56	115.27	60.66	1.76	106.63	2.25	0.76	0.76
40.66	122.24	64.78	1.67	108.06	2.22	0.76	0.76
40.70	131.54	70.42	1.57	110.67	2.18	0.77	0.77
40.75	142.59	77.15	1.49	114.79	2.14	0.77	0.77
40.85	153.40	83.66	1.43	119.75	2.11	0.78	0.78
40.91	164.05	90.16	1.39	125.10	2.08	0.79	0.79
40.96	174.69	96.83	1.35	130.56	2.04	0.80	0.80
41.04	184.27	102.87	1.32	135.59	2.01	0.81	0.81
41.09	193.94	109.10	1.29	141.03	1.98	0.81	0.81
41.18	201.90	114.17	1.28	145.57	1.96	0.82	0.82
41.23	207.97	118.08	1.26	149.12	1.94	0.83	0.83
41.29	211.58	120.37	1.26	151.17	1.93	0.83	0.83
41.38	212.76	120.98	1.25	151.67	1.93	0.83	0.83
41.42	212.09	120.40	1.26	151.21	1.93	0.83	0.83
41.52	210.03	118.76	1.26	149.86	1.94	0.83	0.83
41.57	207.27	116.72	1.27	148.26	1.95	0.82	0.82
41.62	204.91	114.93	1.28	146.93	1.96	0.82	0.82
41.71	203.13	113.45	1.29	145.89	1.97	0.82	0.82
41.76	202.15	112.60	1.29	145.43	1.98	0.82	0.82
41.84	201.65	111.98	1.30	145.17	1.99	0.82	0.82
41.91	201.54	111.64	1.30	145.22	1.99	0.82	0.82
41.95	201.75	111.52	1.31	145.53	2.00	0.82	0.82
42.01	202.52	111.63	1.31	146.36	2.00	0.82	0.82
42.10	203.57	111.82	1.32	147.40	2.01	0.82	0.82
42.15	204.98	112.23	1.33	148.90	2.02	0.83	0.83
42.24	206.03	112.44	1.33	149.94	2.03	0.83	0.83
42.28	206.46	112.53	1.34	150.31	2.03	0.83	0.83
42.39	206.26	112.27	1.33	149.81	2.03	0.83	0.83
42.43	206.08	112.28	1.33	149.14	2.02	0.83	0.83
42.50	206.11	112.45	1.32	148.36	2.01	0.82	0.82
42.58	206.28	112.80	1.31	147.54	2.00	0.82	0.82
42.65	198.95	108.28	1.32	142.73	2.01	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.70	195.88	106.39	1.32	140.58	2.02	0.81	0.81
42.73	193.72	105.08	1.32	139.14	2.02	0.81	0.81
42.77	200.19	109.31	1.30	142.31	1.99	0.82	0.82
42.82	203.83	111.68	1.29	144.06	1.98	0.82	0.82
42.87	209.12	115.10	1.28	146.92	1.96	0.82	0.82
42.91	215.46	119.14	1.26	150.57	1.94	0.83	0.83
42.97	221.76	123.09	1.25	154.27	1.92	0.83	0.83
43.02	226.82	126.14	1.25	157.35	1.92	0.84	0.84
43.06	230.49	128.19	1.25	159.72	1.91	0.84	0.84
43.11	234.33	130.34	1.24	162.21	1.91	0.84	0.84
43.17	237.93	132.40	1.24	164.40	1.91	0.85	0.85
43.21	242.21	135.09	1.23	166.83	1.90	0.85	0.85
43.29	246.19	137.59	1.23	168.85	1.89	0.85	0.85
43.34	250.53	140.43	1.22	171.05	1.87	0.85	0.85
43.39	254.11	142.76	1.21	172.71	1.86	0.86	0.86
43.45	256.87	144.64	1.20	173.74	1.85	0.86	0.86
43.51	258.25	145.84	1.19	173.50	1.84	0.86	0.86
43.59	258.59	146.35	1.18	172.47	1.82	0.86	0.86
43.64	259.19	147.38	1.16	170.73	1.80	0.85	0.85
43.70	259.29	148.12	1.13	168.10	1.78	0.85	0.85
43.78	258.35	147.98	1.12	165.08	1.77	0.85	0.85
43.88	255.18	145.77	1.12	163.55	1.77	0.84	0.84
43.94	244.77	138.10	1.17	161.52	1.82	0.84	0.84
44.04	234.93	130.84	1.21	157.74	1.86	0.84	0.84
44.07	225.87	124.41	1.23	153.31	1.89	0.83	0.83
44.12	223.58	122.68	1.24	152.08	1.90	0.83	0.83
44.16	221.15	120.94	1.25	150.70	1.91	0.83	0.83
44.21	218.05	118.76	1.25	148.86	1.93	0.83	0.83
44.26	214.65	116.39	1.26	146.86	1.94	0.82	0.82
44.31	210.81	113.73	1.27	144.63	1.95	0.82	0.82
44.35	206.97	111.11	1.28	142.44	1.97	0.82	0.82
44.40	203.26	108.60	1.29	140.32	1.98	0.81	0.81
44.45	200.16	106.49	1.30	138.56	1.99	0.81	0.81
44.50	197.83	104.91	1.31	137.24	2.00	0.81	0.81
44.54	195.81	103.53	1.32	136.15	2.01	0.81	0.81
44.60	193.46	101.86	1.32	134.97	2.02	0.81	0.81
44.64	190.96	100.11	1.34	133.85	2.03	0.80	0.80
44.69	188.57	98.42	1.35	132.85	2.05	0.80	0.80
44.74	187.78	97.76	1.36	132.59	2.05	0.80	0.80
44.79	187.17	97.27	1.36	132.34	2.06	0.80	0.80
44.83	187.71	97.52	1.36	132.53	2.05	0.80	0.80
44.88	188.84	98.15	1.35	132.96	2.05	0.80	0.80
44.93	191.20	99.52	1.35	134.02	2.04	0.80	0.80
44.98	193.69	100.99	1.34	135.20	2.03	0.81	0.81
45.03	195.31	101.90	1.33	135.95	2.03	0.81	0.81
45.08	196.49	102.54	1.33	136.45	2.03	0.81	0.81
45.16	197.53	103.08	1.33	136.81	2.02	0.81	0.81
45.19	198.24	103.58	1.32	136.91	2.02	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
45.27	198.44	103.76	1.32	136.53	2.01	0.81	0.81
45.32	197.56	103.38	1.31	135.53	2.00	0.81	0.81
45.37	195.58	102.45	1.31	133.73	2.00	0.80	0.80
45.45	192.44	100.80	1.30	131.17	1.99	0.80	0.80
45.51	187.22	97.91	1.30	127.52	1.99	0.79	0.79
45.56	180.52	93.92	1.31	123.37	2.01	0.79	0.79
45.61	169.84	87.34	1.35	117.60	2.04	0.78	0.78
45.69	156.32	78.89	1.42	111.79	2.10	0.77	0.77
45.75	137.42	67.17	1.61	108.19	2.20	0.76	0.76
45.81	115.31	54.45	1.93	105.04	2.30	0.76	0.76
45.89	93.28	42.25	2.49	105.10	2.42	0.76	0.76
45.94	73.36	31.83	3.26	103.73	2.54	0.75	0.75
46.04	59.21	24.44	4.42	108.05	2.67	0.76	0.76
46.08	46.61	18.15	6.18	112.07	2.83	0.77	0.77
46.15	39.94	13.37	8.22	109.85	2.97	0.77	0.77
46.17	36.10	11.98	9.26	110.89	3.03	0.63	0.86
46.18	36.17	12.00	9.18	110.17	3.02	0.63	0.86
46.23	36.48	12.10	9.03	109.18	3.01	0.62	0.86
46.27	37.18	12.34	8.72	107.58	3.00	0.76	0.76
46.32	38.64	12.85	8.20	105.33	2.96	0.76	0.76
46.41	40.63	15.29	7.01	107.19	2.89	0.76	0.76
46.47	43.16	16.49	6.44	106.19	2.85	0.76	0.76
46.52	45.45	17.54	6.09	106.89	2.82	0.76	0.76
46.56	47.57	18.46	5.95	109.81	2.81	0.77	0.77
46.65	49.42	19.21	5.91	113.60	2.80	0.77	0.77
46.71	51.52	20.07	5.86	117.68	2.80	0.78	0.78
46.76	54.41	21.37	5.62	120.04	2.78	0.78	0.78
46.85	58.19	23.13	5.21	120.43	2.75	0.78	0.78
46.90	63.28	25.63	4.63	118.71	2.69	0.78	0.78
46.99	67.89	27.93	4.16	116.19	2.65	0.78	0.78
47.04	70.35	29.16	3.93	114.63	2.62	0.77	0.77
47.10	69.50	28.71	4.00	114.71	2.63	0.77	0.77
47.16	65.45	26.63	4.36	116.10	2.67	0.78	0.78
47.23	59.62	23.71	4.94	117.23	2.72	0.78	0.78
47.30	51.46	19.76	5.97	117.96	2.81	0.78	0.78
47.38	42.76	13.97	8.12	113.48	2.96	0.77	0.77
47.43	34.23	10.97	10.19	111.84	3.08	0.65	0.78
47.52	28.17	8.83	11.99	105.92	3.17	0.55	0.63
47.59	23.92	7.34	12.70	93.23	3.20	0.41	0.52
47.66	21.40	6.45	12.70	81.89	3.20	0.22	0.46
47.77	19.71	5.85	12.77	74.67	3.20	0.23	0.42
47.82	18.77	5.51	13.75	75.76	3.24	0.23	0.39
47.91	18.38	5.37	14.28	76.63	3.26	0.24	0.38
47.93	17.68	5.12	15.17	77.65	3.30	0.24	0.37
47.97	17.78	5.15	15.21	78.37	3.30	0.25	0.37
48.02	17.86	5.17	15.38	79.56	3.31	0.26	0.37
48.07	18.51	5.39	15.07	81.21	3.30	0.27	0.38
48.12	18.61	5.42	15.51	84.04	3.31	0.29	0.39

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
48.19	18.71	5.44	15.90	86.54	3.33	0.33	0.39
48.23	18.91	5.51	16.11	88.74	3.33	0.34	0.39
48.31	19.15	5.58	16.11	89.88	3.33	0.35	0.40
48.35	19.35	5.64	16.11	90.92	3.33	0.36	0.40
48.40	19.25	5.60	16.37	91.72	3.34	0.37	0.40
48.45	18.81	5.45	16.96	92.39	3.36	0.37	0.39
48.50	18.07	5.19	17.92	92.93	3.40	0.38	0.37
48.55	17.80	5.09	18.35	93.37	3.41	0.38	0.36
48.59	17.64	5.03	18.75	94.24	3.42	0.39	0.36
48.67	17.87	5.10	18.56	94.62	3.42	0.40	0.36
48.73	17.84	5.08	18.58	94.36	3.42	0.39	0.36
48.78	17.97	5.12	18.13	92.80	3.40	0.38	0.37
48.83	17.97	5.11	17.74	90.68	3.39	0.36	0.37
48.91	17.94	5.09	17.35	88.35	3.38	0.33	0.36
48.98	17.84	5.05	17.10	86.35	3.37	0.32	0.36
49.03	17.74	5.01	17.00	85.19	3.37	0.31	0.36
49.12	17.68	4.98	16.65	82.90	3.35	0.30	0.36
49.17	17.75	5.00	15.91	79.48	3.33	0.26	0.36
49.27	18.02	5.08	15.07	76.51	3.30	0.22	0.36
49.31	18.56	5.25	14.57	76.55	3.28	0.24	0.38
49.38	19.20	5.46	14.44	78.88	3.27	0.26	0.39
49.45	19.70	5.62	14.44	81.15	3.27	0.28	0.40
49.51	19.00	5.38	15.44	83.00	3.31	0.29	0.38
49.54	19.44	5.52	15.24	84.13	3.30	0.30	0.39
49.59	20.18	5.76	14.65	84.45	3.28	0.31	0.41
49.64	21.53	6.21	13.47	83.63	3.23	0.31	0.44
49.73	21.20	6.09	13.64	83.01	3.24	0.29	0.43
49.83	20.02	5.68	14.52	82.47	3.27	0.29	0.41
49.92	18.88	5.29	15.55	82.19	3.31	0.29	0.38
49.98	17.86	4.94	16.51	81.62	3.35	0.28	0.35
50.07	17.33	4.75	17.04	81.01	3.37	0.27	0.34
50.16	16.99	4.63	17.38	80.51	3.38	0.27	0.33
50.24	16.69	4.52	17.70	80.06	3.39	0.27	0.32
50.32	16.46	4.44	17.99	79.87	3.40	0.26	0.32
50.41	16.32	4.39	18.25	80.02	3.41	0.26	0.31
50.50	16.36	4.39	18.25	80.09	3.41	0.27	0.31
50.56	16.26	4.35	18.25	79.36	3.41	0.27	0.31
50.66	16.09	4.28	18.27	78.27	3.41	0.25	0.31
50.74	15.92	4.22	18.37	77.53	3.41	0.24	0.30
50.84	15.85	4.19	19.00	79.62	3.43	0.25	0.30
50.93	15.95	4.21	19.91	83.88	3.46	0.30	0.30
50.98	16.77	4.47	20.59	92.08	3.48	0.35	0.32
51.08	19.60	5.39	19.08	102.75	3.43	0.47	0.38
51.17	24.45	6.95	16.30	113.31	3.34	0.63	0.50
51.24	30.11	8.78	13.98	122.80	3.25	0.75	0.63
51.34	33.65	9.91	13.03	129.12	3.21	0.89	0.71
51.41	34.16	10.06	12.19	122.59	3.18	0.93	0.72
51.51	32.81	9.60	12.05	115.66	3.17	0.50	0.69

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
51.58	31.20	9.06	11.80	106.93	3.16	0.61	0.65
51.68	29.95	8.64	12.73	109.98	3.20	0.60	0.62
51.79	27.39	7.80	14.12	110.16	3.26	0.59	0.56
51.82	25.87	7.31	15.07	110.15	3.30	0.59	0.52
51.85	24.39	6.83	16.27	111.07	3.34	0.59	0.49
51.91	25.00	7.01	16.14	113.23	3.34	0.60	0.50
52.00	24.87	6.96	16.71	116.25	3.36	0.67	0.50
52.05	27.06	7.65	15.54	118.92	3.31	0.70	0.55
52.10	31.78	9.15	13.00	118.95	3.21	0.72	0.65
52.19	38.49	11.27	10.28	115.81	3.08	0.73	0.80
52.28	44.04	13.02	8.58	111.69	2.99	0.77	0.77
52.34	46.37	13.74	7.96	109.32	2.95	0.76	0.76
52.42	46.09	13.63	8.05	109.66	2.96	0.77	0.77
52.48	44.34	13.05	8.50	111.03	2.98	0.77	0.77
52.57	42.32	12.39	8.98	111.27	3.01	0.69	0.88
52.62	40.26	11.73	9.37	109.88	3.03	0.66	0.84
52.69	38.51	11.16	9.58	106.89	3.05	0.61	0.80
52.77	36.89	10.63	9.83	104.50	3.06	0.56	0.76
52.87	35.55	10.19	10.19	103.83	3.08	0.55	0.73
52.91	34.07	9.71	10.56	102.56	3.10	0.57	0.69
53.01	32.55	9.21	11.08	102.13	3.12	0.49	0.66
53.10	32.18	9.08	11.35	103.11	3.14	0.52	0.65
53.16	34.04	9.65	11.74	113.26	3.15	0.59	0.69
53.25	38.69	11.08	11.13	123.32	3.13	0.87	0.79
53.29	44.28	12.82	10.63	136.25	3.10	0.97	0.92
53.38	48.90	14.23	10.13	144.18	3.07	1.22	1.02
53.42	59.32	17.47	8.56	149.47	2.99	0.83	0.83
53.47	74.66	22.21	6.75	150.02	2.87	0.83	0.83
53.52	92.88	27.85	5.32	148.22	2.76	0.82	0.82
53.58	102.94	30.94	4.93	152.55	2.72	0.83	0.83
53.66	103.80	31.15	5.14	160.18	2.74	0.84	0.84
53.75	98.64	29.50	5.74	169.41	2.79	0.85	0.85
53.81	88.93	26.46	6.64	175.67	2.86	0.86	0.86
53.87	78.89	23.33	7.63	177.89	2.93	0.86	0.86
53.95	67.24	19.70	9.07	178.71	3.02	1.90	1.41
54.01	57.35	16.64	10.67	177.57	3.10	1.79	1.19
54.06	47.51	13.60	12.71	172.90	3.20	1.68	0.97
54.15	41.78	11.83	14.16	167.57	3.26	1.42	0.85
54.20	40.60	11.46	14.42	165.24	3.27	1.40	0.82
54.29	47.57	13.59	12.09	164.23	3.17	1.54	0.97
54.34	69.40	20.27	7.00	141.87	2.89	0.82	0.82
54.43	100.37	29.73	3.65	108.63	2.59	0.76	0.76
54.45	137.16	41.00	2.00	82.07	2.32	0.69	0.71
54.48	166.07	49.83	1.62	80.59	2.20	0.61	0.71
54.52	185.51	55.76	1.48	82.69	2.14	0.71	0.71
54.53	198.85	59.83	1.45	86.57	2.12	0.72	0.72
54.58	207.94	62.58	1.44	89.91	2.11	0.73	0.73
54.62	219.64	66.13	1.42	93.59	2.10	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
54.65	233.46	70.33	1.38	96.81	2.07	0.74	0.74
54.70	244.67	73.72	1.36	99.98	2.05	0.75	0.75
54.76	251.12	75.64	1.35	102.23	2.05	0.75	0.75
54.77	249.88	75.25	1.37	102.77	2.06	0.75	0.75
54.82	251.50	75.71	1.36	103.16	2.06	0.75	0.75
54.87	253.07	76.14	1.36	103.55	2.05	0.75	0.75
54.88	255.63	76.92	1.35	104.08	2.05	0.76	0.76
54.91	257.28	77.39	1.35	104.56	2.05	0.76	0.76
54.96	263.42	79.22	1.34	106.09	2.04	0.76	0.76
54.97	276.70	83.26	1.32	109.90	2.01	0.77	0.77
55.03	294.89	88.74	1.30	115.47	1.99	0.78	0.78
55.09	315.21	94.86	1.27	120.89	1.96	0.78	0.78
55.15	327.84	98.63	1.23	121.55	1.89	0.79	0.79
55.20	338.35	101.77	1.20	122.41	1.85	0.79	0.79
55.25	358.17	107.74	1.13	121.49	1.78	0.79	0.79
55.30	386.84	116.38	1.11	129.28	1.77	0.80	0.80
55.34	417.50	125.63	1.07	134.62	1.74	0.81	0.81
55.39	440.05	132.40	1.10	146.03	1.76	0.82	0.82
55.40	462.28	139.13	1.10	153.71	1.76	0.83	0.83
55.44	482.80	145.29	1.08	157.35	1.75	0.84	0.84
55.44	511.21	153.88	1.02	157.04	1.72	0.84	0.84
55.49	517.76	155.78	1.03	160.78	1.72	0.84	0.84
55.54	533.43	160.44	1.05	167.71	1.73	0.85	0.85
55.59	534.98	160.82	1.10	176.17	1.76	0.86	0.86
55.63	551.08	165.61	1.09	180.34	1.75	0.86	0.86
55.64	553.47	166.31	1.09	180.79	1.75	0.87	0.87
55.68	566.94	170.31	1.06	179.92	1.73	0.86	0.86
55.69	570.38	171.33	1.04	178.50	1.73	0.86	0.86
55.69	566.17	170.04	1.05	179.38	1.73	0.86	0.86
55.71	561.62	168.63	1.09	183.08	1.75	0.87	0.87
55.76	567.28	170.25	1.10	186.45	1.76	0.87	0.87
55.78	580.19	174.11	1.08	187.85	1.75	0.87	0.87
55.81	581.23	174.36	1.04	180.96	1.72	0.87	0.87
55.85	584.16	175.16	1.00	175.16	1.69	0.86	0.86
55.86	588.34	176.41	1.00	176.41	1.65	0.86	0.86
55.91	598.65	179.42	1.00	179.42	1.62	0.86	0.86
55.92	602.25	180.48	1.00	180.48	1.60	0.87	0.87
55.96	619.03	185.46	1.00	185.46	1.58	0.87	0.87
55.97	634.09	189.98	1.00	189.98	1.57	0.88	0.88
56.00	654.37	196.01	1.00	196.01	1.56	0.88	0.88
56.01	660.12	197.72	1.00	197.72	1.58	0.88	0.88
56.03	661.79	198.18	1.00	198.18	1.59	0.88	0.88
56.05	661.82	198.14	1.00	198.14	1.60	0.88	0.88
56.10	665.04	198.99	1.00	198.99	1.60	0.89	0.89
56.12	668.02	199.86	1.00	199.86	1.58	0.89	0.89
56.16	667.69	199.67	1.00	199.67	1.57	0.89	0.89
56.17	654.78	195.76	1.00	195.76	1.57	0.88	0.88
56.20	635.11	189.78	1.00	189.78	1.59	0.88	0.88

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
56.22	617.48	184.46	1.00	184.46	1.61	0.87	0.87
56.24	608.45	181.69	1.00	181.69	1.61	0.87	0.87
56.30	602.69	179.84	1.00	179.84	1.62	0.86	0.86
56.31	595.69	177.72	1.00	177.72	1.63	0.86	0.86
56.34	586.22	174.82	1.00	174.82	1.65	0.86	0.86
56.39	579.04	172.57	1.00	172.57	1.66	0.86	0.86
56.45	572.30	170.44	1.00	170.44	1.67	0.85	0.85
56.48	565.39	168.31	1.00	168.31	1.67	0.85	0.85
56.49	555.45	165.32	1.00	165.32	1.70	0.85	0.85
56.53	542.15	161.25	1.05	168.57	1.73	0.85	0.85
56.58	529.04	157.24	1.08	169.38	1.75	0.85	0.85
56.63	524.73	155.86	1.00	155.86	1.67	0.83	0.83
56.68	526.01	156.17	1.00	156.17	1.58	0.84	0.84
56.73	531.33	157.68	1.00	157.68	1.53	0.84	0.84
56.78	526.31	156.09	1.00	156.09	1.62	0.84	0.84
56.83	517.99	153.53	1.00	153.53	1.69	0.83	0.83
56.89	503.37	149.05	1.06	157.35	1.73	0.84	0.84
56.95	485.04	143.50	1.12	160.76	1.77	0.84	0.84
56.99	470.25	139.02	1.16	161.37	1.81	0.84	0.84
57.01	460.92	136.23	1.18	160.98	1.83	0.84	0.84
57.04	461.73	136.41	1.18	160.65	1.82	0.84	0.84
57.09	468.20	138.26	1.17	161.13	1.81	0.84	0.84
57.11	477.43	140.98	1.16	163.57	1.81	0.84	0.84
57.13	488.62	144.26	1.16	167.47	1.81	0.85	0.85
57.18	488.78	144.24	1.17	169.44	1.82	0.85	0.85
57.19	477.80	140.96	1.20	168.95	1.85	0.85	0.85
57.21	464.47	136.96	1.21	166.30	1.87	0.85	0.85
57.24	456.12	134.45	1.22	164.00	1.88	0.85	0.85
57.28	456.72	134.56	1.21	163.35	1.87	0.84	0.84
57.32	450.91	132.78	1.22	161.45	1.87	0.84	0.84
57.35	445.39	131.08	1.22	160.03	1.88	0.84	0.84
57.38	435.59	128.14	1.23	157.50	1.89	0.84	0.84
57.43	430.50	126.56	1.23	155.53	1.89	0.83	0.83
57.48	414.66	121.80	1.23	150.26	1.90	0.83	0.83
57.52	398.59	116.98	1.23	143.92	1.89	0.82	0.82
57.57	389.56	114.25	1.25	142.28	1.91	0.82	0.82
57.62	396.66	116.29	1.26	146.53	1.94	0.82	0.82
57.68	427.50	125.32	1.25	157.03	1.92	0.84	0.84
57.76	462.23	135.46	1.23	166.00	1.88	0.85	0.85
57.81	505.50	148.16	1.09	161.17	1.75	0.84	0.84
57.86	543.58	159.31	1.00	159.31	1.63	0.84	0.84
57.89	572.52	167.80	1.00	167.80	1.49	0.85	0.85
57.91	583.54	171.02	1.00	171.02	1.48	0.85	0.85
57.92	577.13	169.11	1.00	169.11	1.50	0.85	0.85
57.95	569.05	166.67	1.00	166.67	1.54	0.85	0.85
57.99	570.66	167.08	1.00	167.08	1.56	0.85	0.85
58.01	578.72	169.42	1.00	169.42	1.57	0.85	0.85
58.05	591.19	173.02	1.00	173.02	1.58	0.86	0.86

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
58.05	598.87	175.27	1.00	175.27	1.59	0.86	0.86
58.10	604.77	176.91	1.00	176.91	1.60	0.86	0.86
58.13	611.17	178.73	1.00	178.73	1.60	0.86	0.86
58.15	618.51	180.87	1.00	180.87	1.60	0.87	0.87
58.17	625.12	182.75	1.00	182.75	1.59	0.87	0.87
58.20	623.43	182.21	1.00	182.21	1.59	0.87	0.87
58.21	619.40	181.00	1.00	181.00	1.60	0.87	0.87
58.21	614.30	179.50	1.00	179.50	1.61	0.86	0.86
58.23	613.93	179.34	1.00	179.34	1.61	0.86	0.86
58.24	608.11	177.62	1.00	177.62	1.62	0.86	0.86
58.25	609.21	177.92	1.00	177.92	1.54	0.86	0.86
58.29	613.99	179.26	1.00	179.26	1.44	0.86	0.86
58.31	627.24	183.11	1.00	183.11	1.32	0.87	0.87
58.33	639.00	186.52	1.00	186.52	1.34	0.87	0.87
58.38	651.36	190.06	1.00	190.06	1.37	0.88	0.88
58.39	661.87	193.13	1.00	193.13	1.39	0.88	0.88
58.43	670.53	195.59	1.00	195.59	1.40	0.88	0.88
58.43	682.73	199.15	1.00	199.15	1.39	0.89	0.89
58.48	688.02	200.60	1.00	200.60	1.40	0.89	0.89
58.53	694.39	202.36	1.00	202.36	1.41	0.89	0.89
58.56	696.37	202.90	1.00	202.90	1.46	0.89	0.89
58.58	704.43	205.20	1.00	205.20	1.47	0.89	0.89
58.59	710.90	207.06	1.00	207.06	1.49	0.89	0.89
58.63	707.18	205.90	1.00	205.90	1.49	0.89	0.89
58.63	709.20	206.49	1.00	206.49	1.50	0.89	0.89
58.63	695.36	202.42	1.00	202.42	1.51	0.89	0.89
58.68	700.19	203.74	1.00	203.74	1.49	0.89	0.89
58.69	701.88	204.22	1.00	204.22	1.45	0.89	0.89
58.72	717.85	208.81	1.00	208.81	1.40	0.90	0.90
58.73	722.94	210.28	1.00	210.28	1.38	0.90	0.90
58.74	728.64	211.92	1.00	211.92	1.41	0.90	0.90
58.77	726.96	211.36	1.00	211.36	1.44	0.90	0.90
58.81	722.67	210.02	1.00	210.02	1.47	0.90	0.90
58.82	713.94	207.44	1.00	207.44	1.49	0.89	0.89
58.83	715.80	207.97	1.00	207.97	1.51	0.90	0.90
58.87	722.33	209.78	1.00	209.78	1.52	0.90	0.90
58.91	731.67	212.41	1.00	212.41	1.53	0.90	0.90
58.92	737.87	214.21	1.00	214.21	1.54	0.90	0.90
58.93	740.53	214.95	1.00	214.95	1.53	0.90	0.90
58.96	739.05	214.44	1.00	214.44	1.53	0.90	0.90
59.01	716.31	207.70	1.00	207.70	1.56	0.89	0.89
59.06	687.29	199.13	1.00	199.13	1.59	0.89	0.89
59.08	655.28	189.77	1.00	189.77	1.63	0.88	0.88
59.11	638.94	184.95	1.00	184.95	1.65	0.87	0.87
59.15	627.21	181.46	1.00	181.46	1.68	0.87	0.87
59.21	618.28	178.75	1.00	178.75	1.70	0.86	0.86
59.26	606.09	175.11	1.02	178.89	1.72	0.86	0.86
59.30	592.31	171.02	1.01	173.20	1.71	0.86	0.86

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.35	579.87	167.32	1.01	169.07	1.71	0.85	0.85
59.40	562.76	162.26	1.04	168.73	1.73	0.85	0.85
59.42	550.96	158.81	1.06	168.34	1.74	0.85	0.85
59.47	539.34	155.35	1.08	167.78	1.75	0.85	0.85
59.51	539.41	155.29	1.09	168.63	1.75	0.85	0.85
59.56	537.97	154.79	1.09	168.59	1.75	0.85	0.85
59.61	537.36	154.53	1.06	164.50	1.74	0.85	0.85
59.67	541.98	155.77	1.00	155.77	1.70	0.83	0.83
59.71	553.73	159.11	1.00	159.11	1.65	0.84	0.84
59.80	555.82	159.56	1.00	159.56	1.61	0.84	0.84
59.85	552.45	158.50	1.00	158.50	1.59	0.84	0.84
59.90	542.21	155.47	1.00	155.47	1.59	0.83	0.83
60.00	542.99	155.53	1.00	155.53	1.59	0.83	0.83
60.04	541.71	155.09	1.00	155.09	1.60	0.83	0.83
60.10	526.52	150.62	1.00	150.62	1.63	0.83	0.83
60.15	508.32	145.30	1.00	145.30	1.67	0.82	0.82
60.19	487.40	139.22	1.00	139.22	1.70	0.81	0.81
60.23	483.49	138.03	1.00	138.03	1.69	0.81	0.81
60.28	482.61	137.71	1.00	137.71	1.68	0.81	0.81
60.33	488.98	139.47	1.00	139.47	1.67	0.81	0.81
60.38	491.97	140.26	1.00	140.26	1.67	0.81	0.81
60.42	493.85	140.74	1.00	140.74	1.69	0.81	0.81
60.44	487.18	138.79	1.01	140.24	1.71	0.81	0.81
60.47	475.94	135.53	1.08	145.72	1.74	0.82	0.82
60.52	465.53	132.47	1.12	148.94	1.78	0.83	0.83
60.56	462.70	131.60	1.15	150.90	1.79	0.83	0.83
60.57	465.03	132.25	1.15	151.48	1.79	0.83	0.83
60.61	470.62	133.80	1.13	151.48	1.78	0.83	0.83
60.66	477.29	135.64	1.12	151.98	1.77	0.83	0.83
60.71	486.66	138.25	1.11	153.21	1.77	0.83	0.83
60.76	495.25	140.63	1.11	156.59	1.77	0.84	0.84
60.81	504.76	143.27	1.11	159.58	1.77	0.84	0.84
60.86	523.05	148.43	1.08	161.02	1.75	0.84	0.84
60.91	559.78	158.84	1.00	158.84	1.70	0.84	0.84
60.95	601.50	170.69	1.00	170.69	1.66	0.85	0.85
61.00	637.66	180.91	1.00	180.91	1.64	0.87	0.87
61.02	657.74	186.60	1.00	186.60	1.64	0.87	0.87
61.05	685.10	194.34	1.00	194.34	1.62	0.88	0.88
61.08	710.24	201.44	1.00	201.44	1.61	0.89	0.89
61.09	731.84	207.57	1.00	207.57	1.59	0.89	0.89
61.13	737.94	209.24	1.00	209.24	1.59	0.90	0.90
61.14	739.46	209.63	1.00	209.63	1.60	0.90	0.90
61.16	741.44	210.15	1.00	210.15	1.60	0.90	0.90
61.20	750.88	212.77	1.00	212.77	1.58	0.90	0.90
61.23	762.13	215.88	1.00	215.88	1.56	0.90	0.90
61.24	766.92	217.23	1.00	217.23	1.52	0.90	0.90
61.29	758.86	214.83	1.00	214.83	1.51	0.90	0.90
61.30	744.24	210.65	1.00	210.65	1.52	0.90	0.90

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
61.33	734.57	207.82	1.00	207.82	1.55	0.90	0.90
61.38	730.90	206.66	1.00	206.66	1.55	0.89	0.89
61.43	731.07	206.60	1.00	206.60	1.53	0.89	0.89
61.48	738.25	208.54	1.00	208.54	1.50	0.90	0.90
61.53	750.91	212.02	1.00	212.02	1.48	0.90	0.90
61.56	754.78	213.05	1.00	213.05	1.48	0.90	0.90
61.58	726.93	205.10	1.00	205.10	1.50	0.89	0.89
61.59	702.39	198.13	1.00	198.13	1.52	0.88	0.88
61.62	600.70	169.24	1.00	169.24	1.61	0.85	0.85
61.63	595.30	167.67	1.00	167.67	1.61	0.85	0.85
61.67	588.36	165.65	1.00	165.65	1.62	0.85	0.85
61.71	662.66	186.61	1.00	186.61	1.55	0.87	0.87
61.76	655.52	184.50	1.00	184.50	1.55	0.87	0.87
61.81	634.02	178.32	1.00	178.32	1.54	0.86	0.86
61.86	615.02	172.85	1.00	172.85	1.52	0.86	0.86
61.87	600.83	168.83	1.00	168.83	1.48	0.85	0.85
61.91	588.87	165.39	1.00	165.39	1.44	0.85	0.85
61.95	578.02	162.25	1.00	162.25	1.42	0.84	0.84
61.96	566.74	159.04	1.00	159.04	1.42	0.84	0.84
62.00	553.70	155.30	1.00	155.30	1.45	0.83	0.83
62.04	535.16	150.01	1.00	150.01	1.49	0.83	0.83
62.06	510.97	143.15	1.00	143.15	1.55	0.82	0.82
62.10	491.66	137.65	1.00	137.65	1.60	0.81	0.81
62.14	475.52	133.04	1.00	133.04	1.64	0.80	0.80
62.20	463.08	129.46	1.00	129.46	1.66	0.80	0.80
62.22	439.20	122.70	1.00	122.70	1.71	0.79	0.79
62.27	415.48	115.96	1.08	125.13	1.75	0.79	0.79
62.29	396.37	110.55	1.13	125.44	1.78	0.79	0.79
62.34	380.26	105.96	1.17	124.22	1.82	0.79	0.79
62.39	366.62	102.08	1.21	123.46	1.86	0.79	0.79
62.43	347.78	96.73	1.26	121.51	1.93	0.79	0.79
62.49	340.13	94.52	1.28	121.38	1.97	0.79	0.79
62.57	336.43	93.40	1.30	121.70	1.99	0.79	0.79
62.68	357.18	99.12	1.29	127.79	1.98	0.80	0.80
62.75	398.26	110.56	1.26	139.12	1.93	0.81	0.81
62.87	426.23	118.25	1.24	146.86	1.91	0.82	0.82
62.88	409.21	113.48	1.25	142.25	1.93	0.82	0.82
62.89	424.34	117.70	1.21	142.29	1.86	0.82	0.82
62.93	485.42	134.75	1.06	142.80	1.74	0.82	0.82
62.98	571.92	158.87	1.00	158.87	1.61	0.84	0.84
63.02	620.24	172.30	1.00	172.30	1.47	0.86	0.86
63.07	658.55	182.93	1.00	182.93	1.31	0.87	0.87
63.12	710.78	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.14	752.36	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.17	781.30	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.17	799.36	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.20	825.98	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.21	830.83	-1.00	1.00	-1.00	-1.00	0.00	0.00

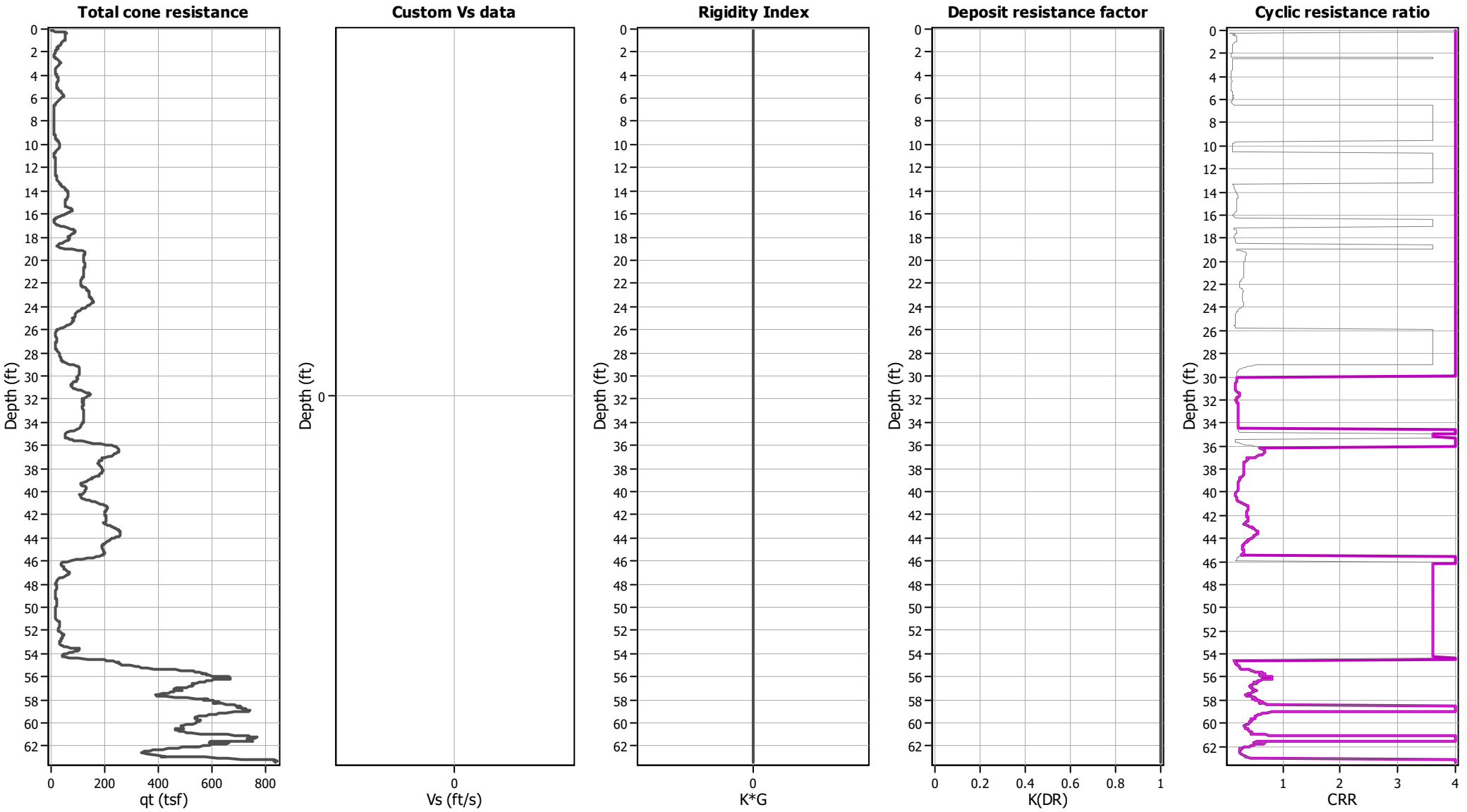
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.23	842.91	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.26	834.75	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.28	841.52	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.31	838.10	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.32	839.38	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.36	837.12	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.40	836.85	-1.00	1.00	-1.00	-1.00	0.00	0.00

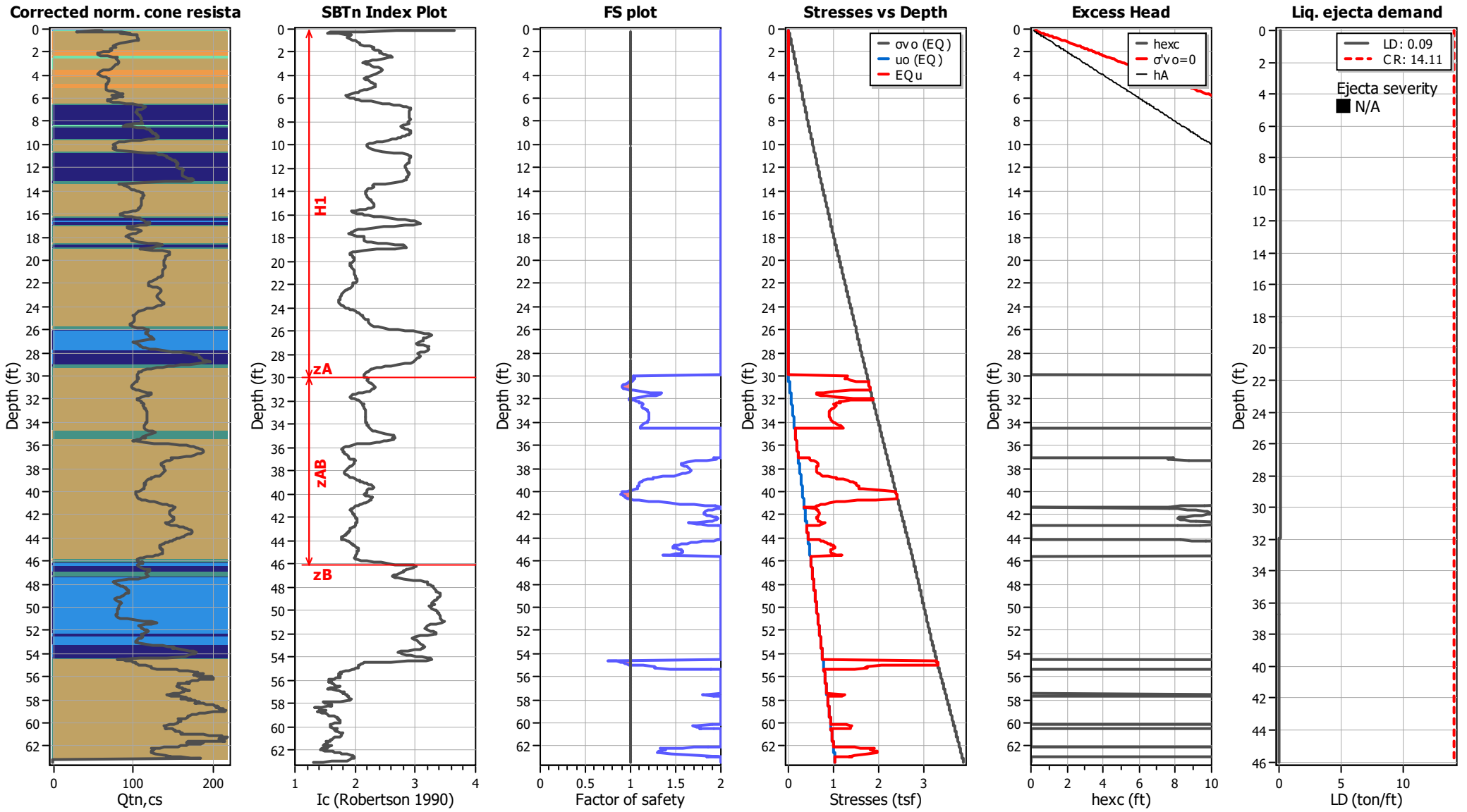
Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Aging Calculation Estimation



Ejecta Severity Estimation



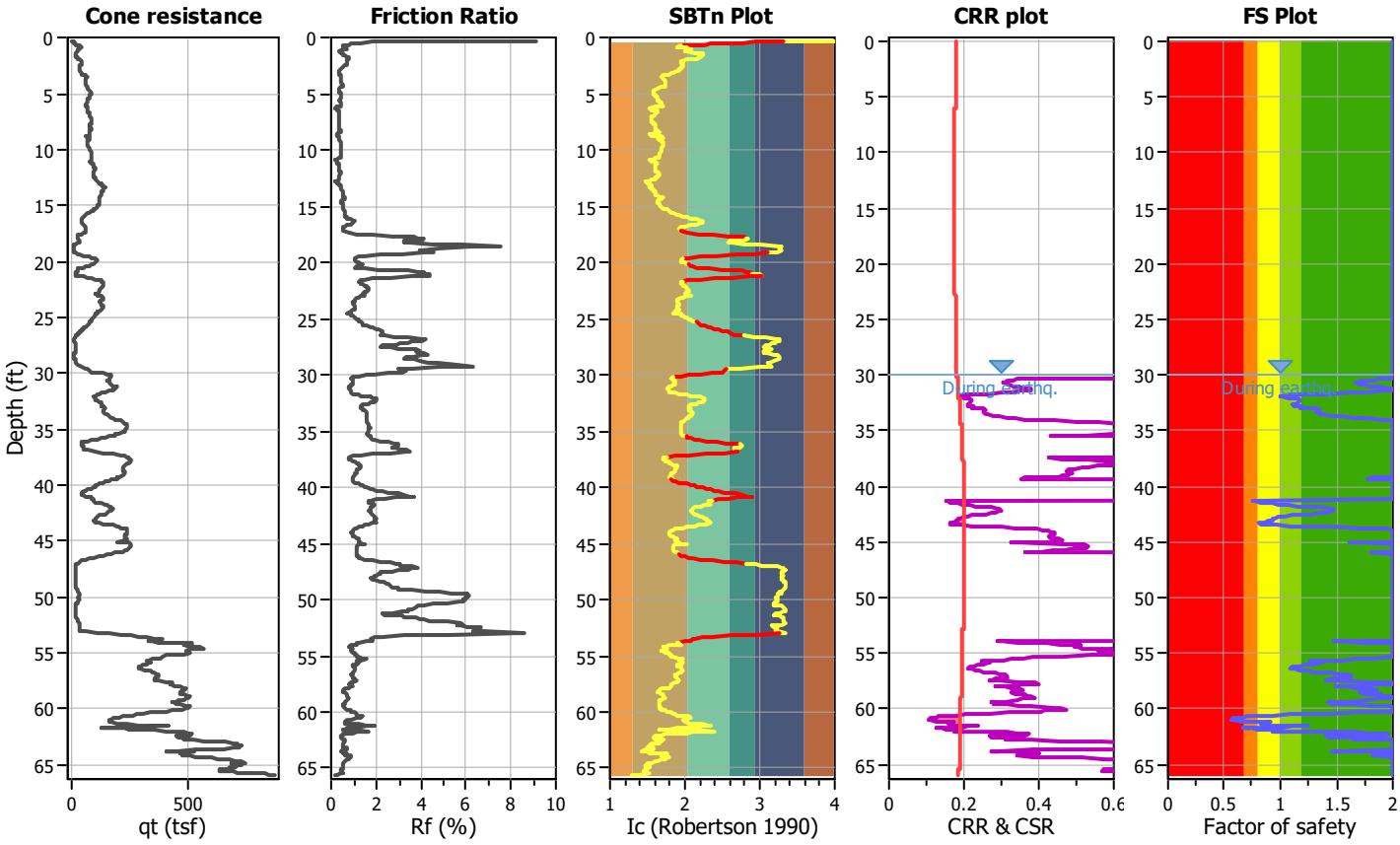
LIQUEFACTION ANALYSIS REPORT

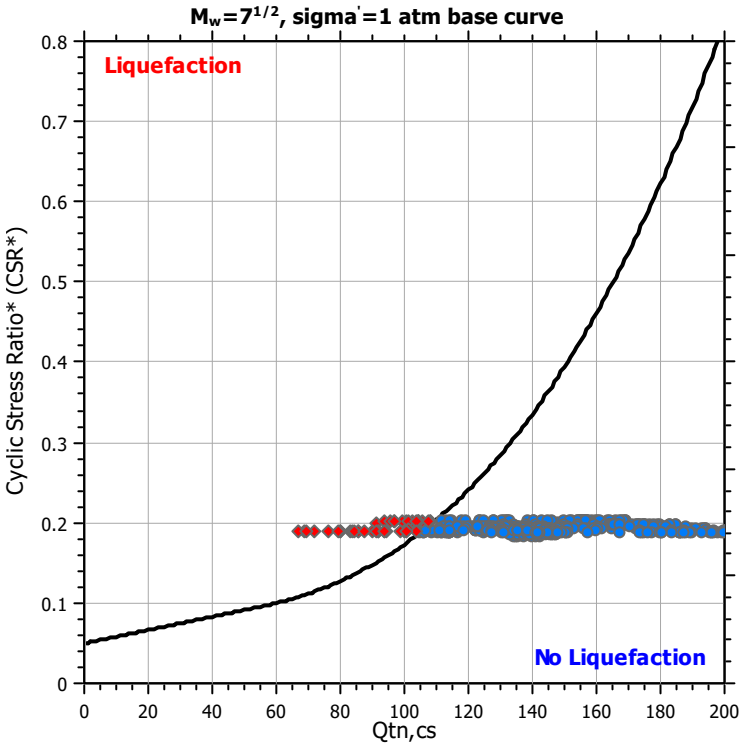
Project title : W1857-88-01 **Location : 331 The City Drive S**

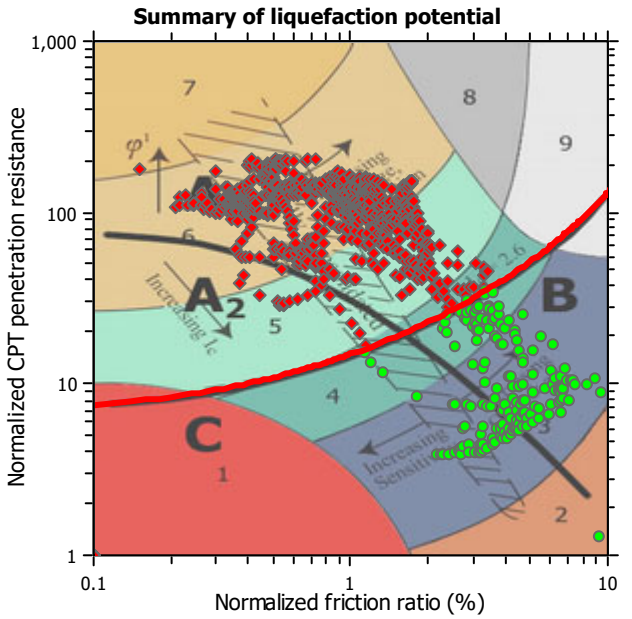
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.12	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

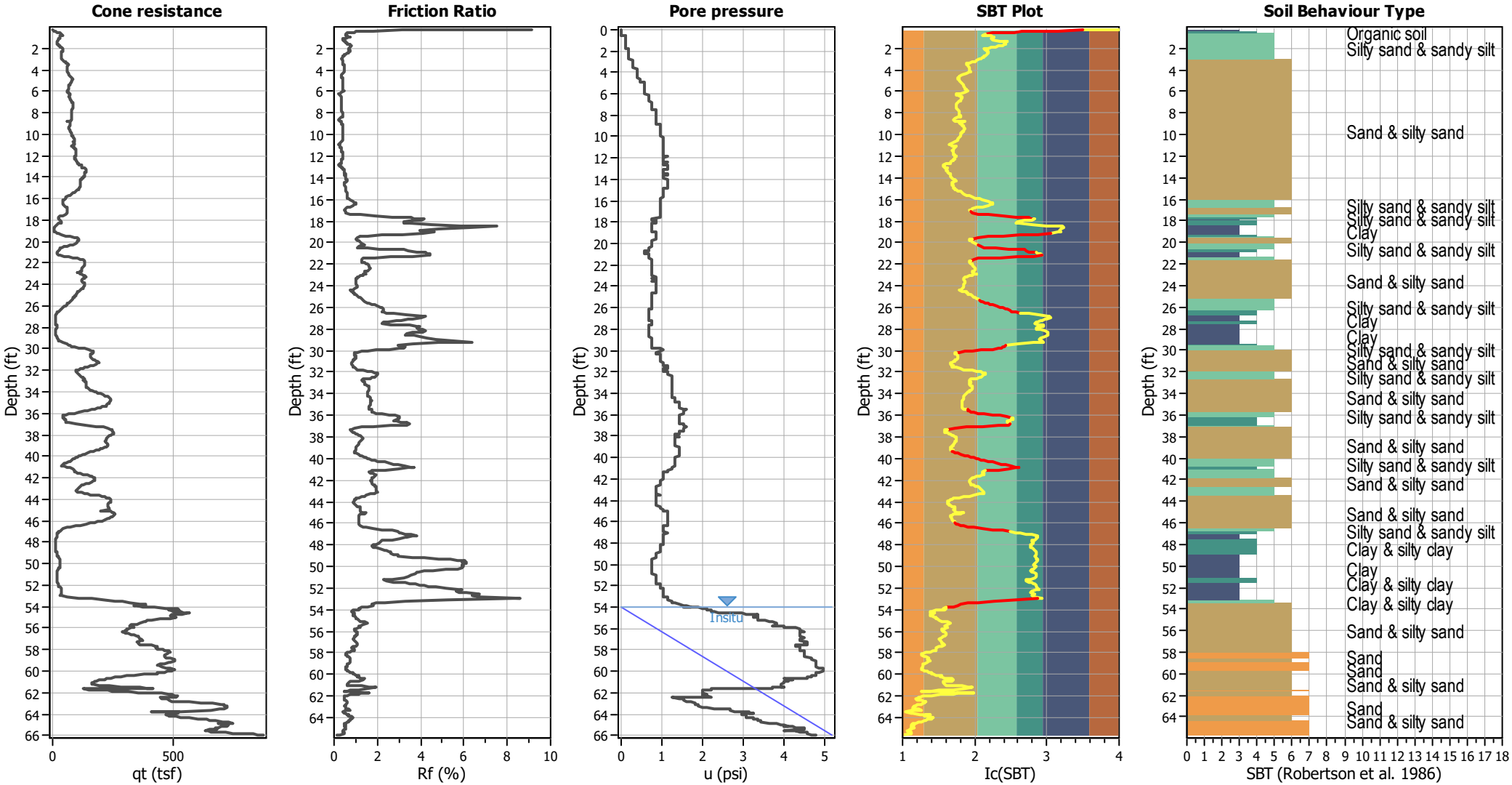






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



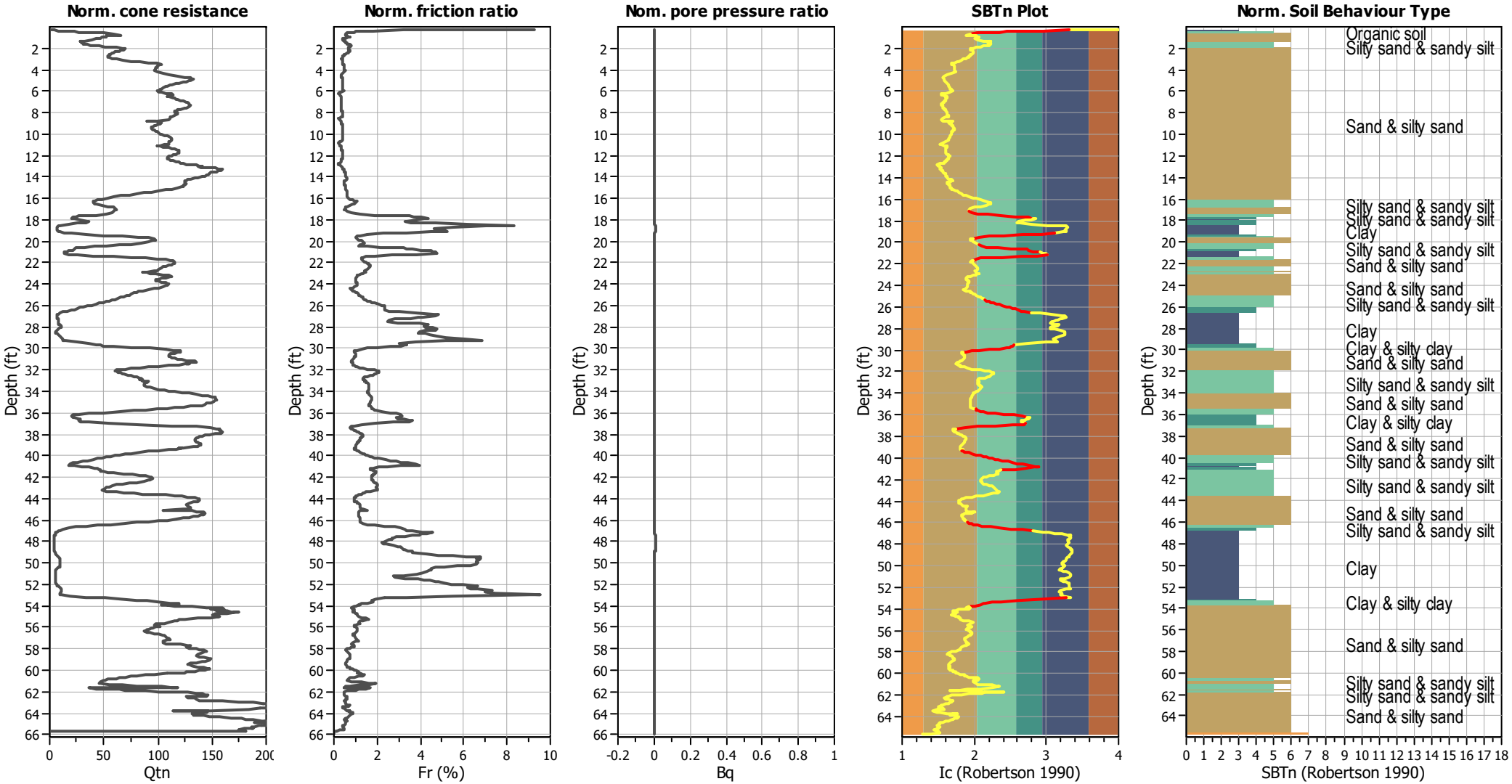
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



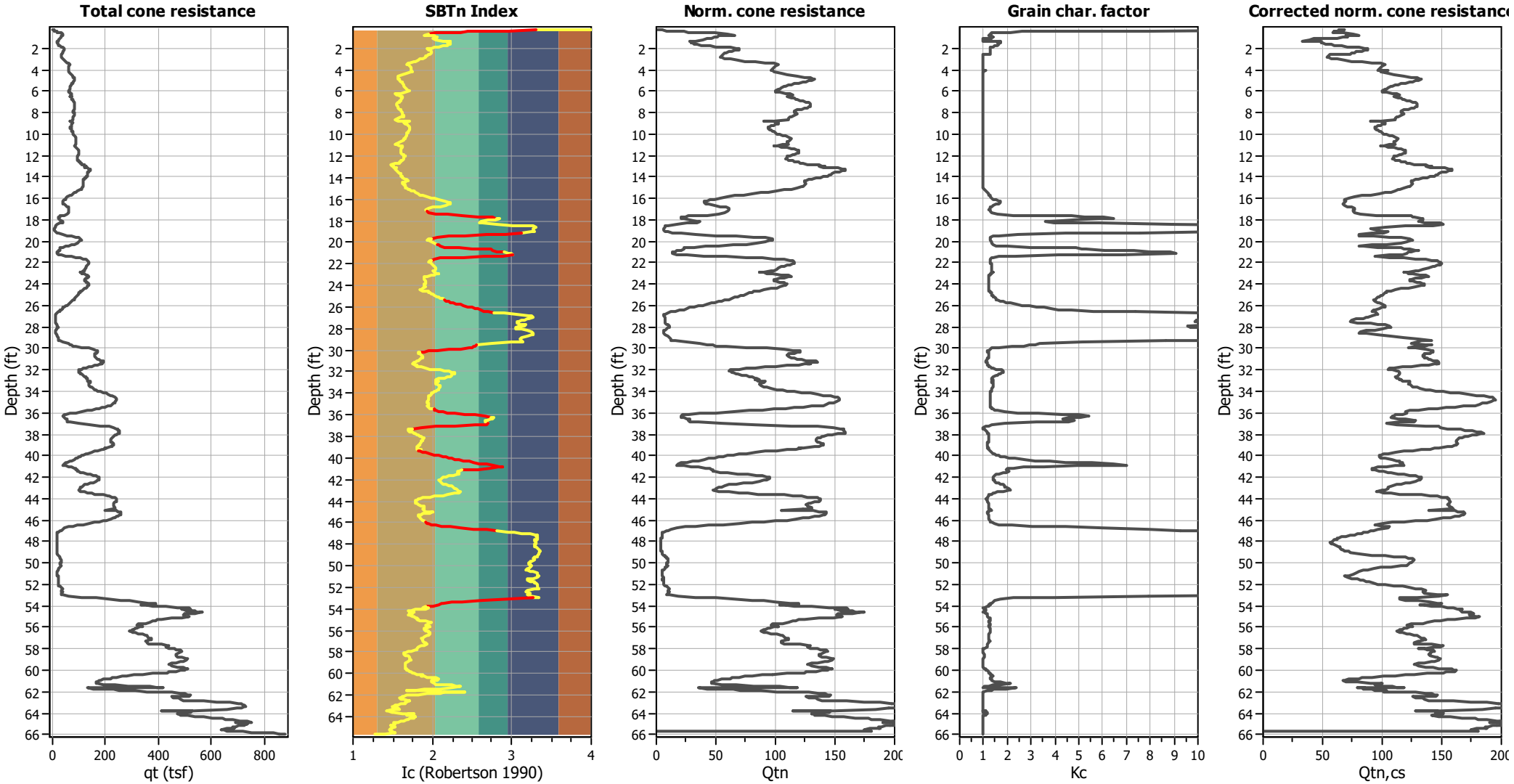
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

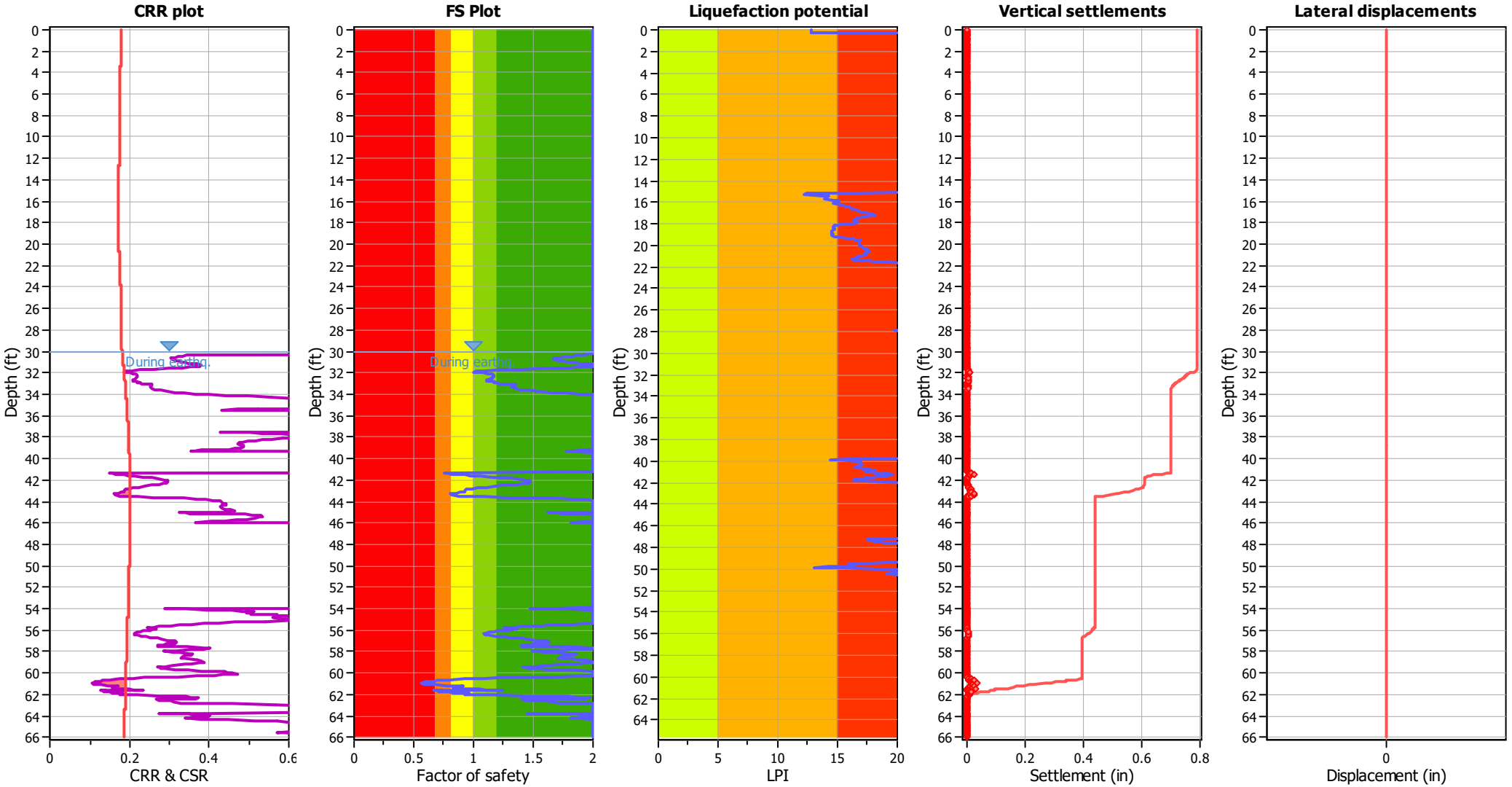
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

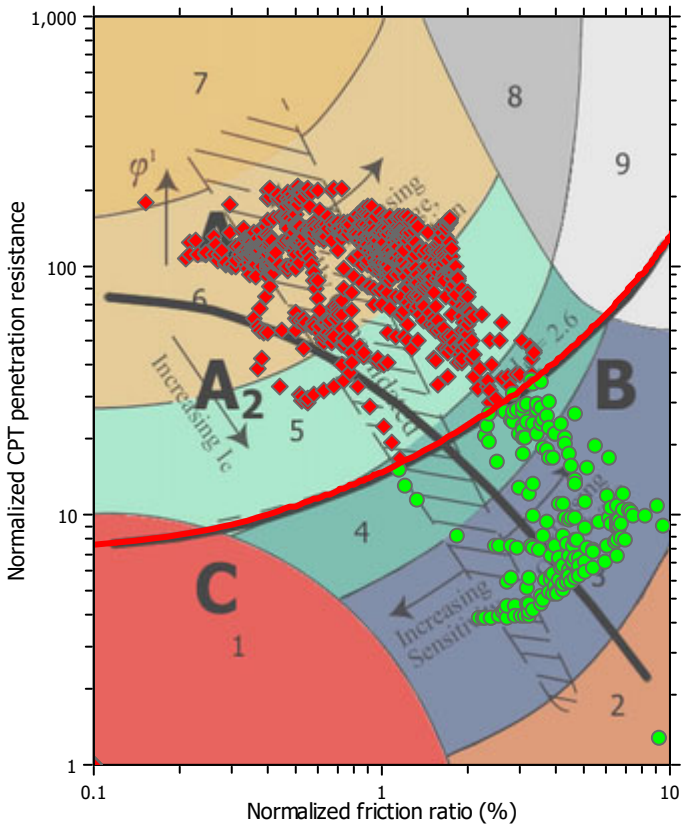
F.S. color scheme

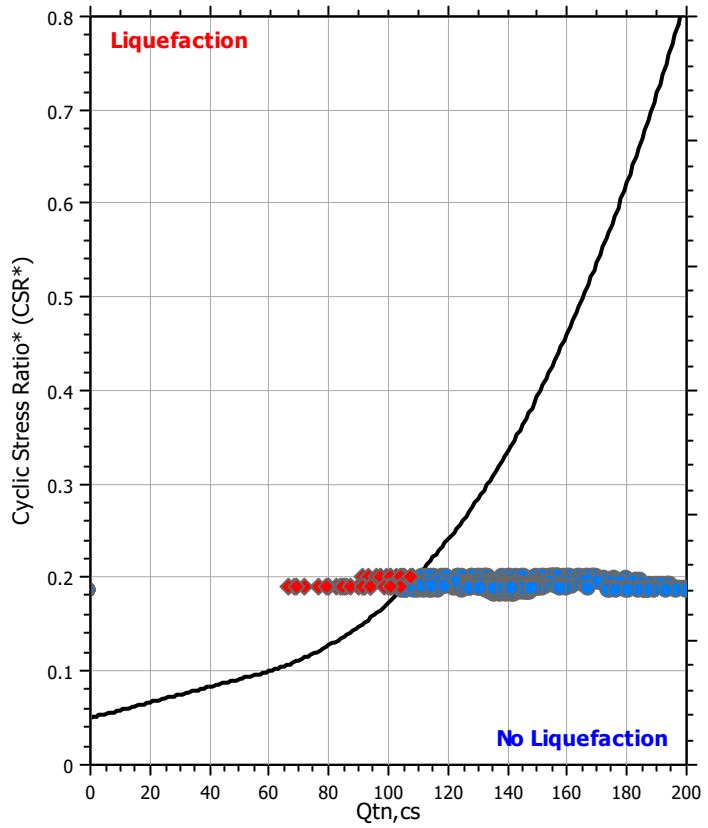
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

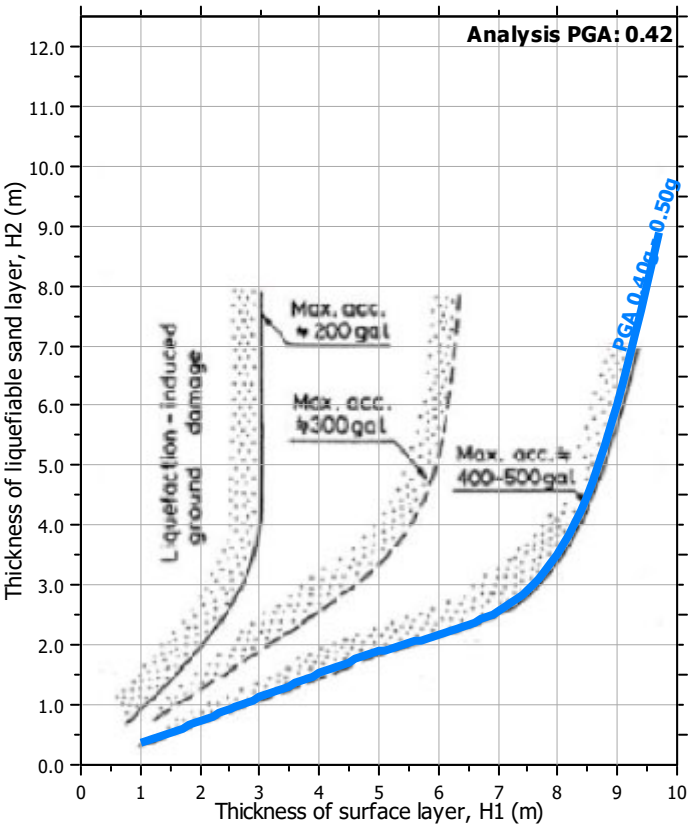
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



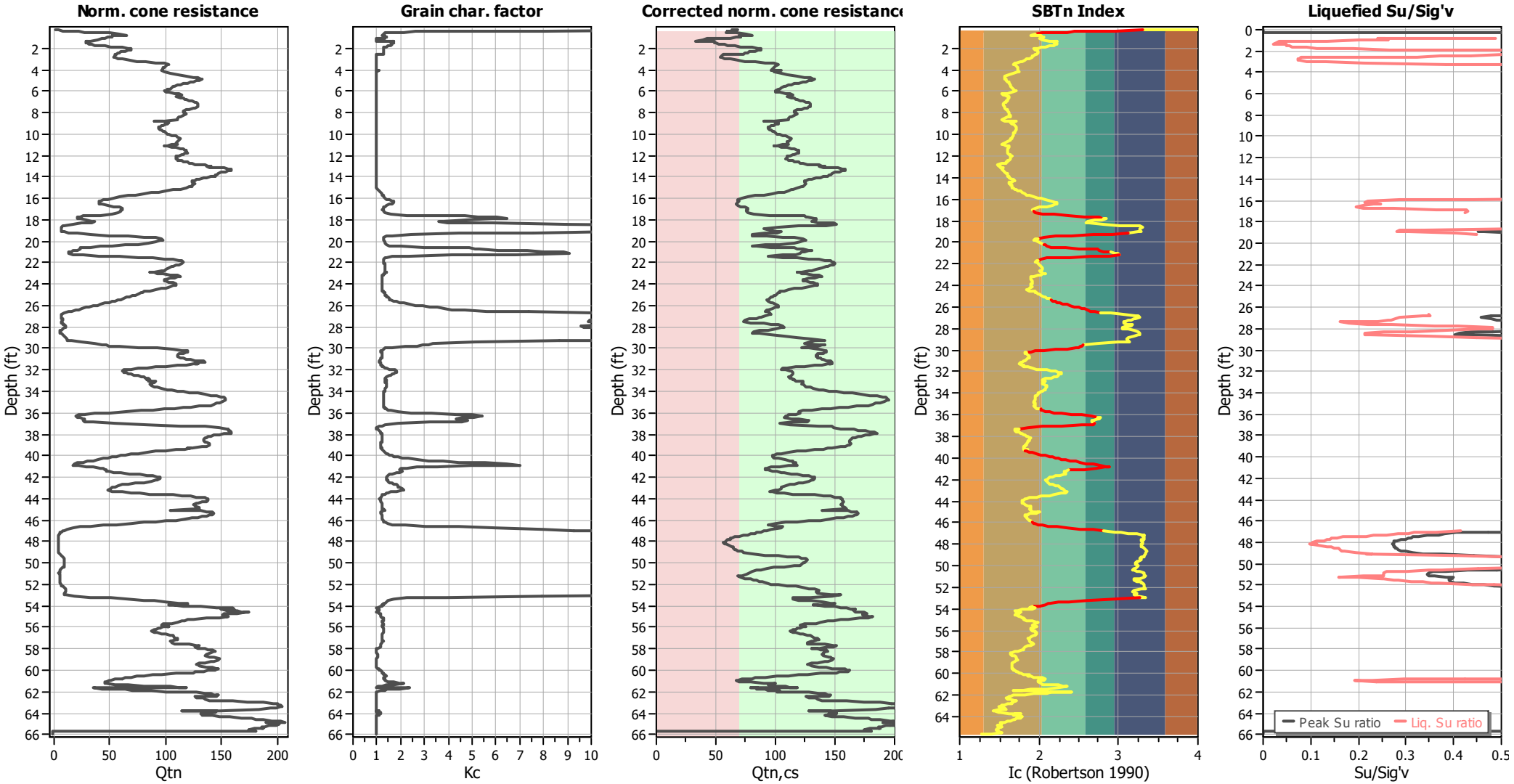




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

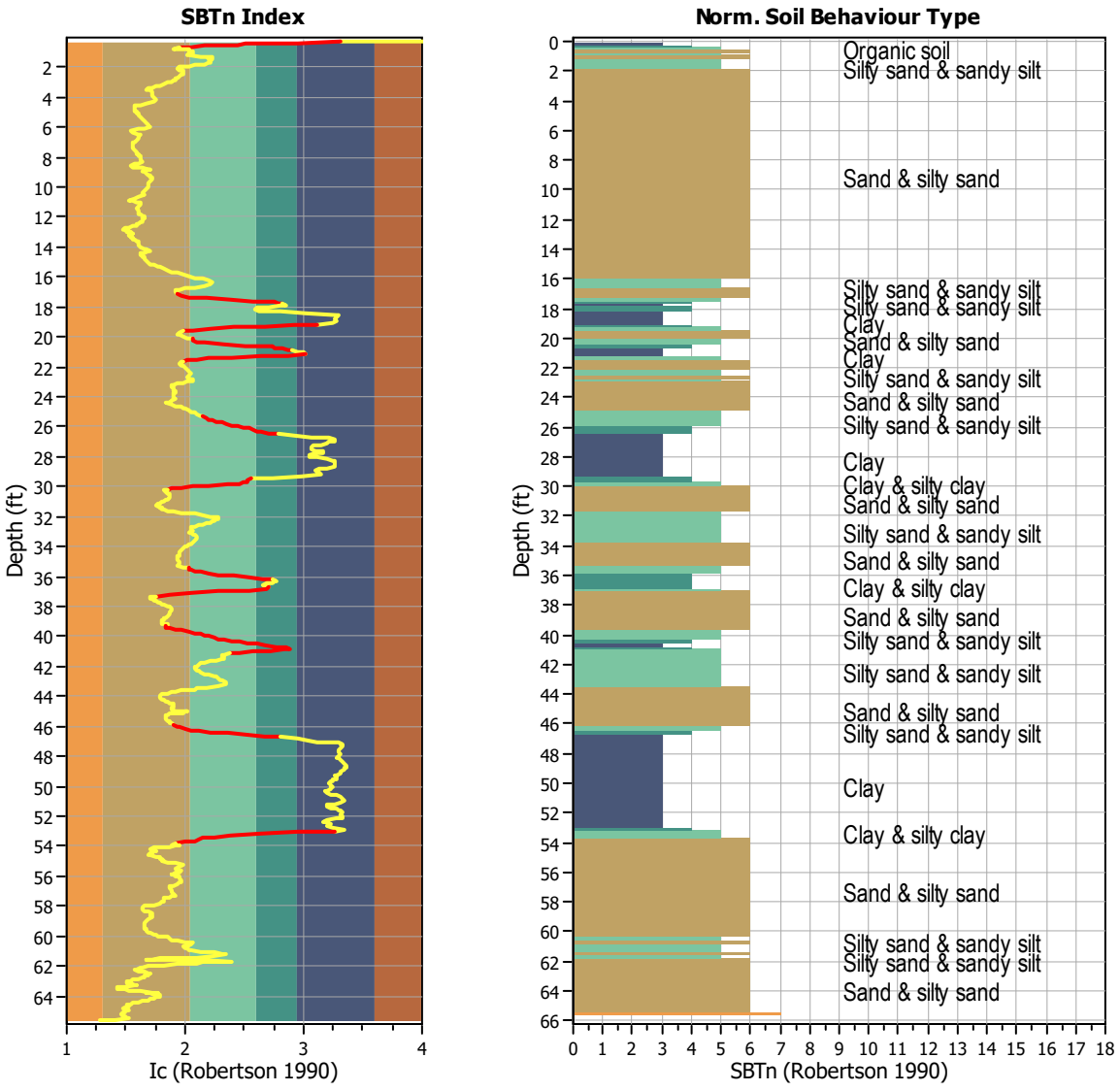
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1012
I_c maximum check value:	3.00	Total points excluded:	145
I_c change ratio value:	0.0250	Exclusion percentage:	14.33%
Minimum number of points in layer:	4	Number of layers detected:	13

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	13	Start depth: 0.36 (ft)	3	Clay
		End depth: 0.76 (ft)	6	Sand & silty sand
Transition layer 2	10	Start depth: 17.22 (ft)	6	Sand & silty sand
		End depth: 17.85 (ft)	3	Clay
Transition layer 3	7	Start depth: 19.22 (ft)	3	Clay
		End depth: 19.69 (ft)	6	Sand & silty sand
Transition layer 4	13	Start depth: 20.26 (ft)	5	Silty sand & sandy silt
		End depth: 20.96 (ft)	3	Clay
Transition layer 5	8	Start depth: 21.25 (ft)	3	Clay
		End depth: 21.69 (ft)	6	Sand & silty sand
Transition layer 6	16	Start depth: 25.41 (ft)	5	Silty sand & sandy silt
		End depth: 26.61 (ft)	3	Clay
Transition layer 7	12	Start depth: 29.63 (ft)	4	Clay & silty clay
		End depth: 30.24 (ft)	6	Sand & silty sand
Transition layer 8	11	Start depth: 35.51 (ft)	5	Silty sand & sandy silt
		End depth: 36.28 (ft)	4	Clay & silty clay
Transition layer 9	7	Start depth: 36.86 (ft)	4	Clay & silty clay
		End depth: 37.39 (ft)	6	Sand & silty sand
Transition layer 10	20	Start depth: 39.39 (ft)	6	Sand & silty sand
		End depth: 40.84 (ft)	3	Clay
Transition layer 11	7	Start depth: 40.84 (ft)	3	Clay
		End depth: 41.22 (ft)	5	Silty sand & sandy silt
Transition layer 12	11	Start depth: 46.02 (ft)	6	Sand & silty sand
		End depth: 46.84 (ft)	3	Clay
Transition layer 13	10	Start depth: 53.10 (ft)	3	Clay
		End depth: 53.92 (ft)	6	Sand & silty sand

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.01	0.00	0.00	0.00	N/A	120.90
2	0.04	-0.10	0.01	0.00	N/A	120.90
3	0.08	0.00	0.01	0.00	N/A	120.90
4	0.10	-0.10	0.01	0.00	N/A	120.90
5	0.13	0.00	0.02	0.00	N/A	120.90
6	0.18	0.00	0.03	0.00	N/A	120.90
7	0.22	0.00	0.05	0.00	N/A	120.90
8	0.27	0.00	0.08	0.00	100.00	90.68
9	0.33	2.43	0.09	0.00	81.96	94.98
10	0.36	5.87	0.09	0.00	55.30	96.98
11	0.37	7.19	0.09	0.00	43.87	97.82
12	0.38	8.30	0.10	0.00	39.79	98.46
13	0.42	9.11	0.11	0.00	36.64	99.41
14	0.44	10.73	0.12	0.00	34.37	100.58
15	0.47	11.94	0.14	0.00	31.37	101.55
16	0.47	13.87	0.14	0.00	28.15	102.58
17	0.52	16.90	0.16	0.00	24.51	103.55
18	0.56	20.24	0.17	0.00	21.06	104.60
19	0.58	24.29	0.18	0.00	17.61	105.59
20	0.61	30.26	0.19	0.10	14.26	106.54
21	0.66	37.55	0.20	0.10	11.58	107.34
22	0.76	43.02	0.21	0.10	10.25	107.74
23	0.80	41.80	0.21	0.10	11.05	107.65
24	0.81	31.17	0.21	0.10	12.33	107.41
25	0.85	33.50	0.20	0.10	13.76	107.15
26	0.86	32.59	0.20	0.10	13.66	107.29
27	0.90	32.29	0.22	0.10	14.33	107.68
28	0.95	31.78	0.24	0.10	14.92	108.07
29	1.00	31.38	0.24	0.10	14.72	106.94
30	1.05	28.44	0.12	0.10	14.03	104.83
31	1.14	26.82	0.10	0.10	5.00	101.56
32	1.24	24.39	0.08	0.10	5.00	100.45
33	1.31	21.66	0.09	0.10	5.00	100.02
34	1.36	15.49	0.10	0.10	19.77	100.07
35	1.37	16.65	0.10	0.10	20.16	100.28
36	1.39	21.17	0.10	0.10	19.32	100.40
37	1.43	17.81	0.10	0.10	18.80	100.44
38	1.44	18.12	0.10	0.10	19.86	100.33
39	1.49	18.22	0.10	0.10	19.73	100.60
40	1.53	18.72	0.11	0.10	19.64	101.22
41	1.58	19.74	0.12	0.10	19.61	102.17
42	1.63	20.55	0.14	0.10	19.60	103.26
43	1.68	21.56	0.16	0.10	19.49	104.34
44	1.72	22.98	0.18	0.10	18.93	105.39
45	1.77	25.40	0.20	0.10	17.98	106.40
46	1.82	28.04	0.22	0.19	16.68	107.38
47	1.86	31.48	0.24	0.19	15.32	108.26
48	1.92	35.02	0.26	0.19	13.84	108.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	1.97	38.77	0.26	0.19	12.52	109.50
50	2.01	42.21	0.27	0.19	11.75	110.13
51	2.09	43.83	0.31	0.19	11.40	110.51
52	2.16	43.62	0.30	0.19	11.59	110.65
53	2.20	41.70	0.29	0.19	12.00	110.35
54	2.25	39.07	0.28	0.19	12.39	109.98
55	2.31	38.77	0.27	0.19	12.55	109.49
56	2.37	37.96	0.25	0.19	12.51	108.98
57	2.40	36.64	0.24	0.19	12.56	108.51
58	2.46	36.03	0.23	0.19	12.53	107.92
59	2.54	35.22	0.20	0.19	12.28	107.21
60	2.59	34.82	0.18	0.19	5.00	106.07
61	2.69	34.01	0.14	0.19	5.00	105.12
62	2.74	33.91	0.14	0.19	5.00	104.27
63	2.83	33.91	0.13	0.29	5.00	104.04
64	2.88	33.81	0.13	0.29	5.00	103.96
65	2.98	35.32	0.13	0.29	5.00	104.13
66	3.03	37.96	0.13	0.29	5.00	104.69
67	3.12	42.41	0.15	0.29	5.00	105.94
68	3.21	46.56	0.19	0.29	5.00	107.29
69	3.27	51.52	0.21	0.29	5.00	108.51
70	3.34	56.88	0.23	0.29	5.00	109.32
71	3.41	62.75	0.24	0.29	5.00	110.12
72	3.51	66.09	0.27	0.29	5.00	110.66
73	3.55	63.76	0.28	0.29	5.00	111.08
74	3.65	61.03	0.29	0.38	5.00	111.24
75	3.75	62.45	0.30	0.38	5.00	111.31
76	3.83	61.64	0.29	0.38	5.00	111.22
77	3.94	60.22	0.28	0.38	5.00	111.12
78	4.04	61.44	0.28	0.38	5.00	111.07
79	4.13	59.21	0.29	0.38	7.02	111.59
80	4.24	61.23	0.34	0.38	5.00	111.65
81	4.38	64.57	0.29	0.38	5.00	110.97
82	4.50	69.64	0.19	0.38	4.69	110.20
83	4.62	72.57	0.25	0.48	3.95	110.29
84	4.71	80.16	0.28	0.48	3.93	111.40
85	4.75	80.92	0.29	0.48	3.90	112.19
86	4.84	81.68	0.33	0.48	3.97	112.65
87	4.89	83.70	0.33	0.57	4.02	112.99
88	4.94	83.40	0.33	0.57	4.04	113.02
89	4.98	81.68	0.33	0.57	4.17	112.97
90	5.07	80.06	0.33	0.57	4.33	112.85
91	5.13	78.54	0.33	0.57	4.49	112.71
92	5.17	76.82	0.32	0.57	4.57	112.40
93	5.27	75.00	0.30	0.57	4.72	112.10
94	5.32	72.47	0.30	0.57	4.84	111.72
95	5.42	70.75	0.28	0.57	4.99	111.41
96	5.46	69.33	0.27	0.57	5.00	111.08

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	5.56	67.91	0.26	0.57	5.00	110.88
98	5.61	66.80	0.26	0.57	5.00	110.75
99	5.71	65.89	0.26	0.57	5.00	110.68
100	5.78	64.88	0.26	0.57	5.00	110.63
101	5.85	63.97	0.26	0.57	5.00	110.57
102	5.95	62.65	0.26	0.57	5.00	110.53
103	6.00	61.84	0.26	0.57	5.00	110.86
104	6.09	62.45	0.30	0.67	5.00	109.42
105	6.14	64.47	0.11	0.67	4.43	108.06
106	6.24	67.31	0.14	0.67	3.33	106.15
107	6.30	70.75	0.17	0.67	3.46	107.71
108	6.38	73.18	0.20	0.67	3.76	108.87
109	6.46	70.24	0.23	0.67	4.34	109.63
110	6.50	65.28	0.24	0.67	4.73	110.08
111	6.56	69.74	0.25	0.67	4.82	110.41
112	6.63	71.46	0.26	0.67	4.59	110.75
113	6.68	72.67	0.26	0.67	4.51	110.97
114	6.76	73.38	0.27	0.76	4.44	111.12
115	6.82	74.39	0.27	0.76	4.37	111.23
116	6.88	75.81	0.27	0.76	4.21	111.32
117	6.96	78.34	0.27	0.76	3.98	111.40
118	7.03	80.97	0.27	0.76	3.77	111.49
119	7.11	82.29	0.27	0.76	3.64	111.55
120	7.16	82.89	0.27	0.76	3.60	111.70
121	7.26	83.91	0.29	0.76	3.62	111.86
122	7.31	84.62	0.29	0.76	3.65	112.04
123	7.40	84.72	0.29	0.76	3.70	112.13
124	7.45	84.51	0.30	0.76	3.76	112.18
125	7.54	84.31	0.30	0.86	3.86	112.16
126	7.60	83.00	0.30	0.86	3.98	112.07
127	7.68	81.17	0.29	0.86	4.16	111.94
128	7.74	79.45	0.29	0.86	4.33	111.82
129	7.83	78.44	0.29	0.86	4.51	111.77
130	7.90	77.73	0.29	0.86	4.60	111.85
131	7.98	78.85	0.30	0.86	4.65	112.09
132	8.05	80.67	0.31	0.86	4.62	112.42
133	8.12	82.29	0.32	0.86	4.65	112.70
134	8.19	82.08	0.33	0.86	4.77	112.88
135	8.27	80.57	0.34	0.86	5.03	113.00
136	8.36	78.74	0.34	0.86	5.00	112.80
137	8.41	78.04	0.31	0.86	4.51	111.23
138	8.50	78.24	0.15	0.86	3.85	109.61
139	8.60	78.95	0.18	0.86	3.40	108.40
140	8.70	79.15	0.21	0.86	3.76	109.30
141	8.74	78.14	0.22	0.86	4.96	109.52
142	8.78	55.57	0.22	0.86	5.00	109.55
143	8.81	62.96	0.23	0.96	5.00	109.69
144	8.86	72.17	0.24	0.96	5.00	110.13

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	8.91	74.09	0.25	0.96	5.00	110.49
146	8.94	75.00	0.25	0.96	5.00	110.79
147	9.02	73.89	0.27	0.96	5.00	111.08
148	9.10	72.47	0.28	0.96	5.00	111.34
149	9.17	71.15	0.28	0.96	5.00	111.44
150	9.22	69.84	0.28	0.96	5.00	111.44
151	9.31	68.83	0.28	0.96	5.00	111.41
152	9.37	68.32	0.28	0.96	5.00	111.39
153	9.42	68.32	0.28	0.96	5.00	111.39
154	9.52	69.13	0.28	0.96	5.00	111.41
155	9.60	70.04	0.28	0.96	5.00	111.49
156	9.66	71.36	0.29	0.96	5.00	111.61
157	9.74	73.18	0.29	0.96	5.00	111.74
158	9.81	74.80	0.29	0.96	5.00	111.88
159	9.89	75.71	0.30	0.96	5.00	112.10
160	9.98	76.82	0.32	0.96	5.00	112.42
161	10.03	78.54	0.33	1.05	5.00	112.78
162	10.13	80.97	0.34	1.05	5.00	113.14
163	10.23	84.21	0.35	1.05	5.00	113.45
164	10.32	86.94	0.36	1.05	5.00	113.68
165	10.38	88.16	0.36	1.05	5.00	113.80
166	10.47	89.17	0.37	1.05	5.00	113.83
167	10.57	88.66	0.36	1.05	5.00	113.81
168	10.66	87.45	0.36	1.05	4.50	112.22
169	10.76	87.65	0.16	1.05	3.90	110.65
170	10.85	87.85	0.19	1.05	3.30	108.99
171	10.92	88.46	0.22	1.05	3.57	109.92
172	11.00	89.27	0.23	1.05	4.11	110.26
173	11.07	77.73	0.23	1.05	4.54	110.35
174	11.10	79.45	0.23	1.05	4.87	110.48
175	11.15	83.40	0.25	1.05	4.71	110.88
176	11.19	85.53	0.26	1.05	4.61	111.40
177	11.24	87.25	0.28	1.05	4.59	111.90
178	11.29	89.47	0.30	1.05	4.51	112.30
179	11.34	92.21	0.31	1.05	4.40	112.73
180	11.40	95.14	0.33	1.05	4.33	113.17
181	11.47	97.27	0.35	1.05	4.32	113.59
182	11.53	97.98	0.36	1.05	4.38	113.88
183	11.58	97.87	0.36	1.05	4.42	114.06
184	11.65	98.78	0.37	1.05	4.46	114.22
185	11.72	99.39	0.38	1.05	4.50	114.36
186	11.77	99.29	0.38	1.05	4.57	114.43
187	11.82	98.28	0.38	1.05	4.67	114.45
188	11.88	97.47	0.38	1.15	5.03	114.87
189	11.97	95.95	0.45	1.05	5.00	114.84
190	12.02	94.84	0.38	1.05	5.00	114.75
191	12.06	93.42	0.38	1.05	5.00	114.18
192	12.11	92.31	0.37	1.05	5.00	114.03

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	12.21	93.32	0.36	1.05	5.00	113.85
194	12.25	92.21	0.35	1.05	5.00	113.70
195	12.30	93.22	0.35	1.05	5.01	113.58
196	12.31	93.52	0.35	1.05	4.95	113.56
197	12.32	93.52	0.35	1.05	4.93	113.57
198	12.35	93.83	0.35	1.05	4.77	113.38
199	12.40	95.24	0.32	1.05	4.60	113.25
200	12.45	96.66	0.32	1.15	4.38	113.11
201	12.52	98.38	0.32	1.05	4.29	113.28
202	12.56	100.20	0.33	1.05	4.25	113.61
203	12.62	102.33	0.36	1.05	4.25	113.99
204	12.65	103.54	0.37	1.05	3.77	113.26
205	12.71	105.16	0.23	1.15	3.23	112.19
206	12.76	106.68	0.23	1.15	2.62	110.90
207	12.83	110.12	0.23	1.15	2.60	111.55
208	12.88	114.17	0.28	1.15	2.77	112.94
209	12.93	118.52	0.37	1.15	2.90	114.26
210	12.98	124.09	0.40	1.15	3.08	115.17
211	13.03	121.66	0.41	1.15	3.06	115.51
212	13.04	125.50	0.42	1.15	3.47	115.78
213	13.07	113.26	0.46	1.05	3.50	116.29
214	13.13	129.35	0.50	1.05	3.58	116.95
215	13.17	134.31	0.54	1.05	3.26	117.70
216	13.22	139.37	0.58	1.05	3.29	118.28
217	13.27	139.88	0.62	1.05	3.36	118.74
218	13.32	141.09	0.64	1.05	3.46	119.07
219	13.37	142.31	0.66	1.05	3.56	119.26
220	13.41	140.38	0.67	1.05	3.64	119.30
221	13.46	139.27	0.66	1.05	3.75	119.26
222	13.51	137.45	0.66	1.15	3.85	119.23
223	13.56	136.13	0.66	1.15	4.04	119.31
224	13.60	134.31	0.69	1.05	4.26	119.44
225	13.66	132.39	0.70	1.05	4.38	119.40
226	13.75	131.68	0.66	1.05	4.42	119.28
227	13.80	131.27	0.66	1.05	4.39	119.11
228	13.89	130.57	0.66	1.05	4.46	119.13
229	13.94	130.36	0.67	1.05	4.60	119.22
230	13.99	128.44	0.69	1.15	4.88	119.41
231	14.09	125.71	0.72	1.15	5.27	119.59
232	14.14	121.96	0.73	1.15	5.70	119.79
233	14.23	119.13	0.76	1.15	6.08	119.87
234	14.28	117.00	0.76	1.15	5.80	119.04
235	14.38	115.38	0.51	1.15	5.31	118.06
236	14.42	116.85	0.51	1.15	4.82	116.96
237	14.52	113.76	0.52	1.15	4.88	117.10
238	14.57	116.70	0.53	1.15	4.95	117.39
239	14.67	119.74	0.57	1.15	5.03	117.62
240	14.68	116.09	0.57	1.15	5.00	117.81

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	14.70	117.61	0.58	1.15	5.00	117.84
242	14.75	115.48	0.58	1.15	5.31	117.93
243	14.80	116.60	0.59	1.15	5.43	118.05
244	14.89	116.40	0.61	1.05	5.52	118.17
245	14.94	115.59	0.61	1.05	5.70	118.20
246	15.04	112.25	0.60	1.05	5.96	118.05
247	15.13	107.59	0.59	1.05	6.34	117.77
248	15.21	101.82	0.57	1.05	6.81	117.40
249	15.28	95.75	0.55	1.05	7.34	116.95
250	15.38	89.98	0.52	1.05	7.88	116.40
251	15.47	84.21	0.48	1.05	8.48	115.75
252	15.57	77.33	0.45	1.05	9.19	115.05
253	15.67	71.05	0.42	1.05	10.08	114.27
254	15.77	63.87	0.38	0.96	11.15	113.43
255	15.86	56.78	0.35	0.96	12.43	112.60
256	15.96	51.11	0.33	0.96	13.84	112.03
257	16.05	47.27	0.34	0.96	15.41	111.80
258	16.15	43.52	0.35	0.96	17.50	112.16
259	16.25	39.98	0.42	0.96	19.14	112.43
260	16.31	39.78	0.40	0.96	20.17	112.68
261	16.39	39.78	0.40	0.96	20.08	112.48
262	16.48	39.57	0.38	0.96	19.41	112.23
263	16.59	42.10	0.35	0.96	17.84	112.02
264	16.68	47.47	0.35	0.96	15.50	111.89
265	16.76	54.25	0.33	0.96	13.16	111.73
266	16.86	59.92	0.29	0.96	11.62	111.63
267	16.92	61.94	0.31	0.96	10.95	111.65
268	17.02	61.84	0.32	0.96	10.86	111.63
269	17.11	61.13	0.29	0.96	11.26	111.95
270	17.22	60.42	0.35	0.96	11.88	112.47
271	17.35	59.61	0.39	0.96	14.04	114.30
272	17.45	55.47	0.60	0.96	18.38	116.52
273	17.55	44.33	0.88	0.96	25.48	117.93
274	17.61	30.36	0.95	0.96	33.75	118.25
275	17.64	27.02	0.93	0.76	40.43	117.69
276	17.70	24.80	0.87	0.76	43.23	117.15
277	17.75	22.67	0.84	0.76	45.31	116.73
278	17.80	21.86	0.84	0.76	46.98	116.55
279	17.85	21.56	0.84	0.86	48.89	116.96
280	17.94	21.26	1.00	0.86	45.90	117.91
281	17.99	30.26	1.09	0.86	40.69	119.19
282	18.09	37.65	1.19	0.86	35.41	120.26
283	18.15	41.30	1.27	0.76	34.54	120.72
284	18.23	36.03	1.26	0.76	36.66	120.67
285	18.33	30.87	1.23	0.76	46.11	119.75
286	18.43	14.17	1.16	0.76	59.31	117.89
287	18.52	10.22	0.82	0.76	78.74	114.99
288	18.59	9.41	0.56	0.76	81.21	111.71

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	18.72	8.10	0.35	0.76	78.82	108.87
290	18.81	7.79	0.30	0.76	77.80	106.89
291	18.87	7.69	0.30	0.76	78.37	106.65
292	18.95	7.69	0.32	0.86	79.72	107.66
293	19.05	8.40	0.43	0.86	76.48	109.13
294	19.14	10.73	0.48	0.86	66.73	110.57
295	19.22	14.78	0.48	0.86	53.52	111.65
296	19.29	20.75	0.49	0.86	39.10	113.06
297	19.38	34.31	0.56	0.86	26.85	114.86
298	19.44	55.26	0.63	0.86	19.18	117.03
299	19.53	74.70	0.80	0.86	14.77	118.92
300	19.62	90.89	0.91	0.86	12.57	120.49
301	19.69	102.43	1.00	0.76	11.54	121.67
302	19.79	108.50	1.15	0.76	11.36	122.57
303	19.86	109.41	1.24	0.76	11.84	123.28
304	19.97	106.58	1.33	0.76	12.61	123.60
305	20.07	101.72	1.35	0.76	13.52	123.57
306	20.16	94.94	1.29	0.76	14.68	123.29
307	20.26	85.73	1.27	0.76	14.95	121.49
308	20.34	72.77	0.61	0.67	15.95	119.48
309	20.43	59.51	0.65	0.67	17.67	117.13
310	20.50	47.17	0.70	0.67	23.52	117.36
311	20.60	37.15	0.83	0.67	30.86	117.42
312	20.62	28.74	0.85	0.67	38.22	117.36
313	20.63	25.51	0.86	0.57	41.38	117.35
314	20.68	29.96	0.89	0.57	42.41	117.60
315	20.73	27.73	0.95	0.57	43.48	118.01
316	20.82	25.20	1.01	0.57	47.06	118.03
317	20.87	23.48	0.98	0.57	50.17	117.77
318	20.91	21.66	0.93	0.57	52.49	117.09
319	20.96	19.53	0.83	0.67	55.24	116.20
320	21.05	17.51	0.75	0.67	58.65	115.41
321	21.11	15.69	0.75	0.67	59.61	115.06
322	21.17	17.71	0.75	0.67	59.41	115.10
323	21.25	17.91	0.76	0.67	50.49	115.80
324	21.30	28.04	0.80	0.67	37.44	117.17
325	21.37	47.77	0.89	0.67	25.95	118.97
326	21.45	69.84	1.01	0.76	19.10	120.73
327	21.49	88.87	1.16	0.76	15.54	122.37
328	21.58	104.65	1.36	0.76	13.61	123.67
329	21.64	116.80	1.47	0.76	12.50	124.67
330	21.69	125.61	1.57	0.76	11.91	125.41
331	21.78	131.07	1.71	0.76	11.69	126.01
332	21.83	134.51	1.80	0.76	11.79	126.54
333	21.89	135.73	1.90	0.76	12.04	126.96
334	21.98	136.03	2.02	0.76	12.40	127.34
335	22.03	136.23	2.09	0.76	12.75	127.63
336	22.12	135.42	2.15	0.76	13.09	127.77

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	22.22	132.99	2.16	0.76	13.41	127.81
338	22.26	131.17	2.15	0.76	13.69	127.73
339	22.36	128.44	2.12	0.76	13.97	127.61
340	22.41	125.51	2.10	0.76	14.35	127.56
341	22.51	123.38	2.14	0.76	14.15	127.06
342	22.60	121.66	1.74	0.76	13.83	126.45
343	22.70	118.93	1.65	0.76	13.30	125.68
344	22.75	117.41	1.61	0.76	13.43	125.41
345	22.84	114.27	1.59	0.76	14.48	125.10
346	22.89	96.25	1.56	0.76	14.75	124.96
347	22.90	110.88	1.55	0.76	15.01	124.78
348	22.94	107.49	1.51	0.76	13.97	124.76
349	23.00	111.94	1.47	0.76	13.47	124.67
350	23.08	117.61	1.47	0.86	12.40	124.71
351	23.13	127.23	1.45	0.86	11.31	124.84
352	23.20	136.23	1.45	0.86	10.47	124.96
353	23.27	138.66	1.46	0.86	10.12	124.97
354	23.33	136.23	1.43	0.76	10.11	124.75
355	23.42	131.78	1.34	0.86	10.24	124.32
356	23.48	126.62	1.25	0.76	10.39	123.80
357	23.57	122.37	1.20	0.86	10.62	123.46
358	23.61	120.44	1.20	0.86	10.81	123.34
359	23.66	120.75	1.21	0.86	10.87	123.44
360	23.73	123.28	1.25	0.86	10.80	123.73
361	23.80	128.04	1.32	0.86	10.61	124.10
362	23.85	132.49	1.37	0.86	10.45	124.49
363	23.94	135.32	1.42	0.86	10.34	124.75
364	24.00	136.54	1.44	0.86	10.35	124.89
365	24.09	135.73	1.44	0.86	10.44	124.90
366	24.16	133.80	1.43	0.86	10.68	124.85
367	24.24	130.46	1.43	0.86	10.08	123.73
368	24.33	125.81	0.86	0.86	9.54	122.48
369	24.43	121.05	0.88	0.86	8.99	121.06
370	24.52	116.40	0.91	0.86	9.98	121.07
371	24.58	105.36	0.92	0.86	10.82	121.05
372	24.59	104.91	0.92	0.86	11.52	121.00
373	24.63	103.24	0.93	0.76	11.65	121.07
374	24.68	104.45	0.95	0.76	11.99	121.27
375	24.77	102.63	1.00	0.76	12.42	121.51
376	24.82	100.30	1.03	0.76	13.12	121.77
377	24.92	97.98	1.08	0.76	13.83	121.94
378	25.01	95.24	1.10	0.76	14.55	122.06
379	25.06	92.41	1.11	0.76	15.23	122.08
380	25.16	89.47	1.12	0.76	15.90	122.02
381	25.25	86.54	1.11	0.76	16.59	121.94
382	25.30	83.50	1.11	0.76	17.28	121.83
383	25.41	80.57	1.11	0.76	18.09	121.73
384	25.49	77.23	1.11	0.76	18.98	121.65

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	25.55	73.99	1.11	0.76	20.07	121.62
386	25.64	70.65	1.15	0.76	21.32	121.62
387	25.70	67.11	1.16	0.76	22.79	121.64
388	25.79	63.26	1.19	0.76	24.37	121.58
389	25.89	59.31	1.18	0.76	26.26	121.42
390	25.94	54.15	1.17	0.76	28.33	121.11
391	26.02	49.29	1.13	0.76	30.48	120.54
392	26.12	44.64	1.03	0.76	32.30	119.79
393	26.17	41.19	0.94	0.67	34.00	118.80
394	26.28	36.64	0.83	0.67	35.82	117.81
395	26.36	33.20	0.76	0.67	37.65	116.64
396	26.45	30.06	0.64	0.67	40.39	115.51
397	26.50	25.00	0.59	0.67	44.96	114.33
398	26.61	19.74	0.56	0.67	52.70	113.36
399	26.70	15.69	0.53	0.67	63.56	112.54
400	26.77	12.45	0.54	0.67	73.76	111.85
401	26.85	10.73	0.52	0.67	77.64	111.21
402	26.94	12.35	0.44	0.67	78.19	110.57
403	27.04	11.23	0.43	0.67	74.40	110.13
404	27.14	12.25	0.42	0.67	72.81	110.00
405	27.23	13.16	0.41	0.76	69.26	109.81
406	27.28	13.26	0.38	0.76	67.37	109.59
407	27.29	13.21	0.37	0.76	64.60	108.54
408	27.38	13.36	0.25	0.76	63.04	107.81
409	27.48	13.26	0.28	0.76	62.75	107.60
410	27.57	13.16	0.35	0.76	65.67	108.83
411	27.64	13.36	0.41	0.76	68.02	109.83
412	27.65	13.36	0.43	0.67	70.74	111.13
413	27.74	13.56	0.57	0.67	69.81	112.46
414	27.80	16.60	0.65	0.67	65.76	114.19
415	27.90	20.55	0.77	0.67	61.65	115.18
416	27.99	20.34	0.77	0.67	61.92	115.44
417	28.07	17.11	0.72	0.67	66.57	114.64
418	28.16	13.87	0.62	0.67	72.64	113.23
419	28.25	12.35	0.50	0.67	76.77	111.52
420	28.34	11.34	0.41	0.67	77.68	109.88
421	28.44	10.83	0.35	0.67	77.85	108.83
422	28.53	10.83	0.35	0.67	78.14	108.53
423	28.62	10.83	0.37	0.67	77.38	110.10
424	28.76	13.56	0.57	0.67	72.35	112.51
425	28.86	18.22	0.74	0.76	67.30	115.27
426	28.96	21.15	0.97	0.76	65.09	117.31
427	29.08	21.56	1.17	0.76	67.25	119.00
428	29.19	21.15	1.43	0.76	69.03	120.29
429	29.29	23.48	1.60	0.76	57.91	120.47
430	29.39	37.85	0.97	0.76	42.67	122.13
431	29.50	60.73	1.83	0.76	33.13	124.03
432	29.63	74.39	2.28	0.76	32.04	126.13

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	29.65	65.49	2.34	0.76	31.66	126.80
434	29.66	70.75	2.34	0.76	31.48	126.90
435	29.72	76.72	2.35	0.76	30.48	126.99
436	29.80	73.08	2.34	0.76	28.82	127.09
437	29.85	83.60	2.30	0.96	24.74	127.25
438	29.94	111.74	2.18	1.05	19.12	127.53
439	30.00	139.37	2.11	0.96	14.70	127.66
440	30.05	155.36	1.99	0.96	11.90	127.40
441	30.14	164.17	1.72	0.86	10.16	126.80
442	30.19	168.22	1.55	0.86	9.10	126.23
443	30.24	170.24	1.55	0.86	8.70	126.01
444	30.29	170.34	1.56	0.86	8.77	126.09
445	30.38	168.42	1.60	0.96	9.02	126.13
446	30.43	164.37	1.60	0.96	9.33	126.13
447	30.48	161.54	1.59	0.96	9.59	126.05
448	30.54	158.91	1.58	0.96	9.78	125.95
449	30.62	156.98	1.55	0.96	9.79	125.86
450	30.67	159.11	1.54	0.96	9.79	125.78
451	30.72	157.18	1.54	0.96	9.69	125.76
452	30.76	159.31	1.53	0.96	9.55	125.70
453	30.86	161.84	1.49	0.96	9.23	125.64
454	30.91	164.98	1.48	0.96	8.91	125.62
455	30.95	168.42	1.49	0.96	8.55	125.64
456	31.03	173.38	1.47	0.96	8.12	125.67
457	31.10	179.65	1.45	1.05	7.69	125.73
458	31.15	185.02	1.48	1.05	7.34	125.89
459	31.20	190.38	1.52	1.05	7.18	126.13
460	31.26	193.52	1.57	1.05	7.15	126.36
461	31.34	193.62	1.60	1.05	7.71	126.40
462	31.37	171.46	1.60	1.05	7.87	126.43
463	31.38	188.76	1.60	1.15	8.09	126.36
464	31.43	183.91	1.58	1.15	7.77	126.31
465	31.47	181.17	1.53	1.15	8.03	126.07
466	31.55	172.87	1.49	1.15	8.51	125.78
467	31.59	160.83	1.47	1.15	9.39	125.48
468	31.66	147.27	1.45	1.15	10.59	125.21
469	31.73	135.12	1.45	1.05	12.03	125.03
470	31.78	124.80	1.48	1.05	13.62	124.95
471	31.84	115.28	1.53	1.05	15.49	125.08
472	31.93	106.78	1.65	1.05	17.52	125.26
473	31.98	99.59	1.73	1.15	19.53	125.52
474	32.02	94.84	1.82	1.15	20.69	125.90
475	32.09	100.05	1.96	1.15	21.58	126.26
476	32.16	96.05	2.03	1.15	21.57	126.59
477	32.22	100.51	2.04	1.15	21.42	126.73
478	32.27	104.25	2.05	1.15	20.75	126.84
479	32.34	105.67	2.06	1.24	20.20	126.90
480	32.42	108.10	2.04	1.24	19.56	126.93

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	32.46	112.85	2.02	1.24	18.55	126.88
482	32.54	118.12	1.95	1.24	17.41	126.77
483	32.60	122.16	1.87	1.24	16.07	126.34
484	32.67	124.90	1.62	1.24	15.05	125.97
485	32.75	127.33	1.63	1.24	14.32	125.74
486	32.81	130.26	1.68	1.24	14.20	126.03
487	32.89	133.50	1.79	1.24	14.12	126.37
488	32.94	136.34	1.83	1.24	14.96	126.52
489	32.95	118.52	1.84	1.24	14.91	126.69
490	33.00	138.16	1.90	1.24	14.89	126.92
491	33.06	141.90	1.98	1.24	14.05	127.30
492	33.11	143.12	2.03	1.24	14.18	127.55
493	33.20	141.70	2.09	1.24	14.56	127.71
494	33.25	138.76	2.13	1.24	15.10	127.86
495	33.34	136.54	2.19	1.24	15.55	127.94
496	33.38	135.73	2.19	1.24	15.74	128.03
497	33.48	137.75	2.22	1.24	15.68	128.19
498	33.58	141.70	2.30	1.24	15.42	128.42
499	33.63	146.25	2.34	1.24	15.06	128.72
500	33.73	152.23	2.43	1.24	14.62	129.02
501	33.82	158.70	2.51	1.24	14.13	129.36
502	33.87	165.89	2.57	1.24	13.67	129.70
503	33.96	172.57	2.69	1.24	13.23	130.04
504	34.02	179.65	2.77	1.24	12.84	130.48
505	34.11	189.47	2.95	1.24	12.43	131.00
506	34.18	200.91	3.15	1.24	12.08	131.61
507	34.26	211.03	3.36	1.24	11.89	132.25
508	34.35	219.33	3.65	1.24	11.82	132.88
509	34.44	227.93	3.92	1.34	11.72	133.37
510	34.49	235.22	3.98	1.34	11.56	133.69
511	34.59	238.66	4.05	1.34	11.45	133.86
512	34.69	239.88	4.13	1.34	11.44	133.98
513	34.76	241.39	4.15	1.34	11.40	134.01
514	34.83	241.50	4.07	1.43	11.43	134.00
515	34.93	238.86	4.12	1.43	11.44	133.81
516	35.02	233.50	3.89	1.43	11.54	133.60
517	35.12	229.05	3.79	1.43	11.46	133.22
518	35.22	226.72	3.60	1.43	11.42	132.94
519	35.30	223.58	3.51	1.43	11.44	132.63
520	35.38	216.29	3.41	1.43	12.34	132.31
521	35.43	185.73	3.36	1.43	13.07	132.03
522	35.46	192.21	3.30	1.53	13.71	131.78
523	35.51	190.18	3.21	1.62	13.68	131.56
524	35.56	179.15	3.11	1.62	14.30	131.05
525	35.66	160.93	2.83	1.53	15.30	130.47
526	35.70	150.40	2.73	1.53	16.62	129.73
527	35.80	133.20	2.53	1.53	18.63	129.08
528	35.89	111.94	2.45	1.53	21.97	128.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	35.96	88.76	2.31	1.53	26.84	127.15
530	36.04	66.50	1.99	1.43	32.56	125.33
531	36.14	49.39	1.45	1.43	38.50	123.16
532	36.19	40.49	1.23	1.43	42.06	121.28
533	36.28	40.49	1.16	1.43	44.05	120.76
534	36.33	40.49	1.27	1.43	43.63	120.56
535	36.42	40.49	1.14	1.43	42.36	120.82
536	36.48	45.85	1.23	1.43	39.85	121.28
537	36.52	51.52	1.40	1.43	38.41	122.62
538	36.62	55.67	1.74	1.43	38.39	123.71
539	36.68	55.06	1.84	1.43	39.88	124.37
540	36.77	51.42	1.88	1.43	40.89	124.37
541	36.86	51.92	1.78	1.43	39.71	124.46
542	36.90	60.53	1.84	1.53	32.23	124.83
543	37.00	90.49	1.76	1.53	21.98	125.79
544	37.10	143.32	1.82	1.62	14.18	126.63
545	37.20	187.14	1.82	1.53	9.48	127.07
546	37.29	217.10	1.62	1.53	7.15	127.31
547	37.39	234.82	1.72	1.53	6.16	127.69
548	37.49	245.04	1.93	1.53	6.15	128.39
549	37.53	245.80	2.08	1.53	6.43	129.01
550	37.58	245.80	2.19	1.43	6.79	129.47
551	37.62	246.56	2.33	1.43	7.05	129.90
552	37.69	251.11	2.46	1.43	7.41	130.49
553	37.77	253.95	2.76	1.43	7.74	131.04
554	37.82	255.46	2.89	1.34	8.12	131.53
555	37.87	255.46	3.00	1.34	8.40	131.80
556	37.91	253.54	3.09	1.34	8.73	131.98
557	37.97	249.09	3.14	1.34	9.14	132.07
558	38.06	242.00	3.17	1.43	9.58	132.05
559	38.10	234.61	3.14	1.34	9.96	131.95
560	38.17	230.06	3.08	1.34	10.09	131.72
561	38.25	227.93	2.95	1.34	9.95	131.37
562	38.35	226.21	2.75	1.34	9.74	130.98
563	38.40	223.18	2.65	1.34	9.59	130.66
564	38.46	220.85	2.61	1.34	9.55	130.46
565	38.54	220.85	2.57	1.34	9.50	130.34
566	38.60	220.85	2.53	1.34	9.36	130.20
567	38.69	220.85	2.46	1.34	9.14	130.07
568	38.74	224.90	2.42	1.34	8.84	129.97
569	38.83	228.95	2.40	1.34	8.66	130.01
570	38.88	229.65	2.47	1.34	8.43	129.87
571	38.97	228.95	2.27	1.43	8.33	129.71
572	39.02	227.63	2.26	1.43	8.17	129.42
573	39.11	225.10	2.21	1.43	8.23	129.25
574	39.16	220.54	2.14	1.43	8.40	128.95
575	39.23	209.82	2.04	1.43	9.12	128.58
576	39.24	186.03	2.02	1.43	9.26	128.31

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	39.28	206.53	1.96	1.43	9.26	128.10
578	39.32	203.24	1.90	1.43	8.75	127.86
579	39.39	195.95	1.80	1.43	9.08	127.52
580	39.47	184.41	1.77	1.43	9.80	127.22
581	39.54	171.46	1.78	1.43	10.93	127.03
582	39.62	158.50	1.78	1.43	12.28	126.82
583	39.71	145.24	1.76	1.43	13.78	126.57
584	39.76	133.40	1.75	1.43	15.25	126.29
585	39.85	124.80	1.72	1.43	16.63	126.05
586	39.90	117.71	1.71	1.43	17.85	125.82
587	40.00	111.03	1.69	1.34	19.15	125.63
588	40.06	104.35	1.69	1.34	20.49	125.46
589	40.15	98.68	1.69	1.34	21.96	125.31
590	40.21	92.91	1.69	1.34	23.70	125.27
591	40.29	86.84	1.76	1.34	25.91	125.29
592	40.35	79.96	1.83	1.34	28.93	125.45
593	40.43	72.17	1.95	1.34	31.85	125.15
594	40.52	64.47	1.72	1.34	35.38	124.58
595	40.58	54.86	1.64	1.34	39.26	123.64
596	40.67	46.25	1.54	1.34	44.53	122.80
597	40.77	39.47	1.43	1.34	48.71	122.20
598	40.84	39.12	1.45	1.34	51.09	121.91
599	40.89	38.77	1.46	1.24	47.89	122.14
600	40.94	48.89	1.45	1.24	41.53	122.58
601	41.03	61.54	1.47	1.24	34.10	123.11
602	41.08	73.89	1.47	1.24	28.70	123.52
603	41.14	83.60	1.45	1.15	25.34	123.76
604	41.22	88.56	1.45	1.15	23.58	123.93
605	41.28	90.89	1.47	1.15	23.00	124.13
606	41.33	91.80	1.53	1.05	23.16	124.56
607	41.42	93.22	1.69	1.05	23.59	125.16
608	41.47	95.85	1.84	1.05	23.66	125.86
609	41.52	101.92	1.97	1.05	22.91	126.69
610	41.62	114.27	2.20	1.05	21.31	127.57
611	41.67	130.16	2.38	1.05	19.54	128.55
612	41.76	145.55	2.62	1.05	17.95	129.34
613	41.82	157.59	2.74	1.05	16.90	130.00
614	41.90	165.99	2.90	1.05	16.15	130.44
615	41.99	172.67	2.96	1.05	15.70	130.73
616	42.05	176.01	2.98	1.05	15.44	130.86
617	42.15	175.71	3.00	0.96	15.47	130.91
618	42.23	173.89	3.02	0.96	15.76	130.92
619	42.30	170.34	3.03	0.96	16.20	130.85
620	42.38	164.37	2.97	0.96	16.79	130.64
621	42.48	156.17	2.87	0.96	17.75	130.21
622	42.57	140.79	2.70	0.96	19.03	129.66
623	42.64	128.95	2.56	0.86	20.48	129.02
624	42.72	120.14	2.42	0.86	21.44	128.37

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	42.82	114.47	2.21	0.86	22.03	127.72
626	42.90	109.51	2.08	0.86	22.42	127.19
627	42.97	106.07	2.04	0.86	23.04	126.89
628	43.06	102.53	2.03	0.86	23.94	126.76
629	43.15	98.28	2.05	0.86	24.28	126.30
630	43.20	95.44	1.73	0.86	23.92	125.87
631	43.30	99.49	1.72	0.86	21.66	125.62
632	43.40	117.61	1.75	0.86	18.56	126.10
633	43.48	142.51	1.83	0.96	16.70	126.59
634	43.51	137.14	1.89	0.96	15.94	126.91
635	43.52	137.65	1.91	0.86	15.16	127.23
636	43.56	163.87	1.98	0.86	13.67	127.68
637	43.61	178.84	2.08	0.86	11.96	128.22
638	43.67	193.82	2.13	0.86	10.83	128.59
639	43.72	206.98	2.13	0.86	9.87	128.82
640	43.80	217.20	2.15	0.86	9.14	128.98
641	43.85	225.30	2.16	0.86	8.63	129.13
642	43.90	231.68	2.18	0.86	8.26	129.25
643	43.94	236.74	2.19	0.86	7.97	129.33
644	43.99	240.69	2.18	0.86	7.76	129.35
645	44.08	242.00	2.18	0.86	7.68	129.38
646	44.14	241.90	2.20	0.86	7.83	129.54
647	44.22	240.59	2.33	0.86	8.11	129.75
648	44.28	238.66	2.39	0.86	8.47	129.97
649	44.33	235.63	2.43	0.86	8.80	130.11
650	44.40	232.69	2.50	0.86	9.29	130.33
651	44.48	228.44	2.64	0.86	9.67	130.62
652	44.52	232.74	2.75	0.86	10.35	131.05
653	44.61	224.49	3.00	0.96	10.26	131.06
654	44.72	232.79	2.65	0.96	10.27	131.18
655	44.77	237.24	2.86	0.96	9.91	131.18
656	44.91	238.36	2.94	1.05	10.09	131.47
657	44.95	237.95	2.96	1.05	10.63	131.50
658	45.02	218.72	2.98	1.05	10.98	131.47
659	45.04	225.50	2.97	1.15	13.35	131.14
660	45.06	152.63	2.96	1.15	12.86	131.13
661	45.11	232.29	2.89	1.15	12.30	131.08
662	45.15	240.38	2.84	1.15	9.78	131.30
663	45.21	247.16	2.81	1.15	9.27	131.31
664	45.25	253.14	2.82	1.15	8.95	131.37
665	45.30	256.98	2.86	1.15	8.80	131.48
666	45.35	258.70	2.90	1.15	8.79	131.59
667	45.41	258.40	2.92	1.15	8.84	131.65
668	45.49	258.10	2.93	1.15	8.94	131.65
669	45.55	254.45	2.91	1.15	9.06	131.57
670	45.63	249.80	2.86	1.15	9.25	131.42
671	45.69	244.23	2.81	1.15	9.48	131.22
672	45.78	236.94	2.74	1.15	9.80	131.01

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	45.84	228.64	2.69	1.15	10.17	130.69
674	45.93	218.52	2.57	1.15	10.59	130.25
675	46.02	205.87	2.39	1.15	11.15	129.68
676	46.08	190.89	2.26	1.15	11.83	128.94
677	46.16	174.39	2.03	1.15	12.80	128.17
678	46.24	157.89	1.90	1.15	14.14	127.35
679	46.31	139.07	1.81	1.15	16.32	126.66
680	46.41	117.21	1.75	1.05	19.70	126.05
681	46.48	95.75	1.74	1.05	24.72	125.44
682	46.56	74.29	1.72	1.05	31.32	124.66
683	46.65	57.08	1.60	1.05	39.23	123.40
684	46.75	42.81	1.33	1.05	46.43	121.67
685	46.84	36.34	1.06	1.05	55.36	119.83
686	46.94	30.67	0.95	1.05	60.33	118.19
687	47.02	25.20	0.82	1.15	66.74	116.92
688	47.08	21.46	0.75	1.15	74.89	115.79
689	47.12	17.41	0.72	1.15	81.21	115.04
690	47.16	17.36	0.69	1.05	83.23	114.56
691	47.21	18.72	0.65	1.05	82.03	114.08
692	47.27	17.31	0.59	1.05	81.52	113.39
693	47.35	16.30	0.53	1.05	83.53	112.58
694	47.40	15.59	0.49	1.05	83.45	111.48
695	47.50	15.28	0.39	1.05	82.43	110.45
696	47.55	15.18	0.36	1.05	80.62	109.38
697	47.61	14.98	0.33	1.05	80.14	108.87
698	47.69	14.78	0.32	1.05	80.47	108.49
699	47.76	14.37	0.31	1.05	81.28	108.16
700	47.83	13.97	0.29	1.05	81.76	107.60
701	47.93	13.66	0.26	1.05	81.12	106.97
702	48.02	13.87	0.24	1.05	80.49	106.61
703	48.09	13.87	0.26	1.05	79.44	106.28
704	48.18	13.87	0.22	0.96	80.27	106.53
705	48.27	13.76	0.27	0.96	81.39	107.03
706	48.37	13.97	0.31	0.96	83.22	107.94
707	48.46	14.17	0.33	0.96	84.23	108.58
708	48.52	14.17	0.35	0.96	85.01	108.99
709	48.60	14.17	0.36	0.96	85.57	109.30
710	48.70	14.37	0.37	0.96	85.68	109.56
711	48.79	14.57	0.38	0.96	85.16	109.83
712	48.85	14.98	0.40	0.96	84.80	110.40
713	48.94	15.59	0.45	0.86	84.36	111.35
714	49.04	16.60	0.53	0.86	82.26	112.03
715	49.13	17.81	0.50	0.86	82.44	114.35
716	49.23	20.45	0.95	0.86	79.90	116.80
717	49.33	25.10	1.19	0.86	78.26	119.08
718	49.38	26.52	1.32	0.86	79.49	120.23
719	49.42	22.98	1.49	0.86	79.52	121.11
720	49.48	28.24	1.64	0.76	79.69	121.78

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	49.53	28.85	1.70	0.76	76.78	122.38
722	49.58	29.25	1.78	0.76	76.54	122.73
723	49.63	30.16	1.86	0.76	76.14	123.06
724	49.72	30.87	1.90	0.76	75.17	123.25
725	49.77	31.68	1.88	0.76	74.33	123.29
726	49.83	31.68	1.86	0.76	74.18	123.23
727	49.92	30.87	1.85	0.76	75.14	123.07
728	49.97	29.55	1.80	0.76	75.30	122.90
729	50.04	30.72	1.75	0.76	76.58	122.68
730	50.11	28.14	1.74	0.76	75.95	122.69
731	50.20	30.57	1.79	0.76	74.75	122.53
732	50.27	31.88	1.62	0.76	72.22	122.03
733	50.34	29.86	1.37	0.76	71.16	120.74
734	50.45	26.72	1.07	0.76	72.38	119.07
735	50.54	23.68	0.89	0.76	75.35	117.45
736	50.59	20.75	0.82	0.76	79.17	116.17
737	50.68	18.93	0.71	0.76	82.34	115.07
738	50.79	18.02	0.62	0.76	83.79	114.12
739	50.88	17.41	0.60	0.76	83.70	113.63
740	50.98	17.97	0.60	0.86	84.20	113.54
741	51.07	17.51	0.60	0.86	82.59	113.17
742	51.17	17.91	0.50	0.86	77.88	112.22
743	51.24	19.84	0.38	0.86	73.04	111.69
744	51.33	20.75	0.47	0.86	72.41	112.26
745	51.46	19.94	0.60	0.86	75.43	113.32
746	51.46	19.53	0.60	0.86	78.27	114.06
747	51.51	19.89	0.66	0.86	79.25	114.37
748	51.56	19.84	0.68	0.86	80.43	114.92
749	51.65	19.84	0.75	0.86	81.58	115.41
750	51.71	20.14	0.80	0.86	82.75	115.96
751	51.79	20.24	0.85	0.86	82.76	116.41
752	51.85	21.05	0.88	0.96	82.60	117.17
753	51.94	22.37	1.05	0.96	82.55	118.05
754	51.99	22.87	1.16	0.96	82.91	119.26
755	52.09	24.39	1.38	0.96	83.97	120.45
756	52.19	25.20	1.63	0.96	79.61	121.96
757	52.28	33.60	1.89	1.05	72.62	123.41
758	52.35	41.19	2.10	1.05	70.52	124.45
759	52.43	34.41	2.30	1.05	71.21	125.03
760	52.52	35.53	2.36	1.05	74.91	125.21
761	52.62	35.53	2.39	1.05	74.30	125.23
762	52.72	35.73	2.30	1.05	73.23	125.06
763	52.81	36.64	2.18	1.05	76.25	125.06
764	52.91	30.36	2.50	1.05	84.74	125.89
765	53.00	26.92	3.37	1.05	78.34	127.32
766	53.10	54.35	3.37	1.15	54.98	129.03
767	53.20	105.77	3.09	1.15	36.28	130.96
768	53.29	164.47	4.18	1.15	25.56	132.47

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	53.38	221.05	4.12	1.24	20.37	133.80
770	53.46	256.07	4.20	1.24	17.07	134.82
771	53.53	303.03	5.14	1.24	16.36	136.29
772	53.63	317.00	6.49	1.34	15.39	137.26
773	53.73	349.49	5.84	1.43	13.15	137.28
774	53.82	418.82	4.63	1.53	10.93	136.47
775	53.92	396.66	4.29	1.62	10.04	135.51
776	53.94	347.57	4.04	1.72	10.76	134.94
777	53.96	336.23	3.96	1.53	11.60	134.54
778	53.97	324.90	3.90	1.82	10.87	134.48
779	54.05	386.03	3.80	1.91	9.65	134.60
780	54.08	421.76	3.84	2.01	7.98	134.88
781	54.13	470.95	3.88	2.01	6.82	135.32
782	54.19	526.82	4.09	2.10	6.18	136.15
783	54.25	558.50	4.85	2.10	6.33	136.53
784	54.28	487.24	4.52	2.20	6.83	136.70
785	54.29	486.79	4.52	2.20	7.28	136.40
786	54.34	486.33	4.52	2.20	7.28	136.41
787	54.35	487.45	4.52	2.20	7.16	136.45
788	54.40	502.73	4.55	2.29	6.91	136.58
789	54.44	524.39	4.66	2.29	6.59	136.78
790	54.49	539.67	4.74	2.39	6.33	136.88
791	54.53	542.71	4.62	2.39	6.16	137.00
792	54.57	556.27	4.81	2.68	6.01	137.19
793	54.58	575.70	5.00	2.96	6.08	137.28
794	54.63	571.25	5.32	3.06	6.35	137.28
795	54.68	535.62	5.13	3.15	7.02	137.28
796	54.73	501.92	5.33	3.35	7.61	137.28
797	54.78	493.82	5.24	3.25	7.81	137.28
798	54.83	503.13	4.96	3.35	8.02	137.28
799	54.88	483.80	5.42	3.25	8.15	137.28
800	54.92	504.35	5.80	3.35	8.44	137.28
801	54.97	513.76	5.91	3.35	8.28	137.28
802	55.02	514.17	5.71	3.35	8.29	137.28
803	55.12	512.24	5.99	3.35	9.19	137.28
804	55.17	437.14	6.44	3.35	10.90	137.28
805	55.25	397.97	6.94	3.54	12.33	137.28
806	55.31	396.35	6.00	3.63	12.48	137.28
807	55.36	388.16	5.24	3.73	11.51	136.87
808	55.45	379.86	4.35	3.82	10.76	135.80
809	55.50	375.10	3.96	3.82	10.78	135.09
810	55.60	342.61	4.16	3.82	11.41	134.98
811	55.65	335.83	4.33	3.82	12.01	134.55
812	55.71	318.11	3.48	3.73	11.81	133.90
813	55.75	318.32	3.23	4.01	11.15	133.00
814	55.79	324.59	3.09	4.01	10.75	132.84
815	55.84	332.28	3.22	4.01	10.43	132.92
816	55.89	340.38	3.26	4.11	10.29	133.07

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	55.90	341.19	3.24	4.30	10.16	133.10
818	55.94	341.70	3.23	4.30	10.40	133.09
819	55.99	325.71	3.29	4.40	10.86	133.10
820	56.03	315.28	3.33	4.40	11.37	133.06
821	56.08	312.45	3.28	4.40	11.60	132.92
822	56.14	307.08	3.17	4.40	11.73	132.73
823	56.22	299.39	3.13	4.40	11.94	132.53
824	56.28	293.01	3.09	4.49	12.14	132.38
825	56.33	290.28	3.03	4.40	12.22	132.35
826	56.38	294.23	3.11	4.40	12.04	132.26
827	56.45	297.47	2.97	4.40	11.65	132.30
828	56.52	312.14	3.01	4.40	11.06	132.37
829	56.62	327.93	3.08	4.40	10.51	132.50
830	56.66	335.32	3.02	4.40	9.79	132.45
831	56.73	351.82	2.83	4.40	9.62	132.89
832	56.81	362.85	3.53	4.49	9.77	133.43
833	56.95	356.47	3.65	4.40	10.06	134.06
834	57.00	370.75	3.68	4.40	10.03	134.48
835	57.09	389.98	4.06	4.40	10.22	134.71
836	57.19	358.40	4.02	4.59	10.60	134.88
837	57.27	357.18	4.00	4.49	11.00	134.55
838	57.35	346.35	3.69	4.59	10.13	133.80
839	57.44	369.23	2.85	4.49	9.47	132.97
840	57.50	352.73	2.88	4.59	8.69	132.46
841	57.52	370.95	2.99	4.30	8.68	133.16
842	57.58	410.42	3.60	4.30	8.49	134.41
843	57.63	446.56	4.36	4.30	8.42	135.32
844	57.72	439.07	4.21	4.40	8.40	135.58
845	57.77	431.17	3.97	4.40	8.22	135.14
846	57.82	430.77	3.67	4.40	7.74	134.36
847	57.91	426.51	3.05	4.40	6.86	133.51
848	57.96	452.73	2.75	4.40	6.01	132.56
849	58.02	449.09	2.48	4.40	5.35	132.23
850	58.09	474.69	2.59	4.49	5.13	132.30
851	58.16	483.80	2.77	4.49	4.92	132.61
852	58.25	495.95	2.73	4.49	5.00	132.98
853	58.30	493.42	2.98	4.49	5.44	133.54
854	58.40	473.38	3.46	4.49	5.94	133.95
855	58.50	471.86	3.32	4.49	6.39	134.14
856	58.56	460.12	3.32	4.49	6.35	134.03
857	58.64	470.34	3.32	4.49	6.52	134.15
858	58.73	463.76	3.50	4.68	6.66	134.73
859	58.78	490.08	4.08	4.68	6.43	134.94
860	58.88	510.42	3.53	4.68	6.01	135.03
861	58.97	519.43	3.50	4.78	5.46	134.39
862	59.07	503.03	3.11	4.78	5.31	133.97
863	59.13	496.05	2.99	4.78	5.28	133.42
864	59.23	481.47	2.88	4.78	5.21	132.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	59.31	476.41	2.60	4.78	5.30	132.24
866	59.38	435.32	2.31	4.78	5.27	131.56
867	59.41	439.12	2.27	4.78	5.38	131.23
868	59.46	442.91	2.34	4.78	5.29	131.28
869	59.51	448.48	2.34	4.78	5.27	131.25
870	59.57	439.07	2.23	4.78	5.63	132.20
871	59.66	467.91	3.25	4.87	5.58	132.94
872	59.75	505.97	3.06	4.97	6.03	134.45
873	59.80	502.83	4.04	4.97	6.32	135.37
874	59.85	510.42	4.53	4.97	6.89	136.20
875	59.91	512.45	4.44	4.97	7.09	136.30
876	59.99	489.57	4.24	4.97	7.40	136.48
877	60.05	494.33	4.91	4.87	8.36	136.97
878	60.09	458.80	5.56	4.78	9.17	137.25
879	60.14	440.99	5.00	4.78	9.81	137.14
880	60.19	433.30	4.90	4.78	9.70	136.76
881	60.22	439.07	4.84	4.78	9.61	136.51
882	60.28	430.16	4.56	4.78	10.15	136.19
883	60.33	369.53	4.52	4.78	11.14	135.77
884	60.38	343.82	4.41	4.78	12.93	135.37
885	60.42	303.34	4.35	4.68	14.24	134.92
886	60.48	281.88	4.12	4.68	14.94	133.83
887	60.57	260.63	2.98	4.59	14.40	131.99
888	60.66	244.74	2.02	4.59	13.41	129.58
889	60.68	226.11	1.72	4.49	12.77	127.88
890	60.69	225.45	1.67	4.01	12.50	126.95
891	60.74	224.80	1.43	4.11	12.59	126.30
892	60.79	202.83	1.36	4.21	12.85	125.42
893	60.84	190.99	1.24	4.11	13.42	124.52
894	60.89	182.49	1.05	4.11	13.76	123.73
895	60.98	173.38	1.04	4.01	14.35	123.40
896	61.03	167.00	1.14	4.01	16.66	125.09
897	61.08	163.66	1.94	4.01	20.32	128.00
898	61.18	163.76	3.09	3.92	22.76	129.84
899	61.23	166.29	2.90	3.92	24.31	131.32
900	61.31	174.39	3.66	3.92	20.35	131.18
901	61.42	241.39	2.47	3.92	15.65	131.06
902	61.47	293.32	2.18	4.01	10.48	129.51
903	61.51	326.62	1.66	3.92	7.95	129.12
904	61.54	373.78	1.86	3.73	6.66	129.28
905	61.57	397.87	2.12	3.73	6.17	130.14
906	61.58	415.68	2.20	3.54	5.00	130.33
907	61.61	442.20	1.90	3.54	6.02	129.76
908	61.63	322.26	1.78	2.77	6.49	129.08
909	61.63	338.36	1.80	2.77	11.34	128.31
910	61.66	112.95	1.97	2.20	16.91	128.00
911	61.67	122.67	2.10	2.20	26.40	127.65
912	61.70	152.93	2.30	2.20	22.91	128.46

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	61.71	183.20	2.33	2.20	19.72	129.29
914	61.76	206.48	2.50	2.10	17.47	129.99
915	61.80	229.45	2.69	2.01	15.78	130.50
916	61.84	250.50	2.60	2.01	13.82	130.39
917	61.86	271.15	2.16	2.01	11.07	129.64
918	61.93	317.51	1.72	2.01	8.65	128.83
919	61.98	348.28	1.71	2.01	5.00	128.76
920	62.04	407.39	1.86	2.01	5.00	130.00
921	62.09	460.93	2.44	2.10	5.00	130.94
922	62.14	486.94	2.29	2.01	4.65	131.59
923	62.19	497.77	2.32	2.01	4.30	131.67
924	62.24	512.55	2.43	2.01	4.19	131.86
925	62.26	516.39	2.43	2.01	4.03	131.99
926	62.29	528.94	2.40	2.10	4.03	131.96
927	62.38	511.74	2.40	2.20	4.39	132.48
928	62.44	506.37	2.97	2.10	5.19	132.83
929	62.46	452.63	2.92	2.10	5.89	133.06
930	62.47	448.12	2.80	1.24	6.21	132.63
931	62.51	443.62	2.61	1.43	5.98	132.52
932	62.56	469.23	2.76	1.53	5.91	132.86
933	62.60	479.04	3.12	1.53	5.80	133.25
934	62.65	484.51	2.99	1.53	5.69	133.25
935	62.70	481.58	2.73	1.53	5.44	132.87
936	62.75	480.87	2.67	1.53	5.25	132.60
937	62.80	486.64	2.68	1.62	4.98	132.62
938	62.85	516.90	2.69	1.62	4.37	132.78
939	62.89	572.26	2.69	1.72	3.80	133.35
940	62.97	618.32	3.10	1.82	3.40	134.28
941	63.04	668.31	3.58	1.82	3.09	135.14
942	63.09	716.80	3.59	1.82	2.87	135.70
943	63.13	724.18	3.74	1.91	2.94	136.16
944	63.19	705.46	4.21	1.91	3.36	136.94
945	63.23	719.83	4.89	1.91	3.84	137.28
946	63.28	735.32	5.37	1.91	4.17	137.28
947	63.32	725.10	5.58	2.01	3.85	137.28
948	63.38	727.02	3.92	2.10	2.64	135.83
949	63.44	724.79	1.47	2.10	1.89	134.28
950	63.52	728.13	3.49	2.29	1.92	134.03
951	63.57	693.42	3.66	2.68	2.71	135.18
952	63.66	670.44	3.03	2.68	3.13	134.92
953	63.73	614.77	3.31	2.77	4.81	133.80
954	63.76	319.53	2.86	3.15	6.52	133.28
955	63.76	432.39	2.88	3.15	7.53	132.72
956	63.78	483.50	2.92	3.15	6.10	133.35
957	63.81	499.59	3.22	3.15	5.61	134.22
958	63.85	555.36	3.75	3.15	5.72	134.88
959	63.86	524.19	3.76	3.15	6.14	135.34
960	63.91	488.05	3.95	3.25	6.96	135.56

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	63.94	481.37	4.28	3.06	7.58	135.81
962	63.95	481.78	4.31	2.96	7.84	136.00
963	64.00	477.73	4.30	2.96	7.92	135.94
964	64.02	469.13	4.22	2.96	7.88	135.77
965	64.05	472.67	4.05	2.96	7.62	135.55
966	64.09	485.42	3.89	2.96	7.39	135.35
967	64.11	476.31	3.87	3.06	7.15	135.11
968	64.15	478.34	3.65	3.06	6.89	134.84
969	64.20	492.00	3.47	3.06	6.53	134.82
970	64.25	512.45	3.75	3.06	6.14	134.94
971	64.29	533.19	3.70	3.06	5.78	135.26
972	64.34	561.33	3.79	3.25	5.01	135.28
973	64.43	616.49	3.54	3.25	4.34	135.35
974	64.48	639.47	3.59	3.35	3.80	135.20
975	64.53	636.74	3.43	3.35	3.33	134.70
976	64.58	651.72	2.78	3.35	3.10	134.64
977	64.63	676.61	3.45	3.44	2.91	135.01
978	64.68	713.46	3.79	3.44	3.16	136.27
979	64.73	738.66	4.50	3.44	3.23	136.63
980	64.77	703.94	3.99	3.44	3.00	136.64
981	64.82	764.06	3.71	3.63	2.55	136.18
982	64.87	785.42	3.67	3.63	2.65	135.90
983	64.89	648.27	3.66	3.82	2.87	135.82
984	64.93	708.09	3.69	3.82	3.20	135.78
985	64.94	712.24	3.73	3.92	2.93	135.98
986	64.98	726.92	3.83	3.92	2.86	136.11
987	64.99	737.75	3.84	4.01	2.79	136.19
988	65.03	737.24	3.82	4.01	2.77	136.10
989	65.08	721.96	3.70	4.11	2.68	135.79
990	65.13	721.76	3.39	4.01	2.53	135.18
991	65.17	702.63	3.00	4.21	2.31	134.38
992	65.22	686.23	2.70	4.30	2.22	133.76
993	65.23	678.84	2.70	4.30	2.19	133.47
994	65.28	679.40	2.71	4.40	2.24	133.50
995	65.32	679.40	2.75	4.49	2.48	134.03
996	65.37	679.95	3.32	4.49	2.63	134.36
997	65.42	680.97	3.11	4.49	2.78	134.78
998	65.47	692.71	3.26	4.49	2.89	134.63
999	65.48	641.09	3.19	4.40	3.08	134.58
1000	65.49	637.65	3.11	4.01	3.14	134.13
1001	65.52	637.65	2.79	4.40	3.09	133.95
1002	65.57	634.21	2.97	4.30	1.61	130.82
1003	65.62	664.97	0.00	4.40	0.17	126.03
1004	65.67	684.10	0.00	4.49	N/A	87.36
1005	65.69	698.07	0.00	4.59	N/A	87.36
1006	65.72	709.31	0.00	4.59	N/A	87.36
1007	65.77	749.49	0.00	4.59	N/A	87.36
1008	65.82	797.77	0.00	4.59	N/A	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	65.86	824.89	0.00	4.59	N/A	87.36
1010	65.86	813.05	0.00	4.59	N/A	87.36
1011	65.91	862.75	0.00	4.68	N/A	87.36
1012	65.96	886.13	0.00	4.78	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.01	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
2	0.04	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
3	0.08	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
4	0.10	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
5	0.13	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
6	0.18	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
7	0.22	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
8	0.27	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
9	0.33	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
10	0.36	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
11	0.37	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
12	0.38	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
13	0.42	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
14	0.44	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
15	0.47	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
16	0.47	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
17	0.52	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
18	0.56	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
19	0.58	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
20	0.61	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
21	0.66	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
22	0.76	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
23	0.80	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
24	0.81	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
25	0.85	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
26	0.86	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
27	0.90	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
28	0.95	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
29	1.00	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
30	1.05	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
31	1.14	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
32	1.24	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
33	1.31	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
34	1.36	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
35	1.37	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
36	1.39	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
37	1.43	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
38	1.44	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
39	1.49	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
40	1.53	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
41	1.58	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
42	1.63	0.09	0.00	0.09	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
43	1.68	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
44	1.72	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
45	1.77	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
46	1.82	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
47	1.86	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
48	1.92	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	1.97	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
50	2.01	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
51	2.09	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
52	2.16	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
53	2.20	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
54	2.25	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
55	2.31	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
56	2.37	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
57	2.40	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
58	2.46	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
59	2.54	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
60	2.59	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
61	2.69	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
62	2.74	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
63	2.83	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
64	2.88	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
65	2.98	0.16	0.00	0.16	1.00	0.272	1.68	0.161	1.00	1.10	2.000	No
66	3.03	0.16	0.00	0.16	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
67	3.12	0.17	0.00	0.17	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
68	3.21	0.17	0.00	0.17	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
69	3.27	0.17	0.00	0.17	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
70	3.34	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
71	3.41	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
72	3.51	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
73	3.55	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
74	3.65	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
75	3.75	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
76	3.83	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
77	3.94	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
78	4.04	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
79	4.13	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
80	4.24	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
81	4.38	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
82	4.50	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
83	4.62	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
84	4.71	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
85	4.75	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
86	4.84	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
87	4.89	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
88	4.94	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
89	4.98	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
90	5.07	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
91	5.13	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
92	5.17	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
93	5.27	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
94	5.32	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
95	5.42	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
96	5.46	0.30	0.00	0.30	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	5.56	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
98	5.61	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
99	5.71	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
100	5.78	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
101	5.85	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
102	5.95	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
103	6.00	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
104	6.09	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
105	6.14	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
106	6.24	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
107	6.30	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
108	6.38	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
109	6.46	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
110	6.50	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
111	6.56	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
112	6.63	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
113	6.68	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
114	6.76	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
115	6.82	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
116	6.88	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
117	6.96	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
118	7.03	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
119	7.11	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
120	7.16	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
121	7.26	0.39	0.00	0.39	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
122	7.31	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
123	7.40	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
124	7.45	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
125	7.54	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
126	7.60	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
127	7.68	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
128	7.74	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
129	7.83	0.43	0.00	0.43	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
130	7.90	0.43	0.00	0.43	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
131	7.98	0.43	0.00	0.43	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
132	8.05	0.44	0.00	0.44	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
133	8.12	0.44	0.00	0.44	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
134	8.19	0.45	0.00	0.45	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
135	8.27	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
136	8.36	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
137	8.41	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
138	8.50	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
139	8.60	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
140	8.70	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
141	8.74	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
142	8.78	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
143	8.81	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
144	8.86	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	8.91	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
146	8.94	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
147	9.02	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
148	9.10	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
149	9.17	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
150	9.22	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
151	9.31	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
152	9.37	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
153	9.42	0.51	0.00	0.51	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
154	9.52	0.52	0.00	0.52	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
155	9.60	0.53	0.00	0.53	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
156	9.66	0.53	0.00	0.53	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
157	9.74	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
158	9.81	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
159	9.89	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
160	9.98	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
161	10.03	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
162	10.13	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
163	10.23	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
164	10.32	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
165	10.38	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
166	10.47	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
167	10.57	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
168	10.66	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
169	10.76	0.59	0.00	0.59	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
170	10.85	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
171	10.92	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
172	11.00	0.60	0.00	0.60	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
173	11.07	0.61	0.00	0.61	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
174	11.10	0.61	0.00	0.61	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
175	11.15	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
176	11.19	0.61	0.00	0.61	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
177	11.24	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
178	11.29	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
179	11.34	0.62	0.00	0.62	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
180	11.40	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
181	11.47	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
182	11.53	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
183	11.58	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
184	11.65	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
185	11.72	0.64	0.00	0.64	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
186	11.77	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
187	11.82	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
188	11.88	0.65	0.00	0.65	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
189	11.97	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
190	12.02	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
191	12.06	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
192	12.11	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	12.21	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
194	12.25	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
195	12.30	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
196	12.31	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
197	12.32	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
198	12.35	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
199	12.40	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
200	12.45	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
201	12.52	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
202	12.56	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
203	12.62	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
204	12.65	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
205	12.71	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
206	12.76	0.70	0.00	0.70	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
207	12.83	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
208	12.88	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
209	12.93	0.71	0.00	0.71	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
210	12.98	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
211	13.03	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
212	13.04	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
213	13.07	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
214	13.13	0.72	0.00	0.72	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
215	13.17	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
216	13.22	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
217	13.27	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
218	13.32	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
219	13.37	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
220	13.41	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
221	13.46	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
222	13.51	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
223	13.56	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
224	13.60	0.75	0.00	0.75	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
225	13.66	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
226	13.75	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
227	13.80	0.76	0.00	0.76	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
228	13.89	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
229	13.94	0.77	0.00	0.77	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
230	13.99	0.78	0.00	0.78	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
231	14.09	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
232	14.14	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
233	14.23	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
234	14.28	0.79	0.00	0.79	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
235	14.38	0.80	0.00	0.80	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
236	14.42	0.80	0.00	0.80	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
237	14.52	0.81	0.00	0.81	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
238	14.57	0.81	0.00	0.81	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
239	14.67	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
240	14.68	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	14.70	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
242	14.75	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
243	14.80	0.82	0.00	0.82	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
244	14.89	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
245	14.94	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
246	15.04	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
247	15.13	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
248	15.21	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
249	15.28	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
250	15.38	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
251	15.47	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
252	15.57	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
253	15.67	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
254	15.77	0.88	0.00	0.88	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
255	15.86	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
256	15.96	0.89	0.00	0.89	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
257	16.05	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
258	16.15	0.90	0.00	0.90	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
259	16.25	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
260	16.31	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
261	16.39	0.91	0.00	0.91	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
262	16.48	0.92	0.00	0.92	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
263	16.59	0.93	0.00	0.93	0.97	0.263	1.68	0.157	1.00	1.10	2.000	No
264	16.68	0.93	0.00	0.93	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
265	16.76	0.94	0.00	0.94	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
266	16.86	0.94	0.00	0.94	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
267	16.92	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
268	17.02	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
269	17.11	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
270	17.22	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
271	17.35	0.97	0.00	0.97	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
272	17.45	0.97	0.00	0.97	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
273	17.55	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
274	17.61	0.98	0.00	0.98	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
275	17.64	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
276	17.70	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
277	17.75	0.99	0.00	0.99	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
278	17.80	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
279	17.85	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	Yes
280	17.94	1.00	0.00	1.00	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
281	17.99	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
282	18.09	1.01	0.00	1.01	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
283	18.15	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
284	18.23	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
285	18.33	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
286	18.43	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
287	18.52	1.04	0.00	1.04	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
288	18.59	1.04	0.00	1.04	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	18.72	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
290	18.81	1.05	0.00	1.05	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
291	18.87	1.06	0.00	1.06	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
292	18.95	1.06	0.00	1.06	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
293	19.05	1.07	0.00	1.07	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
294	19.14	1.07	0.00	1.07	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
295	19.22	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
296	19.29	1.08	0.00	1.08	0.96	0.262	1.68	0.156	1.00	1.10	2.000	Yes
297	19.38	1.09	0.00	1.09	0.96	0.262	1.68	0.156	0.99	1.10	2.000	Yes
298	19.44	1.09	0.00	1.09	0.96	0.262	1.68	0.156	0.99	1.10	2.000	Yes
299	19.53	1.09	0.00	1.09	0.96	0.262	1.68	0.155	0.99	1.10	2.000	Yes
300	19.62	1.10	0.00	1.10	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
301	19.69	1.10	0.00	1.10	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
302	19.79	1.11	0.00	1.11	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
303	19.86	1.11	0.00	1.11	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
304	19.97	1.12	0.00	1.12	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
305	20.07	1.13	0.00	1.13	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
306	20.16	1.13	0.00	1.13	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
307	20.26	1.14	0.00	1.14	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
308	20.34	1.14	0.00	1.14	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
309	20.43	1.15	0.00	1.15	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
310	20.50	1.15	0.00	1.15	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
311	20.60	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
312	20.62	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
313	20.63	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
314	20.68	1.16	0.00	1.16	0.96	0.261	1.68	0.155	0.98	1.10	2.000	Yes
315	20.73	1.17	0.00	1.17	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
316	20.82	1.17	0.00	1.17	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
317	20.87	1.17	0.00	1.17	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
318	20.91	1.18	0.00	1.18	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
319	20.96	1.18	0.00	1.18	0.95	0.261	1.68	0.155	0.98	1.10	2.000	Yes
320	21.05	1.19	0.00	1.19	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
321	21.11	1.19	0.00	1.19	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
322	21.17	1.19	0.00	1.19	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
323	21.25	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.98	1.10	2.000	Yes
324	21.30	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.98	1.10	2.000	Yes
325	21.37	1.20	0.00	1.20	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
326	21.45	1.21	0.00	1.21	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
327	21.49	1.21	0.00	1.21	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
328	21.58	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
329	21.64	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
330	21.69	1.22	0.00	1.22	0.95	0.260	1.68	0.155	0.97	1.10	2.000	Yes
331	21.78	1.23	0.00	1.23	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
332	21.83	1.23	0.00	1.23	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
333	21.89	1.24	0.00	1.24	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
334	21.98	1.24	0.00	1.24	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
335	22.03	1.25	0.00	1.25	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
336	22.12	1.25	0.00	1.25	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	22.22	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
338	22.26	1.26	0.00	1.26	0.95	0.260	1.68	0.154	0.97	1.10	2.000	No
339	22.36	1.27	0.00	1.27	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
340	22.41	1.27	0.00	1.27	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
341	22.51	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
342	22.60	1.28	0.00	1.28	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
343	22.70	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
344	22.75	1.29	0.00	1.29	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
345	22.84	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
346	22.89	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
347	22.90	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
348	22.94	1.30	0.00	1.30	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
349	23.00	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
350	23.08	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
351	23.13	1.31	0.00	1.31	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
352	23.20	1.32	0.00	1.32	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
353	23.27	1.32	0.00	1.32	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
354	23.33	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
355	23.42	1.33	0.00	1.33	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
356	23.48	1.34	0.00	1.34	0.95	0.259	1.68	0.154	0.95	1.10	2.000	No
357	23.57	1.34	0.00	1.34	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
358	23.61	1.34	0.00	1.34	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
359	23.66	1.35	0.00	1.35	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
360	23.73	1.35	0.00	1.35	0.95	0.258	1.68	0.154	0.95	1.10	2.000	No
361	23.80	1.36	0.00	1.36	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
362	23.85	1.36	0.00	1.36	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
363	23.94	1.36	0.00	1.36	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
364	24.00	1.37	0.00	1.37	0.95	0.258	1.68	0.153	0.95	1.10	2.000	No
365	24.09	1.37	0.00	1.37	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
366	24.16	1.38	0.00	1.38	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
367	24.24	1.38	0.00	1.38	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
368	24.33	1.39	0.00	1.39	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
369	24.43	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
370	24.52	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
371	24.58	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
372	24.59	1.40	0.00	1.40	0.94	0.258	1.68	0.153	0.94	1.10	2.000	No
373	24.63	1.41	0.00	1.41	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
374	24.68	1.41	0.00	1.41	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
375	24.77	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
376	24.82	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
377	24.92	1.42	0.00	1.42	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
378	25.01	1.43	0.00	1.43	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
379	25.06	1.43	0.00	1.43	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
380	25.16	1.44	0.00	1.44	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
381	25.25	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
382	25.30	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	No
383	25.41	1.45	0.00	1.45	0.94	0.257	1.68	0.153	0.94	1.10	2.000	Yes
384	25.49	1.46	0.00	1.46	0.94	0.257	1.68	0.153	0.94	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	25.55	1.46	0.00	1.46	0.94	0.257	1.68	0.153	0.94	1.10	2.000	Yes
386	25.64	1.47	0.00	1.47	0.94	0.256	1.68	0.152	0.94	1.10	2.000	Yes
387	25.70	1.47	0.00	1.47	0.94	0.256	1.68	0.152	0.94	1.10	2.000	Yes
388	25.79	1.48	0.00	1.48	0.94	0.256	1.68	0.152	0.94	1.10	2.000	Yes
389	25.89	1.48	0.00	1.48	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
390	25.94	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
391	26.02	1.49	0.00	1.49	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
392	26.12	1.50	0.00	1.50	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
393	26.17	1.50	0.00	1.50	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
394	26.28	1.51	0.00	1.51	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
395	26.36	1.51	0.00	1.51	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
396	26.45	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
397	26.50	1.52	0.00	1.52	0.94	0.256	1.68	0.152	0.93	1.10	2.000	Yes
398	26.61	1.53	0.00	1.53	0.94	0.255	1.68	0.152	0.93	1.10	2.000	Yes
399	26.70	1.53	0.00	1.53	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
400	26.77	1.54	0.00	1.54	0.94	0.255	1.68	0.152	0.93	1.10	2.000	No
401	26.85	1.54	0.00	1.54	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
402	26.94	1.54	0.00	1.54	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
403	27.04	1.55	0.00	1.55	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
404	27.14	1.56	0.00	1.56	0.93	0.255	1.68	0.152	0.93	1.10	2.000	No
405	27.23	1.56	0.00	1.56	0.93	0.255	1.68	0.151	0.93	1.10	2.000	No
406	27.28	1.56	0.00	1.56	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
407	27.29	1.56	0.00	1.56	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
408	27.38	1.57	0.00	1.57	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
409	27.48	1.57	0.00	1.57	0.93	0.255	1.68	0.151	0.92	1.10	2.000	No
410	27.57	1.58	0.00	1.58	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
411	27.64	1.58	0.00	1.58	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
412	27.65	1.58	0.00	1.58	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
413	27.74	1.59	0.00	1.59	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
414	27.80	1.59	0.00	1.59	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
415	27.90	1.60	0.00	1.60	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
416	27.99	1.60	0.00	1.60	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
417	28.07	1.61	0.00	1.61	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
418	28.16	1.61	0.00	1.61	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
419	28.25	1.62	0.00	1.62	0.93	0.254	1.68	0.151	0.92	1.10	2.000	No
420	28.34	1.62	0.00	1.62	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
421	28.44	1.63	0.00	1.63	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
422	28.53	1.63	0.00	1.63	0.93	0.253	1.68	0.151	0.92	1.10	2.000	No
423	28.62	1.64	0.00	1.64	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
424	28.76	1.65	0.00	1.65	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
425	28.86	1.65	0.00	1.65	0.93	0.253	1.68	0.150	0.91	1.10	2.000	No
426	28.96	1.66	0.00	1.66	0.93	0.253	1.68	0.150	0.91	1.10	2.000	No
427	29.08	1.66	0.00	1.66	0.93	0.253	1.68	0.150	0.91	1.10	2.000	No
428	29.19	1.67	0.00	1.67	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
429	29.29	1.68	0.00	1.68	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
430	29.39	1.68	0.00	1.68	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
431	29.50	1.69	0.00	1.69	0.92	0.252	1.68	0.150	0.91	1.10	2.000	No
432	29.63	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	29.65	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
434	29.66	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
435	29.72	1.70	0.00	1.70	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
436	29.80	1.71	0.00	1.71	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
437	29.85	1.71	0.00	1.71	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
438	29.94	1.72	0.00	1.72	0.92	0.251	1.68	0.149	0.91	1.10	2.000	Yes
439	30.00	1.72	0.00	1.72	0.92	0.251	1.68	0.149	0.91	1.10	2.000	Yes
440	30.05	1.72	0.00	1.72	0.92	0.251	1.68	0.149	0.91	1.10	2.000	Yes
441	30.14	1.73	0.00	1.73	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
442	30.19	1.73	0.01	1.73	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
443	30.24	1.74	0.01	1.73	0.92	0.252	1.68	0.150	0.91	1.10	2.000	Yes
444	30.29	1.74	0.01	1.73	0.92	0.252	1.68	0.150	0.91	1.10	0.182	No
445	30.38	1.75	0.01	1.73	0.92	0.252	1.68	0.150	0.91	1.10	0.182	No
446	30.43	1.75	0.01	1.74	0.92	0.253	1.68	0.150	0.91	1.10	0.182	No
447	30.48	1.75	0.01	1.74	0.92	0.253	1.68	0.150	0.91	1.10	0.183	No
448	30.54	1.76	0.02	1.74	0.92	0.253	1.68	0.150	0.91	1.10	0.183	No
449	30.62	1.76	0.02	1.74	0.92	0.253	1.68	0.151	0.91	1.10	0.183	No
450	30.67	1.76	0.02	1.74	0.92	0.253	1.68	0.151	0.91	1.10	0.183	No
451	30.72	1.77	0.02	1.74	0.92	0.254	1.68	0.151	0.90	1.10	0.183	No
452	30.76	1.77	0.02	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.183	No
453	30.86	1.78	0.03	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
454	30.91	1.78	0.03	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
455	30.95	1.78	0.03	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
456	31.03	1.79	0.03	1.75	0.92	0.254	1.68	0.151	0.90	1.10	0.184	No
457	31.10	1.79	0.03	1.76	0.91	0.255	1.68	0.151	0.90	1.10	0.184	No
458	31.15	1.79	0.04	1.76	0.91	0.255	1.68	0.151	0.90	1.10	0.184	No
459	31.20	1.80	0.04	1.76	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
460	31.26	1.80	0.04	1.76	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
461	31.34	1.81	0.04	1.76	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
462	31.37	1.81	0.04	1.77	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
463	31.38	1.81	0.04	1.77	0.91	0.255	1.68	0.152	0.90	1.10	0.185	No
464	31.43	1.81	0.04	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.185	No
465	31.47	1.81	0.05	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.185	No
466	31.55	1.82	0.05	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.185	No
467	31.59	1.82	0.05	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
468	31.66	1.83	0.05	1.77	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
469	31.73	1.83	0.05	1.78	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
470	31.78	1.83	0.06	1.78	0.91	0.256	1.68	0.152	0.90	1.10	0.186	No
471	31.84	1.84	0.06	1.78	0.91	0.257	1.68	0.153	0.90	1.10	0.186	No
472	31.93	1.84	0.06	1.78	0.91	0.257	1.68	0.153	0.90	1.10	0.186	No
473	31.98	1.85	0.06	1.78	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
474	32.02	1.85	0.06	1.79	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
475	32.09	1.85	0.07	1.79	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
476	32.16	1.86	0.07	1.79	0.91	0.257	1.68	0.153	0.90	1.10	0.187	No
477	32.22	1.86	0.07	1.79	0.91	0.258	1.68	0.153	0.90	1.10	0.187	No
478	32.27	1.86	0.07	1.79	0.91	0.258	1.68	0.153	0.90	1.10	0.187	No
479	32.34	1.87	0.07	1.80	0.91	0.258	1.68	0.153	0.90	1.10	0.187	No
480	32.42	1.87	0.08	1.80	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	32.46	1.88	0.08	1.80	0.91	0.258	1.68	0.153	0.90	1.10	0.188	No
482	32.54	1.88	0.08	1.80	0.91	0.258	1.68	0.154	0.90	1.10	0.188	No
483	32.60	1.89	0.08	1.80	0.91	0.259	1.68	0.154	0.90	1.10	0.188	No
484	32.67	1.89	0.08	1.81	0.91	0.259	1.68	0.154	0.90	1.10	0.188	No
485	32.75	1.89	0.09	1.81	0.91	0.259	1.68	0.154	0.90	1.10	0.188	No
486	32.81	1.90	0.09	1.81	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
487	32.89	1.90	0.09	1.81	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
488	32.94	1.91	0.09	1.82	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
489	32.95	1.91	0.09	1.82	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
490	33.00	1.91	0.09	1.82	0.90	0.259	1.68	0.154	0.90	1.10	0.189	No
491	33.06	1.91	0.10	1.82	0.90	0.260	1.68	0.154	0.90	1.10	0.189	No
492	33.11	1.92	0.10	1.82	0.90	0.260	1.68	0.154	0.90	1.10	0.189	No
493	33.20	1.92	0.10	1.82	0.90	0.260	1.68	0.154	0.90	1.10	0.189	No
494	33.25	1.93	0.10	1.83	0.90	0.260	1.68	0.155	0.90	1.10	0.190	No
495	33.34	1.93	0.10	1.83	0.90	0.260	1.68	0.155	0.90	1.10	0.190	No
496	33.38	1.94	0.11	1.83	0.90	0.260	1.68	0.155	0.90	1.10	0.190	No
497	33.48	1.94	0.11	1.83	0.90	0.260	1.68	0.155	0.90	1.10	0.190	No
498	33.58	1.95	0.11	1.84	0.90	0.261	1.68	0.155	0.90	1.10	0.190	No
499	33.63	1.95	0.11	1.84	0.90	0.261	1.68	0.155	0.90	1.10	0.190	No
500	33.73	1.96	0.12	1.84	0.90	0.261	1.68	0.155	0.90	1.10	0.191	No
501	33.82	1.96	0.12	1.84	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
502	33.87	1.97	0.12	1.85	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
503	33.96	1.97	0.12	1.85	0.90	0.261	1.68	0.155	0.89	1.10	0.191	No
504	34.02	1.98	0.13	1.85	0.90	0.262	1.68	0.155	0.89	1.10	0.191	No
505	34.11	1.98	0.13	1.85	0.90	0.262	1.68	0.156	0.89	1.10	0.191	No
506	34.18	1.99	0.13	1.86	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
507	34.26	1.99	0.13	1.86	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
508	34.35	2.00	0.14	1.86	0.90	0.262	1.68	0.156	0.89	1.10	0.192	No
509	34.44	2.00	0.14	1.87	0.89	0.262	1.68	0.156	0.89	1.10	0.192	No
510	34.49	2.01	0.14	1.87	0.89	0.262	1.68	0.156	0.89	1.10	0.192	No
511	34.59	2.01	0.14	1.87	0.89	0.263	1.68	0.156	0.89	1.10	0.192	No
512	34.69	2.02	0.15	1.87	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
513	34.76	2.03	0.15	1.88	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
514	34.83	2.03	0.15	1.88	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
515	34.93	2.04	0.15	1.88	0.89	0.263	1.68	0.156	0.89	1.10	0.193	No
516	35.02	2.04	0.16	1.89	0.89	0.263	1.68	0.157	0.89	1.10	0.193	No
517	35.12	2.05	0.16	1.89	0.89	0.263	1.68	0.157	0.89	1.10	0.193	No
518	35.22	2.06	0.16	1.89	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
519	35.30	2.06	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
520	35.38	2.07	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
521	35.43	2.07	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
522	35.46	2.07	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	0.194	No
523	35.51	2.08	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
524	35.56	2.08	0.17	1.90	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
525	35.66	2.08	0.18	1.91	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
526	35.70	2.09	0.18	1.91	0.89	0.264	1.68	0.157	0.89	1.10	2.000	Yes
527	35.80	2.09	0.18	1.91	0.88	0.264	1.68	0.157	0.89	1.10	2.000	Yes
528	35.89	2.10	0.18	1.92	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	35.96	2.10	0.19	1.92	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
530	36.04	2.11	0.19	1.92	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
531	36.14	2.12	0.19	1.92	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
532	36.19	2.12	0.19	1.93	0.88	0.265	1.68	0.157	0.89	1.10	2.000	Yes
533	36.28	2.12	0.20	1.93	0.88	0.265	1.68	0.158	0.89	1.10	2.000	Yes
534	36.33	2.13	0.20	1.93	0.88	0.265	1.68	0.158	0.89	1.10	0.195	No
535	36.42	2.13	0.20	1.93	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
536	36.48	2.14	0.20	1.93	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
537	36.52	2.14	0.20	1.94	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
538	36.62	2.14	0.21	1.94	0.88	0.265	1.68	0.158	0.89	1.10	0.196	No
539	36.68	2.15	0.21	1.94	0.88	0.266	1.68	0.158	0.89	1.10	0.196	No
540	36.77	2.15	0.21	1.94	0.88	0.266	1.68	0.158	0.89	1.10	0.196	No
541	36.86	2.16	0.21	1.95	0.88	0.266	1.68	0.158	0.89	1.10	2.000	Yes
542	36.90	2.16	0.22	1.95	0.88	0.266	1.68	0.158	0.89	1.10	2.000	Yes
543	37.00	2.17	0.22	1.95	0.88	0.266	1.68	0.158	0.88	1.10	2.000	Yes
544	37.10	2.17	0.22	1.95	0.88	0.266	1.68	0.158	0.88	1.10	2.000	Yes
545	37.20	2.18	0.22	1.96	0.87	0.266	1.68	0.158	0.88	1.10	2.000	Yes
546	37.29	2.19	0.23	1.96	0.87	0.266	1.68	0.158	0.88	1.10	2.000	Yes
547	37.39	2.19	0.23	1.96	0.87	0.266	1.68	0.158	0.88	1.10	2.000	Yes
548	37.49	2.20	0.23	1.97	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
549	37.53	2.20	0.24	1.97	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
550	37.58	2.21	0.24	1.97	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
551	37.62	2.21	0.24	1.97	0.87	0.266	1.68	0.158	0.88	1.10	0.197	No
552	37.69	2.21	0.24	1.97	0.87	0.267	1.68	0.158	0.88	1.10	0.197	No
553	37.77	2.22	0.24	1.98	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
554	37.82	2.22	0.24	1.98	0.87	0.267	1.68	0.158	0.88	1.10	0.198	No
555	37.87	2.22	0.25	1.98	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
556	37.91	2.23	0.25	1.98	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
557	37.97	2.23	0.25	1.98	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
558	38.06	2.24	0.25	1.99	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
559	38.10	2.24	0.25	1.99	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
560	38.17	2.24	0.25	1.99	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
561	38.25	2.25	0.26	1.99	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
562	38.35	2.26	0.26	2.00	0.87	0.267	1.68	0.159	0.88	1.10	0.198	No
563	38.40	2.26	0.26	2.00	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
564	38.46	2.26	0.26	2.00	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
565	38.54	2.27	0.27	2.00	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
566	38.60	2.27	0.27	2.00	0.86	0.267	1.68	0.159	0.88	1.10	0.198	No
567	38.69	2.28	0.27	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
568	38.74	2.28	0.27	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
569	38.83	2.29	0.28	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
570	38.88	2.29	0.28	2.01	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
571	38.97	2.30	0.28	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
572	39.02	2.30	0.28	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
573	39.11	2.31	0.28	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
574	39.16	2.31	0.29	2.02	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
575	39.23	2.31	0.29	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
576	39.24	2.31	0.29	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	39.28	2.32	0.29	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
578	39.32	2.32	0.29	2.03	0.86	0.267	1.68	0.159	0.88	1.10	0.199	No
579	39.39	2.32	0.29	2.03	0.86	0.268	1.68	0.159	0.88	1.10	2.000	Yes
580	39.47	2.33	0.30	2.03	0.86	0.268	1.68	0.159	0.88	1.10	2.000	Yes
581	39.54	2.33	0.30	2.04	0.86	0.268	1.68	0.159	0.88	1.10	2.000	Yes
582	39.62	2.34	0.30	2.04	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
583	39.71	2.34	0.30	2.04	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
584	39.76	2.35	0.30	2.04	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
585	39.85	2.35	0.31	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
586	39.90	2.36	0.31	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
587	40.00	2.36	0.31	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
588	40.06	2.37	0.31	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
589	40.15	2.37	0.32	2.05	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
590	40.21	2.38	0.32	2.06	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
591	40.29	2.38	0.32	2.06	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
592	40.35	2.38	0.32	2.06	0.85	0.268	1.68	0.159	0.88	1.10	2.000	Yes
593	40.43	2.39	0.33	2.06	0.85	0.268	1.68	0.159	0.87	1.10	2.000	Yes
594	40.52	2.39	0.33	2.07	0.85	0.268	1.68	0.159	0.87	1.10	2.000	Yes
595	40.58	2.40	0.33	2.07	0.85	0.268	1.68	0.159	0.87	1.10	2.000	Yes
596	40.67	2.40	0.33	2.07	0.85	0.268	1.68	0.159	0.87	1.10	2.000	Yes
597	40.77	2.41	0.34	2.07	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
598	40.84	2.41	0.34	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
599	40.89	2.42	0.34	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
600	40.94	2.42	0.34	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
601	41.03	2.43	0.34	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
602	41.08	2.43	0.35	2.08	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
603	41.14	2.43	0.35	2.09	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
604	41.22	2.44	0.35	2.09	0.84	0.268	1.68	0.159	0.87	1.10	2.000	Yes
605	41.28	2.44	0.35	2.09	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
606	41.33	2.44	0.35	2.09	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
607	41.42	2.45	0.36	2.09	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
608	41.47	2.45	0.36	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
609	41.52	2.46	0.36	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
610	41.62	2.46	0.36	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
611	41.67	2.47	0.36	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
612	41.76	2.47	0.37	2.10	0.84	0.268	1.68	0.159	0.87	1.10	0.201	No
613	41.82	2.48	0.37	2.11	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
614	41.90	2.48	0.37	2.11	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
615	41.99	2.49	0.37	2.11	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
616	42.05	2.49	0.38	2.11	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
617	42.15	2.50	0.38	2.12	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
618	42.23	2.50	0.38	2.12	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
619	42.30	2.51	0.38	2.12	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
620	42.38	2.51	0.39	2.13	0.83	0.268	1.68	0.159	0.87	1.10	0.201	No
621	42.48	2.52	0.39	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
622	42.57	2.52	0.39	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
623	42.64	2.53	0.39	2.13	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
624	42.72	2.53	0.40	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	42.82	2.54	0.40	2.14	0.83	0.267	1.68	0.159	0.87	1.10	0.201	No
626	42.90	2.55	0.40	2.14	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
627	42.97	2.55	0.40	2.15	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
628	43.06	2.56	0.41	2.15	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
629	43.15	2.56	0.41	2.15	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
630	43.20	2.56	0.41	2.15	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
631	43.30	2.57	0.41	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
632	43.40	2.58	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
633	43.48	2.58	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
634	43.51	2.58	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
635	43.52	2.58	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
636	43.56	2.59	0.42	2.16	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
637	43.61	2.59	0.42	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
638	43.67	2.59	0.43	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
639	43.72	2.60	0.43	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
640	43.80	2.60	0.43	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
641	43.85	2.61	0.43	2.17	0.82	0.267	1.68	0.159	0.87	1.10	0.201	No
642	43.90	2.61	0.43	2.18	0.81	0.267	1.68	0.159	0.87	1.10	0.201	No
643	43.94	2.61	0.43	2.18	0.81	0.267	1.68	0.159	0.87	1.10	0.201	No
644	43.99	2.62	0.44	2.18	0.81	0.267	1.68	0.158	0.87	1.10	0.201	No
645	44.08	2.62	0.44	2.18	0.81	0.267	1.68	0.158	0.87	1.10	0.201	No
646	44.14	2.62	0.44	2.18	0.81	0.267	1.68	0.158	0.87	1.10	0.201	No
647	44.22	2.63	0.44	2.19	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
648	44.28	2.63	0.45	2.19	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
649	44.33	2.64	0.45	2.19	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
650	44.40	2.64	0.45	2.19	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
651	44.48	2.65	0.45	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
652	44.52	2.65	0.45	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
653	44.61	2.66	0.46	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
654	44.72	2.66	0.46	2.20	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
655	44.77	2.67	0.46	2.21	0.81	0.266	1.68	0.158	0.86	1.10	0.201	No
656	44.91	2.67	0.47	2.21	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
657	44.95	2.68	0.47	2.21	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
658	45.02	2.68	0.47	2.21	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
659	45.04	2.68	0.47	2.21	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
660	45.06	2.69	0.47	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
661	45.11	2.69	0.47	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
662	45.15	2.69	0.47	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
663	45.21	2.69	0.47	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
664	45.25	2.70	0.48	2.22	0.80	0.266	1.68	0.158	0.86	1.10	0.201	No
665	45.30	2.70	0.48	2.22	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
666	45.35	2.70	0.48	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
667	45.41	2.71	0.48	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
668	45.49	2.71	0.48	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
669	45.55	2.72	0.49	2.23	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
670	45.63	2.72	0.49	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
671	45.69	2.73	0.49	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No
672	45.78	2.73	0.49	2.24	0.80	0.265	1.68	0.158	0.86	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	45.84	2.74	0.49	2.24	0.80	0.265	1.68	0.157	0.86	1.10	0.201	No
674	45.93	2.74	0.50	2.25	0.79	0.265	1.68	0.157	0.86	1.10	0.201	No
675	46.02	2.75	0.50	2.25	0.79	0.265	1.68	0.157	0.86	1.10	2.000	Yes
676	46.08	2.75	0.50	2.25	0.79	0.265	1.68	0.157	0.86	1.10	2.000	Yes
677	46.16	2.76	0.50	2.25	0.79	0.265	1.68	0.157	0.86	1.10	2.000	Yes
678	46.24	2.76	0.51	2.26	0.79	0.265	1.68	0.157	0.86	1.10	2.000	Yes
679	46.31	2.77	0.51	2.26	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
680	46.41	2.77	0.51	2.26	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
681	46.48	2.78	0.51	2.26	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
682	46.56	2.78	0.52	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
683	46.65	2.79	0.52	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
684	46.75	2.79	0.52	2.27	0.79	0.264	1.68	0.157	0.86	1.10	2.000	Yes
685	46.84	2.80	0.53	2.27	0.78	0.264	1.68	0.157	0.86	1.10	2.000	Yes
686	46.94	2.81	0.53	2.28	0.78	0.264	1.68	0.157	0.86	1.10	0.201	No
687	47.02	2.81	0.53	2.28	0.78	0.264	1.68	0.157	0.86	1.10	0.201	No
688	47.08	2.81	0.53	2.28	0.78	0.264	1.68	0.157	0.86	1.10	0.201	No
689	47.12	2.82	0.53	2.28	0.78	0.264	1.68	0.157	0.86	1.10	0.201	No
690	47.16	2.82	0.54	2.28	0.78	0.263	1.68	0.157	0.86	1.10	0.201	No
691	47.21	2.82	0.54	2.28	0.78	0.263	1.68	0.157	0.86	1.10	0.201	No
692	47.27	2.82	0.54	2.29	0.78	0.263	1.68	0.157	0.86	1.10	0.201	No
693	47.35	2.83	0.54	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
694	47.40	2.83	0.54	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
695	47.50	2.84	0.55	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
696	47.55	2.84	0.55	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
697	47.61	2.84	0.55	2.29	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
698	47.69	2.85	0.55	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
699	47.76	2.85	0.55	2.30	0.78	0.263	1.68	0.156	0.86	1.10	0.201	No
700	47.83	2.85	0.56	2.30	0.77	0.263	1.68	0.156	0.86	1.10	0.201	No
701	47.93	2.86	0.56	2.30	0.77	0.263	1.68	0.156	0.86	1.10	0.201	No
702	48.02	2.87	0.56	2.30	0.77	0.263	1.68	0.156	0.86	1.10	0.201	No
703	48.09	2.87	0.56	2.30	0.77	0.262	1.68	0.156	0.86	1.10	0.201	No
704	48.18	2.87	0.57	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
705	48.27	2.88	0.57	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
706	48.37	2.88	0.57	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
707	48.46	2.89	0.58	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
708	48.52	2.89	0.58	2.31	0.77	0.262	1.68	0.156	0.86	1.10	0.200	No
709	48.60	2.90	0.58	2.32	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
710	48.70	2.90	0.58	2.32	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
711	48.79	2.91	0.59	2.32	0.77	0.262	1.68	0.156	0.85	1.10	0.200	No
712	48.85	2.91	0.59	2.32	0.76	0.262	1.68	0.155	0.85	1.10	0.200	No
713	48.94	2.92	0.59	2.32	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
714	49.04	2.92	0.59	2.33	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
715	49.13	2.93	0.60	2.33	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
716	49.23	2.93	0.60	2.33	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
717	49.33	2.94	0.60	2.33	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
718	49.38	2.94	0.60	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
719	49.42	2.94	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
720	49.48	2.95	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	49.53	2.95	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
722	49.58	2.95	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
723	49.63	2.96	0.61	2.34	0.76	0.261	1.68	0.155	0.85	1.10	0.200	No
724	49.72	2.96	0.62	2.35	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
725	49.77	2.96	0.62	2.35	0.76	0.260	1.68	0.155	0.85	1.10	0.200	No
726	49.83	2.97	0.62	2.35	0.75	0.260	1.68	0.155	0.85	1.10	0.200	No
727	49.92	2.97	0.62	2.35	0.75	0.260	1.68	0.155	0.85	1.10	0.200	No
728	49.97	2.98	0.62	2.35	0.75	0.260	1.68	0.155	0.85	1.10	0.199	No
729	50.04	2.98	0.63	2.36	0.75	0.260	1.68	0.154	0.85	1.10	0.199	No
730	50.11	2.99	0.63	2.36	0.75	0.260	1.68	0.154	0.85	1.10	0.199	No
731	50.20	2.99	0.63	2.36	0.75	0.260	1.68	0.154	0.85	1.10	0.199	No
732	50.27	3.00	0.63	2.36	0.75	0.260	1.68	0.154	0.85	1.10	0.199	No
733	50.34	3.00	0.63	2.36	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
734	50.45	3.01	0.64	2.37	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
735	50.54	3.01	0.64	2.37	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
736	50.59	3.01	0.64	2.37	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
737	50.68	3.02	0.65	2.37	0.75	0.259	1.68	0.154	0.85	1.10	0.199	No
738	50.79	3.03	0.65	2.38	0.74	0.259	1.68	0.154	0.85	1.10	0.199	No
739	50.88	3.03	0.65	2.38	0.74	0.259	1.68	0.154	0.85	1.10	0.199	No
740	50.98	3.04	0.65	2.38	0.74	0.259	1.68	0.154	0.85	1.10	0.199	No
741	51.07	3.04	0.66	2.38	0.74	0.258	1.68	0.154	0.85	1.10	0.199	No
742	51.17	3.05	0.66	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
743	51.24	3.05	0.66	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
744	51.33	3.06	0.67	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.199	No
745	51.46	3.06	0.67	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
746	51.46	3.06	0.67	2.39	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
747	51.51	3.07	0.67	2.40	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
748	51.56	3.07	0.67	2.40	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
749	51.65	3.07	0.68	2.40	0.74	0.258	1.68	0.153	0.85	1.10	0.198	No
750	51.71	3.08	0.68	2.40	0.74	0.257	1.68	0.153	0.85	1.10	0.198	No
751	51.79	3.08	0.68	2.40	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
752	51.85	3.09	0.68	2.40	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
753	51.94	3.09	0.68	2.41	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
754	51.99	3.09	0.69	2.41	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
755	52.09	3.10	0.69	2.41	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
756	52.19	3.11	0.69	2.41	0.73	0.257	1.68	0.153	0.85	1.10	0.198	No
757	52.28	3.11	0.70	2.42	0.73	0.257	1.68	0.152	0.85	1.10	0.198	No
758	52.35	3.12	0.70	2.42	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
759	52.43	3.12	0.70	2.42	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
760	52.52	3.13	0.70	2.42	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
761	52.62	3.13	0.71	2.43	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
762	52.72	3.14	0.71	2.43	0.73	0.256	1.68	0.152	0.85	1.10	0.198	No
763	52.81	3.14	0.71	2.43	0.72	0.256	1.68	0.152	0.85	1.10	0.197	No
764	52.91	3.15	0.71	2.44	0.72	0.255	1.68	0.152	0.85	1.10	0.197	No
765	53.00	3.16	0.72	2.44	0.72	0.255	1.68	0.152	0.85	1.10	0.197	No
766	53.10	3.16	0.72	2.44	0.72	0.255	1.68	0.152	0.85	1.10	2.000	Yes
767	53.20	3.17	0.72	2.45	0.72	0.255	1.68	0.152	0.85	1.10	2.000	Yes
768	53.29	3.18	0.73	2.45	0.72	0.255	1.68	0.151	0.85	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	53.38	3.18	0.73	2.45	0.72	0.255	1.68	0.151	0.85	1.10	2.000	Yes
770	53.46	3.19	0.73	2.46	0.72	0.254	1.68	0.151	0.85	1.10	2.000	Yes
771	53.53	3.19	0.73	2.46	0.72	0.254	1.68	0.151	0.84	1.10	2.000	Yes
772	53.63	3.20	0.74	2.46	0.72	0.254	1.68	0.151	0.84	1.10	2.000	Yes
773	53.73	3.21	0.74	2.47	0.72	0.254	1.68	0.151	0.84	1.10	2.000	Yes
774	53.82	3.21	0.74	2.47	0.71	0.254	1.68	0.151	0.84	1.10	2.000	Yes
775	53.92	3.22	0.75	2.47	0.71	0.254	1.68	0.151	0.84	1.10	2.000	Yes
776	53.94	3.22	0.75	2.47	0.71	0.254	1.68	0.151	0.84	1.10	0.196	No
777	53.96	3.22	0.75	2.47	0.71	0.254	1.68	0.151	0.84	1.10	0.196	No
778	53.97	3.22	0.75	2.47	0.71	0.254	1.68	0.151	0.84	1.10	0.196	No
779	54.05	3.23	0.75	2.48	0.71	0.253	1.68	0.151	0.84	1.10	0.196	No
780	54.08	3.23	0.75	2.48	0.71	0.253	1.68	0.151	0.84	1.10	0.196	No
781	54.13	3.23	0.75	2.48	0.71	0.253	1.68	0.151	0.84	1.10	0.196	No
782	54.19	3.24	0.75	2.48	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
783	54.25	3.24	0.76	2.48	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
784	54.28	3.24	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
785	54.29	3.24	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
786	54.34	3.25	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
787	54.35	3.25	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
788	54.40	3.25	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
789	54.44	3.25	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
790	54.49	3.26	0.76	2.49	0.71	0.253	1.68	0.150	0.84	1.10	0.196	No
791	54.53	3.26	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
792	54.57	3.26	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
793	54.58	3.26	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
794	54.63	3.27	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
795	54.68	3.27	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
796	54.73	3.27	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
797	54.78	3.28	0.77	2.50	0.71	0.252	1.68	0.150	0.84	1.10	0.196	No
798	54.83	3.28	0.77	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
799	54.88	3.28	0.78	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
800	54.92	3.29	0.78	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
801	54.97	3.29	0.78	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
802	55.02	3.29	0.78	2.51	0.70	0.252	1.68	0.150	0.84	1.10	0.196	No
803	55.12	3.30	0.78	2.52	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
804	55.17	3.30	0.79	2.52	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
805	55.25	3.31	0.79	2.52	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
806	55.31	3.31	0.79	2.52	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
807	55.36	3.32	0.79	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
808	55.45	3.32	0.79	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
809	55.50	3.33	0.80	2.53	0.70	0.251	1.68	0.149	0.84	1.10	0.195	No
810	55.60	3.33	0.80	2.53	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
811	55.65	3.34	0.80	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
812	55.71	3.34	0.80	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
813	55.75	3.34	0.80	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
814	55.79	3.35	0.80	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
815	55.84	3.35	0.81	2.54	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No
816	55.89	3.35	0.81	2.55	0.70	0.250	1.68	0.149	0.84	1.10	0.195	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	55.90	3.35	0.81	2.55	0.69	0.250	1.68	0.149	0.84	1.10	0.195	No
818	55.94	3.36	0.81	2.55	0.69	0.250	1.68	0.149	0.84	1.10	0.195	No
819	55.99	3.36	0.81	2.55	0.69	0.250	1.68	0.148	0.84	1.10	0.195	No
820	56.03	3.36	0.81	2.55	0.69	0.250	1.68	0.148	0.84	1.10	0.195	No
821	56.08	3.37	0.81	2.55	0.69	0.250	1.68	0.148	0.84	1.10	0.195	No
822	56.14	3.37	0.82	2.55	0.69	0.249	1.68	0.148	0.84	1.10	0.195	No
823	56.22	3.38	0.82	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
824	56.28	3.38	0.82	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
825	56.33	3.38	0.82	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
826	56.38	3.39	0.82	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
827	56.45	3.39	0.83	2.56	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
828	56.52	3.39	0.83	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
829	56.62	3.40	0.83	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
830	56.66	3.40	0.83	2.57	0.69	0.249	1.68	0.148	0.84	1.10	0.194	No
831	56.73	3.41	0.83	2.57	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
832	56.81	3.41	0.84	2.58	0.69	0.248	1.68	0.148	0.84	1.10	0.194	No
833	56.95	3.42	0.84	2.58	0.69	0.248	1.68	0.147	0.84	1.10	0.194	No
834	57.00	3.43	0.84	2.58	0.68	0.248	1.68	0.147	0.84	1.10	0.194	No
835	57.09	3.43	0.85	2.59	0.68	0.248	1.68	0.147	0.84	1.10	0.194	No
836	57.19	3.44	0.85	2.59	0.68	0.248	1.68	0.147	0.84	1.10	0.194	No
837	57.27	3.45	0.85	2.59	0.68	0.247	1.68	0.147	0.84	1.10	0.194	No
838	57.35	3.45	0.85	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
839	57.44	3.46	0.86	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
840	57.50	3.46	0.86	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
841	57.52	3.46	0.86	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
842	57.58	3.47	0.86	2.60	0.68	0.247	1.68	0.147	0.84	1.10	0.193	No
843	57.63	3.47	0.86	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
844	57.72	3.48	0.86	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
845	57.77	3.48	0.87	2.61	0.68	0.247	1.68	0.147	0.83	1.10	0.193	No
846	57.82	3.48	0.87	2.61	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
847	57.91	3.49	0.87	2.62	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
848	57.96	3.49	0.87	2.62	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
849	58.02	3.49	0.87	2.62	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
850	58.09	3.50	0.88	2.62	0.68	0.246	1.68	0.146	0.83	1.10	0.193	No
851	58.16	3.50	0.88	2.63	0.67	0.246	1.68	0.146	0.83	1.10	0.193	No
852	58.25	3.51	0.88	2.63	0.67	0.246	1.68	0.146	0.83	1.10	0.193	No
853	58.30	3.51	0.88	2.63	0.67	0.246	1.68	0.146	0.83	1.10	0.193	No
854	58.40	3.52	0.89	2.63	0.67	0.245	1.68	0.146	0.83	1.10	0.193	No
855	58.50	3.53	0.89	2.64	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
856	58.56	3.53	0.89	2.64	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
857	58.64	3.54	0.89	2.64	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
858	58.73	3.54	0.90	2.65	0.67	0.245	1.68	0.146	0.83	1.10	0.192	No
859	58.78	3.55	0.90	2.65	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
860	58.88	3.55	0.90	2.65	0.67	0.245	1.68	0.145	0.83	1.10	0.192	No
861	58.97	3.56	0.90	2.65	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
862	59.07	3.57	0.91	2.66	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
863	59.13	3.57	0.91	2.66	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No
864	59.23	3.58	0.91	2.66	0.67	0.244	1.68	0.145	0.83	1.10	0.192	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	59.31	3.58	0.91	2.67	0.66	0.244	1.68	0.145	0.83	1.10	0.192	No
866	59.38	3.59	0.92	2.67	0.66	0.244	1.68	0.145	0.83	1.10	0.192	No
867	59.41	3.59	0.92	2.67	0.66	0.244	1.68	0.145	0.83	1.10	0.192	No
868	59.46	3.59	0.92	2.67	0.66	0.244	1.68	0.145	0.83	1.10	0.192	No
869	59.51	3.59	0.92	2.67	0.66	0.243	1.68	0.145	0.83	1.10	0.192	No
870	59.57	3.60	0.92	2.68	0.66	0.243	1.68	0.145	0.83	1.10	0.192	No
871	59.66	3.60	0.93	2.68	0.66	0.243	1.68	0.145	0.83	1.10	0.191	No
872	59.75	3.61	0.93	2.68	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
873	59.80	3.61	0.93	2.68	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
874	59.85	3.62	0.93	2.69	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
875	59.91	3.62	0.93	2.69	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
876	59.99	3.63	0.94	2.69	0.66	0.243	1.68	0.144	0.83	1.10	0.191	No
877	60.05	3.63	0.94	2.69	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
878	60.09	3.63	0.94	2.69	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
879	60.14	3.64	0.94	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
880	60.19	3.64	0.94	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
881	60.22	3.64	0.94	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
882	60.28	3.65	0.94	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
883	60.33	3.65	0.95	2.70	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
884	60.38	3.65	0.95	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
885	60.42	3.66	0.95	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
886	60.48	3.66	0.95	2.71	0.66	0.242	1.68	0.144	0.83	1.10	0.191	No
887	60.57	3.67	0.95	2.71	0.65	0.242	1.68	0.144	0.83	1.10	0.191	No
888	60.66	3.67	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
889	60.68	3.67	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
890	60.69	3.67	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
891	60.74	3.68	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.191	No
892	60.79	3.68	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
893	60.84	3.68	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
894	60.89	3.69	0.96	2.72	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
895	60.98	3.69	0.97	2.73	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
896	61.03	3.69	0.97	2.73	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
897	61.08	3.70	0.97	2.73	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
898	61.18	3.70	0.97	2.73	0.65	0.241	1.68	0.143	0.83	1.10	0.190	No
899	61.23	3.71	0.97	2.73	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
900	61.31	3.71	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
901	61.42	3.72	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
902	61.47	3.72	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
903	61.51	3.73	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
904	61.54	3.73	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
905	61.57	3.73	0.98	2.74	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
906	61.58	3.73	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
907	61.61	3.73	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
908	61.63	3.73	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
909	61.63	3.73	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
910	61.66	3.74	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
911	61.67	3.74	0.99	2.75	0.65	0.240	1.68	0.143	0.83	1.10	0.190	No
912	61.70	3.74	0.99	2.75	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	61.71	3.74	0.99	2.75	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
914	61.76	3.74	0.99	2.75	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
915	61.80	3.75	0.99	2.75	0.65	0.240	1.68	0.142	0.83	1.10	0.190	No
916	61.84	3.75	0.99	2.75	0.64	0.239	1.68	0.142	0.83	1.10	0.190	No
917	61.86	3.75	0.99	2.75	0.64	0.239	1.68	0.142	0.83	1.10	0.190	No
918	61.93	3.75	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.190	No
919	61.98	3.76	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
920	62.04	3.76	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
921	62.09	3.76	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
922	62.14	3.77	1.00	2.76	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
923	62.19	3.77	1.00	2.77	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
924	62.24	3.77	1.01	2.77	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
925	62.26	3.77	1.01	2.77	0.64	0.239	1.68	0.142	0.83	1.10	0.189	No
926	62.29	3.78	1.01	2.77	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
927	62.38	3.78	1.01	2.77	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
928	62.44	3.79	1.01	2.77	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
929	62.46	3.79	1.01	2.78	0.64	0.239	1.68	0.142	0.82	1.10	0.189	No
930	62.47	3.79	1.01	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
931	62.51	3.79	1.01	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
932	62.56	3.79	1.02	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
933	62.60	3.80	1.02	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
934	62.65	3.80	1.02	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
935	62.70	3.80	1.02	2.78	0.64	0.238	1.68	0.142	0.82	1.10	0.189	No
936	62.75	3.81	1.02	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
937	62.80	3.81	1.02	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
938	62.85	3.81	1.02	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
939	62.89	3.82	1.03	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
940	62.97	3.82	1.03	2.79	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
941	63.04	3.83	1.03	2.80	0.64	0.238	1.68	0.141	0.82	1.10	0.189	No
942	63.09	3.83	1.03	2.80	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
943	63.13	3.83	1.03	2.80	0.64	0.237	1.68	0.141	0.82	1.10	0.189	No
944	63.19	3.84	1.04	2.80	0.63	0.237	1.68	0.141	0.82	1.10	0.189	No
945	63.23	3.84	1.04	2.80	0.63	0.237	1.68	0.141	0.82	1.10	0.189	No
946	63.28	3.84	1.04	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
947	63.32	3.85	1.04	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
948	63.38	3.85	1.04	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
949	63.44	3.85	1.04	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
950	63.52	3.86	1.05	2.81	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
951	63.57	3.86	1.05	2.82	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
952	63.66	3.87	1.05	2.82	0.63	0.237	1.68	0.141	0.82	1.10	0.188	No
953	63.73	3.87	1.05	2.82	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
954	63.76	3.88	1.05	2.82	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
955	63.76	3.88	1.05	2.82	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
956	63.78	3.88	1.05	2.82	0.63	0.236	1.68	0.141	0.82	1.10	0.188	No
957	63.81	3.88	1.05	2.82	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
958	63.85	3.88	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
959	63.86	3.88	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
960	63.91	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	63.94	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
962	63.95	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
963	64.00	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
964	64.02	3.89	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
965	64.05	3.90	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
966	64.09	3.90	1.06	2.83	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
967	64.11	3.90	1.06	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
968	64.15	3.90	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
969	64.20	3.91	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
970	64.25	3.91	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
971	64.29	3.91	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
972	64.34	3.92	1.07	2.84	0.63	0.236	1.68	0.140	0.82	1.10	0.188	No
973	64.43	3.92	1.07	2.85	0.63	0.235	1.68	0.140	0.82	1.10	0.188	No
974	64.48	3.92	1.08	2.85	0.63	0.235	1.68	0.140	0.82	1.10	0.188	No
975	64.53	3.93	1.08	2.85	0.63	0.235	1.68	0.140	0.82	1.10	0.188	No
976	64.58	3.93	1.08	2.85	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
977	64.63	3.93	1.08	2.85	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
978	64.68	3.94	1.08	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
979	64.73	3.94	1.08	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
980	64.77	3.94	1.08	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
981	64.82	3.95	1.09	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
982	64.87	3.95	1.09	2.86	0.62	0.235	1.68	0.140	0.82	1.10	0.187	No
983	64.89	3.95	1.09	2.86	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
984	64.93	3.95	1.09	2.86	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
985	64.94	3.96	1.09	2.87	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
986	64.98	3.96	1.09	2.87	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
987	64.99	3.96	1.09	2.87	0.62	0.235	1.68	0.139	0.82	1.10	0.187	No
988	65.03	3.96	1.09	2.87	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
989	65.08	3.96	1.09	2.87	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
990	65.13	3.97	1.10	2.87	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
991	65.17	3.97	1.10	2.87	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
992	65.22	3.97	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
993	65.23	3.98	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
994	65.28	3.98	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
995	65.32	3.98	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
996	65.37	3.98	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
997	65.42	3.99	1.10	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
998	65.47	3.99	1.11	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
999	65.48	3.99	1.11	2.88	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1000	65.49	3.99	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1001	65.52	3.99	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1002	65.57	4.00	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1003	65.62	4.00	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1004	65.67	4.00	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1005	65.69	4.00	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1006	65.72	4.01	1.11	2.89	0.62	0.234	1.68	0.139	0.82	1.10	0.187	No
1007	65.77	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No
1008	65.82	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	65.86	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No
1010	65.86	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No
1011	65.91	4.01	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No
1012	65.96	4.02	1.12	2.89	0.62	0.233	1.68	0.139	0.82	1.10	0.187	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.01	-0.03	N/A	-11.45	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
2	0.04	-0.03	N/A	-18.30	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
3	0.08	-0.07	N/A	-13.93	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
4	0.10	-0.03	N/A	-40.02	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
5	0.13	-0.03	N/A	-55.83	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
6	0.18	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
7	0.22	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
8	0.27	0.81	4.01	9.28	1.00	1.28	50.14	63.98	4.000	No	Yes	2.00
9	0.33	2.77	3.31	3.21	1.00	4.42	15.47	68.30	4.000	No	Yes	2.00
10	0.36	5.16	2.95	1.83	1.00	8.26	7.99	66.07	4.000	Yes	Yes	2.00
11	0.37	7.12	2.76	1.34	0.84	11.41	5.40	61.61	4.000	Yes	Yes	2.00
12	0.38	8.20	2.69	1.21	0.81	13.14	4.58	60.15	4.000	Yes	Yes	2.00
13	0.42	9.38	2.63	1.15	0.80	15.03	3.98	59.88	4.000	Yes	Yes	2.00
14	0.44	10.59	2.58	1.15	0.78	16.98	3.58	60.79	4.000	Yes	No	2.00
15	0.47	12.18	2.52	1.09	0.76	19.53	3.09	60.26	4.000	Yes	No	2.00
16	0.47	14.24	2.44	1.01	0.74	22.83	2.61	59.51	4.000	Yes	No	2.00
17	0.52	17.00	2.35	0.91	0.71	27.27	2.14	58.39	4.000	Yes	No	2.00
18	0.56	20.48	2.26	0.82	0.69	32.85	1.78	58.60	4.000	Yes	No	2.00
19	0.58	24.93	2.16	0.72	0.66	40.00	1.52	60.77	4.000	Yes	No	2.00
20	0.61	30.70	2.05	0.62	0.62	49.27	1.35	66.61	4.000	Yes	No	2.00
21	0.66	36.94	1.95	0.54	0.59	59.30	1.27	75.22	4.000	Yes	No	2.00
22	0.76	40.79	1.89	0.50	0.58	65.47	1.23	80.72	4.000	Yes	No	2.00
23	0.80	38.66	1.93	0.54	0.59	62.05	1.25	77.85	4.000	No	No	2.00
24	0.81	35.49	1.98	0.58	0.60	56.95	1.29	73.41	4.000	No	No	2.00
25	0.85	32.42	2.03	0.63	0.62	52.02	1.33	69.37	4.000	No	No	2.00
26	0.86	32.79	2.03	0.63	0.62	52.62	1.33	69.99	4.000	No	No	2.00
27	0.90	32.22	2.05	0.69	0.62	51.69	1.35	70.01	4.000	No	No	2.00
28	0.95	31.82	2.07	0.73	0.63	51.04	1.38	70.34	4.000	No	No	2.00
29	1.00	30.53	2.06	0.67	0.63	48.97	1.37	67.09	4.000	No	No	2.00
30	1.05	28.88	2.04	0.54	0.62	46.31	1.34	62.22	4.000	No	No	2.00
31	1.14	26.55	2.01	0.38	0.61	42.56	1.00	42.56	4.000	No	No	2.00
32	1.24	24.29	2.04	0.37	0.62	38.92	1.00	38.92	4.000	No	No	2.00
33	1.31	20.51	2.14	0.44	0.65	32.85	1.00	32.85	4.000	No	No	2.00
34	1.36	17.93	2.22	0.53	0.67	28.70	1.67	48.03	4.000	No	No	2.00
35	1.37	17.77	2.23	0.55	0.68	28.44	1.71	48.50	4.000	No	No	2.00
36	1.39	18.54	2.21	0.53	0.67	29.68	1.64	48.64	4.000	No	No	2.00
37	1.43	19.03	2.19	0.52	0.67	30.46	1.60	48.73	4.000	No	No	2.00
38	1.44	18.05	2.23	0.54	0.68	28.88	1.68	48.54	4.000	No	No	2.00
39	1.49	18.35	2.22	0.55	0.67	29.36	1.67	49.05	4.000	No	No	2.00
40	1.53	18.89	2.22	0.58	0.67	30.23	1.66	50.30	4.000	No	No	2.00
41	1.58	19.67	2.22	0.62	0.67	31.47	1.66	52.29	4.000	No	No	2.00
42	1.63	20.62	2.22	0.68	0.67	32.99	1.66	54.77	4.000	No	No	2.00
43	1.68	21.70	2.21	0.74	0.67	34.72	1.65	57.36	4.000	No	No	2.00
44	1.72	23.31	2.20	0.77	0.67	37.31	1.61	60.04	4.000	No	No	2.00
45	1.77	25.48	2.17	0.79	0.66	40.78	1.54	62.93	4.000	No	No	2.00
46	1.82	28.31	2.13	0.78	0.65	45.33	1.46	66.36	4.000	No	No	2.00
47	1.86	31.52	2.08	0.77	0.63	50.48	1.40	70.45	4.000	No	No	2.00
48	1.92	35.09	2.03	0.73	0.62	56.22	1.34	75.14	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	1.97	38.67	1.98	0.69	0.60	61.96	1.29	80.21	4.000	No	No	2.00
50	2.01	41.61	1.95	0.68	0.59	66.68	1.27	84.88	4.000	No	No	2.00
51	2.09	43.22	1.94	0.68	0.59	69.27	1.26	87.55	4.000	No	No	2.00
52	2.16	43.05	1.95	0.70	0.59	68.99	1.27	87.53	4.000	No	No	2.00
53	2.20	41.47	1.96	0.71	0.60	66.43	1.28	85.02	4.000	No	No	2.00
54	2.25	39.85	1.98	0.71	0.60	63.83	1.29	82.39	4.000	No	No	2.00
55	2.31	38.60	1.99	0.69	0.60	61.82	1.30	80.09	4.000	No	No	2.00
56	2.37	37.79	1.98	0.66	0.60	60.52	1.29	78.32	4.000	No	No	2.00
57	2.40	36.88	1.99	0.64	0.60	59.05	1.30	76.51	4.000	No	No	2.00
58	2.46	35.97	1.98	0.61	0.60	57.57	1.29	74.55	4.000	No	No	2.00
59	2.54	35.36	1.97	0.57	0.60	56.59	1.29	72.87	4.000	No	No	2.00
60	2.59	34.69	1.96	0.50	0.59	55.51	1.00	55.51	4.000	No	No	2.00
61	2.69	34.25	1.94	0.45	0.59	54.80	1.00	54.80	4.000	No	No	2.00
62	2.74	33.95	1.92	0.40	0.58	54.31	1.00	54.31	4.000	No	No	2.00
63	2.83	33.88	1.92	0.39	0.58	54.19	1.00	54.19	4.000	No	No	2.00
64	2.88	34.35	1.91	0.38	0.58	54.94	1.00	54.94	4.000	No	No	2.00
65	2.98	35.70	1.89	0.37	0.57	57.10	1.00	57.10	4.000	No	No	2.00
66	3.03	38.57	1.85	0.36	0.56	61.71	1.00	61.71	4.000	No	No	2.00
67	3.12	42.31	1.82	0.38	0.55	67.72	1.00	67.72	4.000	No	No	2.00
68	3.21	46.83	1.79	0.40	0.55	74.97	1.00	74.97	4.000	No	No	2.00
69	3.27	51.66	1.76	0.41	0.54	82.72	1.00	82.72	4.000	No	No	2.00
70	3.34	57.05	1.72	0.40	0.52	91.38	1.00	91.38	4.000	No	No	2.00
71	3.41	61.91	1.69	0.40	0.51	99.18	1.00	99.18	4.000	No	No	2.00
72	3.51	64.20	1.68	0.41	0.51	102.85	1.00	102.85	4.000	No	No	2.00
73	3.55	63.63	1.70	0.44	0.52	101.93	1.00	101.93	4.000	No	No	2.00
74	3.65	62.42	1.72	0.46	0.52	99.97	1.00	99.97	4.000	No	No	2.00
75	3.75	61.71	1.73	0.47	0.53	98.83	1.00	98.83	4.000	No	No	2.00
76	3.83	61.44	1.73	0.47	0.53	98.39	1.00	98.39	4.000	No	No	2.00
77	3.94	61.11	1.73	0.47	0.53	97.84	1.00	97.84	4.000	No	No	2.00
78	4.04	60.30	1.73	0.47	0.53	96.53	1.00	96.53	4.000	No	No	2.00
79	4.13	60.63	1.75	0.50	0.53	97.06	1.08	104.72	4.000	No	No	2.00
80	4.24	61.68	1.74	0.50	0.53	98.73	1.00	98.73	4.000	No	No	2.00
81	4.38	65.15	1.68	0.42	0.51	104.30	1.00	104.30	4.000	No	No	2.00
82	4.50	68.93	1.62	0.35	0.50	110.36	1.00	110.36	4.000	No	No	2.00
83	4.62	74.13	1.57	0.32	0.50	118.70	1.00	118.70	4.000	No	No	2.00
84	4.71	77.89	1.57	0.35	0.50	124.73	1.00	124.73	4.000	No	No	2.00
85	4.75	80.93	1.57	0.37	0.50	129.61	1.00	129.61	4.000	No	No	2.00
86	4.84	82.11	1.58	0.39	0.50	131.50	1.00	131.50	4.000	No	No	2.00
87	4.89	82.93	1.58	0.40	0.50	132.82	1.00	132.82	4.000	No	No	2.00
88	4.94	82.93	1.58	0.40	0.50	132.82	1.00	132.82	4.000	No	No	2.00
89	4.98	81.72	1.59	0.41	0.50	130.87	1.00	130.87	4.000	No	No	2.00
90	5.07	80.10	1.60	0.41	0.50	128.25	1.00	128.25	4.000	No	No	2.00
91	5.13	78.48	1.61	0.42	0.50	125.65	1.00	125.65	4.000	No	No	2.00
92	5.17	76.79	1.61	0.41	0.50	122.93	1.00	122.93	4.000	No	No	2.00
93	5.27	74.77	1.62	0.41	0.50	119.67	1.00	119.67	4.000	No	No	2.00
94	5.32	72.75	1.63	0.40	0.50	116.42	1.00	116.42	4.000	No	No	2.00
95	5.42	70.86	1.64	0.40	0.50	113.37	1.00	113.37	4.000	No	No	2.00
96	5.46	69.34	1.64	0.39	0.50	110.93	1.00	110.93	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	5.56	68.02	1.65	0.39	0.50	108.80	1.00	108.80	4.000	No	No	2.00
98	5.61	66.87	1.66	0.39	0.50	106.96	1.00	106.96	4.000	No	No	2.00
99	5.71	65.86	1.66	0.40	0.51	105.32	1.00	105.32	4.000	No	No	2.00
100	5.78	64.92	1.67	0.40	0.51	103.80	1.00	103.80	4.000	No	No	2.00
101	5.85	63.84	1.68	0.41	0.51	102.06	1.00	102.06	4.000	No	No	2.00
102	5.95	62.83	1.69	0.42	0.52	100.42	1.00	100.42	4.000	No	No	2.00
103	6.00	62.32	1.71	0.44	0.52	99.61	1.00	99.61	4.000	No	No	2.00
104	6.09	62.93	1.66	0.36	0.51	100.57	1.00	100.57	4.000	No	No	2.00
105	6.14	64.75	1.60	0.29	0.50	103.50	1.00	103.50	4.000	No	No	2.00
106	6.24	67.52	1.53	0.21	0.50	107.94	1.00	107.94	4.000	No	No	2.00
107	6.30	70.42	1.54	0.24	0.50	112.60	1.00	112.60	4.000	No	No	2.00
108	6.38	71.40	1.56	0.28	0.50	114.16	1.00	114.16	4.000	No	No	2.00
109	6.46	69.58	1.60	0.32	0.50	111.22	1.00	111.22	4.000	No	No	2.00
110	6.50	68.43	1.62	0.35	0.50	109.38	1.00	109.38	4.000	No	No	2.00
111	6.56	68.84	1.63	0.36	0.50	110.02	1.00	110.02	4.000	No	No	2.00
112	6.63	71.30	1.61	0.36	0.50	113.98	1.00	113.98	4.000	No	No	2.00
113	6.68	72.51	1.61	0.37	0.50	115.92	1.00	115.92	4.000	No	No	2.00
114	6.76	73.49	1.61	0.37	0.50	117.34	1.00	117.34	4.000	No	No	2.00
115	6.82	74.54	1.60	0.37	0.50	118.51	1.00	118.51	4.000	No	No	2.00
116	6.88	76.19	1.59	0.36	0.50	120.59	1.00	120.59	4.000	No	No	2.00
117	6.96	78.38	1.58	0.35	0.50	123.33	1.00	123.33	4.000	No	No	2.00
118	7.03	80.54	1.56	0.34	0.50	126.09	1.00	126.09	4.000	No	No	2.00
119	7.11	82.06	1.55	0.34	0.50	127.75	1.00	127.75	4.000	No	No	2.00
120	7.16	83.04	1.55	0.34	0.50	128.83	1.00	128.83	4.000	No	No	2.00
121	7.26	83.82	1.55	0.34	0.50	129.11	1.00	129.11	4.000	No	No	2.00
122	7.31	84.43	1.56	0.35	0.50	129.55	1.00	129.55	4.000	No	No	2.00
123	7.40	84.63	1.56	0.35	0.50	129.06	1.00	129.06	4.000	No	No	2.00
124	7.45	84.52	1.56	0.35	0.50	128.43	1.00	128.43	4.000	No	No	2.00
125	7.54	83.95	1.57	0.35	0.50	126.75	1.00	126.75	4.000	No	No	2.00
126	7.60	82.84	1.58	0.36	0.50	124.58	1.00	124.58	4.000	No	No	2.00
127	7.68	81.22	1.59	0.36	0.50	121.42	1.00	121.42	4.000	No	No	2.00
128	7.74	79.70	1.60	0.36	0.50	118.70	1.00	118.70	4.000	No	No	2.00
129	7.83	78.55	1.61	0.37	0.50	116.27	1.00	116.27	4.000	No	No	2.00
130	7.90	78.35	1.61	0.37	0.50	115.47	1.00	115.47	4.000	No	No	2.00
131	7.98	79.10	1.62	0.38	0.50	115.95	1.00	115.95	4.000	No	No	2.00
132	8.05	80.62	1.62	0.39	0.50	117.66	1.00	117.66	4.000	No	No	2.00
133	8.12	81.69	1.62	0.40	0.50	118.66	1.00	118.66	4.000	No	No	2.00
134	8.19	81.66	1.62	0.41	0.50	118.08	1.00	118.08	4.000	No	No	2.00
135	8.27	80.48	1.64	0.42	0.50	115.81	1.00	115.81	4.000	No	No	2.00
136	8.36	79.13	1.65	0.42	0.50	113.39	1.00	113.39	4.000	No	No	2.00
137	8.41	78.35	1.61	0.34	0.50	111.75	1.00	111.75	4.000	No	No	2.00
138	8.50	78.42	1.57	0.27	0.50	111.21	1.00	111.21	4.000	No	No	2.00
139	8.60	78.79	1.54	0.23	0.50	111.10	1.00	111.10	4.000	No	No	2.00
140	8.70	78.76	1.56	0.26	0.50	110.43	1.00	110.43	4.000	No	No	2.00
141	8.74	70.97	1.64	0.31	0.50	99.16	1.00	99.16	4.000	No	No	2.00
142	8.78	65.57	1.68	0.35	0.51	92.36	1.00	92.36	4.000	No	No	2.00
143	8.81	63.58	1.71	0.37	0.52	89.84	1.00	89.84	4.000	No	No	2.00
144	8.86	69.75	1.66	0.34	0.51	97.38	1.00	97.38	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	8.91	73.77	1.64	0.34	0.50	102.14	1.00	102.14	4.000	No	No	2.00
146	8.94	74.34	1.64	0.35	0.50	102.81	1.00	102.81	4.000	No	No	2.00
147	9.02	73.80	1.66	0.36	0.51	101.95	1.00	101.95	4.000	No	No	2.00
148	9.10	72.52	1.68	0.39	0.51	100.12	1.00	100.12	4.000	No	No	2.00
149	9.17	71.17	1.69	0.40	0.52	98.18	1.00	98.18	4.000	No	No	2.00
150	9.22	69.95	1.70	0.41	0.52	96.47	1.00	96.47	4.000	No	No	2.00
151	9.31	69.01	1.71	0.42	0.52	94.84	1.00	94.84	4.000	No	No	2.00
152	9.37	68.50	1.72	0.42	0.52	93.92	1.00	93.92	4.000	No	No	2.00
153	9.42	68.60	1.72	0.42	0.52	93.81	1.00	93.81	4.000	No	No	2.00
154	9.52	69.18	1.72	0.41	0.52	94.01	1.00	94.01	4.000	No	No	2.00
155	9.60	70.19	1.71	0.41	0.52	94.84	1.00	94.84	4.000	No	No	2.00
156	9.66	71.54	1.70	0.41	0.52	96.20	1.00	96.20	4.000	No	No	2.00
157	9.74	73.13	1.69	0.40	0.52	97.75	1.00	97.75	4.000	No	No	2.00
158	9.81	74.58	1.69	0.40	0.51	99.20	1.00	99.20	4.000	No	No	2.00
159	9.89	75.79	1.68	0.40	0.51	100.34	1.00	100.34	4.000	No	No	2.00
160	9.98	77.04	1.68	0.41	0.51	101.50	1.00	101.50	4.000	No	No	2.00
161	10.03	78.79	1.68	0.42	0.51	103.47	1.00	103.47	4.000	No	No	2.00
162	10.13	81.26	1.67	0.42	0.51	106.04	1.00	106.04	4.000	No	No	2.00
163	10.23	84.06	1.66	0.42	0.51	108.97	1.00	108.97	4.000	No	No	2.00
164	10.32	86.45	1.65	0.42	0.50	111.33	1.00	111.33	4.000	No	No	2.00
165	10.38	88.11	1.65	0.42	0.50	112.97	1.00	112.97	4.000	No	No	2.00
166	10.47	88.68	1.65	0.41	0.50	113.17	1.00	113.17	4.000	No	No	2.00
167	10.57	88.44	1.65	0.41	0.50	112.36	1.00	112.36	4.000	No	No	2.00
168	10.66	87.94	1.61	0.34	0.50	111.05	1.00	111.05	4.000	No	No	2.00
169	10.76	87.67	1.57	0.27	0.50	110.18	1.00	110.18	4.000	No	No	2.00
170	10.85	88.00	1.53	0.22	0.50	110.11	1.00	110.11	4.000	No	No	2.00
171	10.92	88.54	1.55	0.24	0.50	110.44	1.00	110.44	4.000	No	No	2.00
172	11.00	85.17	1.58	0.27	0.50	105.80	1.00	105.80	4.000	No	No	2.00
173	11.07	82.17	1.61	0.29	0.50	101.74	1.00	101.74	4.000	No	No	2.00
174	11.10	80.21	1.63	0.30	0.50	99.18	1.00	99.18	4.000	No	No	2.00
175	11.15	82.81	1.62	0.30	0.50	102.16	1.00	102.16	4.000	No	No	2.00
176	11.19	85.41	1.61	0.31	0.50	105.18	1.00	105.18	4.000	No	No	2.00
177	11.24	87.43	1.61	0.32	0.50	107.45	1.00	107.45	4.000	No	No	2.00
178	11.29	89.66	1.61	0.33	0.50	109.95	1.00	109.95	4.000	No	No	2.00
179	11.34	92.29	1.60	0.34	0.50	112.96	1.00	112.96	4.000	No	No	2.00
180	11.40	94.89	1.60	0.35	0.50	115.81	1.00	115.81	4.000	No	No	2.00
181	11.47	96.81	1.60	0.36	0.50	117.83	1.00	117.83	4.000	No	No	2.00
182	11.53	97.72	1.60	0.37	0.50	118.60	1.00	118.60	4.000	No	No	2.00
183	11.58	98.23	1.60	0.37	0.50	118.97	1.00	118.97	4.000	No	No	2.00
184	11.65	98.70	1.61	0.38	0.50	119.16	1.00	119.16	4.000	No	No	2.00
185	11.72	99.17	1.61	0.38	0.50	119.34	1.00	119.34	4.000	No	No	2.00
186	11.77	99.00	1.61	0.39	0.50	118.88	1.00	118.88	4.000	No	No	2.00
187	11.82	98.36	1.62	0.39	0.50	117.83	1.00	117.83	4.000	No	No	2.00
188	11.88	97.25	1.64	0.42	0.50	116.19	1.00	116.19	4.000	No	No	2.00
189	11.97	96.10	1.65	0.43	0.50	114.49	1.00	114.49	4.000	No	No	2.00
190	12.02	94.75	1.65	0.43	0.50	112.75	1.00	112.75	4.000	No	No	2.00
191	12.06	93.54	1.65	0.40	0.50	110.95	1.00	110.95	4.000	No	No	2.00
192	12.11	93.03	1.65	0.40	0.50	110.11	1.00	110.11	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	12.21	92.63	1.65	0.39	0.50	109.15	1.00	109.15	4.000	No	No	2.00
194	12.25	92.93	1.64	0.38	0.50	109.21	1.00	109.21	4.000	No	No	2.00
195	12.30	93.00	1.64	0.38	0.50	109.05	1.00	109.05	4.000	No	No	2.00
196	12.31	93.44	1.63	0.37	0.50	109.51	1.00	109.51	4.000	No	No	2.00
197	12.32	93.64	1.63	0.37	0.50	109.72	1.00	109.72	4.000	No	No	2.00
198	12.35	94.21	1.62	0.36	0.50	110.25	1.00	110.25	4.000	No	No	2.00
199	12.40	95.26	1.61	0.35	0.50	111.26	1.00	111.26	4.000	No	No	2.00
200	12.45	96.78	1.60	0.33	0.50	112.82	1.00	112.82	4.000	No	No	2.00
201	12.52	98.43	1.60	0.33	0.50	114.40	1.00	114.40	4.000	No	No	2.00
202	12.56	100.32	1.59	0.34	0.50	116.43	1.00	116.43	4.000	No	No	2.00
203	12.62	102.04	1.59	0.35	0.50	118.16	1.00	118.16	4.000	No	No	2.00
204	12.65	103.69	1.56	0.31	0.50	119.90	1.00	119.90	4.000	No	No	2.00
205	12.71	105.14	1.53	0.26	0.50	121.32	1.00	121.32	4.000	No	No	2.00
206	12.76	107.34	1.48	0.22	0.50	123.61	1.00	123.61	4.000	No	No	2.00
207	12.83	110.34	1.48	0.23	0.50	126.74	1.00	126.74	4.000	No	No	2.00
208	12.88	114.29	1.50	0.26	0.50	131.03	1.00	131.03	4.000	No	No	2.00
209	12.93	118.94	1.50	0.30	0.50	136.14	1.00	136.14	4.000	No	No	2.00
210	12.98	121.44	1.52	0.33	0.50	138.73	1.00	138.73	4.000	No	No	2.00
211	13.03	123.77	1.52	0.33	0.50	141.10	1.00	141.10	4.000	No	No	2.00
212	13.04	120.16	1.54	0.36	0.50	136.93	1.00	136.93	4.000	No	No	2.00
213	13.07	122.72	1.54	0.38	0.50	139.66	1.00	139.66	4.000	No	No	2.00
214	13.13	125.66	1.55	0.40	0.50	142.70	1.00	142.70	4.000	No	No	2.00
215	13.17	134.36	1.53	0.40	0.50	152.37	1.00	152.37	4.000	No	No	2.00
216	13.22	137.87	1.53	0.42	0.50	156.08	1.00	156.08	4.000	No	No	2.00
217	13.27	140.13	1.54	0.44	0.50	158.31	1.00	158.31	4.000	No	No	2.00
218	13.32	141.11	1.54	0.46	0.50	159.12	1.00	159.12	4.000	No	No	2.00
219	13.37	141.28	1.55	0.47	0.50	159.00	1.00	159.00	4.000	No	No	2.00
220	13.41	140.67	1.55	0.47	0.50	158.02	1.00	158.02	4.000	No	No	2.00
221	13.46	139.05	1.56	0.48	0.50	155.85	1.00	155.85	4.000	No	No	2.00
222	13.51	137.63	1.57	0.48	0.50	153.98	1.00	153.98	4.000	No	No	2.00
223	13.56	135.98	1.58	0.49	0.50	151.81	1.00	151.81	4.000	No	No	2.00
224	13.60	134.29	1.59	0.51	0.50	149.65	1.00	149.65	4.000	No	No	2.00
225	13.66	132.81	1.60	0.52	0.50	147.65	1.00	147.65	4.000	No	No	2.00
226	13.75	131.80	1.60	0.51	0.50	145.98	1.00	145.98	4.000	No	No	2.00
227	13.80	131.19	1.60	0.51	0.50	145.02	1.00	145.02	4.000	No	No	2.00
228	13.89	130.75	1.61	0.51	0.50	144.01	1.00	144.01	4.000	No	No	2.00
229	13.94	129.81	1.61	0.52	0.50	142.69	1.00	142.69	4.000	No	No	2.00
230	13.99	128.19	1.63	0.54	0.50	140.62	1.00	140.62	4.000	No	No	2.00
231	14.09	125.39	1.65	0.57	0.50	137.21	1.00	137.21	4.000	No	No	2.00
232	14.14	122.28	1.68	0.61	0.51	133.79	1.00	133.79	4.000	No	No	2.00
233	14.23	119.38	1.70	0.64	0.52	130.35	1.00	130.35	4.000	No	No	2.00
234	14.28	117.19	1.68	0.58	0.51	127.54	1.00	127.54	4.000	No	No	2.00
235	14.38	116.43	1.66	0.51	0.50	125.95	1.00	125.95	4.000	No	No	2.00
236	14.42	115.35	1.63	0.45	0.50	124.40	1.00	124.40	4.000	No	No	2.00
237	14.52	115.79	1.63	0.45	0.50	124.40	1.00	124.40	4.000	No	No	2.00
238	14.57	116.75	1.64	0.47	0.50	125.23	1.00	125.23	4.000	No	No	2.00
239	14.67	117.53	1.64	0.48	0.50	125.60	1.00	125.60	4.000	No	No	2.00
240	14.68	117.83	1.64	0.49	0.50	125.93	1.00	125.93	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	14.70	116.41	1.65	0.50	0.50	124.39	1.00	124.39	4.000	No	No	2.00
242	14.75	116.58	1.66	0.50	0.50	124.38	1.00	124.38	4.000	No	No	2.00
243	14.80	116.18	1.66	0.51	0.51	123.80	1.00	123.80	4.000	No	No	2.00
244	14.89	116.21	1.67	0.52	0.51	123.45	1.00	123.45	4.000	No	No	2.00
245	14.94	114.76	1.68	0.53	0.51	121.75	1.00	121.75	4.000	No	No	2.00
246	15.04	111.83	1.69	0.54	0.52	118.29	1.00	118.29	4.000	No	No	2.00
247	15.13	107.24	1.71	0.55	0.52	113.18	1.01	114.51	4.000	No	No	2.00
248	15.21	101.74	1.74	0.56	0.53	107.19	1.06	113.68	4.000	No	No	2.00
249	15.28	95.87	1.76	0.57	0.54	100.87	1.10	111.36	4.000	No	No	2.00
250	15.38	90.00	1.79	0.58	0.54	94.46	1.14	107.63	4.000	No	No	2.00
251	15.47	83.86	1.82	0.58	0.55	87.79	1.17	102.77	4.000	No	No	2.00
252	15.57	77.55	1.85	0.59	0.56	80.97	1.20	97.12	4.000	No	No	2.00
253	15.67	70.76	1.89	0.60	0.57	73.71	1.23	90.52	4.000	No	No	2.00
254	15.77	63.91	1.93	0.61	0.59	66.40	1.26	83.47	4.000	No	No	2.00
255	15.86	57.27	1.98	0.63	0.60	59.33	1.29	76.63	4.000	No	No	2.00
256	15.96	51.73	2.03	0.67	0.62	53.45	1.34	71.45	4.000	No	No	2.00
257	16.05	47.31	2.09	0.73	0.63	48.75	1.40	68.25	4.000	No	No	2.00
258	16.15	43.60	2.15	0.86	0.65	44.83	1.51	67.79	4.000	No	No	2.00
259	16.25	41.11	2.20	0.97	0.67	42.13	1.63	68.47	4.000	No	No	2.00
260	16.31	39.86	2.23	1.04	0.68	40.76	1.71	69.57	4.000	No	No	2.00
261	16.39	39.72	2.23	1.02	0.68	40.48	1.70	68.78	4.000	No	No	2.00
262	16.48	40.50	2.21	0.96	0.67	41.08	1.65	67.59	4.000	No	No	2.00
263	16.59	43.06	2.17	0.86	0.66	43.47	1.53	66.70	4.000	No	No	2.00
264	16.68	47.95	2.09	0.73	0.64	48.20	1.40	67.68	4.000	No	No	2.00
265	16.76	53.89	2.01	0.61	0.61	53.96	1.31	70.90	4.000	No	No	2.00
266	16.86	58.72	1.95	0.54	0.59	58.53	1.27	74.31	4.000	No	No	2.00
267	16.92	61.25	1.92	0.51	0.58	60.90	1.25	76.25	4.000	No	No	2.00
268	17.02	61.65	1.92	0.50	0.58	61.10	1.25	76.36	4.000	No	No	2.00
269	17.11	61.14	1.94	0.53	0.59	60.41	1.26	76.12	4.000	No	No	2.00
270	17.22	60.40	1.96	0.58	0.60	59.48	1.28	75.94	4.000	Yes	No	2.00
271	17.35	58.51	2.04	0.78	0.62	57.44	1.34	77.19	4.000	Yes	No	2.00
272	17.45	53.15	2.18	1.20	0.66	52.07	1.57	81.76	4.000	Yes	No	2.00
273	17.55	43.40	2.38	1.91	0.72	42.36	2.26	95.58	4.000	Yes	No	2.00
274	17.61	33.92	2.57	2.79	0.78	32.93	3.48	114.42	4.000	Yes	No	2.00
275	17.64	27.41	2.70	3.46	0.82	26.45	4.70	124.38	4.000	Yes	Yes	2.00
276	17.70	24.84	2.75	3.68	0.83	23.84	5.27	125.58	4.000	Yes	Yes	2.00
277	17.75	23.12	2.79	3.84	0.84	22.09	5.71	126.01	4.000	Yes	Yes	2.00
278	17.80	22.04	2.82	4.00	0.85	20.96	6.07	127.17	4.000	Yes	Yes	2.00
279	17.85	21.57	2.85	4.36	0.86	20.45	6.49	132.79	4.000	Yes	Yes	2.00
280	17.94	24.37	2.80	4.19	0.85	23.10	5.83	134.72	4.000	No	Yes	2.00
281	17.99	29.74	2.70	3.80	0.82	28.29	4.75	134.51	4.000	No	Yes	2.00
282	18.09	36.42	2.60	3.34	0.79	34.65	3.76	130.35	4.000	No	Yes	2.00
283	18.15	38.34	2.58	3.31	0.78	36.42	3.61	131.44	4.000	No	No	2.00
284	18.23	36.08	2.63	3.58	0.80	34.09	3.99	135.89	4.000	No	Yes	2.00
285	18.33	27.03	2.80	4.68	0.85	25.22	5.88	148.20	4.000	No	Yes	2.00
286	18.43	18.43	3.01	6.17	1.00	16.85	8.99	151.54	4.000	No	Yes	2.00
287	18.52	11.28	3.27	8.30	1.00	9.87	14.46	142.66	4.000	No	Yes	2.00
288	18.59	9.25	3.30	7.06	1.00	7.88	15.23	120.07	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	18.72	8.44	3.27	5.49	1.00	7.05	14.48	102.14	4.000	No	Yes	2.00
290	18.81	7.87	3.26	4.64	1.00	6.47	14.17	91.69	4.000	No	Yes	2.00
291	18.87	7.73	3.27	4.61	1.00	6.32	14.34	90.62	4.000	No	Yes	2.00
292	18.95	7.94	3.28	5.10	1.00	6.48	14.76	95.67	4.000	No	Yes	2.00
293	19.05	8.95	3.24	5.23	1.00	7.39	13.77	101.75	4.000	No	Yes	2.00
294	19.14	11.32	3.12	4.53	1.00	9.56	10.96	104.74	4.000	No	Yes	2.00
295	19.22	15.43	2.92	3.38	0.89	13.37	7.56	101.14	4.000	Yes	Yes	2.00
296	19.29	23.29	2.67	2.31	0.81	20.64	4.44	91.70	4.000	Yes	Yes	2.00
297	19.38	36.79	2.41	1.58	0.73	33.12	2.43	80.52	4.000	Yes	No	2.00
298	19.44	54.77	2.21	1.24	0.67	49.78	1.63	81.04	4.000	Yes	No	2.00
299	19.53	73.63	2.06	1.07	0.63	67.13	1.37	92.11	4.000	Yes	No	2.00
300	19.62	89.35	1.99	1.02	0.60	81.50	1.30	105.61	4.000	Yes	No	2.00
301	19.69	100.62	1.95	1.03	0.59	91.73	1.27	116.28	4.000	Yes	No	2.00
302	19.79	106.79	1.94	1.07	0.59	97.11	1.26	122.62	4.000	No	No	2.00
303	19.86	108.17	1.96	1.16	0.60	98.11	1.28	125.15	4.000	No	No	2.00
304	19.97	105.91	1.99	1.25	0.60	95.65	1.30	124.06	4.000	No	No	2.00
305	20.07	101.09	2.02	1.32	0.61	90.89	1.33	120.48	4.000	No	No	2.00
306	20.16	94.14	2.06	1.40	0.63	84.23	1.37	115.28	4.000	No	No	2.00
307	20.26	84.49	2.07	1.27	0.63	75.23	1.38	103.79	4.000	Yes	No	2.00
308	20.34	72.68	2.10	1.18	0.64	64.34	1.43	91.71	4.000	Yes	No	2.00
309	20.43	59.83	2.16	1.11	0.66	52.55	1.52	80.02	4.000	Yes	No	2.00
310	20.50	47.95	2.33	1.55	0.71	41.63	2.03	84.51	4.000	Yes	No	2.00
311	20.60	37.70	2.50	2.17	0.76	32.23	3.01	96.91	4.000	Yes	No	2.00
312	20.62	30.48	2.66	2.88	0.81	25.73	4.28	110.02	4.000	Yes	Yes	2.00
313	20.63	28.08	2.72	3.22	0.82	23.58	4.89	115.31	4.000	Yes	Yes	2.00
314	20.68	27.74	2.74	3.38	0.83	23.22	5.10	118.43	4.000	Yes	Yes	2.00
315	20.73	27.64	2.76	3.60	0.83	23.06	5.32	122.67	4.000	Yes	Yes	2.00
316	20.82	25.48	2.82	4.04	0.85	21.06	6.08	128.12	4.000	Yes	Yes	2.00
317	20.87	23.45	2.87	4.37	0.87	19.23	6.78	130.45	4.000	Yes	Yes	2.00
318	20.91	21.57	2.91	4.48	0.88	17.54	7.32	128.42	4.000	Yes	Yes	2.00
319	20.96	19.58	2.95	4.54	1.00	15.59	7.98	124.40	4.000	Yes	Yes	2.00
320	21.05	17.59	3.00	4.73	1.00	13.84	8.82	122.12	4.000	No	Yes	2.00
321	21.11	16.98	3.02	4.74	1.00	13.29	9.07	120.49	4.000	No	Yes	2.00
322	21.17	17.11	3.01	4.72	1.00	13.36	9.02	120.44	4.000	No	Yes	2.00
323	21.25	21.23	2.88	3.84	0.87	17.01	6.86	116.62	4.000	Yes	Yes	2.00
324	21.30	31.25	2.64	2.71	0.80	25.68	4.13	106.03	4.000	Yes	Yes	2.00
325	21.37	48.56	2.39	1.90	0.72	40.77	2.31	94.37	4.000	Yes	No	2.00
326	21.45	68.84	2.20	1.51	0.67	58.49	1.62	94.86	4.000	Yes	No	2.00
327	21.49	87.80	2.09	1.36	0.64	75.10	1.41	105.59	4.000	Yes	No	2.00
328	21.58	103.45	2.02	1.30	0.62	88.68	1.33	117.80	4.000	Yes	No	2.00
329	21.64	115.70	1.98	1.28	0.60	99.28	1.29	128.46	4.000	Yes	No	2.00
330	21.69	124.50	1.96	1.29	0.60	106.86	1.28	136.49	4.000	Yes	No	2.00
331	21.78	130.41	1.95	1.31	0.59	111.69	1.27	142.03	4.000	No	No	2.00
332	21.83	133.78	1.96	1.36	0.59	114.42	1.27	145.79	4.000	No	No	2.00
333	21.89	135.43	1.97	1.42	0.60	115.57	1.28	148.03	4.000	No	No	2.00
334	21.98	136.01	1.98	1.49	0.60	115.67	1.29	149.32	4.000	No	No	2.00
335	22.03	135.90	1.99	1.55	0.61	115.31	1.30	150.06	4.000	No	No	2.00
336	22.12	134.89	2.01	1.60	0.61	114.06	1.31	149.60	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	22.22	133.20	2.02	1.63	0.61	112.20	1.32	148.31	4.000	No	No	2.00
338	22.26	130.88	2.03	1.65	0.62	110.01	1.33	146.45	4.000	No	No	2.00
339	22.36	128.38	2.04	1.67	0.62	107.52	1.34	144.21	4.000	No	No	2.00
340	22.41	125.79	2.05	1.70	0.62	105.07	1.36	142.38	4.000	No	No	2.00
341	22.51	123.53	2.04	1.63	0.62	102.88	1.35	138.65	4.000	No	No	2.00
342	22.60	121.33	2.03	1.54	0.62	100.82	1.34	134.71	4.000	No	No	2.00
343	22.70	119.34	2.01	1.41	0.61	98.95	1.32	130.43	4.000	No	No	2.00
344	22.75	116.88	2.02	1.40	0.61	96.72	1.32	127.90	4.000	No	No	2.00
345	22.84	109.32	2.05	1.47	0.62	89.92	1.36	122.31	4.000	No	No	2.00
346	22.89	107.14	2.06	1.48	0.63	87.93	1.37	120.57	4.000	No	No	2.00
347	22.90	104.88	2.07	1.49	0.63	85.98	1.38	118.82	4.000	No	No	2.00
348	22.94	110.11	2.04	1.39	0.62	90.42	1.34	121.26	4.000	No	No	2.00
349	23.00	112.36	2.02	1.34	0.61	92.21	1.32	122.07	4.000	No	No	2.00
350	23.08	118.94	1.98	1.24	0.60	97.70	1.29	126.15	4.000	No	No	2.00
351	23.13	127.04	1.94	1.16	0.59	104.57	1.26	131.91	4.000	No	No	2.00
352	23.20	134.05	1.90	1.10	0.58	110.43	1.24	136.83	4.000	No	No	2.00
353	23.27	137.05	1.89	1.07	0.57	112.81	1.23	138.66	4.000	No	No	2.00
354	23.33	135.57	1.89	1.05	0.57	111.40	1.23	136.90	4.000	No	No	2.00
355	23.42	131.55	1.89	1.03	0.58	107.76	1.23	132.83	4.000	No	No	2.00
356	23.48	126.94	1.90	1.01	0.58	103.73	1.24	128.30	4.000	No	No	2.00
357	23.57	123.16	1.91	1.00	0.58	100.30	1.24	124.68	4.000	No	No	2.00
358	23.61	121.20	1.92	1.01	0.58	98.52	1.25	122.97	4.000	No	No	2.00
359	23.66	121.50	1.92	1.02	0.58	98.62	1.25	123.25	4.000	No	No	2.00
360	23.73	124.04	1.92	1.03	0.58	100.52	1.25	125.44	4.000	No	No	2.00
361	23.80	127.95	1.91	1.04	0.58	103.59	1.24	128.73	4.000	No	No	2.00
362	23.85	131.96	1.90	1.05	0.58	106.79	1.24	132.25	4.000	No	No	2.00
363	23.94	134.80	1.90	1.06	0.58	108.87	1.24	134.50	4.000	No	No	2.00
364	24.00	135.88	1.90	1.07	0.58	109.59	1.24	135.41	4.000	No	No	2.00
365	24.09	135.37	1.90	1.07	0.58	108.86	1.24	134.81	4.000	No	No	2.00
366	24.16	133.34	1.91	1.09	0.58	106.93	1.24	133.09	4.000	No	No	2.00
367	24.24	130.04	1.89	0.97	0.57	104.25	1.23	128.02	4.000	No	No	2.00
368	24.33	125.79	1.86	0.85	0.57	100.75	1.21	122.05	4.000	No	No	2.00
369	24.43	121.10	1.84	0.74	0.56	96.90	1.19	115.53	4.000	No	No	2.00
370	24.52	114.28	1.88	0.80	0.57	90.85	1.23	111.31	4.000	No	No	2.00
371	24.58	108.90	1.92	0.85	0.58	86.13	1.25	107.54	4.000	No	No	2.00
372	24.59	104.52	1.95	0.89	0.59	82.40	1.27	104.41	4.000	No	No	2.00
373	24.63	104.21	1.95	0.90	0.59	82.05	1.27	104.24	4.000	No	No	2.00
374	24.68	103.45	1.96	0.94	0.60	81.24	1.28	103.96	4.000	No	No	2.00
375	24.77	102.47	1.98	0.98	0.60	80.14	1.29	103.52	4.000	No	No	2.00
376	24.82	100.31	2.01	1.05	0.61	78.15	1.31	102.59	4.000	No	No	2.00
377	24.92	97.85	2.03	1.11	0.62	75.83	1.34	101.32	4.000	No	No	2.00
378	25.01	95.22	2.06	1.17	0.63	73.42	1.36	100.09	4.000	No	No	2.00
379	25.06	92.38	2.08	1.22	0.63	70.94	1.39	98.75	4.000	No	No	2.00
380	25.16	89.48	2.10	1.27	0.64	68.36	1.42	97.29	4.000	No	No	2.00
381	25.25	86.51	2.13	1.31	0.65	65.75	1.46	95.92	4.000	No	No	2.00
382	25.30	83.55	2.15	1.35	0.65	63.24	1.50	94.77	4.000	No	No	2.00
383	25.41	80.44	2.17	1.40	0.66	60.52	1.55	93.81	4.000	Yes	No	2.00
384	25.49	77.27	2.20	1.47	0.67	57.80	1.61	93.24	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	25.55	73.97	2.23	1.55	0.68	55.02	1.70	93.42	4.000	Yes	No	2.00
386	25.64	70.59	2.27	1.65	0.69	52.13	1.81	94.24	4.000	Yes	No	2.00
387	25.70	67.02	2.31	1.78	0.70	49.15	1.95	95.94	4.000	Yes	No	2.00
388	25.79	63.24	2.35	1.91	0.71	46.00	2.13	97.75	4.000	Yes	No	2.00
389	25.89	58.92	2.40	2.05	0.73	42.45	2.35	99.94	4.000	Yes	No	2.00
390	25.94	54.26	2.45	2.20	0.74	38.75	2.63	101.97	4.000	Yes	No	2.00
391	26.02	49.37	2.50	2.32	0.76	34.89	2.95	102.81	4.000	Yes	No	2.00
392	26.12	45.05	2.54	2.37	0.77	31.51	3.23	101.92	4.000	Yes	No	2.00
393	26.17	40.83	2.57	2.37	0.78	28.31	3.52	99.58	4.000	Yes	No	2.00
394	26.28	37.02	2.61	2.37	0.79	25.37	3.84	97.30	4.000	Yes	Yes	2.00
395	26.36	33.31	2.65	2.33	0.80	22.57	4.17	94.10	4.000	Yes	Yes	2.00
396	26.45	29.43	2.70	2.37	0.82	19.65	4.69	92.22	4.000	Yes	Yes	2.00
397	26.50	24.94	2.78	2.55	0.84	16.31	5.63	91.86	4.000	Yes	Yes	2.00
398	26.61	20.15	2.91	3.01	0.88	12.75	7.37	93.95	4.000	Yes	Yes	2.00
399	26.70	15.97	3.07	3.75	1.00	9.43	10.10	95.23	4.000	No	Yes	2.00
400	26.77	12.97	3.21	4.62	1.00	7.45	12.95	96.46	4.000	No	Yes	2.00
401	26.85	11.85	3.26	4.83	1.00	6.70	14.12	94.58	4.000	No	Yes	2.00
402	26.94	11.45	3.27	4.67	1.00	6.41	14.29	91.60	4.000	No	Yes	2.00
403	27.04	11.95	3.22	4.13	1.00	6.71	13.15	88.25	4.000	No	Yes	2.00
404	27.14	12.22	3.20	3.92	1.00	6.86	12.68	86.95	4.000	No	Yes	2.00
405	27.23	12.90	3.15	3.53	1.00	7.27	11.66	84.75	4.000	No	Yes	2.00
406	27.28	13.22	3.13	3.30	1.00	7.46	11.13	83.02	4.000	No	Yes	2.00
407	27.29	13.29	3.09	2.84	1.00	7.50	10.38	77.81	4.000	No	Yes	2.00
408	27.38	13.29	3.07	2.57	1.00	7.47	9.96	74.44	4.000	No	Yes	2.00
409	27.48	13.27	3.06	2.51	1.00	7.43	9.89	73.48	4.000	No	Yes	2.00
410	27.57	13.27	3.10	2.97	1.00	7.41	10.67	79.00	4.000	No	Yes	2.00
411	27.64	13.30	3.13	3.39	1.00	7.41	11.31	83.76	4.000	No	Yes	2.00
412	27.65	13.44	3.17	3.99	1.00	7.49	12.08	90.43	4.000	No	Yes	2.00
413	27.74	14.52	3.16	4.27	1.00	8.14	11.82	96.17	4.000	No	Yes	2.00
414	27.80	16.91	3.10	4.34	1.00	9.63	10.69	102.90	4.000	No	Yes	2.00
415	27.90	19.17	3.05	4.16	1.00	11.00	9.59	105.58	4.000	No	Yes	2.00
416	27.99	19.34	3.05	4.25	1.00	11.07	9.67	106.99	4.000	No	Yes	2.00
417	28.07	17.12	3.11	4.55	1.00	9.65	10.91	105.31	4.000	No	Yes	2.00
418	28.16	14.45	3.20	4.79	1.00	7.96	12.63	100.58	4.000	No	Yes	2.00
419	28.25	12.53	3.25	4.68	1.00	6.75	13.86	93.48	4.000	No	Yes	2.00
420	28.34	11.52	3.26	4.24	1.00	6.10	14.13	86.20	4.000	No	Yes	2.00
421	28.44	11.01	3.26	3.94	1.00	5.76	14.19	81.77	4.000	No	Yes	2.00
422	28.53	10.84	3.26	3.87	1.00	5.64	14.27	80.51	4.000	No	Yes	2.00
423	28.62	11.75	3.26	4.25	1.00	6.17	14.04	86.70	4.000	No	Yes	2.00
424	28.76	14.21	3.19	4.46	1.00	7.64	12.54	95.81	4.000	No	Yes	2.00
425	28.86	17.65	3.12	4.75	1.00	9.69	11.11	107.72	4.000	No	Yes	2.00
426	28.96	20.32	3.09	5.14	1.00	11.26	10.51	118.36	4.000	No	Yes	2.00
427	29.08	21.30	3.12	6.06	1.00	11.80	11.10	130.98	4.000	No	Yes	2.00
428	29.19	22.07	3.15	6.87	1.00	12.21	11.60	141.58	4.000	No	Yes	2.00
429	29.29	27.50	2.99	5.17	1.00	15.40	8.64	133.06	4.000	No	Yes	2.00
430	29.39	40.70	2.74	3.77	0.83	25.08	5.15	129.21	4.000	No	Yes	2.00
431	29.50	57.67	2.55	3.03	0.77	36.81	3.37	124.06	4.000	No	No	2.00
432	29.63	66.88	2.53	3.30	0.77	42.86	3.19	136.79	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	29.65	70.22	2.52	3.39	0.76	45.09	3.13	141.18	4.000	Yes	No	2.00
434	29.66	71.00	2.52	3.38	0.76	45.61	3.10	141.50	4.000	Yes	No	2.00
435	29.72	73.53	2.50	3.27	0.76	47.34	2.95	139.57	4.000	Yes	No	2.00
436	29.80	77.81	2.46	3.07	0.75	50.31	2.70	135.94	4.000	Yes	No	2.00
437	29.85	89.49	2.36	2.59	0.72	58.79	2.17	127.49	4.000	Yes	No	2.00
438	29.94	111.58	2.20	2.00	0.67	75.08	1.62	121.89	4.000	Yes	No	2.00
439	30.00	135.50	2.06	1.57	0.63	93.20	1.37	127.60	4.000	Yes	No	2.00
440	30.05	152.98	1.96	1.28	0.60	106.83	1.28	136.43	4.000	Yes	No	2.00
441	30.14	162.60	1.89	1.09	0.58	114.57	1.23	140.95	4.000	Yes	No	2.00
442	30.19	167.56	1.84	0.97	0.56	118.78	1.20	142.08	4.000	Yes	No	2.00
443	30.24	169.61	1.83	0.93	0.56	120.45	1.18	142.19	4.000	Yes	No	2.00
444	30.29	169.68	1.83	0.93	0.56	120.31	1.18	142.38	0.348	No	No	1.91
445	30.38	167.72	1.84	0.95	0.56	118.51	1.19	141.39	0.343	No	No	1.88
446	30.43	164.79	1.85	0.98	0.56	116.05	1.20	139.76	0.334	No	No	1.83
447	30.48	161.62	1.87	0.99	0.57	113.47	1.21	137.67	0.323	No	No	1.77
448	30.54	159.16	1.87	1.00	0.57	111.46	1.22	135.86	0.313	No	No	1.71
449	30.62	158.35	1.87	0.99	0.57	110.69	1.22	134.98	0.309	No	No	1.69
450	30.67	157.77	1.87	0.99	0.57	110.16	1.22	134.34	0.305	No	No	1.67
451	30.72	158.55	1.87	0.98	0.57	110.67	1.22	134.61	0.307	No	No	1.67
452	30.76	159.46	1.86	0.96	0.57	111.32	1.21	134.89	0.308	No	No	1.68
453	30.86	162.06	1.85	0.94	0.56	113.16	1.20	135.92	0.314	No	No	1.71
454	30.91	165.09	1.84	0.91	0.56	115.46	1.19	137.26	0.321	No	No	1.74
455	30.95	168.94	1.82	0.88	0.55	118.37	1.17	138.94	0.329	No	No	1.79
456	31.03	173.83	1.80	0.85	0.55	122.03	1.15	140.71	0.339	No	No	1.84
457	31.10	179.36	1.78	0.83	0.54	126.19	1.13	142.33	0.348	No	No	1.89
458	31.15	185.03	1.76	0.81	0.54	130.44	1.10	144.07	0.358	No	No	1.94
459	31.20	189.66	1.75	0.81	0.53	133.76	1.09	146.05	0.370	No	No	2.00
460	31.26	192.52	1.75	0.82	0.53	135.69	1.09	147.81	0.380	No	No	2.00
461	31.34	186.22	1.78	0.86	0.54	130.42	1.13	147.23	0.377	No	No	2.00
462	31.37	184.63	1.79	0.87	0.54	129.08	1.14	146.99	0.375	No	No	2.00
463	31.38	181.39	1.80	0.89	0.55	126.56	1.15	145.70	0.368	No	No	1.99
464	31.43	184.63	1.78	0.86	0.54	129.02	1.13	146.17	0.370	No	No	2.00
465	31.47	179.33	1.80	0.87	0.55	124.92	1.15	143.44	0.354	No	No	1.91
466	31.55	171.64	1.82	0.88	0.55	118.91	1.17	139.35	0.332	No	No	1.79
467	31.59	160.34	1.86	0.93	0.57	110.19	1.21	132.93	0.298	No	No	1.61
468	31.66	147.76	1.91	1.00	0.58	100.47	1.24	124.83	0.261	No	No	1.40
469	31.73	135.75	1.97	1.09	0.60	91.20	1.28	116.80	0.228	No	No	1.23
470	31.78	125.08	2.02	1.21	0.62	83.04	1.33	110.36	0.205	No	No	1.10
471	31.84	115.64	2.09	1.36	0.63	75.76	1.40	106.34	0.192	No	No	1.03
472	31.93	107.23	2.16	1.55	0.65	69.27	1.51	104.84	0.187	No	No	1.00
473	31.98	100.42	2.22	1.75	0.67	64.06	1.66	106.04	0.191	No	No	1.02
474	32.02	98.18	2.25	1.90	0.68	62.19	1.75	108.88	0.200	No	No	1.07
475	32.09	97.00	2.27	2.03	0.69	61.07	1.83	111.87	0.210	No	No	1.13
476	32.16	98.89	2.27	2.07	0.69	62.18	1.83	113.86	0.217	No	No	1.16
477	32.22	100.29	2.27	2.07	0.69	63.04	1.82	114.52	0.220	No	No	1.17
478	32.27	103.49	2.25	2.02	0.68	65.22	1.76	114.53	0.220	No	No	1.17
479	32.34	106.02	2.24	1.97	0.68	66.91	1.71	114.38	0.219	No	No	1.17
480	32.42	108.89	2.22	1.91	0.67	68.85	1.66	114.11	0.218	No	No	1.16

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	32.46	113.04	2.19	1.80	0.66	71.82	1.58	113.62	0.216	No	No	1.15
482	32.54	117.73	2.15	1.68	0.65	75.15	1.51	113.25	0.215	No	No	1.14
483	32.60	121.74	2.11	1.51	0.64	78.23	1.43	112.00	0.211	No	No	1.12
484	32.67	124.81	2.07	1.39	0.63	80.60	1.38	111.53	0.209	No	No	1.11
485	32.75	127.51	2.05	1.31	0.62	82.59	1.35	111.85	0.210	No	No	1.12
486	32.81	130.38	2.05	1.32	0.62	84.43	1.35	113.95	0.218	No	No	1.15
487	32.89	133.38	2.04	1.34	0.62	86.29	1.35	116.21	0.226	No	No	1.20
488	32.94	129.47	2.07	1.43	0.63	83.21	1.38	114.84	0.221	No	No	1.17
489	32.95	131.02	2.07	1.44	0.63	84.23	1.38	116.07	0.225	No	No	1.19
490	33.00	132.88	2.07	1.46	0.63	85.36	1.38	117.56	0.231	No	No	1.22
491	33.06	141.08	2.04	1.42	0.62	91.06	1.34	122.40	0.251	No	No	1.32
492	33.11	142.26	2.04	1.45	0.62	91.66	1.35	123.66	0.256	No	No	1.35
493	33.20	141.21	2.06	1.50	0.63	90.60	1.36	123.53	0.255	No	No	1.35
494	33.25	139.02	2.08	1.56	0.63	88.78	1.39	123.06	0.253	No	No	1.34
495	33.34	137.03	2.09	1.61	0.64	87.07	1.41	122.48	0.251	No	No	1.32
496	33.38	136.69	2.10	1.63	0.64	86.68	1.42	122.68	0.252	No	No	1.33
497	33.48	138.41	2.10	1.64	0.64	87.63	1.41	123.78	0.256	No	No	1.35
498	33.58	141.92	2.09	1.64	0.63	89.83	1.40	125.79	0.265	No	No	1.39
499	33.63	146.74	2.07	1.63	0.63	93.05	1.38	128.81	0.279	No	No	1.46
500	33.73	152.41	2.06	1.61	0.63	96.75	1.37	132.15	0.295	No	No	1.55
501	33.82	158.96	2.04	1.60	0.62	101.09	1.35	136.16	0.315	No	No	1.65
502	33.87	165.74	2.03	1.58	0.62	105.66	1.33	140.58	0.338	No	No	1.77
503	33.96	172.72	2.01	1.57	0.61	110.29	1.32	145.13	0.364	No	No	1.91
504	34.02	180.58	2.00	1.57	0.61	115.54	1.30	150.66	0.398	No	No	2.00
505	34.11	190.03	1.98	1.57	0.60	121.77	1.29	157.32	0.442	No	No	2.00
506	34.18	200.49	1.97	1.59	0.60	128.68	1.28	164.99	0.498	No	No	2.00
507	34.26	210.44	1.96	1.63	0.60	135.11	1.28	172.52	0.558	No	No	2.00
508	34.35	219.45	1.96	1.68	0.60	140.77	1.28	179.50	0.618	No	No	2.00
509	34.44	227.51	1.95	1.71	0.59	145.83	1.27	185.53	0.674	No	No	2.00
510	34.49	233.96	1.95	1.72	0.59	150.02	1.27	190.23	0.720	No	No	2.00
511	34.59	237.94	1.94	1.72	0.59	152.42	1.27	192.83	0.747	No	No	2.00
512	34.69	240.00	1.94	1.73	0.59	153.47	1.26	194.12	0.760	No	No	2.00
513	34.76	240.94	1.94	1.72	0.59	153.92	1.26	194.53	0.765	No	No	2.00
514	34.83	240.60	1.94	1.72	0.59	153.43	1.26	194.02	0.759	No	No	2.00
515	34.93	237.97	1.94	1.71	0.59	151.43	1.26	191.54	0.733	No	No	2.00
516	35.02	233.82	1.95	1.70	0.59	148.39	1.27	188.08	0.699	No	No	2.00
517	35.12	229.78	1.94	1.65	0.59	145.60	1.27	184.23	0.662	No	No	2.00
518	35.22	226.47	1.94	1.62	0.59	143.26	1.26	181.13	0.633	No	No	2.00
519	35.30	222.22	1.94	1.59	0.59	140.29	1.26	177.46	0.600	No	No	2.00
520	35.38	208.55	1.98	1.66	0.60	130.48	1.29	168.21	0.523	No	No	2.00
521	35.43	198.10	2.00	1.71	0.61	123.09	1.31	161.35	0.471	No	No	2.00
522	35.46	189.40	2.03	1.76	0.62	116.99	1.33	155.80	0.432	No	No	2.00
523	35.51	187.20	2.03	1.73	0.62	115.53	1.33	153.78	4.000	Yes	No	2.00
524	35.56	176.78	2.05	1.75	0.62	108.45	1.35	146.76	4.000	Yes	No	2.00
525	35.66	163.52	2.08	1.79	0.63	99.31	1.39	138.53	4.000	Yes	No	2.00
526	35.70	148.20	2.13	1.85	0.65	89.01	1.46	130.03	4.000	Yes	No	2.00
527	35.80	131.87	2.19	1.98	0.66	77.90	1.59	123.66	4.000	Yes	No	2.00
528	35.89	111.32	2.28	2.22	0.69	64.17	1.87	119.95	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	35.96	89.09	2.41	2.59	0.73	49.72	2.43	120.81	4.000	Yes	No	2.00
530	36.04	68.24	2.54	2.90	0.77	36.73	3.28	120.37	4.000	Yes	No	2.00
531	36.14	52.15	2.66	3.11	0.81	27.04	4.33	117.01	4.000	Yes	Yes	2.00
532	36.19	43.48	2.73	3.10	0.83	22.01	5.03	110.69	4.000	Yes	Yes	2.00
533	36.28	40.51	2.77	3.18	0.84	20.23	5.44	110.05	4.000	Yes	Yes	2.00
534	36.33	40.51	2.76	3.10	0.84	20.24	5.35	108.32	3.600	No	Yes	2.00
535	36.42	42.30	2.74	3.02	0.83	21.24	5.09	108.08	3.600	No	Yes	2.00
536	36.48	45.97	2.69	2.87	0.81	23.38	4.59	107.27	3.600	No	Yes	2.00
537	36.52	51.03	2.66	2.98	0.81	26.20	4.31	112.95	3.600	No	Yes	2.00
538	36.62	54.10	2.66	3.19	0.81	27.78	4.31	119.67	3.600	No	Yes	2.00
539	36.68	54.07	2.69	3.50	0.81	27.55	4.59	126.59	3.600	No	Yes	2.00
540	36.77	52.82	2.71	3.61	0.82	26.73	4.79	128.11	3.600	No	Yes	2.00
541	36.86	54.64	2.69	3.49	0.81	27.76	4.56	126.60	4.000	Yes	Yes	2.00
542	36.90	67.67	2.53	2.74	0.77	35.75	3.22	115.19	4.000	Yes	No	2.00
543	37.00	98.14	2.29	1.88	0.69	55.13	1.87	103.13	4.000	Yes	No	2.00
544	37.10	140.34	2.04	1.30	0.62	83.45	1.35	112.56	4.000	Yes	No	2.00
545	37.20	182.54	1.86	0.97	0.57	113.15	1.21	136.84	4.000	Yes	No	2.00
546	37.29	213.04	1.75	0.82	0.53	135.23	1.09	147.30	4.000	Yes	No	2.00
547	37.39	232.34	1.70	0.76	0.52	149.01	1.00	149.01	4.000	Yes	No	2.00
548	37.49	241.91	1.70	0.80	0.52	155.00	1.00	155.00	0.426	No	No	2.00
549	37.53	245.57	1.72	0.85	0.52	156.74	1.02	160.20	0.462	No	No	2.00
550	37.58	246.07	1.73	0.90	0.53	156.33	1.06	165.44	0.501	No	No	2.00
551	37.62	247.84	1.75	0.95	0.53	156.88	1.08	169.66	0.534	No	No	2.00
552	37.69	250.56	1.77	1.01	0.54	157.82	1.11	175.10	0.579	No	No	2.00
553	37.77	253.53	1.78	1.07	0.54	158.95	1.13	179.78	0.620	No	No	2.00
554	37.82	254.98	1.80	1.14	0.55	159.10	1.15	183.39	0.654	No	No	2.00
555	37.87	254.84	1.81	1.18	0.55	158.42	1.17	184.85	0.667	No	No	2.00
556	37.91	252.72	1.83	1.23	0.56	156.44	1.18	184.82	0.667	No	No	2.00
557	37.97	248.23	1.85	1.27	0.56	152.87	1.20	183.06	0.650	No	No	2.00
558	38.06	241.92	1.87	1.31	0.57	148.07	1.21	179.59	0.619	No	No	2.00
559	38.10	235.58	1.88	1.34	0.57	143.53	1.22	175.74	0.585	No	No	2.00
560	38.17	230.89	1.89	1.34	0.57	140.30	1.23	172.34	0.556	No	No	2.00
561	38.25	228.09	1.88	1.30	0.57	138.57	1.22	169.66	0.534	No	No	2.00
562	38.35	225.79	1.87	1.25	0.57	137.24	1.22	167.11	0.514	No	No	2.00
563	38.40	223.43	1.87	1.21	0.57	135.86	1.21	164.83	0.496	No	No	2.00
564	38.46	221.65	1.86	1.19	0.57	134.68	1.21	163.21	0.484	No	No	2.00
565	38.54	220.87	1.86	1.18	0.57	134.09	1.21	162.26	0.477	No	No	2.00
566	38.60	220.87	1.86	1.15	0.56	134.14	1.21	161.69	0.473	No	No	2.00
567	38.69	222.22	1.85	1.12	0.56	135.09	1.20	161.77	0.474	No	No	2.00
568	38.74	224.92	1.83	1.09	0.56	137.05	1.19	162.53	0.479	No	No	2.00
569	38.83	227.85	1.82	1.08	0.56	138.91	1.18	163.73	0.488	No	No	2.00
570	38.88	229.20	1.81	1.05	0.55	139.97	1.17	163.54	0.487	No	No	2.00
571	38.97	228.76	1.81	1.03	0.55	139.65	1.16	162.47	0.479	No	No	2.00
572	39.02	227.25	1.80	1.00	0.55	138.83	1.16	160.45	0.464	No	No	2.00
573	39.11	224.44	1.81	0.99	0.55	136.82	1.16	158.54	0.451	No	No	2.00
574	39.16	218.51	1.81	0.99	0.55	132.80	1.17	154.99	0.426	No	No	2.00
575	39.23	205.48	1.85	1.02	0.56	123.73	1.20	148.10	0.382	No	No	1.92
576	39.24	200.81	1.85	1.01	0.56	120.69	1.20	145.08	0.364	No	No	1.83

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	39.28	198.62	1.85	1.00	0.56	119.29	1.20	143.39	0.354	No	No	1.78
578	39.32	201.93	1.83	0.94	0.56	121.86	1.18	144.08	0.358	No	No	1.80
579	39.39	194.55	1.84	0.95	0.56	116.84	1.20	139.67	4.000	Yes	No	2.00
580	39.47	183.96	1.88	0.98	0.57	109.44	1.22	133.48	4.000	Yes	No	2.00
581	39.54	171.48	1.92	1.05	0.58	100.68	1.25	125.99	4.000	Yes	No	2.00
582	39.62	158.42	1.98	1.14	0.60	91.63	1.29	117.99	4.000	Yes	No	2.00
583	39.71	145.73	2.03	1.23	0.62	82.95	1.33	110.70	4.000	Yes	No	2.00
584	39.76	134.50	2.08	1.32	0.63	75.46	1.39	105.08	4.000	Yes	No	2.00
585	39.85	125.32	2.13	1.40	0.65	69.36	1.46	101.34	4.000	Yes	No	2.00
586	39.90	117.87	2.17	1.48	0.66	64.48	1.53	98.95	4.000	Yes	No	2.00
587	40.00	111.05	2.20	1.56	0.67	60.00	1.63	97.53	4.000	Yes	No	2.00
588	40.06	104.71	2.24	1.65	0.68	55.91	1.73	96.96	4.000	Yes	No	2.00
589	40.15	98.67	2.28	1.75	0.69	52.00	1.87	97.18	4.000	Yes	No	2.00
590	40.21	92.83	2.33	1.90	0.71	48.24	2.05	98.86	4.000	Yes	No	2.00
591	40.29	86.59	2.39	2.09	0.72	44.24	2.31	102.19	4.000	Yes	No	2.00
592	40.35	79.68	2.46	2.39	0.75	39.85	2.72	108.27	4.000	Yes	No	2.00
593	40.43	72.22	2.53	2.63	0.77	35.37	3.16	111.81	4.000	Yes	No	2.00
594	40.52	63.85	2.60	2.88	0.79	30.51	3.76	114.58	4.000	Yes	Yes	2.00
595	40.58	55.21	2.68	3.09	0.81	25.70	4.47	115.00	4.000	Yes	Yes	2.00
596	40.67	46.88	2.77	3.45	0.84	21.09	5.54	116.83	4.000	Yes	Yes	2.00
597	40.77	41.63	2.85	3.76	0.86	18.24	6.45	117.65	4.000	Yes	Yes	2.00
598	40.84	39.14	2.89	3.94	0.87	16.87	6.99	117.99	4.000	Yes	Yes	2.00
599	40.89	42.28	2.83	3.65	0.86	18.55	6.27	116.25	4.000	Yes	Yes	2.00
600	40.94	49.75	2.72	3.09	0.82	22.62	4.92	111.31	4.000	Yes	Yes	2.00
601	41.03	61.46	2.57	2.48	0.78	29.20	3.53	103.18	4.000	Yes	No	2.00
602	41.08	73.03	2.45	2.07	0.74	35.94	2.68	96.47	4.000	Yes	No	2.00
603	41.14	82.03	2.37	1.83	0.72	41.30	2.24	92.51	4.000	Yes	No	2.00
604	41.22	87.70	2.33	1.71	0.71	44.68	2.04	90.97	4.000	Yes	No	2.00
605	41.28	90.43	2.31	1.68	0.70	46.24	1.97	91.29	0.151	No	No	0.75
606	41.33	91.99	2.32	1.74	0.70	46.96	1.99	93.52	0.156	No	No	0.78
607	41.42	93.64	2.33	1.85	0.71	47.61	2.04	97.02	0.165	No	No	0.82
608	41.47	97.01	2.33	1.94	0.71	49.31	2.04	100.81	0.175	No	No	0.87
609	41.52	104.03	2.31	1.97	0.70	53.17	1.96	104.48	0.186	No	No	0.93
610	41.62	115.47	2.27	1.93	0.69	59.72	1.81	107.92	0.197	No	No	0.98
611	41.67	130.01	2.22	1.88	0.67	68.21	1.66	112.91	0.214	No	No	1.07
612	41.76	144.45	2.17	1.82	0.66	76.74	1.54	118.23	0.234	No	No	1.16
613	41.82	156.39	2.14	1.79	0.65	83.80	1.48	123.75	0.256	No	No	1.28
614	41.90	165.43	2.11	1.76	0.64	89.14	1.44	128.02	0.275	No	No	1.37
615	41.99	171.57	2.10	1.74	0.64	92.73	1.41	131.05	0.289	No	No	1.44
616	42.05	174.81	2.09	1.73	0.63	94.61	1.40	132.58	0.297	No	No	1.48
617	42.15	175.22	2.09	1.74	0.63	94.64	1.40	132.77	0.298	No	No	1.48
618	42.23	173.33	2.10	1.77	0.64	93.24	1.42	132.06	0.294	No	No	1.46
619	42.30	169.55	2.11	1.80	0.64	90.73	1.44	130.51	0.287	No	No	1.43
620	42.38	163.64	2.13	1.84	0.65	86.97	1.47	127.88	0.274	No	No	1.36
621	42.48	153.79	2.16	1.88	0.66	80.87	1.53	123.60	0.256	No	No	1.27
622	42.57	141.98	2.20	1.94	0.67	73.69	1.62	119.15	0.237	No	No	1.18
623	42.64	129.97	2.24	2.01	0.68	66.53	1.73	115.28	0.222	No	No	1.11
624	42.72	121.20	2.27	2.02	0.69	61.42	1.82	111.72	0.210	No	No	1.04

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	42.82	114.72	2.29	1.99	0.69	57.72	1.88	108.24	0.198	No	No	0.98
626	42.90	110.03	2.30	1.96	0.70	55.08	1.91	105.42	0.189	No	No	0.94
627	42.97	106.05	2.31	1.98	0.70	52.74	1.98	104.32	0.186	No	No	0.92
628	43.06	102.31	2.34	2.04	0.71	50.43	2.08	104.69	0.187	No	No	0.93
629	43.15	98.76	2.35	2.01	0.71	48.44	2.11	102.43	0.180	No	No	0.89
630	43.20	97.75	2.34	1.92	0.71	48.00	2.07	99.54	0.172	No	No	0.85
631	43.30	104.19	2.28	1.70	0.69	51.99	1.84	95.67	0.161	No	No	0.80
632	43.40	119.88	2.19	1.51	0.66	61.38	1.58	97.12	0.165	No	No	0.82
633	43.48	132.43	2.13	1.40	0.65	68.91	1.47	100.97	0.176	No	No	0.87
634	43.51	139.11	2.10	1.37	0.64	72.90	1.43	103.89	0.184	No	No	0.92
635	43.52	146.23	2.08	1.34	0.63	77.22	1.39	107.23	0.195	No	No	0.97
636	43.56	160.13	2.03	1.26	0.62	85.83	1.33	114.20	0.219	No	No	1.09
637	43.61	178.86	1.96	1.17	0.60	97.60	1.28	124.81	0.261	No	No	1.30
638	43.67	193.23	1.92	1.11	0.58	106.74	1.25	133.29	0.300	No	No	1.49
639	43.72	206.01	1.88	1.05	0.57	115.04	1.22	140.56	0.338	No	No	1.68
640	43.80	216.51	1.85	1.00	0.56	121.88	1.20	145.95	0.369	No	No	1.83
641	43.85	224.74	1.82	0.97	0.56	127.26	1.18	149.84	0.393	No	No	1.95
642	43.90	231.25	1.81	0.95	0.55	131.51	1.16	152.56	0.410	No	No	2.00
643	43.94	236.38	1.79	0.94	0.55	134.87	1.14	154.37	0.422	No	No	2.00
644	43.99	239.82	1.78	0.92	0.54	137.13	1.13	155.28	0.428	No	No	2.00
645	44.08	241.54	1.78	0.92	0.54	138.11	1.13	155.65	0.431	No	No	2.00
646	44.14	241.51	1.79	0.94	0.54	137.71	1.14	156.49	0.436	No	No	2.00
647	44.22	240.40	1.80	0.97	0.55	136.41	1.15	157.19	0.441	No	No	2.00
648	44.28	238.31	1.82	1.01	0.55	134.50	1.17	157.37	0.442	No	No	2.00
649	44.33	235.67	1.83	1.05	0.56	132.35	1.18	156.78	0.438	No	No	2.00
650	44.40	232.27	1.85	1.10	0.56	129.52	1.20	155.80	0.432	No	No	2.00
651	44.48	231.30	1.87	1.15	0.57	128.25	1.22	155.90	0.432	No	No	2.00
652	44.52	228.57	1.90	1.24	0.58	125.64	1.24	155.24	0.428	No	No	2.00
653	44.61	230.02	1.89	1.23	0.58	126.41	1.23	155.88	0.432	No	No	2.00
654	44.72	231.52	1.90	1.24	0.58	127.03	1.23	156.70	0.438	No	No	2.00
655	44.77	236.14	1.88	1.21	0.57	130.05	1.22	159.04	0.454	No	No	2.00
656	44.91	237.86	1.89	1.24	0.57	130.46	1.23	160.27	0.463	No	No	2.00
657	44.95	231.69	1.91	1.29	0.58	126.16	1.24	156.88	0.439	No	No	2.00
658	45.02	227.41	1.92	1.32	0.59	123.19	1.25	154.33	0.422	No	No	2.00
659	45.04	198.97	2.01	1.51	0.61	104.88	1.32	138.44	0.327	No	No	1.62
660	45.06	203.49	2.00	1.46	0.61	107.81	1.30	140.63	0.339	No	No	1.68
661	45.11	208.45	1.98	1.41	0.60	111.04	1.29	143.03	0.352	No	No	1.75
662	45.15	239.96	1.87	1.20	0.57	131.64	1.22	160.49	0.464	No	No	2.00
663	45.21	246.91	1.85	1.16	0.56	136.23	1.20	163.81	0.489	No	No	2.00
664	45.25	252.44	1.84	1.13	0.56	139.80	1.19	166.43	0.509	No	No	2.00
665	45.30	256.29	1.83	1.13	0.56	142.11	1.18	168.34	0.524	No	No	2.00
666	45.35	258.04	1.83	1.13	0.56	143.02	1.18	169.35	0.532	No	No	2.00
667	45.41	258.42	1.83	1.14	0.56	143.02	1.19	169.64	0.534	No	No	2.00
668	45.49	257.00	1.84	1.15	0.56	141.89	1.19	168.87	0.528	No	No	2.00
669	45.55	254.13	1.84	1.15	0.56	139.97	1.19	167.24	0.515	No	No	2.00
670	45.63	249.51	1.85	1.16	0.56	136.90	1.20	164.52	0.494	No	No	2.00
671	45.69	243.67	1.86	1.16	0.57	133.19	1.21	161.09	0.469	No	No	2.00
672	45.78	236.62	1.88	1.18	0.57	128.61	1.22	156.88	0.439	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	45.84	228.05	1.89	1.18	0.58	123.25	1.23	151.68	0.405	No	No	2.00
674	45.93	217.69	1.91	1.19	0.58	116.85	1.24	145.18	0.365	No	No	1.81
675	46.02	205.11	1.93	1.19	0.59	109.16	1.26	137.24	4.000	Yes	No	2.00
676	46.08	190.40	1.96	1.19	0.60	100.37	1.28	128.00	4.000	Yes	No	2.00
677	46.16	174.41	1.99	1.20	0.61	90.73	1.30	118.20	4.000	Yes	No	2.00
678	46.24	157.13	2.04	1.24	0.62	80.39	1.35	108.31	4.000	Yes	No	2.00
679	46.31	138.07	2.12	1.34	0.64	68.91	1.44	99.54	4.000	Yes	No	2.00
680	46.41	117.36	2.22	1.54	0.67	56.54	1.67	94.32	4.000	Yes	No	2.00
681	46.48	95.77	2.36	1.87	0.72	44.06	2.17	95.41	4.000	Yes	No	2.00
682	46.56	75.72	2.51	2.32	0.76	32.98	3.08	101.49	4.000	Yes	No	2.00
683	46.65	58.08	2.68	2.81	0.81	23.81	4.47	106.39	4.000	Yes	Yes	2.00
684	46.75	45.43	2.81	3.12	0.85	17.64	5.95	104.92	4.000	Yes	Yes	2.00
685	46.84	36.62	2.95	3.29	1.00	12.08	8.01	96.75	4.000	Yes	Yes	2.00
686	46.94	30.75	3.03	3.37	1.00	9.96	9.25	92.20	3.600	No	Yes	2.00
687	47.02	25.79	3.12	3.65	1.00	8.18	10.96	89.65	3.600	No	Yes	2.00
688	47.08	21.37	3.22	4.12	1.00	6.60	13.29	87.68	3.600	No	Yes	2.00
689	47.12	18.76	3.30	4.53	1.00	5.66	15.23	86.24	3.600	No	Yes	2.00
690	47.16	17.85	3.33	4.58	1.00	5.33	15.88	84.67	3.600	No	Yes	2.00
691	47.21	17.81	3.31	4.30	1.00	5.32	15.49	82.35	3.600	No	Yes	2.00
692	47.27	17.46	3.31	4.03	1.00	5.18	15.33	79.44	3.600	No	Yes	2.00
693	47.35	16.42	3.33	3.97	1.00	4.80	15.97	76.72	3.600	No	Yes	2.00
694	47.40	15.74	3.33	3.65	1.00	4.56	15.95	72.71	3.600	No	Yes	2.00
695	47.50	15.37	3.32	3.29	1.00	4.42	15.62	68.97	3.600	No	Yes	2.00
696	47.55	15.16	3.29	2.90	1.00	4.34	15.04	65.28	3.600	No	Yes	2.00
697	47.61	15.00	3.29	2.76	1.00	4.27	14.89	63.67	3.600	No	Yes	2.00
698	47.69	14.73	3.29	2.69	1.00	4.17	15.00	62.57	3.600	No	Yes	2.00
699	47.76	14.39	3.30	2.67	1.00	4.05	15.25	61.71	3.600	No	Yes	2.00
700	47.83	14.02	3.31	2.58	1.00	3.91	15.40	60.22	3.600	No	Yes	2.00
701	47.93	13.85	3.30	2.41	1.00	3.84	15.20	58.40	3.600	No	Yes	2.00
702	48.02	13.82	3.29	2.31	1.00	3.82	15.00	57.34	3.600	No	Yes	2.00
703	48.09	13.88	3.28	2.19	1.00	3.84	14.67	56.35	3.600	No	Yes	2.00
704	48.18	13.85	3.29	2.28	1.00	3.82	14.94	57.05	3.600	No	Yes	2.00
705	48.27	13.88	3.30	2.43	1.00	3.82	15.29	58.44	3.600	No	Yes	2.00
706	48.37	13.98	3.33	2.72	1.00	3.85	15.87	61.09	3.600	No	Yes	2.00
707	48.46	14.12	3.34	2.92	1.00	3.89	16.20	62.98	3.600	No	Yes	2.00
708	48.52	14.18	3.35	3.07	1.00	3.90	16.46	64.25	3.600	No	Yes	2.00
709	48.60	14.25	3.35	3.18	1.00	3.92	16.64	65.23	3.600	No	Yes	2.00
710	48.70	14.38	3.35	3.25	1.00	3.96	16.68	65.99	3.600	No	Yes	2.00
711	48.79	14.65	3.35	3.27	1.00	4.04	16.50	66.70	3.600	No	Yes	2.00
712	48.85	15.06	3.34	3.39	1.00	4.18	16.39	68.42	3.600	No	Yes	2.00
713	48.94	15.74	3.34	3.61	1.00	4.40	16.24	71.44	3.600	No	Yes	2.00
714	49.04	16.68	3.31	3.62	1.00	4.71	15.57	73.34	3.600	No	Yes	2.00
715	49.13	18.30	3.32	4.31	1.00	5.25	15.62	82.09	3.600	No	Yes	2.00
716	49.23	21.13	3.29	4.85	1.00	6.21	14.82	92.00	3.600	No	Yes	2.00
717	49.33	24.04	3.27	5.48	1.00	7.18	14.31	102.80	3.600	No	Yes	2.00
718	49.38	24.88	3.28	6.09	1.00	7.46	14.69	109.60	3.600	No	Yes	2.00
719	49.42	25.93	3.28	6.47	1.00	7.81	14.70	114.80	3.600	No	Yes	2.00
720	49.48	26.70	3.28	6.79	1.00	8.06	14.75	118.93	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	49.53	28.79	3.25	6.60	1.00	8.76	13.86	121.43	3.600	No	Yes	2.00
722	49.58	29.43	3.24	6.72	1.00	8.97	13.78	123.62	3.600	No	Yes	2.00
723	49.63	30.10	3.24	6.80	1.00	9.19	13.66	125.52	3.600	No	Yes	2.00
724	49.72	30.91	3.23	6.72	1.00	9.44	13.37	126.23	3.600	No	Yes	2.00
725	49.77	31.42	3.22	6.60	1.00	9.60	13.13	125.98	3.600	No	Yes	2.00
726	49.83	31.42	3.22	6.55	1.00	9.59	13.08	125.40	3.600	No	Yes	2.00
727	49.92	30.71	3.23	6.62	1.00	9.33	13.37	124.67	3.600	No	Yes	2.00
728	49.97	30.39	3.23	6.56	1.00	9.21	13.41	123.55	3.600	No	Yes	2.00
729	50.04	29.48	3.25	6.66	1.00	8.89	13.80	122.65	3.600	No	Yes	2.00
730	50.11	29.82	3.24	6.56	1.00	8.99	13.61	122.33	3.600	No	Yes	2.00
731	50.20	30.21	3.22	6.30	1.00	9.10	13.25	120.55	3.600	No	Yes	2.00
732	50.27	30.78	3.19	5.73	1.00	9.28	12.51	116.01	3.600	No	Yes	2.00
733	50.34	29.50	3.18	5.11	1.00	8.83	12.20	107.79	3.600	No	Yes	2.00
734	50.45	26.76	3.19	4.68	1.00	7.90	12.55	99.22	3.600	No	Yes	2.00
735	50.54	23.73	3.23	4.48	1.00	6.88	13.43	92.39	3.600	No	Yes	2.00
736	50.59	21.13	3.28	4.47	1.00	6.01	14.59	87.71	3.600	No	Yes	2.00
737	50.68	19.24	3.32	4.43	1.00	5.37	15.59	83.78	3.600	No	Yes	2.00
738	50.79	18.13	3.33	4.26	1.00	4.99	16.06	80.17	3.600	No	Yes	2.00
739	50.88	17.81	3.33	4.10	1.00	4.88	16.03	78.18	3.600	No	Yes	2.00
740	50.98	17.64	3.34	4.11	1.00	4.81	16.19	77.89	3.600	No	Yes	2.00
741	51.07	17.81	3.32	3.85	1.00	4.86	15.67	76.09	3.600	No	Yes	2.00
742	51.17	18.43	3.26	3.21	1.00	5.05	14.19	71.67	3.600	No	Yes	2.00
743	51.24	19.51	3.20	2.74	1.00	5.40	12.74	68.77	3.600	No	Yes	2.00
744	51.33	20.19	3.19	2.81	1.00	5.61	12.56	70.43	3.600	No	Yes	2.00
745	51.46	20.09	3.23	3.28	1.00	5.56	13.45	74.75	3.600	No	Yes	2.00
746	51.46	19.80	3.27	3.71	1.00	5.46	14.31	78.20	3.600	No	Yes	2.00
747	51.51	19.77	3.28	3.88	1.00	5.45	14.62	79.60	3.600	No	Yes	2.00
748	51.56	19.87	3.29	4.15	1.00	5.47	14.98	82.02	3.600	No	Yes	2.00
749	51.65	19.95	3.31	4.41	1.00	5.49	15.35	84.26	3.600	No	Yes	2.00
750	51.71	20.09	3.32	4.71	1.00	5.53	15.72	86.89	3.600	No	Yes	2.00
751	51.79	20.49	3.32	4.86	1.00	5.65	15.73	88.80	3.600	No	Yes	2.00
752	51.85	21.23	3.32	5.11	1.00	5.88	15.68	92.19	3.600	No	Yes	2.00
753	51.94	22.11	3.32	5.42	1.00	6.15	15.66	96.33	3.600	No	Yes	2.00
754	51.99	23.22	3.32	5.95	1.00	6.51	15.77	102.62	3.600	No	Yes	2.00
755	52.09	24.17	3.33	6.60	1.00	6.80	16.12	109.52	3.600	No	Yes	2.00
756	52.19	27.74	3.28	6.62	1.00	7.93	14.73	116.81	3.600	No	Yes	2.00
757	52.28	33.34	3.20	6.19	1.00	9.72	12.62	122.63	3.600	No	Yes	2.00
758	52.35	36.42	3.17	6.29	1.00	10.69	12.02	128.41	3.600	No	Yes	2.00
759	52.43	37.06	3.18	6.64	1.00	10.87	12.22	132.82	3.600	No	Yes	2.00
760	52.52	35.17	3.22	7.33	1.00	10.25	13.30	136.28	3.600	No	Yes	2.00
761	52.62	35.61	3.22	7.23	1.00	10.37	13.11	135.93	3.600	No	Yes	2.00
762	52.72	35.98	3.20	6.96	1.00	10.46	12.80	133.92	3.600	No	Yes	2.00
763	52.81	34.26	3.24	7.47	1.00	9.89	13.70	135.53	3.600	No	Yes	2.00
764	52.91	31.32	3.34	9.52	1.00	8.94	16.37	146.31	3.600	No	Yes	2.00
765	53.00	37.23	3.27	9.04	1.00	10.79	14.34	154.70	3.600	No	Yes	2.00
766	53.10	62.36	2.95	5.53	1.00	18.71	7.92	148.13	4.000	Yes	Yes	2.00
767	53.20	108.21	2.62	3.37	1.00	33.14	3.92	129.79	4.000	Yes	Yes	2.00
768	53.29	163.78	2.38	2.36	1.00	50.57	2.27	114.61	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	53.38	213.88	2.24	1.98	1.00	66.21	1.72	114.09	4.000	Yes	No	2.00
770	53.46	260.07	2.14	1.75	1.00	80.59	1.49	119.81	4.000	Yes	No	2.00
771	53.53	292.05	2.12	1.83	1.00	90.48	1.45	130.93	4.000	Yes	No	2.00
772	53.63	323.19	2.09	1.82	1.00	100.02	1.40	139.93	4.000	Yes	No	2.00
773	53.73	361.79	2.01	1.58	1.00	111.85	1.31	146.92	4.000	Yes	No	2.00
774	53.82	388.35	1.92	1.28	1.00	119.89	1.25	150.03	4.000	Yes	No	2.00
775	53.92	387.71	1.89	1.12	1.00	119.45	1.23	146.54	4.000	Yes	No	2.00
776	53.94	360.18	1.92	1.15	1.00	110.85	1.25	138.23	0.326	No	No	1.66
777	53.96	336.26	1.95	1.19	1.00	103.38	1.27	131.20	0.290	No	No	1.48
778	53.97	349.08	1.92	1.12	1.00	107.34	1.25	134.16	0.305	No	No	1.55
779	54.05	377.59	1.87	1.03	1.00	116.04	1.22	141.00	0.341	No	No	1.73
780	54.08	426.28	1.79	0.91	1.00	131.09	1.15	150.15	0.395	No	No	2.00
781	54.13	473.21	1.74	0.84	1.00	145.55	1.06	154.41	0.422	No	No	2.00
782	54.19	518.79	1.70	0.83	1.00	159.56	1.00	159.56	0.458	No	No	2.00
783	54.25	524.22	1.71	0.86	1.00	161.12	1.01	162.94	0.482	No	No	2.00
784	54.28	510.87	1.74	0.91	1.00	156.95	1.06	166.66	0.510	No	No	2.00
785	54.29	486.82	1.76	0.94	1.00	149.48	1.10	164.40	0.493	No	No	2.00
786	54.34	486.89	1.76	0.94	1.00	149.42	1.10	164.35	0.493	No	No	2.00
787	54.35	492.20	1.75	0.93	1.00	151.05	1.09	164.72	0.496	No	No	2.00
788	54.40	504.89	1.74	0.91	1.00	154.89	1.07	165.62	0.503	No	No	2.00
789	54.44	522.30	1.72	0.90	1.00	160.18	1.04	166.45	0.509	No	No	2.00
790	54.49	535.62	1.71	0.88	1.00	164.19	1.01	165.88	0.505	No	No	2.00
791	54.53	546.25	1.70	0.87	1.00	167.39	1.00	167.39	0.516	No	No	2.00
792	54.57	558.27	1.69	0.87	1.00	171.02	1.00	171.02	0.545	No	No	2.00
793	54.58	567.78	1.70	0.89	1.00	173.92	1.00	173.92	0.569	No	No	2.00
794	54.63	560.90	1.71	0.92	1.00	171.71	1.01	173.90	0.569	No	No	2.00
795	54.68	536.31	1.75	0.99	1.00	164.04	1.08	176.93	0.595	No	No	2.00
796	54.73	510.50	1.78	1.03	1.00	156.00	1.12	175.12	0.579	No	No	2.00
797	54.78	499.67	1.79	1.04	1.00	152.59	1.14	173.29	0.564	No	No	2.00
798	54.83	493.63	1.80	1.06	1.00	150.64	1.15	172.82	0.560	No	No	2.00
799	54.88	497.14	1.80	1.09	1.00	151.64	1.15	175.08	0.579	No	No	2.00
800	54.92	500.68	1.81	1.15	1.00	152.65	1.17	178.37	0.608	No	No	2.00
801	54.97	510.81	1.81	1.14	1.00	155.66	1.16	180.73	0.629	No	No	2.00
802	55.02	513.44	1.81	1.15	1.00	156.38	1.16	181.62	0.637	No	No	2.00
803	55.12	487.90	1.85	1.25	1.00	148.39	1.20	178.01	0.605	No	No	2.00
804	55.17	449.17	1.92	1.45	1.00	136.44	1.25	170.63	0.542	No	No	2.00
805	55.25	410.54	1.98	1.59	1.00	124.51	1.29	160.49	0.464	No	No	2.00
806	55.31	394.21	1.98	1.55	1.00	119.43	1.29	154.46	0.423	No	No	2.00
807	55.36	388.18	1.95	1.35	1.00	117.52	1.27	148.87	0.387	No	No	1.98
808	55.45	381.09	1.91	1.20	1.00	115.23	1.25	143.68	0.356	No	No	1.82
809	55.50	365.91	1.92	1.15	1.00	110.54	1.25	137.89	0.324	No	No	1.66
810	55.60	351.24	1.94	1.19	1.00	105.95	1.26	133.93	0.303	No	No	1.56
811	55.65	332.24	1.96	1.21	1.00	100.11	1.28	128.15	0.276	No	No	1.41
812	55.71	324.14	1.96	1.15	1.00	97.58	1.27	124.39	0.259	No	No	1.33
813	55.75	320.40	1.93	1.03	1.00	96.40	1.26	121.19	0.246	No	No	1.26
814	55.79	325.12	1.91	0.99	1.00	97.79	1.25	121.90	0.248	No	No	1.27
815	55.84	332.47	1.90	0.97	1.00	99.97	1.24	123.76	0.256	No	No	1.32
816	55.89	338.01	1.90	0.97	1.00	101.60	1.23	125.39	0.263	No	No	1.35

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	55.90	341.15	1.89	0.96	1.00	102.54	1.23	126.17	0.267	No	No	1.37
818	55.94	336.26	1.90	0.98	1.00	101.02	1.24	124.98	0.262	No	No	1.34
819	55.99	327.63	1.92	1.01	1.00	98.34	1.25	122.89	0.253	No	No	1.30
820	56.03	317.88	1.94	1.05	1.00	95.34	1.26	120.41	0.242	No	No	1.24
821	56.08	311.67	1.95	1.06	1.00	93.40	1.27	118.54	0.235	No	No	1.21
822	56.14	306.37	1.95	1.05	1.00	91.74	1.27	116.74	0.228	No	No	1.17
823	56.22	299.89	1.96	1.06	1.00	89.70	1.28	114.65	0.220	No	No	1.13
824	56.28	294.29	1.97	1.06	1.00	87.95	1.28	112.90	0.214	No	No	1.10
825	56.33	292.57	1.97	1.06	1.00	87.39	1.29	112.38	0.212	No	No	1.09
826	56.38	294.06	1.97	1.04	1.00	87.79	1.28	112.46	0.212	No	No	1.09
827	56.45	301.34	1.95	1.02	1.00	89.92	1.27	114.23	0.219	No	No	1.13
828	56.52	312.58	1.93	0.98	1.00	93.24	1.25	117.01	0.229	No	No	1.18
829	56.62	325.19	1.90	0.94	1.00	96.94	1.24	120.21	0.242	No	No	1.24
830	56.66	338.42	1.87	0.89	1.00	100.88	1.22	123.02	0.253	No	No	1.30
831	56.73	350.06	1.87	0.90	1.00	104.30	1.21	126.65	0.269	No	No	1.39
832	56.81	357.11	1.87	0.94	1.00	106.33	1.22	129.59	0.282	No	No	1.46
833	56.95	363.42	1.89	1.01	1.00	108.06	1.23	132.64	0.297	No	No	1.53
834	57.00	372.46	1.88	1.03	1.00	110.72	1.23	135.80	0.313	No	No	1.61
835	57.09	373.11	1.89	1.06	1.00	110.80	1.23	136.52	0.317	No	No	1.63
836	57.19	368.58	1.91	1.10	1.00	109.32	1.24	135.85	0.313	No	No	1.62
837	57.27	354.04	1.92	1.11	1.00	104.88	1.25	131.44	0.291	No	No	1.50
838	57.35	357.65	1.89	0.99	1.00	105.87	1.23	130.16	0.285	No	No	1.47
839	57.44	356.17	1.86	0.89	1.00	105.33	1.21	127.36	0.272	No	No	1.41
840	57.50	364.37	1.83	0.81	1.00	107.70	1.18	127.07	0.271	No	No	1.40
841	57.52	378.10	1.83	0.84	1.00	111.77	1.18	131.85	0.293	No	No	1.52
842	57.58	409.37	1.82	0.90	1.00	121.03	1.17	141.73	0.345	No	No	1.78
843	57.63	432.08	1.81	0.95	1.00	127.73	1.17	149.17	0.389	No	No	2.00
844	57.72	439.00	1.81	0.96	1.00	129.66	1.17	151.31	0.402	No	No	2.00
845	57.77	433.73	1.80	0.92	1.00	128.03	1.16	148.26	0.383	No	No	1.98
846	57.82	429.55	1.78	0.84	1.00	126.71	1.13	143.29	0.354	No	No	1.83
847	57.91	436.73	1.74	0.73	1.00	128.72	1.06	137.09	0.320	No	No	1.66
848	57.96	442.84	1.69	0.63	1.00	130.46	1.00	130.46	0.287	No	No	1.48
849	58.02	458.90	1.66	0.57	1.00	135.16	1.00	135.16	0.310	No	No	1.61
850	58.09	469.26	1.65	0.56	1.00	138.12	1.00	138.12	0.325	No	No	1.69
851	58.16	484.88	1.63	0.56	1.00	142.65	1.00	142.65	0.350	No	No	1.82
852	58.25	491.12	1.64	0.58	1.00	144.36	1.00	144.36	0.360	No	No	1.87
853	58.30	487.65	1.66	0.63	1.00	143.26	1.00	143.26	0.353	No	No	1.83
854	58.40	479.62	1.69	0.68	1.00	140.74	1.00	140.74	0.339	No	No	1.76
855	58.50	468.52	1.71	0.72	1.00	137.31	1.02	139.77	0.334	No	No	1.74
856	58.56	467.50	1.71	0.71	1.00	136.92	1.01	138.70	0.328	No	No	1.71
857	58.64	464.81	1.72	0.73	1.00	136.01	1.03	140.28	0.337	No	No	1.75
858	58.73	474.79	1.73	0.77	1.00	138.81	1.05	145.16	0.364	No	No	1.90
859	58.78	488.15	1.72	0.76	1.00	142.67	1.02	145.87	0.369	No	No	1.92
860	58.88	506.71	1.69	0.74	1.00	147.98	1.00	147.98	0.381	No	No	1.98
861	58.97	511.03	1.66	0.67	1.00	149.10	1.00	149.10	0.388	No	No	2.00
862	59.07	506.24	1.66	0.64	1.00	147.53	1.00	147.53	0.379	No	No	1.97
863	59.13	493.59	1.65	0.61	1.00	143.73	1.00	143.73	0.356	No	No	1.86
864	59.23	484.71	1.65	0.59	1.00	140.99	1.00	140.99	0.341	No	No	1.78

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	59.31	464.47	1.65	0.56	1.00	134.94	1.00	134.94	0.308	No	No	1.61
866	59.38	450.35	1.65	0.54	1.00	130.71	1.00	130.71	0.288	No	No	1.50
867	59.41	439.19	1.66	0.53	1.00	127.40	1.00	127.40	0.272	No	No	1.42
868	59.46	443.57	1.65	0.53	1.00	128.62	1.00	128.62	0.278	No	No	1.45
869	59.51	443.56	1.65	0.52	1.00	128.55	1.00	128.55	0.278	No	No	1.45
870	59.57	451.89	1.67	0.58	1.00	130.91	1.00	130.91	0.289	No	No	1.51
871	59.66	471.05	1.67	0.61	1.00	136.37	1.00	136.37	0.316	No	No	1.65
872	59.75	492.31	1.70	0.71	1.00	142.44	1.00	142.44	0.349	No	No	1.82
873	59.80	506.48	1.71	0.77	1.00	146.48	1.01	147.84	0.380	No	No	1.99
874	59.85	508.64	1.74	0.86	1.00	147.04	1.07	156.99	0.440	No	No	2.00
875	59.91	504.22	1.75	0.88	1.00	145.65	1.08	158.02	0.447	No	No	2.00
876	59.99	498.85	1.77	0.91	1.00	143.96	1.11	159.53	0.458	No	No	2.00
877	60.05	480.97	1.81	1.03	1.00	138.68	1.17	161.59	0.472	No	No	2.00
878	60.09	464.78	1.85	1.12	1.00	133.92	1.20	160.52	0.465	No	No	2.00
879	60.14	444.43	1.88	1.17	1.00	127.94	1.22	156.08	0.434	No	No	2.00
880	60.19	437.86	1.87	1.13	1.00	125.96	1.22	153.23	0.415	No	No	2.00
881	60.22	434.25	1.87	1.11	1.00	124.88	1.21	151.55	0.404	No	No	2.00
882	60.28	412.99	1.89	1.13	1.00	118.63	1.23	145.94	0.369	No	No	1.93
883	60.33	381.24	1.93	1.19	1.00	109.36	1.26	137.48	0.322	No	No	1.69
884	60.38	338.97	2.00	1.32	1.00	97.07	1.31	126.83	0.270	No	No	1.41
885	60.42	309.75	2.05	1.40	1.00	88.57	1.35	119.65	0.239	No	No	1.25
886	60.48	282.02	2.07	1.37	1.00	80.50	1.38	111.02	0.207	No	No	1.09
887	60.57	262.48	2.05	1.17	1.00	74.78	1.36	101.50	0.177	No	No	0.93
888	60.66	243.89	2.02	0.93	1.00	69.35	1.32	91.67	0.152	No	No	0.80
889	60.68	232.16	1.99	0.79	1.00	65.95	1.30	85.85	0.139	No	No	0.73
890	60.69	225.51	1.98	0.72	1.00	64.02	1.29	82.84	0.133	No	No	0.70
891	60.74	217.75	1.99	0.69	1.00	61.75	1.30	80.07	0.128	No	No	0.67
892	60.79	206.27	2.00	0.66	1.00	58.41	1.30	76.18	0.121	No	No	0.64
893	60.84	192.16	2.02	0.64	1.00	54.32	1.32	71.82	0.114	No	No	0.60
894	60.89	182.35	2.03	0.62	1.00	51.47	1.33	68.64	0.110	No	No	0.58
895	60.98	174.35	2.05	0.63	1.00	49.12	1.36	66.57	0.107	No	No	0.56
896	61.03	168.07	2.13	0.84	1.00	47.30	1.46	69.19	0.111	No	No	0.58
897	61.08	164.86	2.24	1.28	1.00	46.35	1.72	79.69	0.127	No	No	0.67
898	61.18	164.63	2.31	1.64	1.00	46.24	1.95	90.12	0.148	No	No	0.78
899	61.23	168.20	2.35	1.96	1.00	47.23	2.12	100.04	0.173	No	No	0.91
900	61.31	194.08	2.24	1.58	1.00	54.62	1.72	94.03	0.157	No	No	0.83
901	61.42	236.42	2.09	1.19	1.00	66.70	1.41	94.11	0.158	No	No	0.83
902	61.47	287.17	1.90	0.74	1.00	81.21	1.24	100.64	0.175	No	No	0.92
903	61.51	331.30	1.79	0.58	1.00	93.81	1.14	107.25	0.195	No	No	1.03
904	61.54	366.14	1.73	0.52	1.00	103.76	1.05	108.54	0.199	No	No	1.05
905	61.57	395.83	1.70	0.53	1.00	112.23	1.00	112.23	0.211	No	No	1.11
906	61.58	418.64	1.67	0.50	1.00	118.74	1.00	118.74	0.236	No	No	1.24
907	61.61	393.43	1.70	0.50	1.00	111.49	1.00	111.49	0.209	No	No	1.10
908	61.63	367.65	1.72	0.50	1.00	104.10	1.03	107.07	0.194	No	No	1.02
909	61.63	257.89	1.94	0.73	1.00	72.70	1.26	91.77	0.152	No	No	0.80
910	61.66	191.36	2.14	1.04	1.00	53.66	1.48	79.27	0.126	No	No	0.67
911	61.67	129.55	2.40	1.69	1.00	35.97	2.37	85.35	0.138	No	No	0.73
912	61.70	152.96	2.31	1.50	1.00	42.66	1.96	83.80	0.135	No	No	0.71

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	61.71	180.90	2.22	1.34	1.00	50.64	1.67	84.55	0.136	No	No	0.72
914	61.76	206.41	2.15	1.24	1.00	57.90	1.51	87.45	0.142	No	No	0.75
915	61.80	228.84	2.10	1.15	1.00	64.28	1.42	91.10	0.150	No	No	0.79
916	61.84	250.40	2.03	1.01	1.00	70.41	1.34	94.04	0.157	No	No	0.83
917	61.86	279.75	1.93	0.78	1.00	78.77	1.26	98.87	0.170	No	No	0.90
918	61.93	312.34	1.82	0.60	1.00	88.02	1.18	103.69	0.184	No	No	0.97
919	61.98	357.76	1.73	0.50	1.00	100.92	1.00	100.92	0.176	No	No	0.93
920	62.04	405.56	1.68	0.50	1.00	114.48	1.00	114.48	0.220	No	No	1.16
921	62.09	451.78	1.64	0.49	1.00	127.59	1.00	127.59	0.273	No	No	1.44
922	62.14	481.91	1.62	0.49	1.00	136.10	1.00	136.10	0.314	No	No	1.66
923	62.19	499.12	1.60	0.47	1.00	140.93	1.00	140.93	0.340	No	No	1.80
924	62.24	508.93	1.59	0.47	1.00	143.65	1.00	143.65	0.356	No	No	1.88
925	62.26	519.32	1.58	0.47	1.00	146.58	1.00	146.58	0.373	No	No	1.97
926	62.29	519.05	1.58	0.47	1.00	146.46	1.00	146.46	0.372	No	No	1.97
927	62.38	515.71	1.60	0.51	1.00	145.37	1.00	145.37	0.366	No	No	1.93
928	62.44	490.28	1.65	0.57	1.00	138.07	1.00	138.07	0.325	No	No	1.72
929	62.46	469.07	1.69	0.62	1.00	132.02	1.00	132.02	0.294	No	No	1.55
930	62.47	448.15	1.70	0.62	1.00	126.07	1.00	126.07	0.266	No	No	1.41
931	62.51	453.68	1.69	0.61	1.00	127.59	1.00	127.59	0.273	No	No	1.44
932	62.56	463.98	1.69	0.61	1.00	130.45	1.00	130.45	0.286	No	No	1.52
933	62.60	477.62	1.68	0.62	1.00	134.26	1.00	134.26	0.305	No	No	1.61
934	62.65	481.73	1.68	0.62	1.00	135.35	1.00	135.35	0.311	No	No	1.64
935	62.70	482.34	1.66	0.58	1.00	135.46	1.00	135.46	0.311	No	No	1.65
936	62.75	483.05	1.65	0.56	1.00	135.59	1.00	135.59	0.312	No	No	1.65
937	62.80	494.83	1.64	0.55	1.00	138.85	1.00	138.85	0.329	No	No	1.74
938	62.85	525.29	1.60	0.52	1.00	147.40	1.00	147.40	0.378	No	No	2.00
939	62.89	569.18	1.56	0.50	1.00	159.73	1.00	159.73	0.459	No	No	2.00
940	62.97	619.66	1.54	0.51	1.00	173.86	1.00	173.86	0.569	No	No	2.00
941	63.04	667.84	1.52	0.52	1.00	187.32	1.00	187.32	0.691	No	No	2.00
942	63.09	703.12	1.50	0.52	1.00	197.18	1.00	197.18	0.793	No	No	2.00
943	63.13	715.51	1.51	0.54	1.00	200.57	1.00	200.57	4.000	No	No	2.00
944	63.19	716.52	1.54	0.60	1.00	200.74	1.00	200.74	4.000	No	No	2.00
945	63.23	720.23	1.57	0.67	1.00	201.69	1.00	201.69	4.000	No	No	2.00
946	63.28	726.78	1.59	0.73	1.00	203.42	1.00	203.42	4.000	No	No	2.00
947	63.32	729.18	1.57	0.68	1.00	204.02	1.00	204.02	4.000	No	No	2.00
948	63.38	725.67	1.49	0.51	1.00	202.89	1.00	202.89	4.000	No	No	2.00
949	63.44	726.68	1.43	0.41	1.00	203.06	1.00	203.06	4.000	No	No	2.00
950	63.52	715.48	1.43	0.40	1.00	199.75	1.00	199.75	0.821	No	No	2.00
951	63.57	697.37	1.49	0.49	1.00	194.57	1.00	194.57	0.765	No	No	2.00
952	63.66	659.58	1.52	0.51	1.00	183.79	1.00	183.79	0.657	No	No	2.00
953	63.73	534.95	1.63	0.58	1.00	148.76	1.00	148.76	0.386	No	No	2.00
954	63.76	455.61	1.72	0.67	1.00	126.50	1.03	130.54	0.287	No	No	1.53
955	63.76	411.85	1.77	0.71	1.00	114.24	1.12	127.66	0.274	No	No	1.45
956	63.78	471.87	1.70	0.64	1.00	131.02	1.00	131.02	0.289	No	No	1.54
957	63.81	512.86	1.67	0.65	1.00	142.46	1.00	142.46	0.349	No	No	1.86
958	63.85	526.43	1.68	0.68	1.00	146.19	1.00	146.19	0.371	No	No	1.97
959	63.86	522.58	1.70	0.74	1.00	145.10	1.00	145.10	0.364	No	No	1.94
960	63.91	497.92	1.74	0.81	1.00	138.14	1.07	148.35	0.384	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	63.94	483.78	1.77	0.87	1.00	134.14	1.12	150.35	0.396	No	No	2.00
962	63.95	480.34	1.79	0.90	1.00	133.15	1.14	151.38	0.403	No	No	2.00
963	64.00	476.26	1.79	0.91	1.00	131.94	1.14	150.67	0.398	No	No	2.00
964	64.02	473.22	1.79	0.89	1.00	131.08	1.14	149.37	0.390	No	No	2.00
965	64.05	475.78	1.78	0.86	1.00	131.75	1.12	148.02	0.382	No	No	2.00
966	64.09	478.18	1.77	0.83	1.00	132.36	1.11	146.64	0.373	No	No	1.99
967	64.11	480.07	1.75	0.80	1.00	132.86	1.09	144.77	0.362	No	No	1.93
968	64.15	482.26	1.74	0.77	1.00	133.43	1.07	142.44	0.349	No	No	1.86
969	64.20	494.31	1.72	0.74	1.00	136.71	1.03	141.24	0.342	No	No	1.82
970	64.25	512.59	1.70	0.72	1.00	141.74	1.00	141.74	0.345	No	No	1.84
971	64.29	535.70	1.68	0.70	1.00	148.11	1.00	148.11	0.382	No	No	2.00
972	64.34	570.38	1.64	0.65	1.00	157.68	1.00	157.68	0.445	No	No	2.00
973	64.43	605.81	1.60	0.60	1.00	167.40	1.00	167.40	0.516	No	No	2.00
974	64.48	630.95	1.56	0.56	1.00	174.30	1.00	174.30	0.572	No	No	2.00
975	64.53	642.69	1.53	0.51	1.00	177.47	1.00	177.47	0.600	No	No	2.00
976	64.58	655.07	1.52	0.49	1.00	180.82	1.00	180.82	0.630	No	No	2.00
977	64.63	680.65	1.51	0.49	1.00	187.83	1.00	187.83	0.696	No	No	2.00
978	64.68	709.63	1.52	0.55	1.00	195.77	1.00	195.77	0.778	No	No	2.00
979	64.73	718.74	1.53	0.57	1.00	198.20	1.00	198.20	0.804	No	No	2.00
980	64.77	735.60	1.51	0.56	1.00	202.79	1.00	202.79	4.000	No	No	2.00
981	64.82	751.19	1.48	0.51	1.00	207.01	1.00	207.01	4.000	No	No	2.00
982	64.87	732.64	1.49	0.51	1.00	201.76	1.00	201.76	4.000	No	No	2.00
983	64.89	713.98	1.50	0.52	1.00	196.56	1.00	196.56	0.786	No	No	2.00
984	64.93	689.59	1.53	0.54	1.00	189.73	1.00	189.73	0.715	No	No	2.00
985	64.94	715.81	1.51	0.53	1.00	196.96	1.00	196.96	0.791	No	No	2.00
986	64.98	725.69	1.50	0.53	1.00	199.62	1.00	199.62	0.820	No	No	2.00
987	64.99	734.03	1.50	0.52	1.00	201.90	1.00	201.90	4.000	No	No	2.00
988	65.03	732.37	1.50	0.52	1.00	201.35	1.00	201.35	4.000	No	No	2.00
989	65.08	727.04	1.49	0.50	1.00	199.79	1.00	199.79	0.822	No	No	2.00
990	65.13	715.51	1.48	0.47	1.00	196.50	1.00	196.50	0.786	No	No	2.00
991	65.17	703.60	1.46	0.43	1.00	193.13	1.00	193.13	0.750	No	No	2.00
992	65.22	689.29	1.45	0.41	1.00	189.08	1.00	189.08	0.709	No	No	2.00
993	65.23	681.55	1.45	0.40	1.00	186.93	1.00	186.93	0.687	No	No	2.00
994	65.28	679.28	1.46	0.40	1.00	186.22	1.00	186.22	0.681	No	No	2.00
995	65.32	679.65	1.47	0.43	1.00	186.24	1.00	186.24	0.681	No	No	2.00
996	65.37	680.17	1.49	0.45	1.00	186.30	1.00	186.30	0.681	No	No	2.00
997	65.42	684.61	1.50	0.48	1.00	187.42	1.00	187.42	0.692	No	No	2.00
998	65.47	671.65	1.50	0.48	1.00	183.76	1.00	183.76	0.657	No	No	2.00
999	65.48	657.21	1.52	0.49	1.00	179.77	1.00	179.77	0.620	No	No	2.00
1000	65.49	638.86	1.52	0.48	1.00	174.70	1.00	174.70	0.576	No	No	2.00
1001	65.52	636.56	1.52	0.47	1.00	174.01	1.00	174.01	0.570	No	No	2.00
1002	65.57	645.67	1.41	0.30	1.00	176.43	1.00	176.43	0.591	No	No	2.00
1003	65.62	661.16	1.28	0.15	1.00	180.61	1.00	180.61	0.628	No	No	2.00
1004	65.67	682.44	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1005	65.69	697.23	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1006	65.72	719.02	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1007	65.77	752.26	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1008	65.82	790.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	65.86	811.97	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1010	65.86	833.63	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1011	65.91	854.04	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1012	65.96	878.41	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.01	2.00	0.00	0.00	0.03	0.00	0.04	2.00	0.00	0.00	0.03	0.00
0.08	2.00	0.00	0.00	0.04	0.00	0.10	2.00	0.00	0.00	0.02	0.00
0.13	2.00	0.00	0.00	0.03	0.00	0.18	2.00	0.00	0.00	0.04	0.00
0.22	2.00	0.00	0.00	0.05	0.00	0.27	2.00	0.00	0.00	0.05	0.00
0.33	2.00	0.00	0.00	0.05	0.00	0.36	2.00	0.00	0.00	0.03	0.00
0.37	2.00	0.00	0.00	0.01	0.00	0.38	2.00	0.00	0.00	0.01	0.00
0.42	2.00	0.00	0.00	0.04	0.00	0.44	2.00	0.00	0.00	0.03	0.00
0.47	2.00	0.00	0.00	0.02	0.00	0.47	2.00	0.00	0.00	0.01	0.00
0.52	2.00	0.00	0.00	0.04	0.00	0.56	2.00	0.00	0.00	0.05	0.00
0.58	2.00	0.00	0.00	0.01	0.00	0.61	2.00	0.00	0.00	0.03	0.00
0.66	2.00	0.00	0.00	0.05	0.00	0.76	2.00	0.00	0.00	0.09	0.00
0.80	2.00	0.00	0.00	0.05	0.00	0.81	2.00	0.00	0.00	0.01	0.00
0.85	2.00	0.00	0.00	0.04	0.00	0.86	2.00	0.00	0.00	0.01	0.00
0.90	2.00	0.00	0.00	0.04	0.00	0.95	2.00	0.00	0.00	0.04	0.00
1.00	2.00	0.00	0.00	0.05	0.00	1.05	2.00	0.00	0.00	0.06	0.00
1.14	2.00	0.00	0.00	0.09	0.00	1.24	2.00	0.00	0.00	0.09	0.00
1.31	2.00	0.00	0.00	0.08	0.00	1.36	2.00	0.00	0.00	0.05	0.00
1.37	2.00	0.00	0.00	0.01	0.00	1.39	2.00	0.00	0.00	0.02	0.00
1.43	2.00	0.00	0.00	0.04	0.00	1.44	2.00	0.00	0.00	0.01	0.00
1.49	2.00	0.00	0.00	0.06	0.00	1.53	2.00	0.00	0.00	0.04	0.00
1.58	2.00	0.00	0.00	0.05	0.00	1.63	2.00	0.00	0.00	0.05	0.00
1.68	2.00	0.00	0.00	0.05	0.00	1.72	2.00	0.00	0.00	0.05	0.00
1.77	2.00	0.00	0.00	0.05	0.00	1.82	2.00	0.00	0.00	0.05	0.00
1.86	2.00	0.00	0.00	0.04	0.00	1.92	2.00	0.00	0.00	0.05	0.00
1.97	2.00	0.00	0.00	0.05	0.00	2.01	2.00	0.00	0.00	0.05	0.00
2.09	2.00	0.00	0.00	0.07	0.00	2.16	2.00	0.00	0.00	0.07	0.00
2.20	2.00	0.00	0.00	0.04	0.00	2.25	2.00	0.00	0.00	0.05	0.00
2.31	2.00	0.00	0.00	0.06	0.00	2.37	2.00	0.00	0.00	0.06	0.00
2.40	2.00	0.00	0.00	0.03	0.00	2.46	2.00	0.00	0.00	0.06	0.00
2.54	2.00	0.00	0.00	0.08	0.00	2.59	2.00	0.00	0.00	0.05	0.00
2.69	2.00	0.00	0.00	0.10	0.00	2.74	2.00	0.00	0.00	0.05	0.00
2.83	2.00	0.00	0.00	0.10	0.00	2.88	2.00	0.00	0.00	0.05	0.00
2.98	2.00	0.00	0.00	0.10	0.00	3.03	2.00	0.00	0.00	0.05	0.00
3.12	2.00	0.00	0.00	0.08	0.00	3.21	2.00	0.00	0.00	0.09	0.00
3.27	2.00	0.00	0.00	0.06	0.00	3.34	2.00	0.00	0.00	0.08	0.00
3.41	2.00	0.00	0.00	0.07	0.00	3.51	2.00	0.00	0.00	0.10	0.00
3.55	2.00	0.00	0.00	0.05	0.00	3.65	2.00	0.00	0.00	0.10	0.00
3.75	2.00	0.00	0.00	0.10	0.00	3.83	2.00	0.00	0.00	0.09	0.00
3.94	2.00	0.00	0.00	0.10	0.00	4.04	2.00	0.00	0.00	0.10	0.00
4.13	2.00	0.00	0.00	0.09	0.00	4.24	2.00	0.00	0.00	0.11	0.00
4.38	2.00	0.00	0.00	0.13	0.00	4.50	2.00	0.00	0.00	0.12	0.00
4.62	2.00	0.00	0.00	0.12	0.00	4.71	2.00	0.00	0.00	0.10	0.00
4.75	2.00	0.00	0.00	0.04	0.00	4.84	2.00	0.00	0.00	0.08	0.00
4.89	2.00	0.00	0.00	0.05	0.00	4.94	2.00	0.00	0.00	0.05	0.00
4.98	2.00	0.00	0.00	0.04	0.00	5.07	2.00	0.00	0.00	0.09	0.00
5.13	2.00	0.00	0.00	0.05	0.00	5.17	2.00	0.00	0.00	0.05	0.00
5.27	2.00	0.00	0.00	0.09	0.00	5.32	2.00	0.00	0.00	0.05	0.00
5.42	2.00	0.00	0.00	0.10	0.00	5.46	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
5.56	2.00	0.00	0.00	0.10	0.00	5.61	2.00	0.00	0.00	0.05	0.00
5.71	2.00	0.00	0.00	0.09	0.00	5.78	2.00	0.00	0.00	0.08	0.00
5.85	2.00	0.00	0.00	0.07	0.00	5.95	2.00	0.00	0.00	0.10	0.00
6.00	2.00	0.00	0.00	0.05	0.00	6.09	2.00	0.00	0.00	0.10	0.00
6.14	2.00	0.00	0.00	0.05	0.00	6.24	2.00	0.00	0.00	0.09	0.00
6.30	2.00	0.00	0.00	0.06	0.00	6.38	2.00	0.00	0.00	0.09	0.00
6.46	2.00	0.00	0.00	0.08	0.00	6.50	2.00	0.00	0.00	0.04	0.00
6.56	2.00	0.00	0.00	0.07	0.00	6.63	2.00	0.00	0.00	0.06	0.00
6.68	2.00	0.00	0.00	0.05	0.00	6.76	2.00	0.00	0.00	0.08	0.00
6.82	2.00	0.00	0.00	0.06	0.00	6.88	2.00	0.00	0.00	0.06	0.00
6.96	2.00	0.00	0.00	0.08	0.00	7.03	2.00	0.00	0.00	0.07	0.00
7.11	2.00	0.00	0.00	0.08	0.00	7.16	2.00	0.00	0.00	0.05	0.00
7.26	2.00	0.00	0.00	0.10	0.00	7.31	2.00	0.00	0.00	0.05	0.00
7.40	2.00	0.00	0.00	0.09	0.00	7.45	2.00	0.00	0.00	0.05	0.00
7.54	2.00	0.00	0.00	0.09	0.00	7.60	2.00	0.00	0.00	0.06	0.00
7.68	2.00	0.00	0.00	0.09	0.00	7.74	2.00	0.00	0.00	0.05	0.00
7.83	2.00	0.00	0.00	0.09	0.00	7.90	2.00	0.00	0.00	0.07	0.00
7.98	2.00	0.00	0.00	0.08	0.00	8.05	2.00	0.00	0.00	0.07	0.00
8.12	2.00	0.00	0.00	0.08	0.00	8.19	2.00	0.00	0.00	0.07	0.00
8.27	2.00	0.00	0.00	0.07	0.00	8.36	2.00	0.00	0.00	0.10	0.00
8.41	2.00	0.00	0.00	0.05	0.00	8.50	2.00	0.00	0.00	0.09	0.00
8.60	2.00	0.00	0.00	0.10	0.00	8.70	2.00	0.00	0.00	0.09	0.00
8.74	2.00	0.00	0.00	0.05	0.00	8.78	2.00	0.00	0.00	0.03	0.00
8.81	2.00	0.00	0.00	0.03	0.00	8.86	2.00	0.00	0.00	0.05	0.00
8.91	2.00	0.00	0.00	0.04	0.00	8.94	2.00	0.00	0.00	0.04	0.00
9.02	2.00	0.00	0.00	0.08	0.00	9.10	2.00	0.00	0.00	0.07	0.00
9.17	2.00	0.00	0.00	0.07	0.00	9.22	2.00	0.00	0.00	0.05	0.00
9.31	2.00	0.00	0.00	0.09	0.00	9.37	2.00	0.00	0.00	0.06	0.00
9.42	2.00	0.00	0.00	0.05	0.00	9.52	2.00	0.00	0.00	0.10	0.00
9.60	2.00	0.00	0.00	0.08	0.00	9.66	2.00	0.00	0.00	0.06	0.00
9.74	2.00	0.00	0.00	0.08	0.00	9.81	2.00	0.00	0.00	0.07	0.00
9.89	2.00	0.00	0.00	0.08	0.00	9.98	2.00	0.00	0.00	0.09	0.00
10.03	2.00	0.00	0.00	0.06	0.00	10.13	2.00	0.00	0.00	0.09	0.00
10.23	2.00	0.00	0.00	0.10	0.00	10.32	2.00	0.00	0.00	0.09	0.00
10.38	2.00	0.00	0.00	0.06	0.00	10.47	2.00	0.00	0.00	0.09	0.00
10.57	2.00	0.00	0.00	0.10	0.00	10.66	2.00	0.00	0.00	0.09	0.00
10.76	2.00	0.00	0.00	0.10	0.00	10.85	2.00	0.00	0.00	0.10	0.00
10.92	2.00	0.00	0.00	0.07	0.00	11.00	2.00	0.00	0.00	0.08	0.00
11.07	2.00	0.00	0.00	0.06	0.00	11.10	2.00	0.00	0.00	0.03	0.00
11.15	2.00	0.00	0.00	0.05	0.00	11.19	2.00	0.00	0.00	0.04	0.00
11.24	2.00	0.00	0.00	0.05	0.00	11.29	2.00	0.00	0.00	0.05	0.00
11.34	2.00	0.00	0.00	0.05	0.00	11.40	2.00	0.00	0.00	0.07	0.00
11.47	2.00	0.00	0.00	0.06	0.00	11.53	2.00	0.00	0.00	0.06	0.00
11.58	2.00	0.00	0.00	0.04	0.00	11.65	2.00	0.00	0.00	0.07	0.00
11.72	2.00	0.00	0.00	0.07	0.00	11.77	2.00	0.00	0.00	0.05	0.00
11.82	2.00	0.00	0.00	0.05	0.00	11.88	2.00	0.00	0.00	0.06	0.00
11.97	2.00	0.00	0.00	0.09	0.00	12.02	2.00	0.00	0.00	0.05	0.00
12.06	2.00	0.00	0.00	0.05	0.00	12.11	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
12.21	2.00	0.00	0.00	0.10	0.00	12.25	2.00	0.00	0.00	0.04	0.00
12.30	2.00	0.00	0.00	0.05	0.00	12.31	2.00	0.00	0.00	0.01	0.00
12.32	2.00	0.00	0.00	0.01	0.00	12.35	2.00	0.00	0.00	0.03	0.00
12.40	2.00	0.00	0.00	0.05	0.00	12.45	2.00	0.00	0.00	0.05	0.00
12.52	2.00	0.00	0.00	0.08	0.00	12.56	2.00	0.00	0.00	0.04	0.00
12.62	2.00	0.00	0.00	0.06	0.00	12.65	2.00	0.00	0.00	0.04	0.00
12.71	2.00	0.00	0.00	0.05	0.00	12.76	2.00	0.00	0.00	0.05	0.00
12.83	2.00	0.00	0.00	0.07	0.00	12.88	2.00	0.00	0.00	0.05	0.00
12.93	2.00	0.00	0.00	0.05	0.00	12.98	2.00	0.00	0.00	0.05	0.00
13.03	2.00	0.00	0.00	0.05	0.00	13.04	2.00	0.00	0.00	0.01	0.00
13.07	2.00	0.00	0.00	0.04	0.00	13.13	2.00	0.00	0.00	0.05	0.00
13.17	2.00	0.00	0.00	0.04	0.00	13.22	2.00	0.00	0.00	0.05	0.00
13.27	2.00	0.00	0.00	0.05	0.00	13.32	2.00	0.00	0.00	0.04	0.00
13.37	2.00	0.00	0.00	0.05	0.00	13.41	2.00	0.00	0.00	0.04	0.00
13.46	2.00	0.00	0.00	0.05	0.00	13.51	2.00	0.00	0.00	0.04	0.00
13.56	2.00	0.00	0.00	0.05	0.00	13.60	2.00	0.00	0.00	0.04	0.00
13.66	2.00	0.00	0.00	0.06	0.00	13.75	2.00	0.00	0.00	0.09	0.00
13.80	2.00	0.00	0.00	0.05	0.00	13.89	2.00	0.00	0.00	0.09	0.00
13.94	2.00	0.00	0.00	0.05	0.00	13.99	2.00	0.00	0.00	0.05	0.00
14.09	2.00	0.00	0.00	0.09	0.00	14.14	2.00	0.00	0.00	0.06	0.00
14.23	2.00	0.00	0.00	0.09	0.00	14.28	2.00	0.00	0.00	0.05	0.00
14.38	2.00	0.00	0.00	0.10	0.00	14.42	2.00	0.00	0.00	0.04	0.00
14.52	2.00	0.00	0.00	0.10	0.00	14.57	2.00	0.00	0.00	0.05	0.00
14.67	2.00	0.00	0.00	0.10	0.00	14.68	2.00	0.00	0.00	0.01	0.00
14.70	2.00	0.00	0.00	0.02	0.00	14.75	2.00	0.00	0.00	0.05	0.00
14.80	2.00	0.00	0.00	0.04	0.00	14.89	2.00	0.00	0.00	0.10	0.00
14.94	2.00	0.00	0.00	0.05	0.00	15.04	2.00	0.00	0.00	0.10	0.00
15.13	2.00	0.00	0.00	0.09	0.00	15.21	2.00	0.00	0.00	0.08	0.00
15.28	2.00	0.00	0.00	0.07	0.00	15.38	2.00	0.00	0.00	0.10	0.00
15.47	2.00	0.00	0.00	0.09	0.00	15.57	2.00	0.00	0.00	0.10	0.00
15.67	2.00	0.00	0.00	0.09	0.00	15.77	2.00	0.00	0.00	0.10	0.00
15.86	2.00	0.00	0.00	0.10	0.00	15.96	2.00	0.00	0.00	0.09	0.00
16.05	2.00	0.00	0.00	0.10	0.00	16.15	2.00	0.00	0.00	0.09	0.00
16.25	2.00	0.00	0.00	0.10	0.00	16.31	2.00	0.00	0.00	0.06	0.00
16.39	2.00	0.00	0.00	0.08	0.00	16.48	2.00	0.00	0.00	0.10	0.00
16.59	2.00	0.00	0.00	0.10	0.00	16.68	2.00	0.00	0.00	0.09	0.00
16.76	2.00	0.00	0.00	0.08	0.00	16.86	2.00	0.00	0.00	0.10	0.00
16.92	2.00	0.00	0.00	0.06	0.00	17.02	2.00	0.00	0.00	0.09	0.00
17.11	2.00	0.00	0.00	0.10	0.00	17.22	2.00	0.00	0.00	0.11	0.00
17.35	2.00	0.00	0.00	0.13	0.00	17.45	2.00	0.00	0.00	0.10	0.00
17.55	2.00	0.00	0.00	0.10	0.00	17.61	2.00	0.00	0.00	0.07	0.00
17.64	2.00	0.00	0.00	0.03	0.00	17.70	2.00	0.00	0.00	0.06	0.00
17.75	2.00	0.00	0.00	0.04	0.00	17.80	2.00	0.00	0.00	0.05	0.00
17.85	2.00	0.00	0.00	0.05	0.00	17.94	2.00	0.00	0.00	0.10	0.00
17.99	2.00	0.00	0.00	0.04	0.00	18.09	2.00	0.00	0.00	0.10	0.00
18.15	2.00	0.00	0.00	0.06	0.00	18.23	2.00	0.00	0.00	0.08	0.00
18.33	2.00	0.00	0.00	0.10	0.00	18.43	2.00	0.00	0.00	0.10	0.00
18.52	2.00	0.00	0.00	0.10	0.00	18.59	2.00	0.00	0.00	0.07	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
18.72	2.00	0.00	0.00	0.13	0.00	18.81	2.00	0.00	0.00	0.09	0.00
18.87	2.00	0.00	0.00	0.06	0.00	18.95	2.00	0.00	0.00	0.08	0.00
19.05	2.00	0.00	0.00	0.10	0.00	19.14	2.00	0.00	0.00	0.09	0.00
19.22	2.00	0.00	0.00	0.07	0.00	19.29	2.00	0.00	0.00	0.08	0.00
19.38	2.00	0.00	0.00	0.09	0.00	19.44	2.00	0.00	0.00	0.06	0.00
19.53	2.00	0.00	0.00	0.09	0.00	19.62	2.00	0.00	0.00	0.09	0.00
19.69	2.00	0.00	0.00	0.07	0.00	19.79	2.00	0.00	0.00	0.10	0.00
19.86	2.00	0.00	0.00	0.07	0.00	19.97	2.00	0.00	0.00	0.10	0.00
20.07	2.00	0.00	0.00	0.10	0.00	20.16	2.00	0.00	0.00	0.09	0.00
20.26	2.00	0.00	0.00	0.10	0.00	20.34	2.00	0.00	0.00	0.08	0.00
20.43	2.00	0.00	0.00	0.09	0.00	20.50	2.00	0.00	0.00	0.07	0.00
20.60	2.00	0.00	0.00	0.10	0.00	20.62	2.00	0.00	0.00	0.02	0.00
20.63	2.00	0.00	0.00	0.01	0.00	20.68	2.00	0.00	0.00	0.05	0.00
20.73	2.00	0.00	0.00	0.05	0.00	20.82	2.00	0.00	0.00	0.09	0.00
20.87	2.00	0.00	0.00	0.05	0.00	20.91	2.00	0.00	0.00	0.05	0.00
20.96	2.00	0.00	0.00	0.05	0.00	21.05	2.00	0.00	0.00	0.09	0.00
21.11	2.00	0.00	0.00	0.06	0.00	21.17	2.00	0.00	0.00	0.06	0.00
21.25	2.00	0.00	0.00	0.08	0.00	21.30	2.00	0.00	0.00	0.06	0.00
21.37	2.00	0.00	0.00	0.06	0.00	21.45	2.00	0.00	0.00	0.08	0.00
21.49	2.00	0.00	0.00	0.05	0.00	21.58	2.00	0.00	0.00	0.09	0.00
21.64	2.00	0.00	0.00	0.06	0.00	21.69	2.00	0.00	0.00	0.05	0.00
21.78	2.00	0.00	0.00	0.09	0.00	21.83	2.00	0.00	0.00	0.05	0.00
21.89	2.00	0.00	0.00	0.06	0.00	21.98	2.00	0.00	0.00	0.09	0.00
22.03	2.00	0.00	0.00	0.05	0.00	22.12	2.00	0.00	0.00	0.09	0.00
22.22	2.00	0.00	0.00	0.10	0.00	22.26	2.00	0.00	0.00	0.05	0.00
22.36	2.00	0.00	0.00	0.09	0.00	22.41	2.00	0.00	0.00	0.05	0.00
22.51	2.00	0.00	0.00	0.10	0.00	22.60	2.00	0.00	0.00	0.09	0.00
22.70	2.00	0.00	0.00	0.10	0.00	22.75	2.00	0.00	0.00	0.05	0.00
22.84	2.00	0.00	0.00	0.10	0.00	22.89	2.00	0.00	0.00	0.05	0.00
22.90	2.00	0.00	0.00	0.01	0.00	22.94	2.00	0.00	0.00	0.04	0.00
23.00	2.00	0.00	0.00	0.06	0.00	23.08	2.00	0.00	0.00	0.08	0.00
23.13	2.00	0.00	0.00	0.05	0.00	23.20	2.00	0.00	0.00	0.07	0.00
23.27	2.00	0.00	0.00	0.07	0.00	23.33	2.00	0.00	0.00	0.06	0.00
23.42	2.00	0.00	0.00	0.09	0.00	23.48	2.00	0.00	0.00	0.06	0.00
23.57	2.00	0.00	0.00	0.09	0.00	23.61	2.00	0.00	0.00	0.04	0.00
23.66	2.00	0.00	0.00	0.05	0.00	23.73	2.00	0.00	0.00	0.07	0.00
23.80	2.00	0.00	0.00	0.07	0.00	23.85	2.00	0.00	0.00	0.05	0.00
23.94	2.00	0.00	0.00	0.09	0.00	24.00	2.00	0.00	0.00	0.05	0.00
24.09	2.00	0.00	0.00	0.09	0.00	24.16	2.00	0.00	0.00	0.07	0.00
24.24	2.00	0.00	0.00	0.07	0.00	24.33	2.00	0.00	0.00	0.10	0.00
24.43	2.00	0.00	0.00	0.10	0.00	24.52	2.00	0.00	0.00	0.09	0.00
24.58	2.00	0.00	0.00	0.06	0.00	24.59	2.00	0.00	0.00	0.01	0.00
24.63	2.00	0.00	0.00	0.04	0.00	24.68	2.00	0.00	0.00	0.05	0.00
24.77	2.00	0.00	0.00	0.10	0.00	24.82	2.00	0.00	0.00	0.05	0.00
24.92	2.00	0.00	0.00	0.10	0.00	25.01	2.00	0.00	0.00	0.09	0.00
25.06	2.00	0.00	0.00	0.06	0.00	25.16	2.00	0.00	0.00	0.09	0.00
25.25	2.00	0.00	0.00	0.09	0.00	25.30	2.00	0.00	0.00	0.05	0.00
25.41	2.00	0.00	0.00	0.11	0.00	25.49	2.00	0.00	0.00	0.09	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
25.55	2.00	0.00	0.00	0.05	0.00	25.64	2.00	0.00	0.00	0.09	0.00
25.70	2.00	0.00	0.00	0.06	0.00	25.79	2.00	0.00	0.00	0.09	0.00
25.89	2.00	0.00	0.00	0.10	0.00	25.94	2.00	0.00	0.00	0.06	0.00
26.02	2.00	0.00	0.00	0.08	0.00	26.12	2.00	0.00	0.00	0.09	0.00
26.17	2.00	0.00	0.00	0.05	0.00	26.28	2.00	0.00	0.00	0.11	0.00
26.36	2.00	0.00	0.00	0.09	0.00	26.45	2.00	0.00	0.00	0.09	0.00
26.50	2.00	0.00	0.00	0.05	0.00	26.61	2.00	0.00	0.00	0.11	0.00
26.70	2.00	0.00	0.00	0.09	0.00	26.77	2.00	0.00	0.00	0.07	0.00
26.85	2.00	0.00	0.00	0.08	0.00	26.94	2.00	0.00	0.00	0.09	0.00
27.04	2.00	0.00	0.00	0.09	0.00	27.14	2.00	0.00	0.00	0.10	0.00
27.23	2.00	0.00	0.00	0.09	0.00	27.28	2.00	0.00	0.00	0.05	0.00
27.29	2.00	0.00	0.00	0.01	0.00	27.38	2.00	0.00	0.00	0.09	0.00
27.48	2.00	0.00	0.00	0.10	0.00	27.57	2.00	0.00	0.00	0.09	0.00
27.64	2.00	0.00	0.00	0.07	0.00	27.65	2.00	0.00	0.00	0.01	0.00
27.74	2.00	0.00	0.00	0.09	0.00	27.80	2.00	0.00	0.00	0.06	0.00
27.90	2.00	0.00	0.00	0.10	0.00	27.99	2.00	0.00	0.00	0.09	0.00
28.07	2.00	0.00	0.00	0.08	0.00	28.16	2.00	0.00	0.00	0.09	0.00
28.25	2.00	0.00	0.00	0.09	0.00	28.34	2.00	0.00	0.00	0.09	0.00
28.44	2.00	0.00	0.00	0.10	0.00	28.53	2.00	0.00	0.00	0.09	0.00
28.62	2.00	0.00	0.00	0.09	0.00	28.76	2.00	0.00	0.00	0.14	0.00
28.86	2.00	0.00	0.00	0.10	0.00	28.96	2.00	0.00	0.00	0.10	0.00
29.08	2.00	0.00	0.00	0.11	0.00	29.19	2.00	0.00	0.00	0.12	0.00
29.29	2.00	0.00	0.00	0.10	0.00	29.39	2.00	0.00	0.00	0.09	0.00
29.50	2.00	0.00	0.00	0.11	0.00	29.63	2.00	0.00	0.00	0.13	0.00
29.65	2.00	0.00	0.00	0.02	0.00	29.66	2.00	0.00	0.00	0.01	0.00
29.72	2.00	0.00	0.00	0.06	0.00	29.80	2.00	0.00	0.00	0.09	0.00
29.85	2.00	0.00	0.00	0.05	0.00	29.94	2.00	0.00	0.00	0.09	0.00
30.00	2.00	0.00	0.00	0.06	0.00	30.05	2.00	0.00	0.00	0.05	0.00
30.14	2.00	0.00	0.00	0.09	0.00	30.19	2.00	0.00	0.00	0.05	0.00
30.24	2.00	0.00	0.00	0.05	0.00	30.29	1.91	0.00	0.00	0.05	0.00
30.38	1.88	0.00	0.00	0.09	0.00	30.43	1.83	0.00	0.00	0.05	0.00
30.48	1.77	0.00	0.00	0.05	0.00	30.54	1.71	0.00	0.00	0.06	0.00
30.62	1.69	0.00	0.00	0.08	0.00	30.67	1.67	0.00	0.00	0.05	0.00
30.72	1.67	0.00	0.00	0.05	0.00	30.76	1.68	0.00	0.00	0.04	0.00
30.86	1.71	0.00	0.00	0.10	0.00	30.91	1.74	0.00	0.00	0.05	0.00
30.95	1.79	0.00	0.00	0.05	0.00	31.03	1.84	0.00	0.00	0.07	0.00
31.10	1.89	0.00	0.00	0.07	0.00	31.15	1.94	0.00	0.00	0.05	0.00
31.20	2.00	0.00	0.00	0.05	0.00	31.26	2.00	0.00	0.00	0.06	0.00
31.34	2.00	0.00	0.00	0.08	0.00	31.37	2.00	0.00	0.00	0.02	0.00
31.38	1.99	0.00	0.00	0.01	0.00	31.43	2.00	0.00	0.00	0.05	0.00
31.47	1.91	0.00	0.00	0.05	0.00	31.55	1.79	0.00	0.00	0.07	0.00
31.59	1.61	0.00	0.00	0.05	0.00	31.66	1.40	0.00	0.00	0.06	0.00
31.73	1.23	0.00	0.00	0.08	0.00	31.78	1.10	0.00	0.00	0.05	0.00
31.84	1.03	0.00	0.00	0.06	0.00	31.93	1.00	0.00	0.00	0.09	0.00
31.98	1.02	0.00	0.00	0.05	0.00	32.02	1.07	0.00	0.00	0.05	0.00
32.09	1.13	0.00	0.00	0.07	0.00	32.16	1.16	0.00	0.00	0.07	0.00
32.22	1.17	0.00	0.00	0.05	0.00	32.27	1.17	0.00	0.00	0.05	0.00
32.34	1.17	0.00	0.00	0.07	0.00	32.42	1.16	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
32.46	1.15	0.00	0.00	0.04	0.00	32.54	1.14	0.00	0.00	0.09	0.00
32.60	1.12	0.00	0.00	0.06	0.00	32.67	1.11	0.00	0.00	0.07	0.00
32.75	1.12	0.00	0.00	0.08	0.00	32.81	1.15	0.00	0.00	0.06	0.00
32.89	1.20	0.00	0.00	0.08	0.00	32.94	1.17	0.00	0.00	0.05	0.00
32.95	1.19	0.00	0.00	0.01	0.00	33.00	1.22	0.00	0.00	0.05	0.00
33.06	1.32	0.00	0.00	0.06	0.00	33.11	1.35	0.00	0.00	0.05	0.00
33.20	1.35	0.00	0.00	0.09	0.00	33.25	1.34	0.00	0.00	0.05	0.00
33.34	1.32	0.00	0.00	0.09	0.00	33.38	1.33	0.00	0.00	0.04	0.00
33.48	1.35	0.00	0.00	0.10	0.00	33.58	1.39	0.00	0.00	0.10	0.00
33.63	1.46	0.00	0.00	0.04	0.00	33.73	1.55	0.00	0.00	0.10	0.00
33.82	1.65	0.00	0.00	0.09	0.00	33.87	1.77	0.00	0.00	0.05	0.00
33.96	1.91	0.00	0.00	0.09	0.00	34.02	2.00	0.00	0.00	0.06	0.00
34.11	2.00	0.00	0.00	0.09	0.00	34.18	2.00	0.00	0.00	0.07	0.00
34.26	2.00	0.00	0.00	0.08	0.00	34.35	2.00	0.00	0.00	0.09	0.00
34.44	2.00	0.00	0.00	0.09	0.00	34.49	2.00	0.00	0.00	0.05	0.00
34.59	2.00	0.00	0.00	0.10	0.00	34.69	2.00	0.00	0.00	0.09	0.00
34.76	2.00	0.00	0.00	0.07	0.00	34.83	2.00	0.00	0.00	0.08	0.00
34.93	2.00	0.00	0.00	0.10	0.00	35.02	2.00	0.00	0.00	0.09	0.00
35.12	2.00	0.00	0.00	0.10	0.00	35.22	2.00	0.00	0.00	0.10	0.00
35.30	2.00	0.00	0.00	0.08	0.00	35.38	2.00	0.00	0.00	0.08	0.00
35.43	2.00	0.00	0.00	0.04	0.00	35.46	2.00	0.00	0.00	0.04	0.00
35.51	2.00	0.00	0.00	0.05	0.00	35.56	2.00	0.00	0.00	0.04	0.00
35.66	2.00	0.00	0.00	0.10	0.00	35.70	2.00	0.00	0.00	0.05	0.00
35.80	2.00	0.00	0.00	0.10	0.00	35.89	2.00	0.00	0.00	0.09	0.00
35.96	2.00	0.00	0.00	0.07	0.00	36.04	2.00	0.00	0.00	0.08	0.00
36.14	2.00	0.00	0.00	0.10	0.00	36.19	2.00	0.00	0.00	0.05	0.00
36.28	2.00	0.00	0.00	0.09	0.00	36.33	2.00	0.00	0.00	0.04	0.00
36.42	2.00	0.00	0.00	0.09	0.00	36.48	2.00	0.00	0.00	0.05	0.00
36.52	2.00	0.00	0.00	0.05	0.00	36.62	2.00	0.00	0.00	0.10	0.00
36.68	2.00	0.00	0.00	0.06	0.00	36.77	2.00	0.00	0.00	0.09	0.00
36.86	2.00	0.00	0.00	0.09	0.00	36.90	2.00	0.00	0.00	0.05	0.00
37.00	2.00	0.00	0.00	0.10	0.00	37.10	2.00	0.00	0.00	0.10	0.00
37.20	2.00	0.00	0.00	0.10	0.00	37.29	2.00	0.00	0.00	0.09	0.00
37.39	2.00	0.00	0.00	0.10	0.00	37.49	2.00	0.00	0.00	0.10	0.00
37.53	2.00	0.00	0.00	0.05	0.00	37.58	2.00	0.00	0.00	0.04	0.00
37.62	2.00	0.00	0.00	0.05	0.00	37.69	2.00	0.00	0.00	0.07	0.00
37.77	2.00	0.00	0.00	0.08	0.00	37.82	2.00	0.00	0.00	0.05	0.00
37.87	2.00	0.00	0.00	0.05	0.00	37.91	2.00	0.00	0.00	0.05	0.00
37.97	2.00	0.00	0.00	0.06	0.00	38.06	2.00	0.00	0.00	0.09	0.00
38.10	2.00	0.00	0.00	0.04	0.00	38.17	2.00	0.00	0.00	0.07	0.00
38.25	2.00	0.00	0.00	0.08	0.00	38.35	2.00	0.00	0.00	0.09	0.00
38.40	2.00	0.00	0.00	0.05	0.00	38.46	2.00	0.00	0.00	0.06	0.00
38.54	2.00	0.00	0.00	0.08	0.00	38.60	2.00	0.00	0.00	0.06	0.00
38.69	2.00	0.00	0.00	0.08	0.00	38.74	2.00	0.00	0.00	0.05	0.00
38.83	2.00	0.00	0.00	0.09	0.00	38.88	2.00	0.00	0.00	0.05	0.00
38.97	2.00	0.00	0.00	0.09	0.00	39.02	2.00	0.00	0.00	0.05	0.00
39.11	2.00	0.00	0.00	0.09	0.00	39.16	2.00	0.00	0.00	0.06	0.00
39.23	1.92	0.00	0.00	0.06	0.00	39.24	1.83	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
39.28	1.78	0.00	0.00	0.04	0.00	39.32	1.80	0.00	0.00	0.05	0.00
39.39	2.00	0.00	0.00	0.06	0.00	39.47	2.00	0.00	0.00	0.08	0.00
39.54	2.00	0.00	0.00	0.07	0.00	39.62	2.00	0.00	0.00	0.08	0.00
39.71	2.00	0.00	0.00	0.09	0.00	39.76	2.00	0.00	0.00	0.05	0.00
39.85	2.00	0.00	0.00	0.09	0.00	39.90	2.00	0.00	0.00	0.06	0.00
40.00	2.00	0.00	0.00	0.10	0.00	40.06	2.00	0.00	0.00	0.06	0.00
40.15	2.00	0.00	0.00	0.09	0.00	40.21	2.00	0.00	0.00	0.06	0.00
40.29	2.00	0.00	0.00	0.08	0.00	40.35	2.00	0.00	0.00	0.06	0.00
40.43	2.00	0.00	0.00	0.08	0.00	40.52	2.00	0.00	0.00	0.09	0.00
40.58	2.00	0.00	0.00	0.05	0.00	40.67	2.00	0.00	0.00	0.10	0.00
40.77	2.00	0.00	0.00	0.09	0.00	40.84	2.00	0.00	0.00	0.07	0.00
40.89	2.00	0.00	0.00	0.05	0.00	40.94	2.00	0.00	0.00	0.05	0.00
41.03	2.00	0.00	0.00	0.10	0.00	41.08	2.00	0.00	0.00	0.05	0.00
41.14	2.00	0.00	0.00	0.06	0.00	41.22	2.00	0.00	0.00	0.08	0.00
41.28	0.75	0.25	1.20	0.06	0.02	41.33	0.78	0.22	1.41	0.05	0.01
41.42	0.82	0.18	2.00	0.09	0.02	41.47	0.87	0.13	3.68	0.05	0.01
41.52	0.93	0.07	13.55	0.06	0.00	41.62	0.98	0.02	23365.55	0.09	0.00
41.67	1.07	0.00	0.00	0.05	0.00	41.76	1.16	0.00	0.00	0.09	0.00
41.82	1.28	0.00	0.00	0.06	0.00	41.90	1.37	0.00	0.00	0.08	0.00
41.99	1.44	0.00	0.00	0.09	0.00	42.05	1.48	0.00	0.00	0.06	0.00
42.15	1.48	0.00	0.00	0.10	0.00	42.23	1.46	0.00	0.00	0.09	0.00
42.30	1.43	0.00	0.00	0.07	0.00	42.38	1.36	0.00	0.00	0.08	0.00
42.48	1.27	0.00	0.00	0.10	0.00	42.57	1.18	0.00	0.00	0.09	0.00
42.64	1.11	0.00	0.00	0.07	0.00	42.72	1.04	0.00	0.00	0.08	0.00
42.82	0.98	0.02	148889.56	0.10	0.00	42.90	0.94	0.06	23.51	0.08	0.01
42.97	0.92	0.08	11.30	0.07	0.01	43.06	0.93	0.07	13.85	0.09	0.01
43.15	0.89	0.11	5.32	0.09	0.01	43.20	0.85	0.15	2.78	0.05	0.01
43.30	0.80	0.20	1.68	0.10	0.02	43.40	0.82	0.18	1.97	0.10	0.02
43.48	0.87	0.13	3.65	0.08	0.01	43.51	0.92	0.08	9.02	0.03	0.00
43.52	0.97	0.03	357.31	0.01	0.00	43.56	1.09	0.00	0.00	0.04	0.00
43.61	1.30	0.00	0.00	0.05	0.00	43.67	1.49	0.00	0.00	0.06	0.00
43.72	1.68	0.00	0.00	0.05	0.00	43.80	1.83	0.00	0.00	0.08	0.00
43.85	1.95	0.00	0.00	0.05	0.00	43.90	2.00	0.00	0.00	0.05	0.00
43.94	2.00	0.00	0.00	0.05	0.00	43.99	2.00	0.00	0.00	0.05	0.00
44.08	2.00	0.00	0.00	0.09	0.00	44.14	2.00	0.00	0.00	0.06	0.00
44.22	2.00	0.00	0.00	0.08	0.00	44.28	2.00	0.00	0.00	0.05	0.00
44.33	2.00	0.00	0.00	0.05	0.00	44.40	2.00	0.00	0.00	0.07	0.00
44.48	2.00	0.00	0.00	0.08	0.00	44.52	2.00	0.00	0.00	0.05	0.00
44.61	2.00	0.00	0.00	0.09	0.00	44.72	2.00	0.00	0.00	0.11	0.00
44.77	2.00	0.00	0.00	0.05	0.00	44.91	2.00	0.00	0.00	0.14	0.00
44.95	2.00	0.00	0.00	0.05	0.00	45.02	2.00	0.00	0.00	0.07	0.00
45.04	1.62	0.00	0.00	0.02	0.00	45.06	1.68	0.00	0.00	0.02	0.00
45.11	1.75	0.00	0.00	0.05	0.00	45.15	2.00	0.00	0.00	0.05	0.00
45.21	2.00	0.00	0.00	0.05	0.00	45.25	2.00	0.00	0.00	0.04	0.00
45.30	2.00	0.00	0.00	0.05	0.00	45.35	2.00	0.00	0.00	0.05	0.00
45.41	2.00	0.00	0.00	0.06	0.00	45.49	2.00	0.00	0.00	0.08	0.00
45.55	2.00	0.00	0.00	0.05	0.00	45.63	2.00	0.00	0.00	0.09	0.00
45.69	2.00	0.00	0.00	0.05	0.00	45.78	2.00	0.00	0.00	0.09	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
45.84	2.00	0.00	0.00	0.06	0.00	45.93	1.81	0.00	0.00	0.09	0.00
46.02	2.00	0.00	0.00	0.09	0.00	46.08	2.00	0.00	0.00	0.05	0.00
46.16	2.00	0.00	0.00	0.09	0.00	46.24	2.00	0.00	0.00	0.07	0.00
46.31	2.00	0.00	0.00	0.07	0.00	46.41	2.00	0.00	0.00	0.10	0.00
46.48	2.00	0.00	0.00	0.06	0.00	46.56	2.00	0.00	0.00	0.09	0.00
46.65	2.00	0.00	0.00	0.09	0.00	46.75	2.00	0.00	0.00	0.10	0.00
46.84	2.00	0.00	0.00	0.09	0.00	46.94	2.00	0.00	0.00	0.09	0.00
47.02	2.00	0.00	0.00	0.08	0.00	47.08	2.00	0.00	0.00	0.06	0.00
47.12	2.00	0.00	0.00	0.04	0.00	47.16	2.00	0.00	0.00	0.04	0.00
47.21	2.00	0.00	0.00	0.05	0.00	47.27	2.00	0.00	0.00	0.06	0.00
47.35	2.00	0.00	0.00	0.08	0.00	47.40	2.00	0.00	0.00	0.05	0.00
47.50	2.00	0.00	0.00	0.10	0.00	47.55	2.00	0.00	0.00	0.05	0.00
47.61	2.00	0.00	0.00	0.06	0.00	47.69	2.00	0.00	0.00	0.08	0.00
47.76	2.00	0.00	0.00	0.08	0.00	47.83	2.00	0.00	0.00	0.07	0.00
47.93	2.00	0.00	0.00	0.10	0.00	48.02	2.00	0.00	0.00	0.09	0.00
48.09	2.00	0.00	0.00	0.07	0.00	48.18	2.00	0.00	0.00	0.09	0.00
48.27	2.00	0.00	0.00	0.09	0.00	48.37	2.00	0.00	0.00	0.10	0.00
48.46	2.00	0.00	0.00	0.09	0.00	48.52	2.00	0.00	0.00	0.07	0.00
48.60	2.00	0.00	0.00	0.08	0.00	48.70	2.00	0.00	0.00	0.10	0.00
48.79	2.00	0.00	0.00	0.09	0.00	48.85	2.00	0.00	0.00	0.06	0.00
48.94	2.00	0.00	0.00	0.09	0.00	49.04	2.00	0.00	0.00	0.09	0.00
49.13	2.00	0.00	0.00	0.09	0.00	49.23	2.00	0.00	0.00	0.10	0.00
49.33	2.00	0.00	0.00	0.09	0.00	49.38	2.00	0.00	0.00	0.05	0.00
49.42	2.00	0.00	0.00	0.04	0.00	49.48	2.00	0.00	0.00	0.06	0.00
49.53	2.00	0.00	0.00	0.04	0.00	49.58	2.00	0.00	0.00	0.05	0.00
49.63	2.00	0.00	0.00	0.05	0.00	49.72	2.00	0.00	0.00	0.10	0.00
49.77	2.00	0.00	0.00	0.05	0.00	49.83	2.00	0.00	0.00	0.05	0.00
49.92	2.00	0.00	0.00	0.09	0.00	49.97	2.00	0.00	0.00	0.05	0.00
50.04	2.00	0.00	0.00	0.07	0.00	50.11	2.00	0.00	0.00	0.07	0.00
50.20	2.00	0.00	0.00	0.09	0.00	50.27	2.00	0.00	0.00	0.07	0.00
50.34	2.00	0.00	0.00	0.07	0.00	50.45	2.00	0.00	0.00	0.10	0.00
50.54	2.00	0.00	0.00	0.09	0.00	50.59	2.00	0.00	0.00	0.05	0.00
50.68	2.00	0.00	0.00	0.09	0.00	50.79	2.00	0.00	0.00	0.10	0.00
50.88	2.00	0.00	0.00	0.09	0.00	50.98	2.00	0.00	0.00	0.10	0.00
51.07	2.00	0.00	0.00	0.09	0.00	51.17	2.00	0.00	0.00	0.10	0.00
51.24	2.00	0.00	0.00	0.07	0.00	51.33	2.00	0.00	0.00	0.09	0.00
51.46	2.00	0.00	0.00	0.13	0.00	51.46	2.00	0.00	0.00	0.00	0.00
51.51	2.00	0.00	0.00	0.05	0.00	51.56	2.00	0.00	0.00	0.05	0.00
51.65	2.00	0.00	0.00	0.09	0.00	51.71	2.00	0.00	0.00	0.06	0.00
51.79	2.00	0.00	0.00	0.09	0.00	51.85	2.00	0.00	0.00	0.05	0.00
51.94	2.00	0.00	0.00	0.09	0.00	51.99	2.00	0.00	0.00	0.05	0.00
52.09	2.00	0.00	0.00	0.10	0.00	52.19	2.00	0.00	0.00	0.10	0.00
52.28	2.00	0.00	0.00	0.09	0.00	52.35	2.00	0.00	0.00	0.07	0.00
52.43	2.00	0.00	0.00	0.08	0.00	52.52	2.00	0.00	0.00	0.09	0.00
52.62	2.00	0.00	0.00	0.11	0.00	52.72	2.00	0.00	0.00	0.09	0.00
52.81	2.00	0.00	0.00	0.09	0.00	52.91	2.00	0.00	0.00	0.10	0.00
53.00	2.00	0.00	0.00	0.09	0.00	53.10	2.00	0.00	0.00	0.10	0.00
53.20	2.00	0.00	0.00	0.09	0.00	53.29	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
53.38	2.00	0.00	0.00	0.09	0.00	53.46	2.00	0.00	0.00	0.08	0.00
53.53	2.00	0.00	0.00	0.07	0.00	53.63	2.00	0.00	0.00	0.10	0.00
53.73	2.00	0.00	0.00	0.10	0.00	53.82	2.00	0.00	0.00	0.09	0.00
53.92	2.00	0.00	0.00	0.10	0.00	53.94	1.66	0.00	0.00	0.02	0.00
53.96	1.48	0.00	0.00	0.02	0.00	53.97	1.55	0.00	0.00	0.01	0.00
54.05	1.73	0.00	0.00	0.08	0.00	54.08	2.00	0.00	0.00	0.02	0.00
54.13	2.00	0.00	0.00	0.05	0.00	54.19	2.00	0.00	0.00	0.06	0.00
54.25	2.00	0.00	0.00	0.06	0.00	54.28	2.00	0.00	0.00	0.03	0.00
54.29	2.00	0.00	0.00	0.02	0.00	54.34	2.00	0.00	0.00	0.05	0.00
54.35	2.00	0.00	0.00	0.01	0.00	54.40	2.00	0.00	0.00	0.05	0.00
54.44	2.00	0.00	0.00	0.04	0.00	54.49	2.00	0.00	0.00	0.05	0.00
54.53	2.00	0.00	0.00	0.04	0.00	54.57	2.00	0.00	0.00	0.03	0.00
54.58	2.00	0.00	0.00	0.02	0.00	54.63	2.00	0.00	0.00	0.04	0.00
54.68	2.00	0.00	0.00	0.05	0.00	54.73	2.00	0.00	0.00	0.05	0.00
54.78	2.00	0.00	0.00	0.05	0.00	54.83	2.00	0.00	0.00	0.05	0.00
54.88	2.00	0.00	0.00	0.05	0.00	54.92	2.00	0.00	0.00	0.05	0.00
54.97	2.00	0.00	0.00	0.05	0.00	55.02	2.00	0.00	0.00	0.05	0.00
55.12	2.00	0.00	0.00	0.09	0.00	55.17	2.00	0.00	0.00	0.05	0.00
55.25	2.00	0.00	0.00	0.08	0.00	55.31	2.00	0.00	0.00	0.06	0.00
55.36	1.98	0.00	0.00	0.05	0.00	55.45	1.82	0.00	0.00	0.09	0.00
55.50	1.66	0.00	0.00	0.05	0.00	55.60	1.56	0.00	0.00	0.10	0.00
55.65	1.41	0.00	0.00	0.05	0.00	55.71	1.33	0.00	0.00	0.06	0.00
55.75	1.26	0.00	0.00	0.04	0.00	55.79	1.27	0.00	0.00	0.04	0.00
55.84	1.32	0.00	0.00	0.05	0.00	55.89	1.35	0.00	0.00	0.05	0.00
55.90	1.37	0.00	0.00	0.01	0.00	55.94	1.34	0.00	0.00	0.03	0.00
55.99	1.30	0.00	0.00	0.05	0.00	56.03	1.24	0.00	0.00	0.05	0.00
56.08	1.21	0.00	0.00	0.05	0.00	56.14	1.17	0.00	0.00	0.06	0.00
56.22	1.13	0.00	0.00	0.08	0.00	56.28	1.10	0.00	0.00	0.05	0.00
56.33	1.09	0.00	0.00	0.05	0.00	56.38	1.09	0.00	0.00	0.05	0.00
56.45	1.13	0.00	0.00	0.07	0.00	56.52	1.18	0.00	0.00	0.07	0.00
56.62	1.24	0.00	0.00	0.10	0.00	56.66	1.30	0.00	0.00	0.05	0.00
56.73	1.39	0.00	0.00	0.07	0.00	56.81	1.46	0.00	0.00	0.08	0.00
56.95	1.53	0.00	0.00	0.14	0.00	57.00	1.61	0.00	0.00	0.04	0.00
57.09	1.63	0.00	0.00	0.10	0.00	57.19	1.62	0.00	0.00	0.10	0.00
57.27	1.50	0.00	0.00	0.08	0.00	57.35	1.47	0.00	0.00	0.07	0.00
57.44	1.41	0.00	0.00	0.09	0.00	57.50	1.40	0.00	0.00	0.07	0.00
57.52	1.52	0.00	0.00	0.02	0.00	57.58	1.78	0.00	0.00	0.05	0.00
57.63	2.00	0.00	0.00	0.05	0.00	57.72	2.00	0.00	0.00	0.09	0.00
57.77	1.98	0.00	0.00	0.04	0.00	57.82	1.83	0.00	0.00	0.05	0.00
57.91	1.66	0.00	0.00	0.09	0.00	57.96	1.48	0.00	0.00	0.05	0.00
58.02	1.61	0.00	0.00	0.05	0.00	58.09	1.69	0.00	0.00	0.08	0.00
58.16	1.82	0.00	0.00	0.06	0.00	58.25	1.87	0.00	0.00	0.10	0.00
58.30	1.83	0.00	0.00	0.05	0.00	58.40	1.76	0.00	0.00	0.10	0.00
58.50	1.74	0.00	0.00	0.10	0.00	58.56	1.71	0.00	0.00	0.06	0.00
58.64	1.75	0.00	0.00	0.08	0.00	58.73	1.90	0.00	0.00	0.09	0.00
58.78	1.92	0.00	0.00	0.05	0.00	58.88	1.98	0.00	0.00	0.09	0.00
58.97	2.00	0.00	0.00	0.09	0.00	59.07	1.97	0.00	0.00	0.10	0.00
59.13	1.86	0.00	0.00	0.05	0.00	59.23	1.78	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
59.31	1.61	0.00	0.00	0.09	0.00	59.38	1.50	0.00	0.00	0.07	0.00
59.41	1.42	0.00	0.00	0.03	0.00	59.46	1.45	0.00	0.00	0.05	0.00
59.51	1.45	0.00	0.00	0.05	0.00	59.57	1.51	0.00	0.00	0.05	0.00
59.66	1.65	0.00	0.00	0.09	0.00	59.75	1.82	0.00	0.00	0.09	0.00
59.80	1.99	0.00	0.00	0.05	0.00	59.85	2.00	0.00	0.00	0.05	0.00
59.91	2.00	0.00	0.00	0.06	0.00	59.99	2.00	0.00	0.00	0.08	0.00
60.05	2.00	0.00	0.00	0.05	0.00	60.09	2.00	0.00	0.00	0.04	0.00
60.14	2.00	0.00	0.00	0.05	0.00	60.19	2.00	0.00	0.00	0.05	0.00
60.22	2.00	0.00	0.00	0.03	0.00	60.28	1.93	0.00	0.00	0.06	0.00
60.33	1.69	0.00	0.00	0.05	0.00	60.38	1.41	0.00	0.00	0.05	0.00
60.42	1.25	0.00	0.00	0.04	0.00	60.48	1.09	0.00	0.00	0.06	0.00
60.57	0.93	0.07	15.13	0.09	0.00	60.66	0.80	0.20	1.61	0.09	0.00
60.68	0.73	0.27	1.06	0.03	0.00	60.69	0.70	0.30	0.91	0.01	0.00
60.74	0.67	0.33	0.81	0.05	0.00	60.79	0.64	0.36	0.71	0.05	0.00
60.84	0.60	0.40	0.63	0.05	0.00	60.89	0.58	0.42	0.59	0.05	0.00
60.98	0.56	0.44	0.57	0.09	0.01	61.03	0.58	0.42	0.60	0.04	0.00
61.08	0.67	0.33	0.80	0.06	0.00	61.18	0.78	0.22	1.42	0.09	0.00
61.23	0.91	0.09	7.91	0.06	0.00	61.31	0.83	0.17	2.12	0.08	0.00
61.42	0.83	0.17	2.14	0.10	0.00	61.47	0.92	0.08	10.64	0.05	0.00
61.51	1.03	0.00	0.00	0.05	0.00	61.54	1.05	0.00	0.00	0.02	0.00
61.57	1.11	0.00	0.00	0.03	0.00	61.58	1.24	0.00	0.00	0.02	0.00
61.61	1.10	0.00	0.00	0.03	0.00	61.63	1.02	0.00	0.00	0.01	0.00
61.63	0.80	0.20	1.66	0.01	0.00	61.66	0.67	0.33	0.80	0.02	0.00
61.67	0.73	0.27	1.04	0.01	0.00	61.70	0.71	0.29	0.96	0.03	0.00
61.71	0.72	0.28	1.00	0.01	0.00	61.76	0.75	0.25	1.18	0.04	0.00
61.80	0.79	0.21	1.57	0.05	0.00	61.84	0.83	0.17	2.16	0.04	0.00
61.86	0.90	0.10	5.56	0.02	0.00	61.93	0.97	0.03	567.87	0.07	0.00
61.98	0.93	0.07	13.38	0.05	0.00	62.04	1.16	0.00	0.00	0.06	0.00
62.09	1.44	0.00	0.00	0.05	0.00	62.14	1.66	0.00	0.00	0.05	0.00
62.19	1.80	0.00	0.00	0.05	0.00	62.24	1.88	0.00	0.00	0.05	0.00
62.26	1.97	0.00	0.00	0.02	0.00	62.29	1.97	0.00	0.00	0.03	0.00
62.38	1.93	0.00	0.00	0.09	0.00	62.44	1.72	0.00	0.00	0.06	0.00
62.46	1.55	0.00	0.00	0.02	0.00	62.47	1.41	0.00	0.00	0.01	0.00
62.51	1.44	0.00	0.00	0.04	0.00	62.56	1.52	0.00	0.00	0.05	0.00
62.60	1.61	0.00	0.00	0.04	0.00	62.65	1.64	0.00	0.00	0.05	0.00
62.70	1.65	0.00	0.00	0.05	0.00	62.75	1.65	0.00	0.00	0.05	0.00
62.80	1.74	0.00	0.00	0.05	0.00	62.85	2.00	0.00	0.00	0.05	0.00
62.89	2.00	0.00	0.00	0.05	0.00	62.97	2.00	0.00	0.00	0.07	0.00
63.04	2.00	0.00	0.00	0.07	0.00	63.09	2.00	0.00	0.00	0.05	0.00
63.13	2.00	0.00	0.00	0.05	0.00	63.19	2.00	0.00	0.00	0.05	0.00
63.23	2.00	0.00	0.00	0.04	0.00	63.28	2.00	0.00	0.00	0.05	0.00
63.32	2.00	0.00	0.00	0.04	0.00	63.38	2.00	0.00	0.00	0.06	0.00
63.44	2.00	0.00	0.00	0.06	0.00	63.52	2.00	0.00	0.00	0.08	0.00
63.57	2.00	0.00	0.00	0.05	0.00	63.66	2.00	0.00	0.00	0.09	0.00
63.73	2.00	0.00	0.00	0.06	0.00	63.76	1.53	0.00	0.00	0.03	0.00
63.76	1.45	0.00	0.00	0.01	0.00	63.78	1.54	0.00	0.00	0.02	0.00
63.81	1.86	0.00	0.00	0.03	0.00	63.85	1.97	0.00	0.00	0.04	0.00
63.86	1.94	0.00	0.00	0.01	0.00	63.91	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
63.94	2.00	0.00	0.00	0.03	0.00	63.95	2.00	0.00	0.00	0.02	0.00
64.00	2.00	0.00	0.00	0.05	0.00	64.02	2.00	0.00	0.00	0.01	0.00
64.05	2.00	0.00	0.00	0.03	0.00	64.09	1.99	0.00	0.00	0.04	0.00
64.11	1.93	0.00	0.00	0.02	0.00	64.15	1.86	0.00	0.00	0.04	0.00
64.20	1.82	0.00	0.00	0.05	0.00	64.25	1.84	0.00	0.00	0.05	0.00
64.29	2.00	0.00	0.00	0.04	0.00	64.34	2.00	0.00	0.00	0.05	0.00
64.43	2.00	0.00	0.00	0.08	0.00	64.48	2.00	0.00	0.00	0.05	0.00
64.53	2.00	0.00	0.00	0.05	0.00	64.58	2.00	0.00	0.00	0.05	0.00
64.63	2.00	0.00	0.00	0.05	0.00	64.68	2.00	0.00	0.00	0.05	0.00
64.73	2.00	0.00	0.00	0.05	0.00	64.77	2.00	0.00	0.00	0.05	0.00
64.82	2.00	0.00	0.00	0.04	0.00	64.87	2.00	0.00	0.00	0.05	0.00
64.89	2.00	0.00	0.00	0.02	0.00	64.93	2.00	0.00	0.00	0.04	0.00
64.94	2.00	0.00	0.00	0.01	0.00	64.98	2.00	0.00	0.00	0.04	0.00
64.99	2.00	0.00	0.00	0.01	0.00	65.03	2.00	0.00	0.00	0.05	0.00
65.08	2.00	0.00	0.00	0.05	0.00	65.13	2.00	0.00	0.00	0.05	0.00
65.17	2.00	0.00	0.00	0.04	0.00	65.22	2.00	0.00	0.00	0.05	0.00
65.23	2.00	0.00	0.00	0.01	0.00	65.28	2.00	0.00	0.00	0.05	0.00
65.32	2.00	0.00	0.00	0.04	0.00	65.37	2.00	0.00	0.00	0.05	0.00
65.42	2.00	0.00	0.00	0.05	0.00	65.47	2.00	0.00	0.00	0.05	0.00
65.48	2.00	0.00	0.00	0.01	0.00	65.49	2.00	0.00	0.00	0.01	0.00
65.52	2.00	0.00	0.00	0.03	0.00	65.57	2.00	0.00	0.00	0.05	0.00
65.62	2.00	0.00	0.00	0.05	0.00	65.67	2.00	0.00	0.00	0.05	0.00
65.69	2.00	0.00	0.00	0.01	0.00	65.72	2.00	0.00	0.00	0.03	0.00
65.77	2.00	0.00	0.00	0.05	0.00	65.82	2.00	0.00	0.00	0.05	0.00
65.86	2.00	0.00	0.00	0.04	0.00	65.86	2.00	0.00	0.00	0.01	0.00
65.91	2.00	0.00	0.00	0.05	0.00	65.96	2.00	0.00	0.00	0.04	0.00

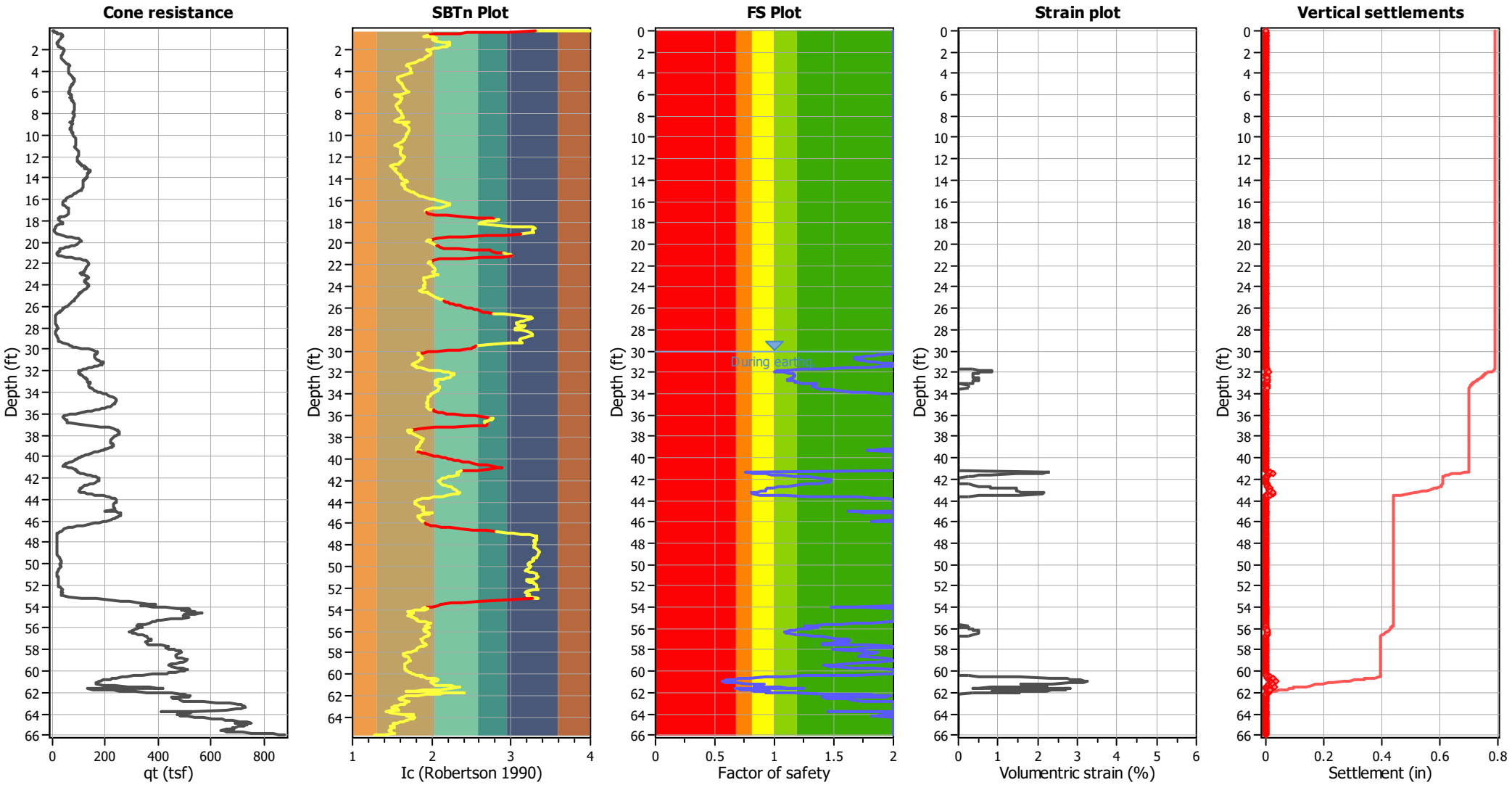
Overall liquefaction potential: 0.21

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.05	136.43	2.00	0.00	1.00	0.00	30.14	140.95	2.00	0.00	1.00	0.00
30.19	142.08	2.00	0.00	1.00	0.00	30.24	142.19	2.00	0.00	1.00	0.00
30.29	142.38	1.91	0.00	1.00	0.00	30.38	141.39	1.88	0.00	1.00	0.00
30.43	139.76	1.83	0.00	1.00	0.00	30.48	137.67	1.77	0.00	1.00	0.00
30.54	135.86	1.71	0.00	1.00	0.00	30.62	134.98	1.69	0.00	1.00	0.00
30.67	134.34	1.67	0.00	1.00	0.00	30.72	134.61	1.67	0.00	1.00	0.00
30.76	134.89	1.68	0.00	1.00	0.00	30.86	135.92	1.71	0.00	1.00	0.00
30.91	137.26	1.74	0.00	1.00	0.00	30.95	138.94	1.79	0.00	1.00	0.00
31.03	140.71	1.84	0.00	1.00	0.00	31.10	142.33	1.89	0.00	1.00	0.00
31.15	144.07	1.94	0.00	1.00	0.00	31.20	146.05	2.00	0.00	1.00	0.00
31.26	147.81	2.00	0.00	1.00	0.00	31.34	147.23	2.00	0.00	1.00	0.00
31.37	146.99	2.00	0.00	1.00	0.00	31.38	145.70	1.99	0.00	1.00	0.00
31.43	146.17	2.00	0.00	1.00	0.00	31.47	143.44	1.91	0.00	1.00	0.00
31.55	139.35	1.79	0.00	1.00	0.00	31.59	132.93	1.61	0.00	1.00	0.00
31.66	124.83	1.40	0.00	1.00	0.00	31.73	116.80	1.23	0.36	1.00	0.00
31.78	110.36	1.10	0.52	1.00	0.00	31.84	106.34	1.03	0.83	1.00	0.01
31.93	104.84	1.00	0.85	1.00	0.01	31.98	106.04	1.02	0.84	1.00	0.00
32.02	108.88	1.07	0.52	1.00	0.00	32.09	111.87	1.13	0.51	1.00	0.00
32.16	113.86	1.16	0.37	1.00	0.00	32.22	114.52	1.17	0.37	1.00	0.00
32.27	114.53	1.17	0.37	1.00	0.00	32.34	114.38	1.17	0.37	1.00	0.00
32.42	114.11	1.16	0.37	1.00	0.00	32.46	113.62	1.15	0.37	1.00	0.00
32.54	113.25	1.14	0.51	1.00	0.01	32.60	112.00	1.12	0.51	1.00	0.00
32.67	111.53	1.11	0.51	1.00	0.00	32.75	111.85	1.12	0.51	1.00	0.00
32.81	113.95	1.15	0.37	1.00	0.00	32.89	116.21	1.20	0.36	1.00	0.00
32.94	114.84	1.17	0.37	1.00	0.00	32.95	116.07	1.19	0.36	1.00	0.00
33.00	117.56	1.22	0.36	1.00	0.00	33.06	122.40	1.32	0.25	1.00	0.00
33.11	123.66	1.35	0.00	1.00	0.00	33.20	123.53	1.35	0.25	1.00	0.00
33.25	123.06	1.34	0.25	1.00	0.00	33.34	122.48	1.32	0.25	1.00	0.00
33.38	122.68	1.33	0.25	1.00	0.00	33.48	123.78	1.35	0.25	1.00	0.00
33.58	125.79	1.39	0.00	1.00	0.00	33.63	128.81	1.46	0.00	1.00	0.00
33.73	132.15	1.55	0.00	1.00	0.00	33.82	136.16	1.65	0.00	1.00	0.00
33.87	140.58	1.77	0.00	1.00	0.00	33.96	145.13	1.91	0.00	1.00	0.00
34.02	150.66	2.00	0.00	1.00	0.00	34.11	157.32	2.00	0.00	1.00	0.00
34.18	164.99	2.00	0.00	1.00	0.00	34.26	172.52	2.00	0.00	1.00	0.00
34.35	179.50	2.00	0.00	1.00	0.00	34.44	185.53	2.00	0.00	1.00	0.00
34.49	190.23	2.00	0.00	1.00	0.00	34.59	192.83	2.00	0.00	1.00	0.00
34.69	194.12	2.00	0.00	1.00	0.00	34.76	194.53	2.00	0.00	1.00	0.00
34.83	194.02	2.00	0.00	1.00	0.00	34.93	191.54	2.00	0.00	1.00	0.00
35.02	188.08	2.00	0.00	1.00	0.00	35.12	184.23	2.00	0.00	1.00	0.00
35.22	181.13	2.00	0.00	1.00	0.00	35.30	177.46	2.00	0.00	1.00	0.00
35.38	168.21	2.00	0.00	1.00	0.00	35.43	161.35	2.00	0.00	1.00	0.00
35.46	155.80	2.00	0.00	1.00	0.00	35.51	153.78	2.00	0.00	1.00	0.00
35.56	146.76	2.00	0.00	1.00	0.00	35.66	138.53	2.00	0.00	1.00	0.00
35.70	130.03	2.00	0.00	1.00	0.00	35.80	123.66	2.00	0.00	1.00	0.00
35.89	119.95	2.00	0.00	1.00	0.00	35.96	120.81	2.00	0.00	1.00	0.00
36.04	120.37	2.00	0.00	1.00	0.00	36.14	117.01	2.00	0.00	1.00	0.00
36.19	110.69	2.00	0.00	1.00	0.00	36.28	110.05	2.00	0.00	1.00	0.00
36.33	108.32	2.00	0.00	1.00	0.00	36.42	108.08	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
36.48	107.27	2.00	0.00	1.00	0.00	36.52	112.95	2.00	0.00	1.00	0.00
36.62	119.67	2.00	0.00	1.00	0.00	36.68	126.59	2.00	0.00	1.00	0.00
36.77	128.11	2.00	0.00	1.00	0.00	36.86	126.60	2.00	0.00	1.00	0.00
36.90	115.19	2.00	0.00	1.00	0.00	37.00	103.13	2.00	0.00	1.00	0.00
37.10	112.56	2.00	0.00	1.00	0.00	37.20	136.84	2.00	0.00	1.00	0.00
37.29	147.30	2.00	0.00	1.00	0.00	37.39	149.01	2.00	0.00	1.00	0.00
37.49	155.00	2.00	0.00	1.00	0.00	37.53	160.20	2.00	0.00	1.00	0.00
37.58	165.44	2.00	0.00	1.00	0.00	37.62	169.66	2.00	0.00	1.00	0.00
37.69	175.10	2.00	0.00	1.00	0.00	37.77	179.78	2.00	0.00	1.00	0.00
37.82	183.39	2.00	0.00	1.00	0.00	37.87	184.85	2.00	0.00	1.00	0.00
37.91	184.82	2.00	0.00	1.00	0.00	37.97	183.06	2.00	0.00	1.00	0.00
38.06	179.59	2.00	0.00	1.00	0.00	38.10	175.74	2.00	0.00	1.00	0.00
38.17	172.34	2.00	0.00	1.00	0.00	38.25	169.66	2.00	0.00	1.00	0.00
38.35	167.11	2.00	0.00	1.00	0.00	38.40	164.83	2.00	0.00	1.00	0.00
38.46	163.21	2.00	0.00	1.00	0.00	38.54	162.26	2.00	0.00	1.00	0.00
38.60	161.69	2.00	0.00	1.00	0.00	38.69	161.77	2.00	0.00	1.00	0.00
38.74	162.53	2.00	0.00	1.00	0.00	38.83	163.73	2.00	0.00	1.00	0.00
38.88	163.54	2.00	0.00	1.00	0.00	38.97	162.47	2.00	0.00	1.00	0.00
39.02	160.45	2.00	0.00	1.00	0.00	39.11	158.54	2.00	0.00	1.00	0.00
39.16	154.99	2.00	0.00	1.00	0.00	39.23	148.10	1.92	0.00	1.00	0.00
39.24	145.08	1.83	0.00	1.00	0.00	39.28	143.39	1.78	0.00	1.00	0.00
39.32	144.08	1.80	0.00	1.00	0.00	39.39	139.67	2.00	0.00	1.00	0.00
39.47	133.48	2.00	0.00	1.00	0.00	39.54	125.99	2.00	0.00	1.00	0.00
39.62	117.99	2.00	0.00	1.00	0.00	39.71	110.70	2.00	0.00	1.00	0.00
39.76	105.08	2.00	0.00	1.00	0.00	39.85	101.34	2.00	0.00	1.00	0.00
39.90	98.95	2.00	0.00	1.00	0.00	40.00	97.53	2.00	0.00	1.00	0.00
40.06	96.96	2.00	0.00	1.00	0.00	40.15	97.18	2.00	0.00	1.00	0.00
40.21	98.86	2.00	0.00	1.00	0.00	40.29	102.19	2.00	0.00	1.00	0.00
40.35	108.27	2.00	0.00	1.00	0.00	40.43	111.81	2.00	0.00	1.00	0.00
40.52	114.58	2.00	0.00	1.00	0.00	40.58	115.00	2.00	0.00	1.00	0.00
40.67	116.83	2.00	0.00	1.00	0.00	40.77	117.65	2.00	0.00	1.00	0.00
40.84	117.99	2.00	0.00	1.00	0.00	40.89	116.25	2.00	0.00	1.00	0.00
40.94	111.31	2.00	0.00	1.00	0.00	41.03	103.18	2.00	0.00	1.00	0.00
41.08	96.47	2.00	0.00	1.00	0.00	41.14	92.51	2.00	0.00	1.00	0.00
41.22	90.97	2.00	0.00	1.00	0.00	41.28	91.29	0.75	2.32	1.00	0.02
41.33	93.52	0.78	2.24	1.00	0.01	41.42	97.02	0.82	2.12	1.00	0.02
41.47	100.81	0.87	1.55	1.00	0.01	41.52	104.48	0.93	1.47	1.00	0.01
41.62	107.92	0.98	0.82	1.00	0.01	41.67	112.91	1.07	0.51	1.00	0.00
41.76	118.23	1.16	0.36	1.00	0.00	41.82	123.75	1.28	0.25	1.00	0.00
41.90	128.02	1.37	0.00	1.00	0.00	41.99	131.05	1.44	0.00	1.00	0.00
42.05	132.58	1.48	0.00	1.00	0.00	42.15	132.77	1.48	0.00	1.00	0.00
42.23	132.06	1.46	0.00	1.00	0.00	42.30	130.51	1.43	0.00	1.00	0.00
42.38	127.88	1.36	0.00	1.00	0.00	42.48	123.60	1.27	0.25	1.00	0.00
42.57	119.15	1.18	0.36	1.00	0.00	42.64	115.28	1.11	0.50	1.00	0.00
42.72	111.72	1.04	0.80	1.00	0.01	42.82	108.24	0.98	0.82	1.00	0.01
42.90	105.42	0.94	1.45	1.00	0.01	42.97	104.32	0.92	1.47	1.00	0.01
43.06	104.69	0.93	1.47	1.00	0.02	43.15	102.43	0.89	1.51	1.00	0.02
43.20	99.54	0.85	1.58	1.00	0.01	43.30	95.67	0.80	2.17	1.00	0.02

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
43.40	97.12	0.82	2.12	1.00	0.02	43.48	100.97	0.87	1.55	1.00	0.01
43.51	103.89	0.92	1.48	1.00	0.01	43.52	107.23	0.97	0.83	1.00	0.00
43.56	114.20	1.09	0.51	1.00	0.00	43.61	124.81	1.30	0.25	1.00	0.00
43.67	133.29	1.49	0.00	1.00	0.00	43.72	140.56	1.68	0.00	1.00	0.00
43.80	145.95	1.83	0.00	1.00	0.00	43.85	149.84	1.95	0.00	1.00	0.00
43.90	152.56	2.00	0.00	1.00	0.00	43.94	154.37	2.00	0.00	1.00	0.00
43.99	155.28	2.00	0.00	1.00	0.00	44.08	155.65	2.00	0.00	1.00	0.00
44.14	156.49	2.00	0.00	1.00	0.00	44.22	157.19	2.00	0.00	1.00	0.00
44.28	157.37	2.00	0.00	1.00	0.00	44.33	156.78	2.00	0.00	1.00	0.00
44.40	155.80	2.00	0.00	1.00	0.00	44.48	155.90	2.00	0.00	1.00	0.00
44.52	155.24	2.00	0.00	1.00	0.00	44.61	155.88	2.00	0.00	1.00	0.00
44.72	156.70	2.00	0.00	1.00	0.00	44.77	159.04	2.00	0.00	1.00	0.00
44.91	160.27	2.00	0.00	1.00	0.00	44.95	156.88	2.00	0.00	1.00	0.00
45.02	154.33	2.00	0.00	1.00	0.00	45.04	138.44	1.62	0.00	1.00	0.00
45.06	140.63	1.68	0.00	1.00	0.00	45.11	143.03	1.75	0.00	1.00	0.00
45.15	160.49	2.00	0.00	1.00	0.00	45.21	163.81	2.00	0.00	1.00	0.00
45.25	166.43	2.00	0.00	1.00	0.00	45.30	168.34	2.00	0.00	1.00	0.00
45.35	169.35	2.00	0.00	1.00	0.00	45.41	169.64	2.00	0.00	1.00	0.00
45.49	168.87	2.00	0.00	1.00	0.00	45.55	167.24	2.00	0.00	1.00	0.00
45.63	164.52	2.00	0.00	1.00	0.00	45.69	161.09	2.00	0.00	1.00	0.00
45.78	156.88	2.00	0.00	1.00	0.00	45.84	151.68	2.00	0.00	1.00	0.00
45.93	145.18	1.81	0.00	1.00	0.00	46.02	137.24	2.00	0.00	1.00	0.00
46.08	128.00	2.00	0.00	1.00	0.00	46.16	118.20	2.00	0.00	1.00	0.00
46.24	108.31	2.00	0.00	1.00	0.00	46.31	99.54	2.00	0.00	1.00	0.00
46.41	94.32	2.00	0.00	1.00	0.00	46.48	95.41	2.00	0.00	1.00	0.00
46.56	101.49	2.00	0.00	1.00	0.00	46.65	106.39	2.00	0.00	1.00	0.00
46.75	104.92	2.00	0.00	1.00	0.00	46.84	96.75	2.00	0.00	1.00	0.00
46.94	92.20	2.00	0.00	1.00	0.00	47.02	89.65	2.00	0.00	1.00	0.00
47.08	87.68	2.00	0.00	1.00	0.00	47.12	86.24	2.00	0.00	1.00	0.00
47.16	84.67	2.00	0.00	1.00	0.00	47.21	82.35	2.00	0.00	1.00	0.00
47.27	79.44	2.00	0.00	1.00	0.00	47.35	76.72	2.00	0.00	1.00	0.00
47.40	72.71	2.00	0.00	1.00	0.00	47.50	68.97	2.00	0.00	1.00	0.00
47.55	65.28	2.00	0.00	1.00	0.00	47.61	63.67	2.00	0.00	1.00	0.00
47.69	62.57	2.00	0.00	1.00	0.00	47.76	61.71	2.00	0.00	1.00	0.00
47.83	60.22	2.00	0.00	1.00	0.00	47.93	58.40	2.00	0.00	1.00	0.00
48.02	57.34	2.00	0.00	1.00	0.00	48.09	56.35	2.00	0.00	1.00	0.00
48.18	57.05	2.00	0.00	1.00	0.00	48.27	58.44	2.00	0.00	1.00	0.00
48.37	61.09	2.00	0.00	1.00	0.00	48.46	62.98	2.00	0.00	1.00	0.00
48.52	64.25	2.00	0.00	1.00	0.00	48.60	65.23	2.00	0.00	1.00	0.00
48.70	65.99	2.00	0.00	1.00	0.00	48.79	66.70	2.00	0.00	1.00	0.00
48.85	68.42	2.00	0.00	1.00	0.00	48.94	71.44	2.00	0.00	1.00	0.00
49.04	73.34	2.00	0.00	1.00	0.00	49.13	82.09	2.00	0.00	1.00	0.00
49.23	92.00	2.00	0.00	1.00	0.00	49.33	102.80	2.00	0.00	1.00	0.00
49.38	109.60	2.00	0.00	1.00	0.00	49.42	114.80	2.00	0.00	1.00	0.00
49.48	118.93	2.00	0.00	1.00	0.00	49.53	121.43	2.00	0.00	1.00	0.00
49.58	123.62	2.00	0.00	1.00	0.00	49.63	125.52	2.00	0.00	1.00	0.00
49.72	126.23	2.00	0.00	1.00	0.00	49.77	125.98	2.00	0.00	1.00	0.00
49.83	125.40	2.00	0.00	1.00	0.00	49.92	124.67	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
49.97	123.55	2.00	0.00	1.00	0.00	50.04	122.65	2.00	0.00	1.00	0.00
50.11	122.33	2.00	0.00	1.00	0.00	50.20	120.55	2.00	0.00	1.00	0.00
50.27	116.01	2.00	0.00	1.00	0.00	50.34	107.79	2.00	0.00	1.00	0.00
50.45	99.22	2.00	0.00	1.00	0.00	50.54	92.39	2.00	0.00	1.00	0.00
50.59	87.71	2.00	0.00	1.00	0.00	50.68	83.78	2.00	0.00	1.00	0.00
50.79	80.17	2.00	0.00	1.00	0.00	50.88	78.18	2.00	0.00	1.00	0.00
50.98	77.89	2.00	0.00	1.00	0.00	51.07	76.09	2.00	0.00	1.00	0.00
51.17	71.67	2.00	0.00	1.00	0.00	51.24	68.77	2.00	0.00	1.00	0.00
51.33	70.43	2.00	0.00	1.00	0.00	51.46	74.75	2.00	0.00	1.00	0.00
51.46	78.20	2.00	0.00	1.00	0.00	51.51	79.60	2.00	0.00	1.00	0.00
51.56	82.02	2.00	0.00	1.00	0.00	51.65	84.26	2.00	0.00	1.00	0.00
51.71	86.89	2.00	0.00	1.00	0.00	51.79	88.80	2.00	0.00	1.00	0.00
51.85	92.19	2.00	0.00	1.00	0.00	51.94	96.33	2.00	0.00	1.00	0.00
51.99	102.62	2.00	0.00	1.00	0.00	52.09	109.52	2.00	0.00	1.00	0.00
52.19	116.81	2.00	0.00	1.00	0.00	52.28	122.63	2.00	0.00	1.00	0.00
52.35	128.41	2.00	0.00	1.00	0.00	52.43	132.82	2.00	0.00	1.00	0.00
52.52	136.28	2.00	0.00	1.00	0.00	52.62	135.93	2.00	0.00	1.00	0.00
52.72	133.92	2.00	0.00	1.00	0.00	52.81	135.53	2.00	0.00	1.00	0.00
52.91	146.31	2.00	0.00	1.00	0.00	53.00	154.70	2.00	0.00	1.00	0.00
53.10	148.13	2.00	0.00	1.00	0.00	53.20	129.79	2.00	0.00	1.00	0.00
53.29	114.61	2.00	0.00	1.00	0.00	53.38	114.09	2.00	0.00	1.00	0.00
53.46	119.81	2.00	0.00	1.00	0.00	53.53	130.93	2.00	0.00	1.00	0.00
53.63	139.93	2.00	0.00	1.00	0.00	53.73	146.92	2.00	0.00	1.00	0.00
53.82	150.03	2.00	0.00	1.00	0.00	53.92	146.54	2.00	0.00	1.00	0.00
53.94	138.23	1.66	0.00	1.00	0.00	53.96	131.20	1.48	0.00	1.00	0.00
53.97	134.16	1.55	0.00	1.00	0.00	54.05	141.00	1.73	0.00	1.00	0.00
54.08	150.15	2.00	0.00	1.00	0.00	54.13	154.41	2.00	0.00	1.00	0.00
54.19	159.56	2.00	0.00	1.00	0.00	54.25	162.94	2.00	0.00	1.00	0.00
54.28	166.66	2.00	0.00	1.00	0.00	54.29	164.40	2.00	0.00	1.00	0.00
54.34	164.35	2.00	0.00	1.00	0.00	54.35	164.72	2.00	0.00	1.00	0.00
54.40	165.62	2.00	0.00	1.00	0.00	54.44	166.45	2.00	0.00	1.00	0.00
54.49	165.88	2.00	0.00	1.00	0.00	54.53	167.39	2.00	0.00	1.00	0.00
54.57	171.02	2.00	0.00	1.00	0.00	54.58	173.92	2.00	0.00	1.00	0.00
54.63	173.90	2.00	0.00	1.00	0.00	54.68	176.93	2.00	0.00	1.00	0.00
54.73	175.12	2.00	0.00	1.00	0.00	54.78	173.29	2.00	0.00	1.00	0.00
54.83	172.82	2.00	0.00	1.00	0.00	54.88	175.08	2.00	0.00	1.00	0.00
54.92	178.37	2.00	0.00	1.00	0.00	54.97	180.73	2.00	0.00	1.00	0.00
55.02	181.62	2.00	0.00	1.00	0.00	55.12	178.01	2.00	0.00	1.00	0.00
55.17	170.63	2.00	0.00	1.00	0.00	55.25	160.49	2.00	0.00	1.00	0.00
55.31	154.46	2.00	0.00	1.00	0.00	55.36	148.87	1.98	0.00	1.00	0.00
55.45	143.68	1.82	0.00	1.00	0.00	55.50	137.89	1.66	0.00	1.00	0.00
55.60	133.93	1.56	0.00	1.00	0.00	55.65	128.15	1.41	0.00	1.00	0.00
55.71	124.39	1.33	0.25	1.00	0.00	55.75	121.19	1.26	0.25	1.00	0.00
55.79	121.90	1.27	0.25	1.00	0.00	55.84	123.76	1.32	0.25	1.00	0.00
55.89	125.39	1.35	0.00	1.00	0.00	55.90	126.17	1.37	0.00	1.00	0.00
55.94	124.98	1.34	0.25	1.00	0.00	55.99	122.89	1.30	0.25	1.00	0.00
56.03	120.41	1.24	0.36	1.00	0.00	56.08	118.54	1.21	0.36	1.00	0.00
56.14	116.74	1.17	0.36	1.00	0.00	56.22	114.65	1.13	0.50	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
56.28	112.90	1.10	0.51	1.00	0.00	56.33	112.38	1.09	0.51	1.00	0.00
56.38	112.46	1.09	0.51	1.00	0.00	56.45	114.23	1.13	0.51	1.00	0.00
56.52	117.01	1.18	0.36	1.00	0.00	56.62	120.21	1.24	0.36	1.00	0.00
56.66	123.02	1.30	0.25	1.00	0.00	56.73	126.65	1.39	0.00	1.00	0.00
56.81	129.59	1.46	0.00	1.00	0.00	56.95	132.64	1.53	0.00	1.00	0.00
57.00	135.80	1.61	0.00	1.00	0.00	57.09	136.52	1.63	0.00	1.00	0.00
57.19	135.85	1.62	0.00	1.00	0.00	57.27	131.44	1.50	0.00	1.00	0.00
57.35	130.16	1.47	0.00	1.00	0.00	57.44	127.36	1.41	0.00	1.00	0.00
57.50	127.07	1.40	0.00	1.00	0.00	57.52	131.85	1.52	0.00	1.00	0.00
57.58	141.73	1.78	0.00	1.00	0.00	57.63	149.17	2.00	0.00	1.00	0.00
57.72	151.31	2.00	0.00	1.00	0.00	57.77	148.26	1.98	0.00	1.00	0.00
57.82	143.29	1.83	0.00	1.00	0.00	57.91	137.09	1.66	0.00	1.00	0.00
57.96	130.46	1.48	0.00	1.00	0.00	58.02	135.16	1.61	0.00	1.00	0.00
58.09	138.12	1.69	0.00	1.00	0.00	58.16	142.65	1.82	0.00	1.00	0.00
58.25	144.36	1.87	0.00	1.00	0.00	58.30	143.26	1.83	0.00	1.00	0.00
58.40	140.74	1.76	0.00	1.00	0.00	58.50	139.77	1.74	0.00	1.00	0.00
58.56	138.70	1.71	0.00	1.00	0.00	58.64	140.28	1.75	0.00	1.00	0.00
58.73	145.16	1.90	0.00	1.00	0.00	58.78	145.87	1.92	0.00	1.00	0.00
58.88	147.98	1.98	0.00	1.00	0.00	58.97	149.10	2.00	0.00	1.00	0.00
59.07	147.53	1.97	0.00	1.00	0.00	59.13	143.73	1.86	0.00	1.00	0.00
59.23	140.99	1.78	0.00	1.00	0.00	59.31	134.94	1.61	0.00	1.00	0.00
59.38	130.71	1.50	0.00	1.00	0.00	59.41	127.40	1.42	0.00	1.00	0.00
59.46	128.62	1.45	0.00	1.00	0.00	59.51	128.55	1.45	0.00	1.00	0.00
59.57	130.91	1.51	0.00	1.00	0.00	59.66	136.37	1.65	0.00	1.00	0.00
59.75	142.44	1.82	0.00	1.00	0.00	59.80	147.84	1.99	0.00	1.00	0.00
59.85	156.99	2.00	0.00	1.00	0.00	59.91	158.02	2.00	0.00	1.00	0.00
59.99	159.53	2.00	0.00	1.00	0.00	60.05	161.59	2.00	0.00	1.00	0.00
60.09	160.52	2.00	0.00	1.00	0.00	60.14	156.08	2.00	0.00	1.00	0.00
60.19	153.23	2.00	0.00	1.00	0.00	60.22	151.55	2.00	0.00	1.00	0.00
60.28	145.94	1.93	0.00	1.00	0.00	60.33	137.48	1.69	0.00	1.00	0.00
60.38	126.83	1.41	0.00	1.00	0.00	60.42	119.65	1.25	0.25	1.00	0.00
60.48	111.02	1.09	0.52	1.00	0.00	60.57	101.50	0.93	1.53	1.00	0.02
60.66	91.67	0.80	2.31	1.00	0.02	60.68	85.85	0.73	2.65	1.00	0.01
60.69	82.84	0.70	2.73	1.00	0.00	60.74	80.07	0.67	2.80	1.00	0.02
60.79	76.18	0.64	2.92	1.00	0.02	60.84	71.82	0.60	3.07	1.00	0.02
60.89	68.64	0.58	3.18	1.00	0.02	60.98	66.57	0.56	3.26	1.00	0.04
61.03	69.19	0.58	3.16	1.00	0.02	61.08	79.69	0.67	2.81	1.00	0.02
61.18	90.12	0.78	2.37	1.00	0.03	61.23	100.04	0.91	1.57	1.00	0.01
61.31	94.03	0.83	2.22	1.00	0.02	61.42	94.11	0.83	2.22	1.00	0.03
61.47	100.64	0.92	1.55	1.00	0.01	61.51	107.25	1.03	0.83	1.00	0.00
61.54	108.54	1.05	0.82	1.00	0.00	61.57	112.23	1.11	0.51	1.00	0.00
61.58	118.74	1.24	0.36	1.00	0.00	61.61	111.49	1.10	0.51	1.00	0.00
61.63	107.07	1.02	0.83	1.00	0.00	61.63	91.77	0.80	2.30	1.00	0.00
61.66	79.27	0.67	2.83	1.00	0.01	61.67	85.35	0.73	2.66	1.00	0.00
61.70	83.80	0.71	2.70	1.00	0.01	61.71	84.55	0.72	2.68	1.00	0.00
61.76	87.45	0.75	2.61	1.00	0.01	61.80	91.10	0.79	2.33	1.00	0.01
61.84	94.04	0.83	2.22	1.00	0.01	61.86	98.87	0.90	1.59	1.00	0.00
61.93	103.69	0.97	0.85	1.00	0.01	61.98	100.92	0.93	1.55	1.00	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
62.04	114.48	1.16	0.37	1.00	0.00	62.09	127.59	1.44	0.00	1.00	0.00
62.14	136.10	1.66	0.00	1.00	0.00	62.19	140.93	1.80	0.00	1.00	0.00
62.24	143.65	1.88	0.00	1.00	0.00	62.26	146.58	1.97	0.00	1.00	0.00
62.29	146.46	1.97	0.00	1.00	0.00	62.38	145.37	1.93	0.00	1.00	0.00
62.44	138.07	1.72	0.00	1.00	0.00	62.46	132.02	1.55	0.00	1.00	0.00
62.47	126.07	1.41	0.00	1.00	0.00	62.51	127.59	1.44	0.00	1.00	0.00
62.56	130.45	1.52	0.00	1.00	0.00	62.60	134.26	1.61	0.00	1.00	0.00
62.65	135.35	1.64	0.00	1.00	0.00	62.70	135.46	1.65	0.00	1.00	0.00
62.75	135.59	1.65	0.00	1.00	0.00	62.80	138.85	1.74	0.00	1.00	0.00
62.85	147.40	2.00	0.00	1.00	0.00	62.89	159.73	2.00	0.00	1.00	0.00
62.97	173.86	2.00	0.00	1.00	0.00	63.04	187.32	2.00	0.00	1.00	0.00
63.09	197.18	2.00	0.00	1.00	0.00	63.13	200.57	2.00	0.00	1.00	0.00
63.19	200.74	2.00	0.00	1.00	0.00	63.23	201.69	2.00	0.00	1.00	0.00
63.28	203.42	2.00	0.00	1.00	0.00	63.32	204.02	2.00	0.00	1.00	0.00
63.38	202.89	2.00	0.00	1.00	0.00	63.44	203.06	2.00	0.00	1.00	0.00
63.52	199.75	2.00	0.00	1.00	0.00	63.57	194.57	2.00	0.00	1.00	0.00
63.66	183.79	2.00	0.00	1.00	0.00	63.73	148.76	2.00	0.00	1.00	0.00
63.76	130.54	1.53	0.00	1.00	0.00	63.76	127.66	1.45	0.00	1.00	0.00
63.78	131.02	1.54	0.00	1.00	0.00	63.81	142.46	1.86	0.00	1.00	0.00
63.85	146.19	1.97	0.00	1.00	0.00	63.86	145.10	1.94	0.00	1.00	0.00
63.91	148.35	2.00	0.00	1.00	0.00	63.94	150.35	2.00	0.00	1.00	0.00
63.95	151.38	2.00	0.00	1.00	0.00	64.00	150.67	2.00	0.00	1.00	0.00
64.02	149.37	2.00	0.00	1.00	0.00	64.05	148.02	2.00	0.00	1.00	0.00
64.09	146.64	1.99	0.00	1.00	0.00	64.11	144.77	1.93	0.00	1.00	0.00
64.15	142.44	1.86	0.00	1.00	0.00	64.20	141.24	1.82	0.00	1.00	0.00
64.25	141.74	1.84	0.00	1.00	0.00	64.29	148.11	2.00	0.00	1.00	0.00
64.34	157.68	2.00	0.00	1.00	0.00	64.43	167.40	2.00	0.00	1.00	0.00
64.48	174.30	2.00	0.00	1.00	0.00	64.53	177.47	2.00	0.00	1.00	0.00
64.58	180.82	2.00	0.00	1.00	0.00	64.63	187.83	2.00	0.00	1.00	0.00
64.68	195.77	2.00	0.00	1.00	0.00	64.73	198.20	2.00	0.00	1.00	0.00
64.77	202.79	2.00	0.00	1.00	0.00	64.82	207.01	2.00	0.00	1.00	0.00
64.87	201.76	2.00	0.00	1.00	0.00	64.89	196.56	2.00	0.00	1.00	0.00
64.93	189.73	2.00	0.00	1.00	0.00	64.94	196.96	2.00	0.00	1.00	0.00
64.98	199.62	2.00	0.00	1.00	0.00	64.99	201.90	2.00	0.00	1.00	0.00
65.03	201.35	2.00	0.00	1.00	0.00	65.08	199.79	2.00	0.00	1.00	0.00
65.13	196.50	2.00	0.00	1.00	0.00	65.17	193.13	2.00	0.00	1.00	0.00
65.22	189.08	2.00	0.00	1.00	0.00	65.23	186.93	2.00	0.00	1.00	0.00
65.28	186.22	2.00	0.00	1.00	0.00	65.32	186.24	2.00	0.00	1.00	0.00
65.37	186.30	2.00	0.00	1.00	0.00	65.42	187.42	2.00	0.00	1.00	0.00
65.47	183.76	2.00	0.00	1.00	0.00	65.48	179.77	2.00	0.00	1.00	0.00
65.49	174.70	2.00	0.00	1.00	0.00	65.52	174.01	2.00	0.00	1.00	0.00
65.57	176.43	2.00	0.00	1.00	0.00	65.62	180.61	2.00	0.00	1.00	0.00
65.67	-1.00	2.00	0.00	1.00	0.00	65.69	-1.00	2.00	0.00	1.00	0.00
65.72	-1.00	2.00	0.00	1.00	0.00	65.77	-1.00	2.00	0.00	1.00	0.00
65.82	-1.00	2.00	0.00	1.00	0.00	65.86	-1.00	2.00	0.00	1.00	0.00
65.86	-1.00	2.00	0.00	1.00	0.00	65.91	-1.00	2.00	0.00	1.00	0.00
65.96	-1.00	2.00	0.00	1.00	0.00						

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)

Total estimated settlement: 0.79

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.01	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.04	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.08	-0.07	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.10	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.13	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.18	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.22	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.27	0.81	1.28	50.14	63.98	4.01	4.89	3.60
0.33	2.77	4.42	15.47	68.30	3.31	5.08	10.70
0.36	5.16	8.26	7.99	66.07	2.95	0.18	0.67
0.37	7.12	11.41	5.40	61.61	2.76	0.13	0.66
0.38	8.20	13.14	4.58	60.15	2.69	0.11	0.66
0.42	9.38	15.03	3.98	59.88	2.63	0.11	0.66
0.44	10.59	16.98	3.58	60.79	2.58	0.12	0.66
0.47	12.18	19.53	3.09	60.26	2.52	0.12	0.66
0.47	14.24	22.83	2.61	59.51	2.44	0.11	0.66
0.52	17.00	27.27	2.14	58.39	2.35	0.10	0.65
0.56	20.48	32.85	1.78	58.60	2.26	0.10	0.65
0.58	24.93	40.00	1.52	60.77	2.16	0.12	0.66
0.61	30.70	49.27	1.35	66.61	2.05	0.19	0.67
0.66	36.94	59.30	1.27	75.22	1.95	0.39	0.70
0.76	40.79	65.47	1.23	80.72	1.89	0.62	0.71
0.80	38.66	62.05	1.25	77.85	1.93	0.49	0.70
0.81	35.49	56.95	1.29	73.41	1.98	0.34	0.69
0.85	32.42	52.02	1.33	69.37	2.03	0.24	0.68
0.86	32.79	52.62	1.33	69.99	2.03	0.25	0.68
0.90	32.22	51.69	1.35	70.01	2.05	0.25	0.68
0.95	31.82	51.04	1.38	70.34	2.07	0.26	0.68
1.00	30.53	48.97	1.37	67.09	2.06	0.20	0.68
1.05	28.88	46.31	1.34	62.22	2.04	0.14	0.66
1.14	26.55	42.56	1.00	42.56	2.01	0.03	0.62
1.24	24.29	38.92	1.00	38.92	2.04	0.03	0.62
1.31	20.51	32.85	1.00	32.85	2.14	0.02	0.62
1.36	17.93	28.70	1.67	48.03	2.22	0.05	0.62
1.37	17.77	28.44	1.71	48.50	2.23	0.05	0.62
1.39	18.54	29.68	1.64	48.64	2.21	0.05	0.62
1.43	19.03	30.46	1.60	48.73	2.19	0.05	0.62
1.44	18.05	28.88	1.68	48.54	2.23	0.05	0.62
1.49	18.35	29.36	1.67	49.05	2.22	0.05	0.62
1.53	18.89	30.23	1.66	50.30	2.22	0.05	0.63
1.58	19.67	31.47	1.66	52.29	2.22	0.06	0.63
1.63	20.62	32.99	1.66	54.77	2.22	0.08	0.64
1.68	21.70	34.72	1.65	57.36	2.21	0.09	0.65
1.72	23.31	37.31	1.61	60.04	2.20	0.11	0.66
1.77	25.48	40.78	1.54	62.93	2.17	0.14	0.66
1.82	28.31	45.33	1.46	66.36	2.13	0.19	0.67
1.86	31.52	50.48	1.40	70.45	2.08	0.26	0.68
1.92	35.09	56.22	1.34	75.14	2.03	0.39	0.70

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
1.97	38.67	61.96	1.29	80.21	1.98	0.59	0.71
2.01	41.61	66.68	1.27	84.88	1.95	0.72	0.72
2.09	43.22	69.27	1.26	87.55	1.94	0.72	0.72
2.16	43.05	68.99	1.27	87.53	1.95	0.72	0.72
2.20	41.47	66.43	1.28	85.02	1.96	0.72	0.72
2.25	39.85	63.83	1.29	82.39	1.98	0.71	0.71
2.31	38.60	61.82	1.30	80.09	1.99	0.59	0.71
2.37	37.79	60.52	1.29	78.32	1.98	0.51	0.70
2.40	36.88	59.05	1.30	76.51	1.99	0.44	0.70
2.46	35.97	57.57	1.29	74.55	1.98	0.37	0.69
2.54	35.36	56.59	1.29	72.87	1.97	0.32	0.69
2.59	34.69	55.51	1.00	55.51	1.96	0.08	0.64
2.69	34.25	54.80	1.00	54.80	1.94	0.08	0.64
2.74	33.95	54.31	1.00	54.31	1.92	0.07	0.64
2.83	33.88	54.19	1.00	54.19	1.92	0.07	0.64
2.88	34.35	54.94	1.00	54.94	1.91	0.08	0.64
2.98	35.70	57.10	1.00	57.10	1.89	0.09	0.65
3.03	38.57	61.71	1.00	61.71	1.85	0.13	0.66
3.12	42.31	67.72	1.00	67.72	1.82	0.21	0.68
3.21	46.83	74.97	1.00	74.97	1.79	0.38	0.70
3.27	51.66	82.72	1.00	82.72	1.76	0.71	0.71
3.34	57.05	91.38	1.00	91.38	1.72	0.73	0.73
3.41	61.91	99.18	1.00	99.18	1.69	0.75	0.75
3.51	64.20	102.85	1.00	102.85	1.68	0.75	0.75
3.55	63.63	101.93	1.00	101.93	1.70	0.75	0.75
3.65	62.42	99.97	1.00	99.97	1.72	0.75	0.75
3.75	61.71	98.83	1.00	98.83	1.73	0.75	0.75
3.83	61.44	98.39	1.00	98.39	1.73	0.75	0.75
3.94	61.11	97.84	1.00	97.84	1.73	0.74	0.74
4.04	60.30	96.53	1.00	96.53	1.73	0.74	0.74
4.13	60.63	97.06	1.08	104.72	1.75	0.76	0.76
4.24	61.68	98.73	1.00	98.73	1.74	0.75	0.75
4.38	65.15	104.30	1.00	104.30	1.68	0.76	0.76
4.50	68.93	110.36	1.00	110.36	1.62	0.77	0.77
4.62	74.13	118.70	1.00	118.70	1.57	0.78	0.78
4.71	77.89	124.73	1.00	124.73	1.57	0.79	0.79
4.75	80.93	129.61	1.00	129.61	1.57	0.80	0.80
4.84	82.11	131.50	1.00	131.50	1.58	0.80	0.80
4.89	82.93	132.82	1.00	132.82	1.58	0.80	0.80
4.94	82.93	132.82	1.00	132.82	1.58	0.80	0.80
4.98	81.72	130.87	1.00	130.87	1.59	0.80	0.80
5.07	80.10	128.25	1.00	128.25	1.60	0.80	0.80
5.13	78.48	125.65	1.00	125.65	1.61	0.79	0.79
5.17	76.79	122.93	1.00	122.93	1.61	0.79	0.79
5.27	74.77	119.67	1.00	119.67	1.62	0.78	0.78
5.32	72.75	116.42	1.00	116.42	1.63	0.78	0.78
5.42	70.86	113.37	1.00	113.37	1.64	0.77	0.77
5.46	69.34	110.93	1.00	110.93	1.64	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.56	68.02	108.80	1.00	108.80	1.65	0.76	0.76
5.61	66.87	106.96	1.00	106.96	1.66	0.76	0.76
5.71	65.86	105.32	1.00	105.32	1.66	0.76	0.76
5.78	64.92	103.80	1.00	103.80	1.67	0.76	0.76
5.85	63.84	102.06	1.00	102.06	1.68	0.75	0.75
5.95	62.83	100.42	1.00	100.42	1.69	0.75	0.75
6.00	62.32	99.61	1.00	99.61	1.71	0.75	0.75
6.09	62.93	100.57	1.00	100.57	1.66	0.75	0.75
6.14	64.75	103.50	1.00	103.50	1.60	0.75	0.75
6.24	67.52	107.94	1.00	107.94	1.53	0.76	0.76
6.30	70.42	112.60	1.00	112.60	1.54	0.77	0.77
6.38	71.40	114.16	1.00	114.16	1.56	0.77	0.77
6.46	69.58	111.22	1.00	111.22	1.60	0.77	0.77
6.50	68.43	109.38	1.00	109.38	1.62	0.77	0.77
6.56	68.84	110.02	1.00	110.02	1.63	0.77	0.77
6.63	71.30	113.98	1.00	113.98	1.61	0.77	0.77
6.68	72.51	115.92	1.00	115.92	1.61	0.78	0.78
6.76	73.49	117.34	1.00	117.34	1.61	0.78	0.78
6.82	74.54	118.51	1.00	118.51	1.60	0.78	0.78
6.88	76.19	120.59	1.00	120.59	1.59	0.78	0.78
6.96	78.38	123.33	1.00	123.33	1.58	0.79	0.79
7.03	80.54	126.09	1.00	126.09	1.56	0.79	0.79
7.11	82.06	127.75	1.00	127.75	1.55	0.80	0.80
7.16	83.04	128.83	1.00	128.83	1.55	0.80	0.80
7.26	83.82	129.11	1.00	129.11	1.55	0.80	0.80
7.31	84.43	129.55	1.00	129.55	1.56	0.80	0.80
7.40	84.63	129.06	1.00	129.06	1.56	0.80	0.80
7.45	84.52	128.43	1.00	128.43	1.56	0.80	0.80
7.54	83.95	126.75	1.00	126.75	1.57	0.79	0.79
7.60	82.84	124.58	1.00	124.58	1.58	0.79	0.79
7.68	81.22	121.42	1.00	121.42	1.59	0.79	0.79
7.74	79.70	118.70	1.00	118.70	1.60	0.78	0.78
7.83	78.55	116.27	1.00	116.27	1.61	0.78	0.78
7.90	78.35	115.47	1.00	115.47	1.61	0.78	0.78
7.98	79.10	115.95	1.00	115.95	1.62	0.78	0.78
8.05	80.62	117.66	1.00	117.66	1.62	0.78	0.78
8.12	81.69	118.66	1.00	118.66	1.62	0.78	0.78
8.19	81.66	118.08	1.00	118.08	1.62	0.78	0.78
8.27	80.48	115.81	1.00	115.81	1.64	0.78	0.78
8.36	79.13	113.39	1.00	113.39	1.65	0.77	0.77
8.41	78.35	111.75	1.00	111.75	1.61	0.77	0.77
8.50	78.42	111.21	1.00	111.21	1.57	0.77	0.77
8.60	78.79	111.10	1.00	111.10	1.54	0.77	0.77
8.70	78.76	110.43	1.00	110.43	1.56	0.77	0.77
8.74	70.97	99.16	1.00	99.16	1.64	0.75	0.75
8.78	65.57	92.36	1.00	92.36	1.68	0.73	0.73
8.81	63.58	89.84	1.00	89.84	1.71	0.73	0.73
8.86	69.75	97.38	1.00	97.38	1.66	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.91	73.77	102.14	1.00	102.14	1.64	0.75	0.75
8.94	74.34	102.81	1.00	102.81	1.64	0.75	0.75
9.02	73.80	101.95	1.00	101.95	1.66	0.75	0.75
9.10	72.52	100.12	1.00	100.12	1.68	0.75	0.75
9.17	71.17	98.18	1.00	98.18	1.69	0.74	0.74
9.22	69.95	96.47	1.00	96.47	1.70	0.74	0.74
9.31	69.01	94.84	1.00	94.84	1.71	0.74	0.74
9.37	68.50	93.92	1.00	93.92	1.72	0.74	0.74
9.42	68.60	93.81	1.00	93.81	1.72	0.74	0.74
9.52	69.18	94.01	1.00	94.01	1.72	0.74	0.74
9.60	70.19	94.84	1.00	94.84	1.71	0.74	0.74
9.66	71.54	96.20	1.00	96.20	1.70	0.74	0.74
9.74	73.13	97.75	1.00	97.75	1.69	0.74	0.74
9.81	74.58	99.20	1.00	99.20	1.69	0.75	0.75
9.89	75.79	100.34	1.00	100.34	1.68	0.75	0.75
9.98	77.04	101.50	1.00	101.50	1.68	0.75	0.75
10.03	78.79	103.47	1.00	103.47	1.68	0.75	0.75
10.13	81.26	106.04	1.00	106.04	1.67	0.76	0.76
10.23	84.06	108.97	1.00	108.97	1.66	0.76	0.76
10.32	86.45	111.33	1.00	111.33	1.65	0.77	0.77
10.38	88.11	112.97	1.00	112.97	1.65	0.77	0.77
10.47	88.68	113.17	1.00	113.17	1.65	0.77	0.77
10.57	88.44	112.36	1.00	112.36	1.65	0.77	0.77
10.66	87.94	111.05	1.00	111.05	1.61	0.77	0.77
10.76	87.67	110.18	1.00	110.18	1.57	0.77	0.77
10.85	88.00	110.11	1.00	110.11	1.53	0.77	0.77
10.92	88.54	110.44	1.00	110.44	1.55	0.77	0.77
11.00	85.17	105.80	1.00	105.80	1.58	0.76	0.76
11.07	82.17	101.74	1.00	101.74	1.61	0.75	0.75
11.10	80.21	99.18	1.00	99.18	1.63	0.75	0.75
11.15	82.81	102.16	1.00	102.16	1.62	0.75	0.75
11.19	85.41	105.18	1.00	105.18	1.61	0.76	0.76
11.24	87.43	107.45	1.00	107.45	1.61	0.76	0.76
11.29	89.66	109.95	1.00	109.95	1.61	0.77	0.77
11.34	92.29	112.96	1.00	112.96	1.60	0.77	0.77
11.40	94.89	115.81	1.00	115.81	1.60	0.78	0.78
11.47	96.81	117.83	1.00	117.83	1.60	0.78	0.78
11.53	97.72	118.60	1.00	118.60	1.60	0.78	0.78
11.58	98.23	118.97	1.00	118.97	1.60	0.78	0.78
11.65	98.70	119.16	1.00	119.16	1.61	0.78	0.78
11.72	99.17	119.34	1.00	119.34	1.61	0.78	0.78
11.77	99.00	118.88	1.00	118.88	1.61	0.78	0.78
11.82	98.36	117.83	1.00	117.83	1.62	0.78	0.78
11.88	97.25	116.19	1.00	116.19	1.64	0.78	0.78
11.97	96.10	114.49	1.00	114.49	1.65	0.77	0.77
12.02	94.75	112.75	1.00	112.75	1.65	0.77	0.77
12.06	93.54	110.95	1.00	110.95	1.65	0.77	0.77
12.11	93.03	110.11	1.00	110.11	1.65	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.21	92.63	109.15	1.00	109.15	1.65	0.76	0.76
12.25	92.93	109.21	1.00	109.21	1.64	0.76	0.76
12.30	93.00	109.05	1.00	109.05	1.64	0.76	0.76
12.31	93.44	109.51	1.00	109.51	1.63	0.77	0.77
12.32	93.64	109.72	1.00	109.72	1.63	0.77	0.77
12.35	94.21	110.25	1.00	110.25	1.62	0.77	0.77
12.40	95.26	111.26	1.00	111.26	1.61	0.77	0.77
12.45	96.78	112.82	1.00	112.82	1.60	0.77	0.77
12.52	98.43	114.40	1.00	114.40	1.60	0.77	0.77
12.56	100.32	116.43	1.00	116.43	1.59	0.78	0.78
12.62	102.04	118.16	1.00	118.16	1.59	0.78	0.78
12.65	103.69	119.90	1.00	119.90	1.56	0.78	0.78
12.71	105.14	121.32	1.00	121.32	1.53	0.78	0.78
12.76	107.34	123.61	1.00	123.61	1.48	0.79	0.79
12.83	110.34	126.74	1.00	126.74	1.48	0.79	0.79
12.88	114.29	131.03	1.00	131.03	1.50	0.80	0.80
12.93	118.94	136.14	1.00	136.14	1.50	0.81	0.81
12.98	121.44	138.73	1.00	138.73	1.52	0.81	0.81
13.03	123.77	141.10	1.00	141.10	1.52	0.81	0.81
13.04	120.16	136.93	1.00	136.93	1.54	0.81	0.81
13.07	122.72	139.66	1.00	139.66	1.54	0.81	0.81
13.13	125.66	142.70	1.00	142.70	1.55	0.82	0.82
13.17	134.36	152.37	1.00	152.37	1.53	0.83	0.83
13.22	137.87	156.08	1.00	156.08	1.53	0.84	0.84
13.27	140.13	158.31	1.00	158.31	1.54	0.84	0.84
13.32	141.11	159.12	1.00	159.12	1.54	0.84	0.84
13.37	141.28	159.00	1.00	159.00	1.55	0.84	0.84
13.41	140.67	158.02	1.00	158.02	1.55	0.84	0.84
13.46	139.05	155.85	1.00	155.85	1.56	0.83	0.83
13.51	137.63	153.98	1.00	153.98	1.57	0.83	0.83
13.56	135.98	151.81	1.00	151.81	1.58	0.83	0.83
13.60	134.29	149.65	1.00	149.65	1.59	0.83	0.83
13.66	132.81	147.65	1.00	147.65	1.60	0.82	0.82
13.75	131.80	145.98	1.00	145.98	1.60	0.82	0.82
13.80	131.19	145.02	1.00	145.02	1.60	0.82	0.82
13.89	130.75	144.01	1.00	144.01	1.61	0.82	0.82
13.94	129.81	142.69	1.00	142.69	1.61	0.82	0.82
13.99	128.19	140.62	1.00	140.62	1.63	0.81	0.81
14.09	125.39	137.21	1.00	137.21	1.65	0.81	0.81
14.14	122.28	133.79	1.00	133.79	1.68	0.80	0.80
14.23	119.38	130.35	1.00	130.35	1.70	0.80	0.80
14.28	117.19	127.54	1.00	127.54	1.68	0.79	0.79
14.38	116.43	125.95	1.00	125.95	1.66	0.79	0.79
14.42	115.35	124.40	1.00	124.40	1.63	0.79	0.79
14.52	115.79	124.40	1.00	124.40	1.63	0.79	0.79
14.57	116.75	125.23	1.00	125.23	1.64	0.79	0.79
14.67	117.53	125.60	1.00	125.60	1.64	0.79	0.79
14.68	117.83	125.93	1.00	125.93	1.64	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.70	116.41	124.39	1.00	124.39	1.65	0.79	0.79
14.75	116.58	124.38	1.00	124.38	1.66	0.79	0.79
14.80	116.18	123.80	1.00	123.80	1.66	0.79	0.79
14.89	116.21	123.45	1.00	123.45	1.67	0.79	0.79
14.94	114.76	121.75	1.00	121.75	1.68	0.79	0.79
15.04	111.83	118.29	1.00	118.29	1.69	0.78	0.78
15.13	107.24	113.18	1.01	114.51	1.71	0.77	0.77
15.21	101.74	107.19	1.06	113.68	1.74	0.77	0.77
15.28	95.87	100.87	1.10	111.36	1.76	0.77	0.77
15.38	90.00	94.46	1.14	107.63	1.79	0.76	0.76
15.47	83.86	87.79	1.17	102.77	1.82	0.75	0.75
15.57	77.55	80.97	1.20	97.12	1.85	0.74	0.74
15.67	70.76	73.71	1.23	90.52	1.89	0.73	0.73
15.77	63.91	66.40	1.26	83.47	1.93	0.71	0.71
15.86	57.27	59.33	1.29	76.63	1.98	0.44	0.70
15.96	51.73	53.45	1.34	71.45	2.03	0.29	0.69
16.05	47.31	48.75	1.40	68.25	2.09	0.22	0.68
16.15	43.60	44.83	1.51	67.79	2.15	0.21	0.68
16.25	41.11	42.13	1.63	68.47	2.20	0.22	0.68
16.31	39.86	40.76	1.71	69.57	2.23	0.25	0.68
16.39	39.72	40.48	1.70	68.78	2.23	0.23	0.68
16.48	40.50	41.08	1.65	67.59	2.21	0.21	0.68
16.59	43.06	43.47	1.53	66.70	2.17	0.19	0.67
16.68	47.95	48.20	1.40	67.68	2.09	0.21	0.68
16.76	53.89	53.96	1.31	70.90	2.01	0.27	0.69
16.86	58.72	58.53	1.27	74.31	1.95	0.36	0.69
16.92	61.25	60.90	1.25	76.25	1.92	0.43	0.70
17.02	61.65	61.10	1.25	76.36	1.92	0.43	0.70
17.11	61.14	60.41	1.26	76.12	1.94	0.42	0.70
17.22	60.40	59.48	1.28	75.94	1.96	0.42	0.70
17.35	58.51	57.44	1.34	77.19	2.04	0.46	0.70
17.45	53.15	52.07	1.57	81.76	2.18	0.68	0.71
17.55	43.40	42.36	2.26	95.58	2.38	0.74	0.74
17.61	33.92	32.93	3.48	114.42	2.57	0.77	0.77
17.64	27.41	26.45	4.70	124.38	2.70	0.79	0.79
17.70	24.84	23.84	5.27	125.58	2.75	0.79	0.79
17.75	23.12	22.09	5.71	126.01	2.79	0.79	0.79
17.80	22.04	20.96	6.07	127.17	2.82	0.79	0.79
17.85	21.57	20.45	6.49	132.79	2.85	0.80	0.80
17.94	24.37	23.10	5.83	134.72	2.80	0.81	0.81
17.99	29.74	28.29	4.75	134.51	2.70	0.81	0.81
18.09	36.42	34.65	3.76	130.35	2.60	0.80	0.80
18.15	38.34	36.42	3.61	131.44	2.58	0.80	0.80
18.23	36.08	34.09	3.99	135.89	2.63	0.81	0.81
18.33	27.03	25.22	5.88	148.20	2.80	0.82	0.82
18.43	18.43	16.85	8.99	151.54	3.01	1.12	1.20
18.52	11.28	9.87	14.46	142.66	3.27	0.79	0.70
18.59	9.25	7.88	15.23	120.07	3.30	0.54	0.56

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
18.72	8.44	7.05	14.48	102.14	3.27	0.33	0.50
18.81	7.87	6.47	14.17	91.69	3.26	0.29	0.46
18.87	7.73	6.32	14.34	90.62	3.27	0.28	0.45
18.95	7.94	6.48	14.76	95.67	3.28	0.31	0.46
19.05	8.95	7.39	13.77	101.75	3.24	0.40	0.53
19.14	11.32	9.56	10.96	104.74	3.12	0.45	0.68
19.22	15.43	13.37	7.56	101.14	2.92	0.75	0.75
19.29	23.29	20.64	4.44	91.70	2.67	0.73	0.73
19.38	36.79	33.12	2.43	80.52	2.41	0.61	0.71
19.44	54.77	49.78	1.63	81.04	2.21	0.64	0.71
19.53	73.63	67.13	1.37	92.11	2.06	0.73	0.73
19.62	89.35	81.50	1.30	105.61	1.99	0.76	0.76
19.69	100.62	91.73	1.27	116.28	1.95	0.78	0.78
19.79	106.79	97.11	1.26	122.62	1.94	0.79	0.79
19.86	108.17	98.11	1.28	125.15	1.96	0.79	0.79
19.97	105.91	95.65	1.30	124.06	1.99	0.79	0.79
20.07	101.09	90.89	1.33	120.48	2.02	0.78	0.78
20.16	94.14	84.23	1.37	115.28	2.06	0.78	0.78
20.26	84.49	75.23	1.38	103.79	2.07	0.76	0.76
20.34	72.68	64.34	1.43	91.71	2.10	0.73	0.73
20.43	59.83	52.55	1.52	80.02	2.16	0.58	0.71
20.50	47.95	41.63	2.03	84.51	2.33	0.72	0.72
20.60	37.70	32.23	3.01	96.91	2.50	0.74	0.74
20.62	30.48	25.73	4.28	110.02	2.66	0.77	0.77
20.63	28.08	23.58	4.89	115.31	2.72	0.78	0.78
20.68	27.74	23.22	5.10	118.43	2.74	0.78	0.78
20.73	27.64	23.06	5.32	122.67	2.76	0.79	0.79
20.82	25.48	21.06	6.08	128.12	2.82	0.80	0.80
20.87	23.45	19.23	6.78	130.45	2.87	0.80	0.80
20.91	21.57	17.54	7.32	128.42	2.91	0.80	0.80
20.96	19.58	15.59	7.98	124.40	2.95	0.79	0.79
21.05	17.59	13.84	8.82	122.12	3.00	0.63	0.99
21.11	16.98	13.29	9.07	120.49	3.02	0.63	0.95
21.17	17.11	13.36	9.02	120.44	3.01	0.63	0.95
21.25	21.23	17.01	6.86	116.62	2.88	0.78	0.78
21.30	31.25	25.68	4.13	106.03	2.64	0.76	0.76
21.37	48.56	40.77	2.31	94.37	2.39	0.74	0.74
21.45	68.84	58.49	1.62	94.86	2.20	0.74	0.74
21.49	87.80	75.10	1.41	105.59	2.09	0.76	0.76
21.58	103.45	88.68	1.33	117.80	2.02	0.78	0.78
21.64	115.70	99.28	1.29	128.46	1.98	0.80	0.80
21.69	124.50	106.86	1.28	136.49	1.96	0.81	0.81
21.78	130.41	111.69	1.27	142.03	1.95	0.82	0.82
21.83	133.78	114.42	1.27	145.79	1.96	0.82	0.82
21.89	135.43	115.57	1.28	148.03	1.97	0.82	0.82
21.98	136.01	115.67	1.29	149.32	1.98	0.83	0.83
22.03	135.90	115.31	1.30	150.06	1.99	0.83	0.83
22.12	134.89	114.06	1.31	149.60	2.01	0.83	0.83

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.22	133.20	112.20	1.32	148.31	2.02	0.82	0.82
22.26	130.88	110.01	1.33	146.45	2.03	0.82	0.82
22.36	128.38	107.52	1.34	144.21	2.04	0.82	0.82
22.41	125.79	105.07	1.36	142.38	2.05	0.82	0.82
22.51	123.53	102.88	1.35	138.65	2.04	0.81	0.81
22.60	121.33	100.82	1.34	134.71	2.03	0.81	0.81
22.70	119.34	98.95	1.32	130.43	2.01	0.80	0.80
22.75	116.88	96.72	1.32	127.90	2.02	0.80	0.80
22.84	109.32	89.92	1.36	122.31	2.05	0.79	0.79
22.89	107.14	87.93	1.37	120.57	2.06	0.78	0.78
22.90	104.88	85.98	1.38	118.82	2.07	0.78	0.78
22.94	110.11	90.42	1.34	121.26	2.04	0.78	0.78
23.00	112.36	92.21	1.32	122.07	2.02	0.79	0.79
23.08	118.94	97.70	1.29	126.15	1.98	0.79	0.79
23.13	127.04	104.57	1.26	131.91	1.94	0.80	0.80
23.20	134.05	110.43	1.24	136.83	1.90	0.81	0.81
23.27	137.05	112.81	1.23	138.66	1.89	0.81	0.81
23.33	135.57	111.40	1.23	136.90	1.89	0.81	0.81
23.42	131.55	107.76	1.23	132.83	1.89	0.80	0.80
23.48	126.94	103.73	1.24	128.30	1.90	0.80	0.80
23.57	123.16	100.30	1.24	124.68	1.91	0.79	0.79
23.61	121.20	98.52	1.25	122.97	1.92	0.79	0.79
23.66	121.50	98.62	1.25	123.25	1.92	0.79	0.79
23.73	124.04	100.52	1.25	125.44	1.92	0.79	0.79
23.80	127.95	103.59	1.24	128.73	1.91	0.80	0.80
23.85	131.96	106.79	1.24	132.25	1.90	0.80	0.80
23.94	134.80	108.87	1.24	134.50	1.90	0.81	0.81
24.00	135.88	109.59	1.24	135.41	1.90	0.81	0.81
24.09	135.37	108.86	1.24	134.81	1.90	0.81	0.81
24.16	133.34	106.93	1.24	133.09	1.91	0.80	0.80
24.24	130.04	104.25	1.23	128.02	1.89	0.80	0.80
24.33	125.79	100.75	1.21	122.05	1.86	0.79	0.79
24.43	121.10	96.90	1.19	115.53	1.84	0.78	0.78
24.52	114.28	90.85	1.23	111.31	1.88	0.77	0.77
24.58	108.90	86.13	1.25	107.54	1.92	0.76	0.76
24.59	104.52	82.40	1.27	104.41	1.95	0.76	0.76
24.63	104.21	82.05	1.27	104.24	1.95	0.76	0.76
24.68	103.45	81.24	1.28	103.96	1.96	0.76	0.76
24.77	102.47	80.14	1.29	103.52	1.98	0.75	0.75
24.82	100.31	78.15	1.31	102.59	2.01	0.75	0.75
24.92	97.85	75.83	1.34	101.32	2.03	0.75	0.75
25.01	95.22	73.42	1.36	100.09	2.06	0.75	0.75
25.06	92.38	70.94	1.39	98.75	2.08	0.75	0.75
25.16	89.48	68.36	1.42	97.29	2.10	0.74	0.74
25.25	86.51	65.75	1.46	95.92	2.13	0.74	0.74
25.30	83.55	63.24	1.50	94.77	2.15	0.74	0.74
25.41	80.44	60.52	1.55	93.81	2.17	0.74	0.74
25.49	77.27	57.80	1.61	93.24	2.20	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.55	73.97	55.02	1.70	93.42	2.23	0.74	0.74
25.64	70.59	52.13	1.81	94.24	2.27	0.74	0.74
25.70	67.02	49.15	1.95	95.94	2.31	0.74	0.74
25.79	63.24	46.00	2.13	97.75	2.35	0.74	0.74
25.89	58.92	42.45	2.35	99.94	2.40	0.75	0.75
25.94	54.26	38.75	2.63	101.97	2.45	0.75	0.75
26.02	49.37	34.89	2.95	102.81	2.50	0.75	0.75
26.12	45.05	31.51	3.23	101.92	2.54	0.75	0.75
26.17	40.83	28.31	3.52	99.58	2.57	0.75	0.75
26.28	37.02	25.37	3.84	97.30	2.61	0.74	0.74
26.36	33.31	22.57	4.17	94.10	2.65	0.74	0.74
26.45	29.43	19.65	4.69	92.22	2.70	0.73	0.73
26.50	24.94	16.31	5.63	91.86	2.78	0.73	0.73
26.61	20.15	12.75	7.37	93.95	2.91	0.74	0.74
26.70	15.97	9.43	10.10	95.23	3.07	0.35	0.67
26.77	12.97	7.45	12.95	96.46	3.21	0.35	0.53
26.85	11.85	6.70	14.12	94.58	3.26	0.34	0.48
26.94	11.45	6.41	14.29	91.60	3.27	0.29	0.46
27.04	11.95	6.71	13.15	88.25	3.22	0.28	0.48
27.14	12.22	6.86	12.68	86.95	3.20	0.27	0.49
27.23	12.90	7.27	11.66	84.75	3.15	0.26	0.52
27.28	13.22	7.46	11.13	83.02	3.13	0.24	0.53
27.29	13.29	7.50	10.38	77.81	3.09	0.24	0.54
27.38	13.29	7.47	9.96	74.44	3.07	0.16	0.53
27.48	13.27	7.43	9.89	73.48	3.06	0.18	0.53
27.57	13.27	7.41	10.67	79.00	3.10	0.22	0.53
27.64	13.30	7.41	11.31	83.76	3.13	0.26	0.53
27.65	13.44	7.49	12.08	90.43	3.17	0.27	0.53
27.74	14.52	8.14	11.82	96.17	3.16	0.36	0.58
27.80	16.91	9.63	10.69	102.90	3.10	0.41	0.69
27.90	19.17	11.00	9.59	105.58	3.05	0.48	0.79
27.99	19.34	11.07	9.67	106.99	3.05	0.48	0.79
28.07	17.12	9.65	10.91	105.31	3.11	0.45	0.69
28.16	14.45	7.96	12.63	100.58	3.20	0.39	0.57
28.25	12.53	6.75	13.86	93.48	3.25	0.31	0.48
28.34	11.52	6.10	14.13	86.20	3.26	0.25	0.44
28.44	11.01	5.76	14.19	81.77	3.26	0.21	0.41
28.53	10.84	5.64	14.27	80.51	3.26	0.21	0.40
28.62	11.75	6.17	14.04	86.70	3.26	0.23	0.44
28.76	14.21	7.64	12.54	95.81	3.19	0.35	0.55
28.86	17.65	9.69	11.11	107.72	3.12	0.45	0.69
28.96	20.32	11.26	10.51	118.36	3.09	0.58	0.80
29.08	21.30	11.80	11.10	130.98	3.12	0.70	0.84
29.19	22.07	12.21	11.60	141.58	3.15	0.86	0.87
29.29	27.50	15.40	8.64	133.06	2.99	0.80	0.80
29.39	40.70	25.08	5.15	129.21	2.74	0.80	0.80
29.50	57.67	36.81	3.37	124.06	2.55	0.79	0.79
29.63	66.88	42.86	3.19	136.79	2.53	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
29.65	70.22	45.09	3.13	141.18	2.52	0.81	0.81
29.66	71.00	45.61	3.10	141.50	2.52	0.82	0.82
29.72	73.53	47.34	2.95	139.57	2.50	0.81	0.81
29.80	77.81	50.31	2.70	135.94	2.46	0.81	0.81
29.85	89.49	58.79	2.17	127.49	2.36	0.79	0.79
29.94	111.58	75.08	1.62	121.89	2.20	0.79	0.79
30.00	135.50	93.20	1.37	127.60	2.06	0.79	0.79
30.05	152.98	106.83	1.28	136.43	1.96	0.81	0.81
30.14	162.60	114.57	1.23	140.95	1.89	0.81	0.81
30.19	167.56	118.78	1.20	142.08	1.84	0.82	0.82
30.24	169.61	120.45	1.18	142.19	1.83	0.82	0.82
30.29	169.68	120.31	1.18	142.38	1.83	0.82	0.82
30.38	167.72	118.51	1.19	141.39	1.84	0.82	0.82
30.43	164.79	116.05	1.20	139.76	1.85	0.81	0.81
30.48	161.62	113.47	1.21	137.67	1.87	0.81	0.81
30.54	159.16	111.46	1.22	135.86	1.87	0.81	0.81
30.62	158.35	110.69	1.22	134.98	1.87	0.81	0.81
30.67	157.77	110.16	1.22	134.34	1.87	0.80	0.80
30.72	158.55	110.67	1.22	134.61	1.87	0.81	0.81
30.76	159.46	111.32	1.21	134.89	1.86	0.81	0.81
30.86	162.06	113.16	1.20	135.92	1.85	0.81	0.81
30.91	165.09	115.46	1.19	137.26	1.84	0.81	0.81
30.95	168.94	118.37	1.17	138.94	1.82	0.81	0.81
31.03	173.83	122.03	1.15	140.71	1.80	0.81	0.81
31.10	179.36	126.19	1.13	142.33	1.78	0.82	0.82
31.15	185.03	130.44	1.10	144.07	1.76	0.82	0.82
31.20	189.66	133.76	1.09	146.05	1.75	0.82	0.82
31.26	192.52	135.69	1.09	147.81	1.75	0.82	0.82
31.34	186.22	130.42	1.13	147.23	1.78	0.82	0.82
31.37	184.63	129.08	1.14	146.99	1.79	0.82	0.82
31.38	181.39	126.56	1.15	145.70	1.80	0.82	0.82
31.43	184.63	129.02	1.13	146.17	1.78	0.82	0.82
31.47	179.33	124.92	1.15	143.44	1.80	0.82	0.82
31.55	171.64	118.91	1.17	139.35	1.82	0.81	0.81
31.59	160.34	110.19	1.21	132.93	1.86	0.80	0.80
31.66	147.76	100.47	1.24	124.83	1.91	0.79	0.79
31.73	135.75	91.20	1.28	116.80	1.97	0.78	0.78
31.78	125.08	83.04	1.33	110.36	2.02	0.77	0.77
31.84	115.64	75.76	1.40	106.34	2.09	0.76	0.76
31.93	107.23	69.27	1.51	104.84	2.16	0.76	0.76
31.98	100.42	64.06	1.66	106.04	2.22	0.76	0.76
32.02	98.18	62.19	1.75	108.88	2.25	0.76	0.76
32.09	97.00	61.07	1.83	111.87	2.27	0.77	0.77
32.16	98.89	62.18	1.83	113.86	2.27	0.77	0.77
32.22	100.29	63.04	1.82	114.52	2.27	0.77	0.77
32.27	103.49	65.22	1.76	114.53	2.25	0.77	0.77
32.34	106.02	66.91	1.71	114.38	2.24	0.77	0.77
32.42	108.89	68.85	1.66	114.11	2.22	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
32.46	113.04	71.82	1.58	113.62	2.19	0.77	0.77
32.54	117.73	75.15	1.51	113.25	2.15	0.77	0.77
32.60	121.74	78.23	1.43	112.00	2.11	0.77	0.77
32.67	124.81	80.60	1.38	111.53	2.07	0.77	0.77
32.75	127.51	82.59	1.35	111.85	2.05	0.77	0.77
32.81	130.38	84.43	1.35	113.95	2.05	0.77	0.77
32.89	133.38	86.29	1.35	116.21	2.04	0.78	0.78
32.94	129.47	83.21	1.38	114.84	2.07	0.77	0.77
32.95	131.02	84.23	1.38	116.07	2.07	0.78	0.78
33.00	132.88	85.36	1.38	117.56	2.07	0.78	0.78
33.06	141.08	91.06	1.34	122.40	2.04	0.79	0.79
33.11	142.26	91.66	1.35	123.66	2.04	0.79	0.79
33.20	141.21	90.60	1.36	123.53	2.06	0.79	0.79
33.25	139.02	88.78	1.39	123.06	2.08	0.79	0.79
33.34	137.03	87.07	1.41	122.48	2.09	0.79	0.79
33.38	136.69	86.68	1.42	122.68	2.10	0.79	0.79
33.48	138.41	87.63	1.41	123.78	2.10	0.79	0.79
33.58	141.92	89.83	1.40	125.79	2.09	0.79	0.79
33.63	146.74	93.05	1.38	128.81	2.07	0.80	0.80
33.73	152.41	96.75	1.37	132.15	2.06	0.80	0.80
33.82	158.96	101.09	1.35	136.16	2.04	0.81	0.81
33.87	165.74	105.66	1.33	140.58	2.03	0.81	0.81
33.96	172.72	110.29	1.32	145.13	2.01	0.82	0.82
34.02	180.58	115.54	1.30	150.66	2.00	0.83	0.83
34.11	190.03	121.77	1.29	157.32	1.98	0.84	0.84
34.18	200.49	128.68	1.28	164.99	1.97	0.85	0.85
34.26	210.44	135.11	1.28	172.52	1.96	0.86	0.86
34.35	219.45	140.77	1.28	179.50	1.96	0.86	0.86
34.44	227.51	145.83	1.27	185.53	1.95	0.87	0.87
34.49	233.96	150.02	1.27	190.23	1.95	0.88	0.88
34.59	237.94	152.42	1.27	192.83	1.94	0.88	0.88
34.69	240.00	153.47	1.26	194.12	1.94	0.88	0.88
34.76	240.94	153.92	1.26	194.53	1.94	0.88	0.88
34.83	240.60	153.43	1.26	194.02	1.94	0.88	0.88
34.93	237.97	151.43	1.26	191.54	1.94	0.88	0.88
35.02	233.82	148.39	1.27	188.08	1.95	0.87	0.87
35.12	229.78	145.60	1.27	184.23	1.94	0.87	0.87
35.22	226.47	143.26	1.26	181.13	1.94	0.87	0.87
35.30	222.22	140.29	1.26	177.46	1.94	0.86	0.86
35.38	208.55	130.48	1.29	168.21	1.98	0.85	0.85
35.43	198.10	123.09	1.31	161.35	2.00	0.84	0.84
35.46	189.40	116.99	1.33	155.80	2.03	0.83	0.83
35.51	187.20	115.53	1.33	153.78	2.03	0.83	0.83
35.56	176.78	108.45	1.35	146.76	2.05	0.82	0.82
35.66	163.52	99.31	1.39	138.53	2.08	0.81	0.81
35.70	148.20	89.01	1.46	130.03	2.13	0.80	0.80
35.80	131.87	77.90	1.59	123.66	2.19	0.79	0.79
35.89	111.32	64.17	1.87	119.95	2.28	0.78	0.78

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
35.96	89.09	49.72	2.43	120.81	2.41	0.78	0.78
36.04	68.24	36.73	3.28	120.37	2.54	0.78	0.78
36.14	52.15	27.04	4.33	117.01	2.66	0.78	0.78
36.19	43.48	22.01	5.03	110.69	2.73	0.77	0.77
36.28	40.51	20.23	5.44	110.05	2.77	0.77	0.77
36.33	40.51	20.24	5.35	108.32	2.76	0.76	0.76
36.42	42.30	21.24	5.09	108.08	2.74	0.76	0.76
36.48	45.97	23.38	4.59	107.27	2.69	0.76	0.76
36.52	51.03	26.20	4.31	112.95	2.66	0.77	0.77
36.62	54.10	27.78	4.31	119.67	2.66	0.78	0.78
36.68	54.07	27.55	4.59	126.59	2.69	0.79	0.79
36.77	52.82	26.73	4.79	128.11	2.71	0.80	0.80
36.86	54.64	27.76	4.56	126.60	2.69	0.79	0.79
36.90	67.67	35.75	3.22	115.19	2.53	0.77	0.77
37.00	98.14	55.13	1.87	103.13	2.29	0.75	0.75
37.10	140.34	83.45	1.35	112.56	2.04	0.77	0.77
37.20	182.54	113.15	1.21	136.84	1.86	0.81	0.81
37.29	213.04	135.23	1.09	147.30	1.75	0.82	0.82
37.39	232.34	149.01	1.00	149.01	1.70	0.83	0.83
37.49	241.91	155.00	1.00	155.00	1.70	0.83	0.83
37.53	245.57	156.74	1.02	160.20	1.72	0.84	0.84
37.58	246.07	156.33	1.06	165.44	1.73	0.85	0.85
37.62	247.84	156.88	1.08	169.66	1.75	0.85	0.85
37.69	250.56	157.82	1.11	175.10	1.77	0.86	0.86
37.77	253.53	158.95	1.13	179.78	1.78	0.86	0.86
37.82	254.98	159.10	1.15	183.39	1.80	0.87	0.87
37.87	254.84	158.42	1.17	184.85	1.81	0.87	0.87
37.91	252.72	156.44	1.18	184.82	1.83	0.87	0.87
37.97	248.23	152.87	1.20	183.06	1.85	0.87	0.87
38.06	241.92	148.07	1.21	179.59	1.87	0.86	0.86
38.10	235.58	143.53	1.22	175.74	1.88	0.86	0.86
38.17	230.89	140.30	1.23	172.34	1.89	0.86	0.86
38.25	228.09	138.57	1.22	169.66	1.88	0.85	0.85
38.35	225.79	137.24	1.22	167.11	1.87	0.85	0.85
38.40	223.43	135.86	1.21	164.83	1.87	0.85	0.85
38.46	221.65	134.68	1.21	163.21	1.86	0.84	0.84
38.54	220.87	134.09	1.21	162.26	1.86	0.84	0.84
38.60	220.87	134.14	1.21	161.69	1.86	0.84	0.84
38.69	222.22	135.09	1.20	161.77	1.85	0.84	0.84
38.74	224.92	137.05	1.19	162.53	1.83	0.84	0.84
38.83	227.85	138.91	1.18	163.73	1.82	0.84	0.84
38.88	229.20	139.97	1.17	163.54	1.81	0.84	0.84
38.97	228.76	139.65	1.16	162.47	1.81	0.84	0.84
39.02	227.25	138.83	1.16	160.45	1.80	0.84	0.84
39.11	224.44	136.82	1.16	158.54	1.81	0.84	0.84
39.16	218.51	132.80	1.17	154.99	1.81	0.83	0.83
39.23	205.48	123.73	1.20	148.10	1.85	0.82	0.82
39.24	200.81	120.69	1.20	145.08	1.85	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.28	198.62	119.29	1.20	143.39	1.85	0.82	0.82
39.32	201.93	121.86	1.18	144.08	1.83	0.82	0.82
39.39	194.55	116.84	1.20	139.67	1.84	0.81	0.81
39.47	183.96	109.44	1.22	133.48	1.88	0.80	0.80
39.54	171.48	100.68	1.25	125.99	1.92	0.79	0.79
39.62	158.42	91.63	1.29	117.99	1.98	0.78	0.78
39.71	145.73	82.95	1.33	110.70	2.03	0.77	0.77
39.76	134.50	75.46	1.39	105.08	2.08	0.76	0.76
39.85	125.32	69.36	1.46	101.34	2.13	0.75	0.75
39.90	117.87	64.48	1.53	98.95	2.17	0.75	0.75
40.00	111.05	60.00	1.63	97.53	2.20	0.74	0.74
40.06	104.71	55.91	1.73	96.96	2.24	0.74	0.74
40.15	98.67	52.00	1.87	97.18	2.28	0.74	0.74
40.21	92.83	48.24	2.05	98.86	2.33	0.75	0.75
40.29	86.59	44.24	2.31	102.19	2.39	0.75	0.75
40.35	79.68	39.85	2.72	108.27	2.46	0.76	0.76
40.43	72.22	35.37	3.16	111.81	2.53	0.77	0.77
40.52	63.85	30.51	3.76	114.58	2.60	0.77	0.77
40.58	55.21	25.70	4.47	115.00	2.68	0.77	0.77
40.67	46.88	21.09	5.54	116.83	2.77	0.78	0.78
40.77	41.63	18.24	6.45	117.65	2.85	0.78	0.78
40.84	39.14	16.87	6.99	117.99	2.89	0.78	0.78
40.89	42.28	18.55	6.27	116.25	2.83	0.78	0.78
40.94	49.75	22.62	4.92	111.31	2.72	0.77	0.77
41.03	61.46	29.20	3.53	103.18	2.57	0.75	0.75
41.08	73.03	35.94	2.68	96.47	2.45	0.74	0.74
41.14	82.03	41.30	2.24	92.51	2.37	0.73	0.73
41.22	87.70	44.68	2.04	90.97	2.33	0.73	0.73
41.28	90.43	46.24	1.97	91.29	2.31	0.73	0.73
41.33	91.99	46.96	1.99	93.52	2.32	0.74	0.74
41.42	93.64	47.61	2.04	97.02	2.33	0.74	0.74
41.47	97.01	49.31	2.04	100.81	2.33	0.75	0.75
41.52	104.03	53.17	1.96	104.48	2.31	0.76	0.76
41.62	115.47	59.72	1.81	107.92	2.27	0.76	0.76
41.67	130.01	68.21	1.66	112.91	2.22	0.77	0.77
41.76	144.45	76.74	1.54	118.23	2.17	0.78	0.78
41.82	156.39	83.80	1.48	123.75	2.14	0.79	0.79
41.90	165.43	89.14	1.44	128.02	2.11	0.80	0.80
41.99	171.57	92.73	1.41	131.05	2.10	0.80	0.80
42.05	174.81	94.61	1.40	132.58	2.09	0.80	0.80
42.15	175.22	94.64	1.40	132.77	2.09	0.80	0.80
42.23	173.33	93.24	1.42	132.06	2.10	0.80	0.80
42.30	169.55	90.73	1.44	130.51	2.11	0.80	0.80
42.38	163.64	86.97	1.47	127.88	2.13	0.80	0.80
42.48	153.79	80.87	1.53	123.60	2.16	0.79	0.79
42.57	141.98	73.69	1.62	119.15	2.20	0.78	0.78
42.64	129.97	66.53	1.73	115.28	2.24	0.78	0.78
42.72	121.20	61.42	1.82	111.72	2.27	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.82	114.72	57.72	1.88	108.24	2.29	0.76	0.76
42.90	110.03	55.08	1.91	105.42	2.30	0.76	0.76
42.97	106.05	52.74	1.98	104.32	2.31	0.76	0.76
43.06	102.31	50.43	2.08	104.69	2.34	0.76	0.76
43.15	98.76	48.44	2.11	102.43	2.35	0.75	0.75
43.20	97.75	48.00	2.07	99.54	2.34	0.75	0.75
43.30	104.19	51.99	1.84	95.67	2.28	0.74	0.74
43.40	119.88	61.38	1.58	97.12	2.19	0.74	0.74
43.48	132.43	68.91	1.47	100.97	2.13	0.75	0.75
43.51	139.11	72.90	1.43	103.89	2.10	0.76	0.76
43.52	146.23	77.22	1.39	107.23	2.08	0.76	0.76
43.56	160.13	85.83	1.33	114.20	2.03	0.77	0.77
43.61	178.86	97.60	1.28	124.81	1.96	0.79	0.79
43.67	193.23	106.74	1.25	133.29	1.92	0.80	0.80
43.72	206.01	115.04	1.22	140.56	1.88	0.81	0.81
43.80	216.51	121.88	1.20	145.95	1.85	0.82	0.82
43.85	224.74	127.26	1.18	149.84	1.82	0.83	0.83
43.90	231.25	131.51	1.16	152.56	1.81	0.83	0.83
43.94	236.38	134.87	1.14	154.37	1.79	0.83	0.83
43.99	239.82	137.13	1.13	155.28	1.78	0.83	0.83
44.08	241.54	138.11	1.13	155.65	1.78	0.83	0.83
44.14	241.51	137.71	1.14	156.49	1.79	0.84	0.84
44.22	240.40	136.41	1.15	157.19	1.80	0.84	0.84
44.28	238.31	134.50	1.17	157.37	1.82	0.84	0.84
44.33	235.67	132.35	1.18	156.78	1.83	0.84	0.84
44.40	232.27	129.52	1.20	155.80	1.85	0.83	0.83
44.48	231.30	128.25	1.22	155.90	1.87	0.83	0.83
44.52	228.57	125.64	1.24	155.24	1.90	0.83	0.83
44.61	230.02	126.41	1.23	155.88	1.89	0.83	0.83
44.72	231.52	127.03	1.23	156.70	1.90	0.84	0.84
44.77	236.14	130.05	1.22	159.04	1.88	0.84	0.84
44.91	237.86	130.46	1.23	160.27	1.89	0.84	0.84
44.95	231.69	126.16	1.24	156.88	1.91	0.84	0.84
45.02	227.41	123.19	1.25	154.33	1.92	0.83	0.83
45.04	198.97	104.88	1.32	138.44	2.01	0.81	0.81
45.06	203.49	107.81	1.30	140.63	2.00	0.81	0.81
45.11	208.45	111.04	1.29	143.03	1.98	0.82	0.82
45.15	239.96	131.64	1.22	160.49	1.87	0.84	0.84
45.21	246.91	136.23	1.20	163.81	1.85	0.84	0.84
45.25	252.44	139.80	1.19	166.43	1.84	0.85	0.85
45.30	256.29	142.11	1.18	168.34	1.83	0.85	0.85
45.35	258.04	143.02	1.18	169.35	1.83	0.85	0.85
45.41	258.42	143.02	1.19	169.64	1.83	0.85	0.85
45.49	257.00	141.89	1.19	168.87	1.84	0.85	0.85
45.55	254.13	139.97	1.19	167.24	1.84	0.85	0.85
45.63	249.51	136.90	1.20	164.52	1.85	0.85	0.85
45.69	243.67	133.19	1.21	161.09	1.86	0.84	0.84
45.78	236.62	128.61	1.22	156.88	1.88	0.84	0.84

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
45.84	228.05	123.25	1.23	151.68	1.89	0.83	0.83
45.93	217.69	116.85	1.24	145.18	1.91	0.82	0.82
46.02	205.11	109.16	1.26	137.24	1.93	0.81	0.81
46.08	190.40	100.37	1.28	128.00	1.96	0.80	0.80
46.16	174.41	90.73	1.30	118.20	1.99	0.78	0.78
46.24	157.13	80.39	1.35	108.31	2.04	0.76	0.76
46.31	138.07	68.91	1.44	99.54	2.12	0.75	0.75
46.41	117.36	56.54	1.67	94.32	2.22	0.74	0.74
46.48	95.77	44.06	2.17	95.41	2.36	0.74	0.74
46.56	75.72	32.98	3.08	101.49	2.51	0.75	0.75
46.65	58.08	23.81	4.47	106.39	2.68	0.76	0.76
46.75	45.43	17.64	5.95	104.92	2.81	0.76	0.76
46.84	36.62	12.08	8.01	96.75	2.95	0.74	0.74
46.94	30.75	9.96	9.25	92.20	3.03	0.42	0.71
47.02	25.79	8.18	10.96	89.65	3.12	0.36	0.58
47.08	21.37	6.60	13.29	87.68	3.22	0.33	0.47
47.12	18.76	5.66	15.23	86.24	3.30	0.32	0.40
47.16	17.85	5.33	15.88	84.67	3.33	0.30	0.38
47.21	17.81	5.32	15.49	82.35	3.31	0.28	0.38
47.27	17.46	5.18	15.33	79.44	3.31	0.26	0.37
47.35	16.42	4.80	15.97	76.72	3.33	0.23	0.34
47.40	15.74	4.56	15.95	72.71	3.33	0.22	0.33
47.50	15.37	4.42	15.62	68.97	3.32	0.17	0.32
47.55	15.16	4.34	15.04	65.28	3.29	0.16	0.31
47.61	15.00	4.27	14.89	63.67	3.29	0.14	0.31
47.69	14.73	4.17	15.00	62.57	3.29	0.14	0.30
47.76	14.39	4.05	15.25	61.71	3.30	0.13	0.29
47.83	14.02	3.91	15.40	60.22	3.31	0.13	0.28
47.93	13.85	3.84	15.20	58.40	3.30	0.11	0.27
48.02	13.82	3.82	15.00	57.34	3.29	0.10	0.27
48.09	13.88	3.84	14.67	56.35	3.28	0.11	0.27
48.18	13.85	3.82	14.94	57.05	3.29	0.10	0.27
48.27	13.88	3.82	15.29	58.44	3.30	0.12	0.27
48.37	13.98	3.85	15.87	61.09	3.33	0.13	0.27
48.46	14.12	3.89	16.20	62.98	3.34	0.14	0.28
48.52	14.18	3.90	16.46	64.25	3.35	0.15	0.28
48.60	14.25	3.92	16.64	65.23	3.35	0.16	0.28
48.70	14.38	3.96	16.68	65.99	3.35	0.16	0.28
48.79	14.65	4.04	16.50	66.70	3.35	0.16	0.29
48.85	15.06	4.18	16.39	68.42	3.34	0.17	0.30
48.94	15.74	4.40	16.24	71.44	3.34	0.20	0.31
49.04	16.68	4.71	15.57	73.34	3.31	0.23	0.34
49.13	18.30	5.25	15.62	82.09	3.32	0.22	0.38
49.23	21.13	6.21	14.82	92.00	3.29	0.41	0.44
49.33	24.04	7.18	14.31	102.80	3.27	0.51	0.51
49.38	24.88	7.46	14.69	109.60	3.28	0.57	0.53
49.42	25.93	7.81	14.70	114.80	3.28	0.64	0.56
49.48	26.70	8.06	14.75	118.93	3.28	0.70	0.58

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
49.53	28.79	8.76	13.86	121.43	3.25	0.73	0.63
49.58	29.43	8.97	13.78	123.62	3.24	0.76	0.64
49.63	30.10	9.19	13.66	125.52	3.24	0.79	0.66
49.72	30.91	9.44	13.37	126.23	3.23	0.81	0.67
49.77	31.42	9.60	13.13	125.98	3.22	0.80	0.69
49.83	31.42	9.59	13.08	125.40	3.22	0.79	0.68
49.92	30.71	9.33	13.37	124.67	3.23	0.79	0.67
49.97	30.39	9.21	13.41	123.55	3.23	0.76	0.66
50.04	29.48	8.89	13.80	122.65	3.25	0.74	0.64
50.11	29.82	8.99	13.61	122.33	3.24	0.74	0.64
50.20	30.21	9.10	13.25	120.55	3.22	0.76	0.65
50.27	30.78	9.28	12.51	116.01	3.19	0.68	0.66
50.34	29.50	8.83	12.20	107.79	3.18	0.58	0.63
50.45	26.76	7.90	12.55	99.22	3.19	0.45	0.56
50.54	23.73	6.88	13.43	92.39	3.23	0.38	0.49
50.59	21.13	6.01	14.59	87.71	3.28	0.35	0.43
50.68	19.24	5.37	15.59	83.78	3.32	0.30	0.38
50.79	18.13	4.99	16.06	80.17	3.33	0.26	0.36
50.88	17.81	4.88	16.03	78.18	3.33	0.25	0.35
50.98	17.64	4.81	16.19	77.89	3.34	0.25	0.34
51.07	17.81	4.86	15.67	76.09	3.32	0.25	0.35
51.17	18.43	5.05	14.19	71.67	3.26	0.21	0.36
51.24	19.51	5.40	12.74	68.77	3.20	0.16	0.39
51.33	20.19	5.61	12.56	70.43	3.19	0.20	0.40
51.46	20.09	5.56	13.45	74.75	3.23	0.25	0.40
51.46	19.80	5.46	14.31	78.20	3.27	0.25	0.39
51.51	19.77	5.45	14.62	79.60	3.28	0.28	0.39
51.56	19.87	5.47	14.98	82.02	3.29	0.28	0.39
51.65	19.95	5.49	15.35	84.26	3.31	0.31	0.39
51.71	20.09	5.53	15.72	86.89	3.32	0.33	0.39
51.79	20.49	5.65	15.73	88.80	3.32	0.35	0.40
51.85	21.23	5.88	15.68	92.19	3.32	0.37	0.42
51.94	22.11	6.15	15.66	96.33	3.32	0.43	0.44
51.99	23.22	6.51	15.77	102.62	3.32	0.48	0.46
52.09	24.17	6.80	16.12	109.52	3.33	0.57	0.49
52.19	27.74	7.93	14.73	116.81	3.28	0.67	0.57
52.28	33.34	9.72	12.62	122.63	3.20	0.78	0.69
52.35	36.42	10.69	12.02	128.41	3.17	0.87	0.76
52.43	37.06	10.87	12.22	132.82	3.18	0.95	0.78
52.52	35.17	10.25	13.30	136.28	3.22	0.97	0.73
52.62	35.61	10.37	13.11	135.93	3.22	0.98	0.74
52.72	35.98	10.46	12.80	133.92	3.20	0.94	0.75
52.81	34.26	9.89	13.70	135.53	3.24	0.89	0.71
52.91	31.32	8.94	16.37	146.31	3.34	1.03	0.64
53.00	37.23	10.79	14.34	154.70	3.27	1.38	0.77
53.10	62.36	18.71	7.92	148.13	2.95	0.82	0.82
53.20	108.21	33.14	3.92	129.79	2.62	0.80	0.80
53.29	163.78	50.57	2.27	114.61	2.38	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.38	213.88	66.21	1.72	114.09	2.24	0.77	0.77
53.46	260.07	80.59	1.49	119.81	2.14	0.78	0.78
53.53	292.05	90.48	1.45	130.93	2.12	0.80	0.80
53.63	323.19	100.02	1.40	139.93	2.09	0.81	0.81
53.73	361.79	111.85	1.31	146.92	2.01	0.82	0.82
53.82	388.35	119.89	1.25	150.03	1.92	0.83	0.83
53.92	387.71	119.45	1.23	146.54	1.89	0.82	0.82
53.94	360.18	110.85	1.25	138.23	1.92	0.81	0.81
53.96	336.26	103.38	1.27	131.20	1.95	0.80	0.80
53.97	349.08	107.34	1.25	134.16	1.92	0.80	0.80
54.05	377.59	116.04	1.22	141.00	1.87	0.81	0.81
54.08	426.28	131.09	1.15	150.15	1.79	0.83	0.83
54.13	473.21	145.55	1.06	154.41	1.74	0.83	0.83
54.19	518.79	159.56	1.00	159.56	1.70	0.84	0.84
54.25	524.22	161.12	1.01	162.94	1.71	0.84	0.84
54.28	510.87	156.95	1.06	166.66	1.74	0.85	0.85
54.29	486.82	149.48	1.10	164.40	1.76	0.85	0.85
54.34	486.89	149.42	1.10	164.35	1.76	0.85	0.85
54.35	492.20	151.05	1.09	164.72	1.75	0.85	0.85
54.40	504.89	154.89	1.07	165.62	1.74	0.85	0.85
54.44	522.30	160.18	1.04	166.45	1.72	0.85	0.85
54.49	535.62	164.19	1.01	165.88	1.71	0.85	0.85
54.53	546.25	167.39	1.00	167.39	1.70	0.85	0.85
54.57	558.27	171.02	1.00	171.02	1.69	0.85	0.85
54.58	567.78	173.92	1.00	173.92	1.70	0.86	0.86
54.63	560.90	171.71	1.01	173.90	1.71	0.86	0.86
54.68	536.31	164.04	1.08	176.93	1.75	0.86	0.86
54.73	510.50	156.00	1.12	175.12	1.78	0.86	0.86
54.78	499.67	152.59	1.14	173.29	1.79	0.86	0.86
54.83	493.63	150.64	1.15	172.82	1.80	0.86	0.86
54.88	497.14	151.64	1.15	175.08	1.80	0.86	0.86
54.92	500.68	152.65	1.17	178.37	1.81	0.86	0.86
54.97	510.81	155.66	1.16	180.73	1.81	0.87	0.87
55.02	513.44	156.38	1.16	181.62	1.81	0.87	0.87
55.12	487.90	148.39	1.20	178.01	1.85	0.86	0.86
55.17	449.17	136.44	1.25	170.63	1.92	0.85	0.85
55.25	410.54	124.51	1.29	160.49	1.98	0.84	0.84
55.31	394.21	119.43	1.29	154.46	1.98	0.83	0.83
55.36	388.18	117.52	1.27	148.87	1.95	0.83	0.83
55.45	381.09	115.23	1.25	143.68	1.91	0.82	0.82
55.50	365.91	110.54	1.25	137.89	1.92	0.81	0.81
55.60	351.24	105.95	1.26	133.93	1.94	0.80	0.80
55.65	332.24	100.11	1.28	128.15	1.96	0.80	0.80
55.71	324.14	97.58	1.27	124.39	1.96	0.79	0.79
55.75	320.40	96.40	1.26	121.19	1.93	0.78	0.78
55.79	325.12	97.79	1.25	121.90	1.91	0.79	0.79
55.84	332.47	99.97	1.24	123.76	1.90	0.79	0.79
55.89	338.01	101.60	1.23	125.39	1.90	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.90	341.15	102.54	1.23	126.17	1.89	0.79	0.79
55.94	336.26	101.02	1.24	124.98	1.90	0.79	0.79
55.99	327.63	98.34	1.25	122.89	1.92	0.79	0.79
56.03	317.88	95.34	1.26	120.41	1.94	0.78	0.78
56.08	311.67	93.40	1.27	118.54	1.95	0.78	0.78
56.14	306.37	91.74	1.27	116.74	1.95	0.78	0.78
56.22	299.89	89.70	1.28	114.65	1.96	0.77	0.77
56.28	294.29	87.95	1.28	112.90	1.97	0.77	0.77
56.33	292.57	87.39	1.29	112.38	1.97	0.77	0.77
56.38	294.06	87.79	1.28	112.46	1.97	0.77	0.77
56.45	301.34	89.92	1.27	114.23	1.95	0.77	0.77
56.52	312.58	93.24	1.25	117.01	1.93	0.78	0.78
56.62	325.19	96.94	1.24	120.21	1.90	0.78	0.78
56.66	338.42	100.88	1.22	123.02	1.87	0.79	0.79
56.73	350.06	104.30	1.21	126.65	1.87	0.79	0.79
56.81	357.11	106.33	1.22	129.59	1.87	0.80	0.80
56.95	363.42	108.06	1.23	132.64	1.89	0.80	0.80
57.00	372.46	110.72	1.23	135.80	1.88	0.81	0.81
57.09	373.11	110.80	1.23	136.52	1.89	0.81	0.81
57.19	368.58	109.32	1.24	135.85	1.91	0.81	0.81
57.27	354.04	104.88	1.25	131.44	1.92	0.80	0.80
57.35	357.65	105.87	1.23	130.16	1.89	0.80	0.80
57.44	356.17	105.33	1.21	127.36	1.86	0.79	0.79
57.50	364.37	107.70	1.18	127.07	1.83	0.79	0.79
57.52	378.10	111.77	1.18	131.85	1.83	0.80	0.80
57.58	409.37	121.03	1.17	141.73	1.82	0.82	0.82
57.63	432.08	127.73	1.17	149.17	1.81	0.83	0.83
57.72	439.00	129.66	1.17	151.31	1.81	0.83	0.83
57.77	433.73	128.03	1.16	148.26	1.80	0.82	0.82
57.82	429.55	126.71	1.13	143.29	1.78	0.82	0.82
57.91	436.73	128.72	1.06	137.09	1.74	0.81	0.81
57.96	442.84	130.46	1.00	130.46	1.69	0.80	0.80
58.02	458.90	135.16	1.00	135.16	1.66	0.81	0.81
58.09	469.26	138.12	1.00	138.12	1.65	0.81	0.81
58.16	484.88	142.65	1.00	142.65	1.63	0.82	0.82
58.25	491.12	144.36	1.00	144.36	1.64	0.82	0.82
58.30	487.65	143.26	1.00	143.26	1.66	0.82	0.82
58.40	479.62	140.74	1.00	140.74	1.69	0.81	0.81
58.50	468.52	137.31	1.02	139.77	1.71	0.81	0.81
58.56	467.50	136.92	1.01	138.70	1.71	0.81	0.81
58.64	464.81	136.01	1.03	140.28	1.72	0.81	0.81
58.73	474.79	138.81	1.05	145.16	1.73	0.82	0.82
58.78	488.15	142.67	1.02	145.87	1.72	0.82	0.82
58.88	506.71	147.98	1.00	147.98	1.69	0.82	0.82
58.97	511.03	149.10	1.00	149.10	1.66	0.83	0.83
59.07	506.24	147.53	1.00	147.53	1.66	0.82	0.82
59.13	493.59	143.73	1.00	143.73	1.65	0.82	0.82
59.23	484.71	140.99	1.00	140.99	1.65	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.31	464.47	134.94	1.00	134.94	1.65	0.81	0.81
59.38	450.35	130.71	1.00	130.71	1.65	0.80	0.80
59.41	439.19	127.40	1.00	127.40	1.66	0.79	0.79
59.46	443.57	128.62	1.00	128.62	1.65	0.80	0.80
59.51	443.56	128.55	1.00	128.55	1.65	0.80	0.80
59.57	451.89	130.91	1.00	130.91	1.67	0.80	0.80
59.66	471.05	136.37	1.00	136.37	1.67	0.81	0.81
59.75	492.31	142.44	1.00	142.44	1.70	0.82	0.82
59.80	506.48	146.48	1.01	147.84	1.71	0.82	0.82
59.85	508.64	147.04	1.07	156.99	1.74	0.84	0.84
59.91	504.22	145.65	1.08	158.02	1.75	0.84	0.84
59.99	498.85	143.96	1.11	159.53	1.77	0.84	0.84
60.05	480.97	138.68	1.17	161.59	1.81	0.84	0.84
60.09	464.78	133.92	1.20	160.52	1.85	0.84	0.84
60.14	444.43	127.94	1.22	156.08	1.88	0.84	0.84
60.19	437.86	125.96	1.22	153.23	1.87	0.83	0.83
60.22	434.25	124.88	1.21	151.55	1.87	0.83	0.83
60.28	412.99	118.63	1.23	145.94	1.89	0.82	0.82
60.33	381.24	109.36	1.26	137.48	1.93	0.81	0.81
60.38	338.97	97.07	1.31	126.83	2.00	0.79	0.79
60.42	309.75	88.57	1.35	119.65	2.05	0.78	0.78
60.48	282.02	80.50	1.38	111.02	2.07	0.77	0.77
60.57	262.48	74.78	1.36	101.50	2.05	0.75	0.75
60.66	243.89	69.35	1.32	91.67	2.02	0.73	0.73
60.68	232.16	65.95	1.30	85.85	1.99	0.72	0.72
60.69	225.51	64.02	1.29	82.84	1.98	0.71	0.71
60.74	217.75	61.75	1.30	80.07	1.99	0.59	0.71
60.79	206.27	58.41	1.30	76.18	2.00	0.42	0.70
60.84	192.16	54.32	1.32	71.82	2.02	0.30	0.69
60.89	182.35	51.47	1.33	68.64	2.03	0.23	0.68
60.98	174.35	49.12	1.36	66.57	2.05	0.19	0.67
61.03	168.07	47.30	1.46	69.19	2.13	0.24	0.68
61.08	164.86	46.35	1.72	79.69	2.24	0.57	0.71
61.18	164.63	46.24	1.95	90.12	2.31	0.73	0.73
61.23	168.20	47.23	2.12	100.04	2.35	0.75	0.75
61.31	194.08	54.62	1.72	94.03	2.24	0.74	0.74
61.42	236.42	66.70	1.41	94.11	2.09	0.74	0.74
61.47	287.17	81.21	1.24	100.64	1.90	0.75	0.75
61.51	331.30	93.81	1.14	107.25	1.79	0.76	0.76
61.54	366.14	103.76	1.05	108.54	1.73	0.76	0.76
61.57	395.83	112.23	1.00	112.23	1.70	0.77	0.77
61.58	418.64	118.74	1.00	118.74	1.67	0.78	0.78
61.61	393.43	111.49	1.00	111.49	1.70	0.77	0.77
61.63	367.65	104.10	1.03	107.07	1.72	0.76	0.76
61.63	257.89	72.70	1.26	91.77	1.94	0.73	0.73
61.66	191.36	53.66	1.48	79.27	2.14	0.55	0.71
61.67	129.55	35.97	2.37	85.35	2.40	0.72	0.72
61.70	152.96	42.66	1.96	83.80	2.31	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
61.71	180.90	50.64	1.67	84.55	2.22	0.72	0.72
61.76	206.41	57.90	1.51	87.45	2.15	0.72	0.72
61.80	228.84	64.28	1.42	91.10	2.10	0.73	0.73
61.84	250.40	70.41	1.34	94.04	2.03	0.74	0.74
61.86	279.75	78.77	1.26	98.87	1.93	0.75	0.75
61.93	312.34	88.02	1.18	103.69	1.82	0.75	0.75
61.98	357.76	100.92	1.00	100.92	1.73	0.75	0.75
62.04	405.56	114.48	1.00	114.48	1.68	0.77	0.77
62.09	451.78	127.59	1.00	127.59	1.64	0.79	0.79
62.14	481.91	136.10	1.00	136.10	1.62	0.81	0.81
62.19	499.12	140.93	1.00	140.93	1.60	0.81	0.81
62.24	508.93	143.65	1.00	143.65	1.59	0.82	0.82
62.26	519.32	146.58	1.00	146.58	1.58	0.82	0.82
62.29	519.05	146.46	1.00	146.46	1.58	0.82	0.82
62.38	515.71	145.37	1.00	145.37	1.60	0.82	0.82
62.44	490.28	138.07	1.00	138.07	1.65	0.81	0.81
62.46	469.07	132.02	1.00	132.02	1.69	0.80	0.80
62.47	448.15	126.07	1.00	126.07	1.70	0.79	0.79
62.51	453.68	127.59	1.00	127.59	1.69	0.79	0.79
62.56	463.98	130.45	1.00	130.45	1.69	0.80	0.80
62.60	477.62	134.26	1.00	134.26	1.68	0.80	0.80
62.65	481.73	135.35	1.00	135.35	1.68	0.81	0.81
62.70	482.34	135.46	1.00	135.46	1.66	0.81	0.81
62.75	483.05	135.59	1.00	135.59	1.65	0.81	0.81
62.80	494.83	138.85	1.00	138.85	1.64	0.81	0.81
62.85	525.29	147.40	1.00	147.40	1.60	0.82	0.82
62.89	569.18	159.73	1.00	159.73	1.56	0.84	0.84
62.97	619.66	173.86	1.00	173.86	1.54	0.86	0.86
63.04	667.84	187.32	1.00	187.32	1.52	0.87	0.87
63.09	703.12	197.18	1.00	197.18	1.50	0.88	0.88
63.13	715.51	200.57	1.00	200.57	1.51	0.89	0.89
63.19	716.52	200.74	1.00	200.74	1.54	0.89	0.89
63.23	720.23	201.69	1.00	201.69	1.57	0.89	0.89
63.28	726.78	203.42	1.00	203.42	1.59	0.89	0.89
63.32	729.18	204.02	1.00	204.02	1.57	0.89	0.89
63.38	725.67	202.89	1.00	202.89	1.49	0.89	0.89
63.44	726.68	203.06	1.00	203.06	1.43	0.89	0.89
63.52	715.48	199.75	1.00	199.75	1.43	0.89	0.89
63.57	697.37	194.57	1.00	194.57	1.49	0.88	0.88
63.66	659.58	183.79	1.00	183.79	1.52	0.87	0.87
63.73	534.95	148.76	1.00	148.76	1.63	0.83	0.83
63.76	455.61	126.50	1.03	130.54	1.72	0.80	0.80
63.76	411.85	114.24	1.12	127.66	1.77	0.79	0.79
63.78	471.87	131.02	1.00	131.02	1.70	0.80	0.80
63.81	512.86	142.46	1.00	142.46	1.67	0.82	0.82
63.85	526.43	146.19	1.00	146.19	1.68	0.82	0.82
63.86	522.58	145.10	1.00	145.10	1.70	0.82	0.82
63.91	497.92	138.14	1.07	148.35	1.74	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.94	483.78	134.14	1.12	150.35	1.77	0.83	0.83
63.95	480.34	133.15	1.14	151.38	1.79	0.83	0.83
64.00	476.26	131.94	1.14	150.67	1.79	0.83	0.83
64.02	473.22	131.08	1.14	149.37	1.79	0.83	0.83
64.05	475.78	131.75	1.12	148.02	1.78	0.82	0.82
64.09	478.18	132.36	1.11	146.64	1.77	0.82	0.82
64.11	480.07	132.86	1.09	144.77	1.75	0.82	0.82
64.15	482.26	133.43	1.07	142.44	1.74	0.82	0.82
64.20	494.31	136.71	1.03	141.24	1.72	0.81	0.81
64.25	512.59	141.74	1.00	141.74	1.70	0.82	0.82
64.29	535.70	148.11	1.00	148.11	1.68	0.82	0.82
64.34	570.38	157.68	1.00	157.68	1.64	0.84	0.84
64.43	605.81	167.40	1.00	167.40	1.60	0.85	0.85
64.48	630.95	174.30	1.00	174.30	1.56	0.86	0.86
64.53	642.69	177.47	1.00	177.47	1.53	0.86	0.86
64.58	655.07	180.82	1.00	180.82	1.52	0.87	0.87
64.63	680.65	187.83	1.00	187.83	1.51	0.87	0.87
64.68	709.63	195.77	1.00	195.77	1.52	0.88	0.88
64.73	718.74	198.20	1.00	198.20	1.53	0.88	0.88
64.77	735.60	202.79	1.00	202.79	1.51	0.89	0.89
64.82	751.19	207.01	1.00	207.01	1.48	0.89	0.89
64.87	732.64	201.76	1.00	201.76	1.49	0.89	0.89
64.89	713.98	196.56	1.00	196.56	1.50	0.88	0.88
64.93	689.59	189.73	1.00	189.73	1.53	0.88	0.88
64.94	715.81	196.96	1.00	196.96	1.51	0.88	0.88
64.98	725.69	199.62	1.00	199.62	1.50	0.89	0.89
64.99	734.03	201.90	1.00	201.90	1.50	0.89	0.89
65.03	732.37	201.35	1.00	201.35	1.50	0.89	0.89
65.08	727.04	199.79	1.00	199.79	1.49	0.89	0.89
65.13	715.51	196.50	1.00	196.50	1.48	0.88	0.88
65.17	703.60	193.13	1.00	193.13	1.46	0.88	0.88
65.22	689.29	189.08	1.00	189.08	1.45	0.87	0.87
65.23	681.55	186.93	1.00	186.93	1.45	0.87	0.87
65.28	679.28	186.22	1.00	186.22	1.46	0.87	0.87
65.32	679.65	186.24	1.00	186.24	1.47	0.87	0.87
65.37	680.17	186.30	1.00	186.30	1.49	0.87	0.87
65.42	684.61	187.42	1.00	187.42	1.50	0.87	0.87
65.47	671.65	183.76	1.00	183.76	1.50	0.87	0.87
65.48	657.21	179.77	1.00	179.77	1.52	0.86	0.86
65.49	638.86	174.70	1.00	174.70	1.52	0.86	0.86
65.52	636.56	174.01	1.00	174.01	1.52	0.86	0.86
65.57	645.67	176.43	1.00	176.43	1.41	0.86	0.86
65.62	661.16	180.61	1.00	180.61	1.28	0.87	0.87
65.67	682.44	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.69	697.23	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.72	719.02	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.77	752.26	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.82	790.78	-1.00	1.00	-1.00	-1.00	0.00	0.00

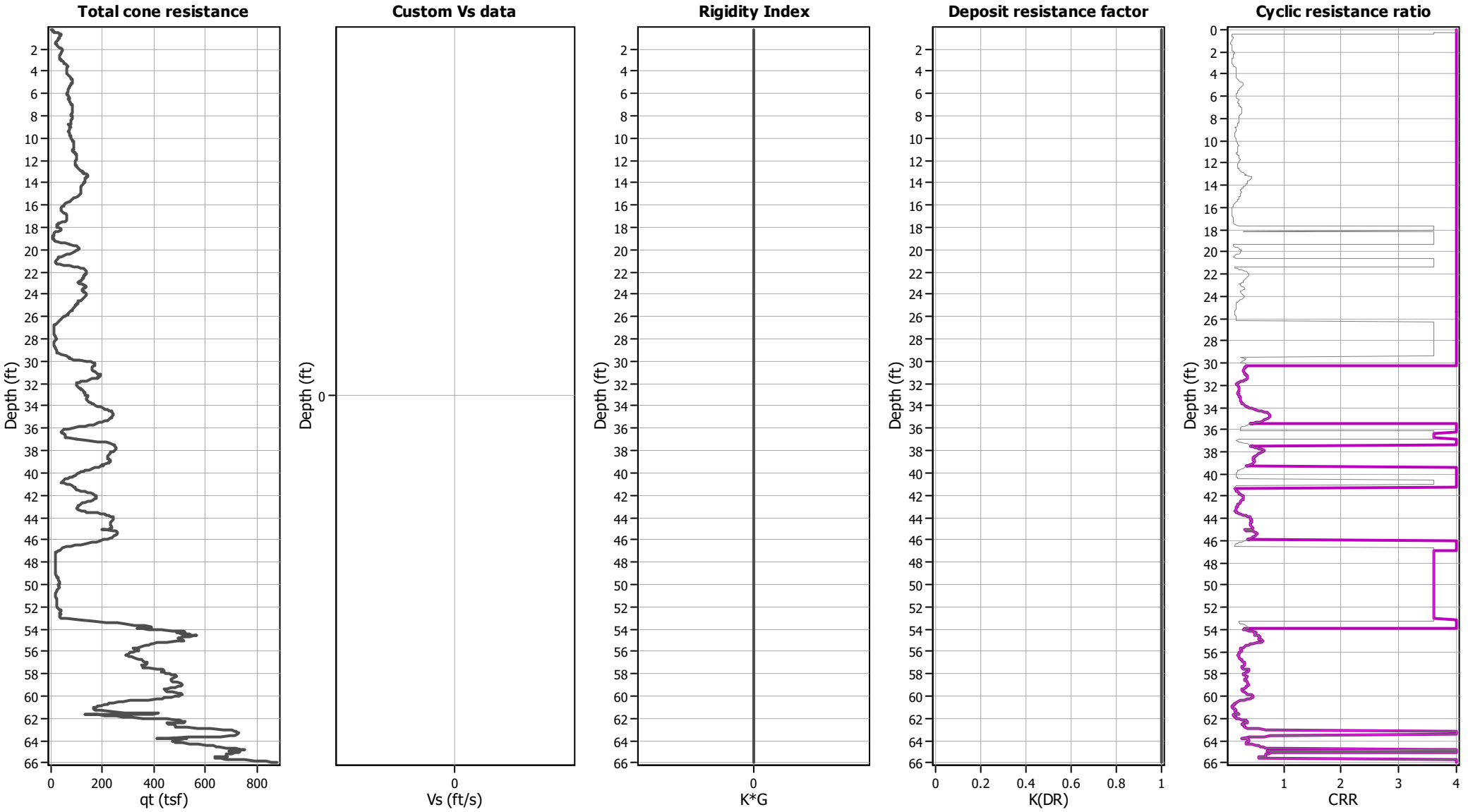
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
65.86	811.97	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.86	833.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.91	854.04	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.96	878.41	-1.00	1.00	-1.00	-1.00	0.00	0.00

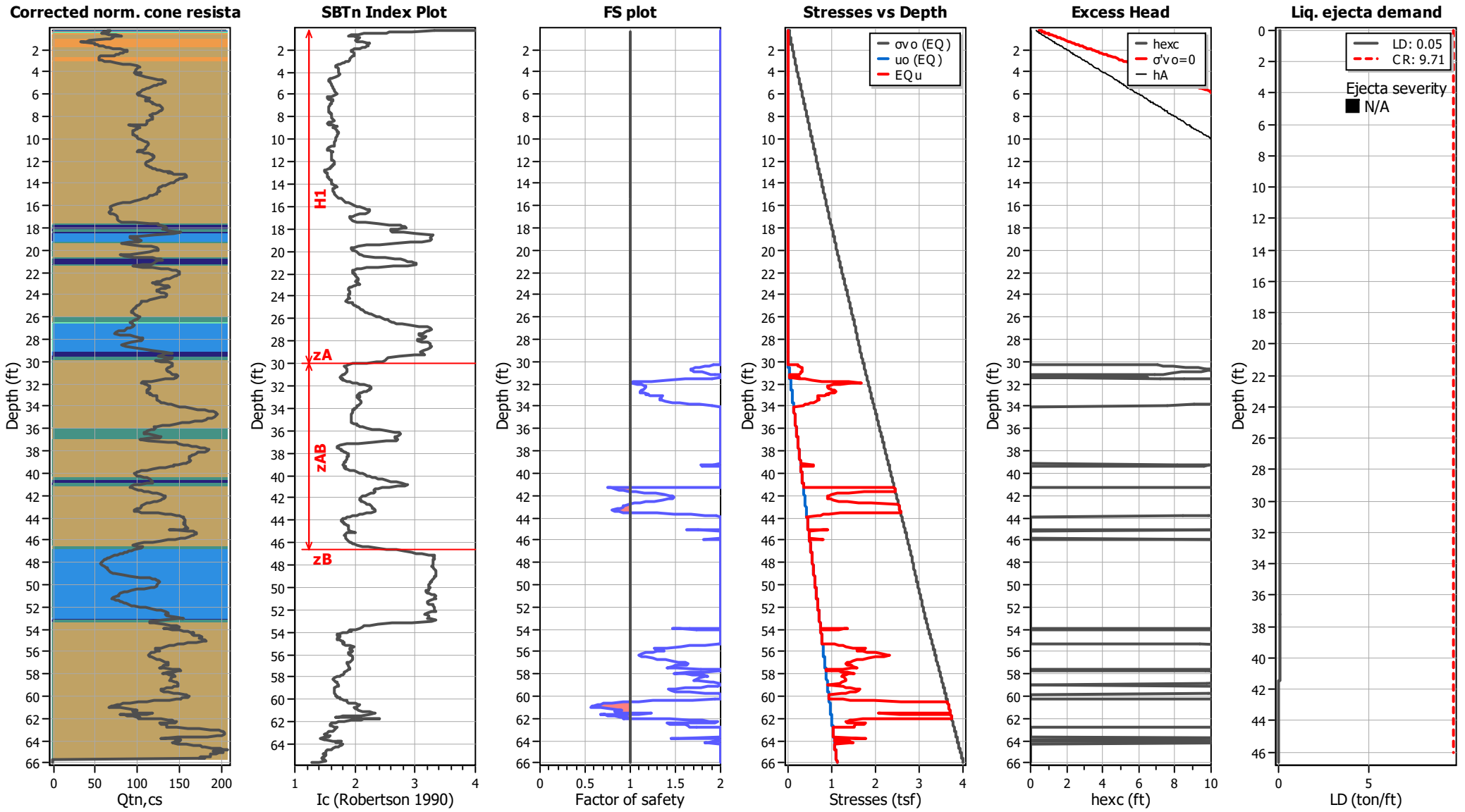
Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Aging Calculation Estimation



Ejecta Severity Estimation



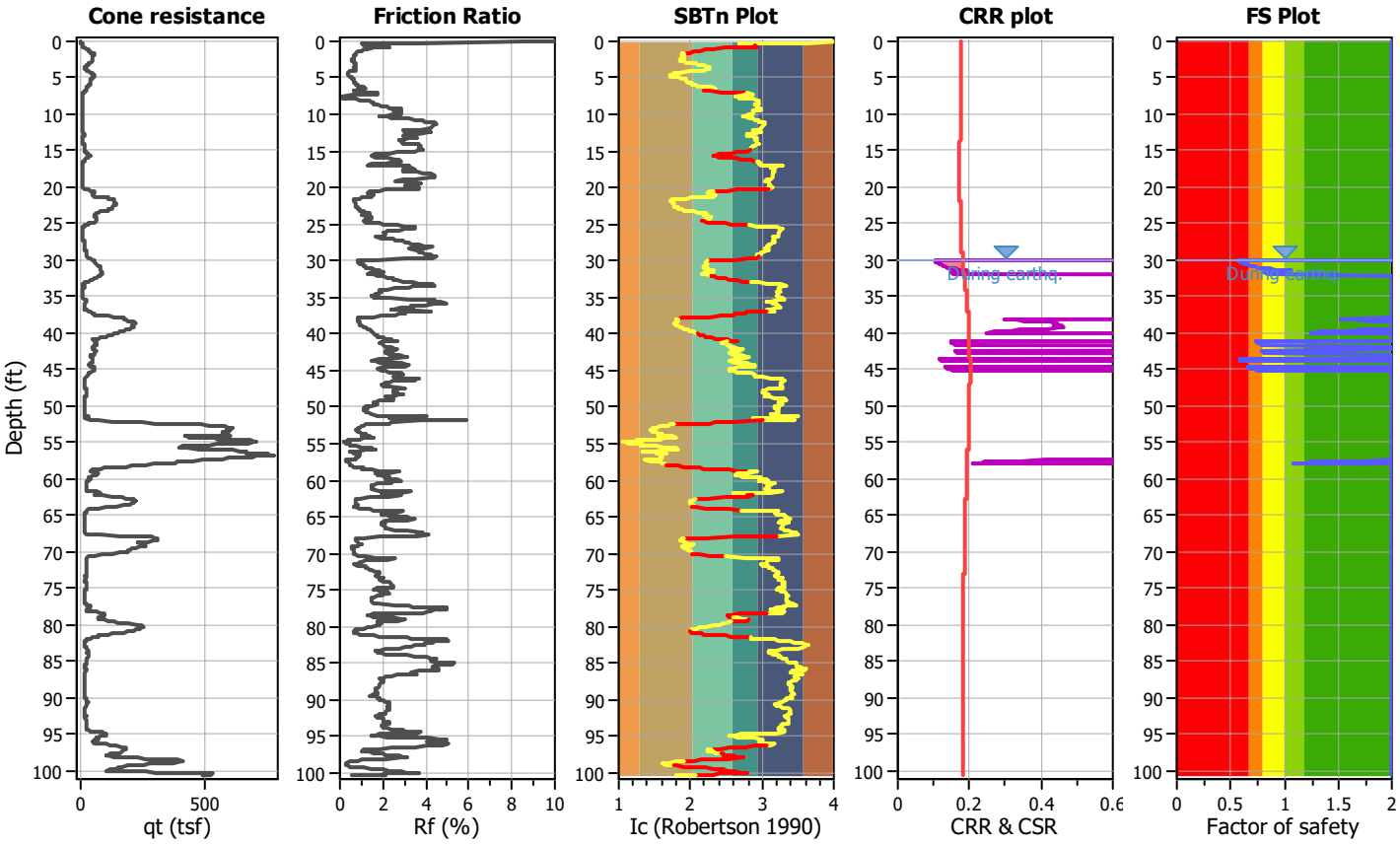
LIQUEFACTION ANALYSIS REPORT

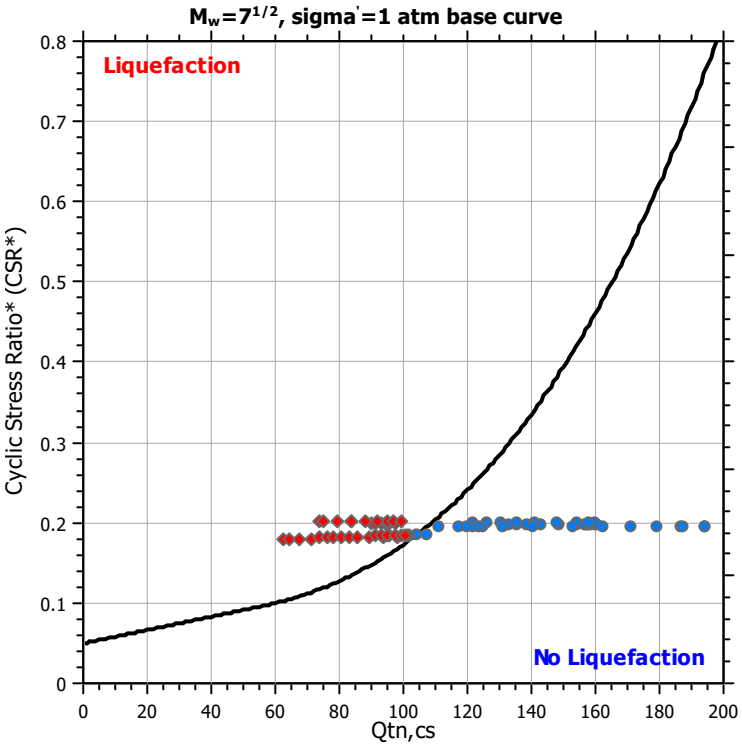
Project title : W1857-88-01 **Location : 331 The City Drive S**

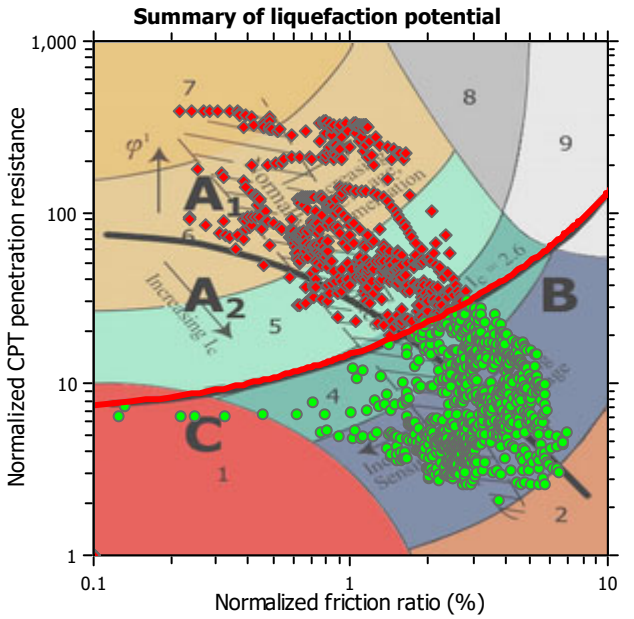
CPT file : CPT-3

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	62.00 ft
Earthquake magnitude M_w:	6.12	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.42	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

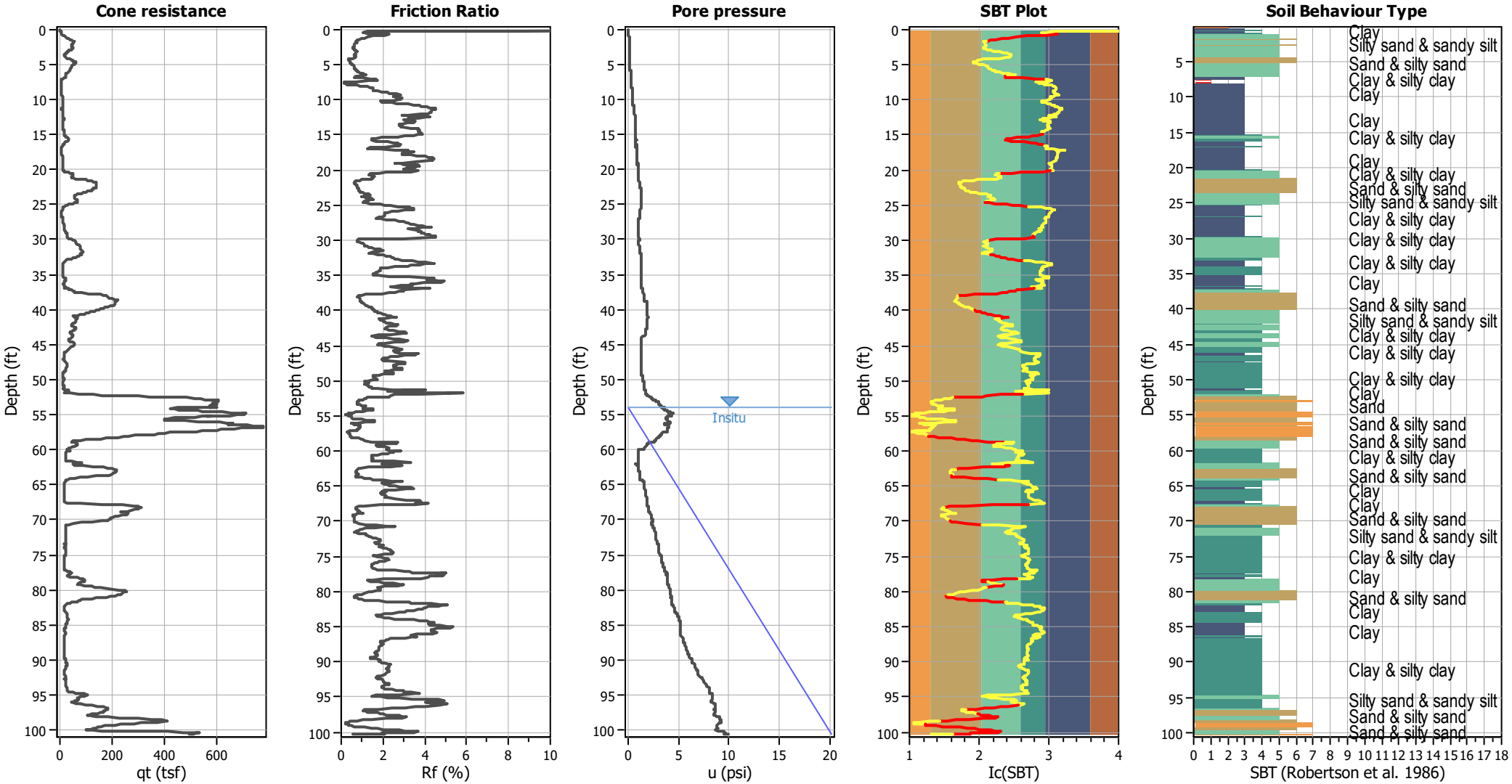






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



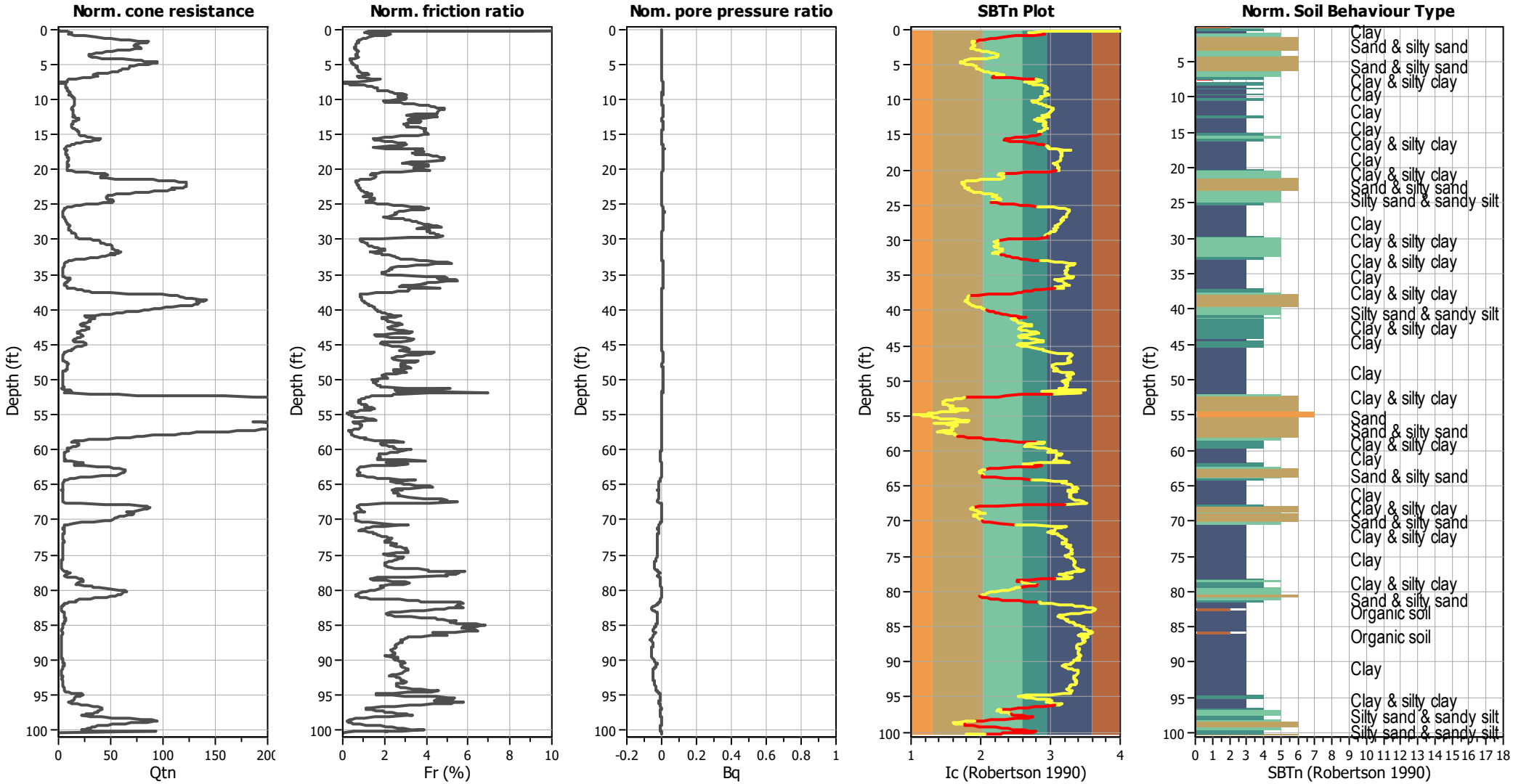
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



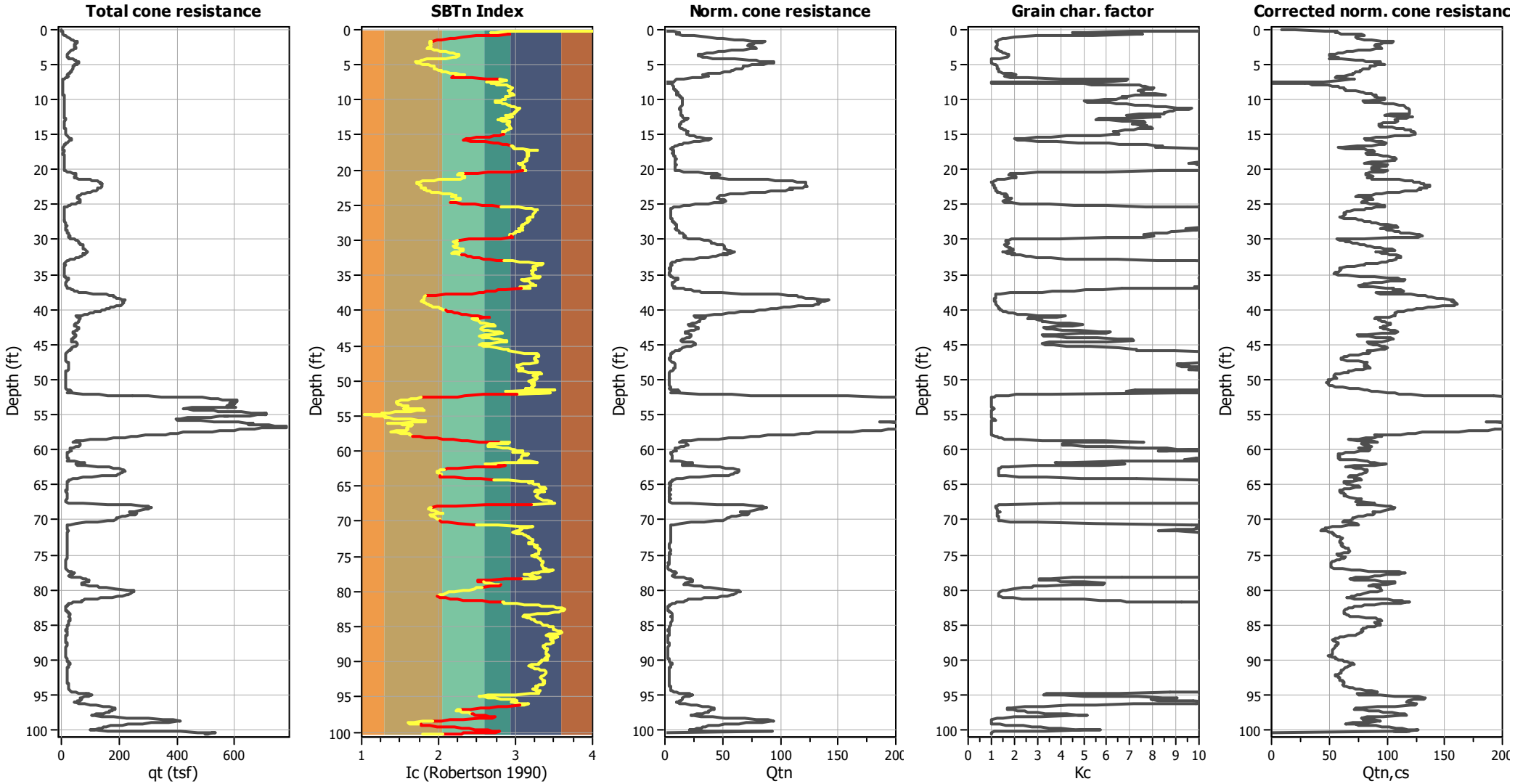
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

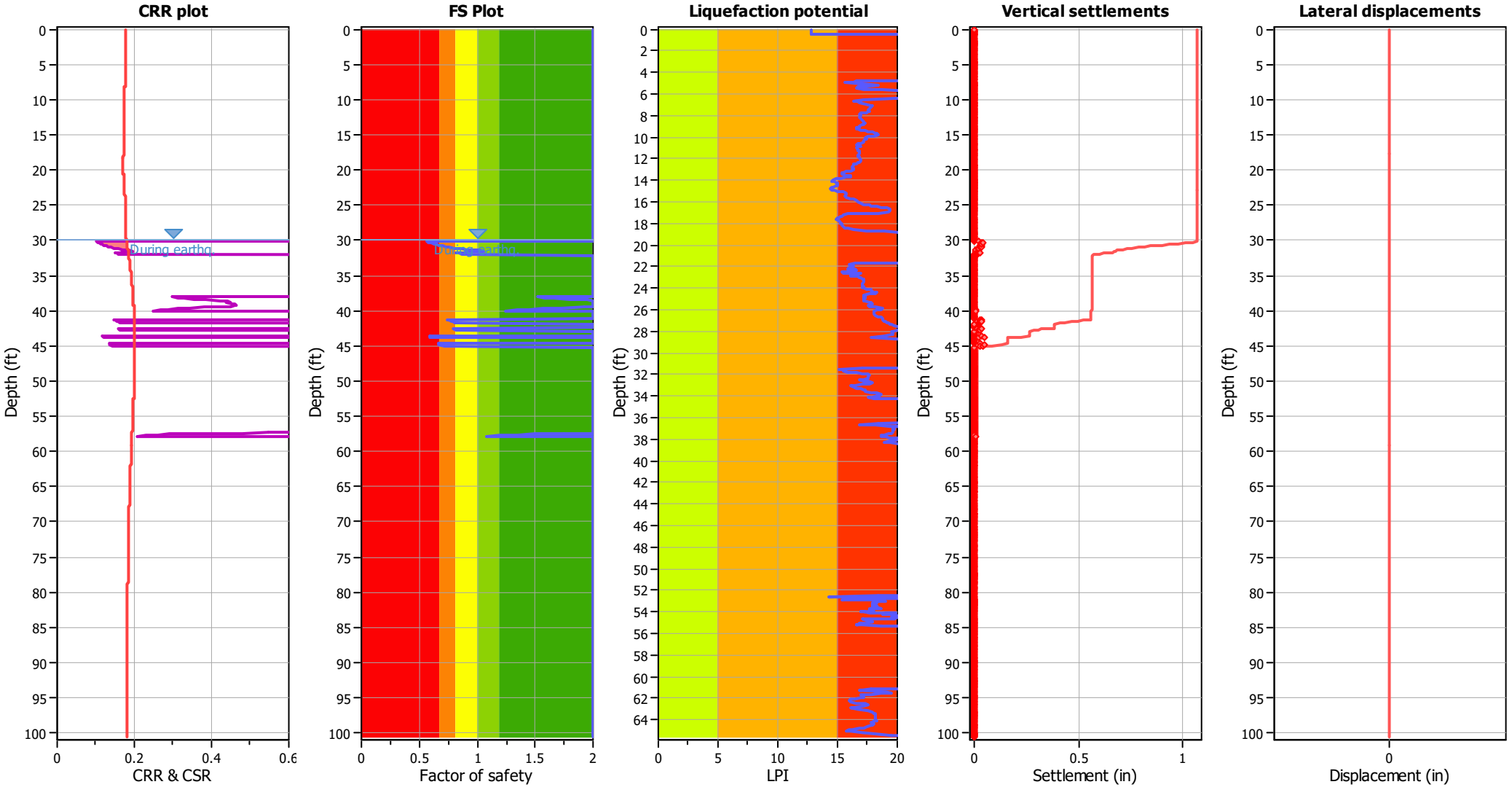
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

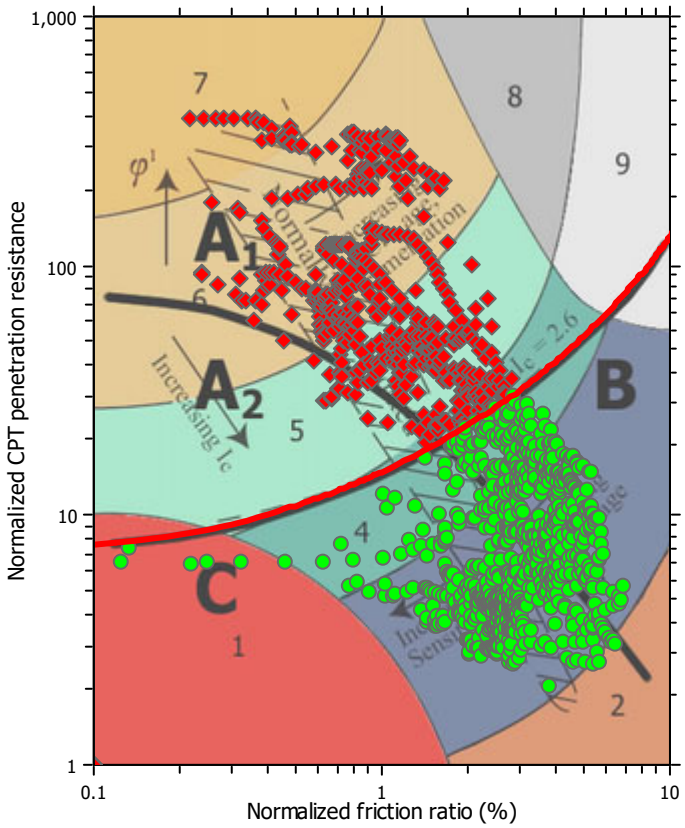
F.S. color scheme

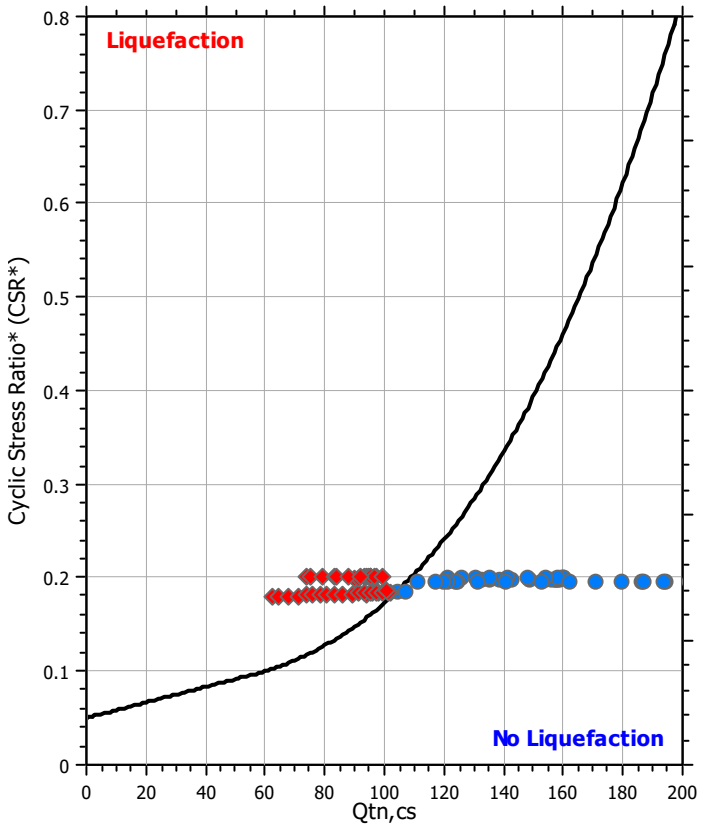
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

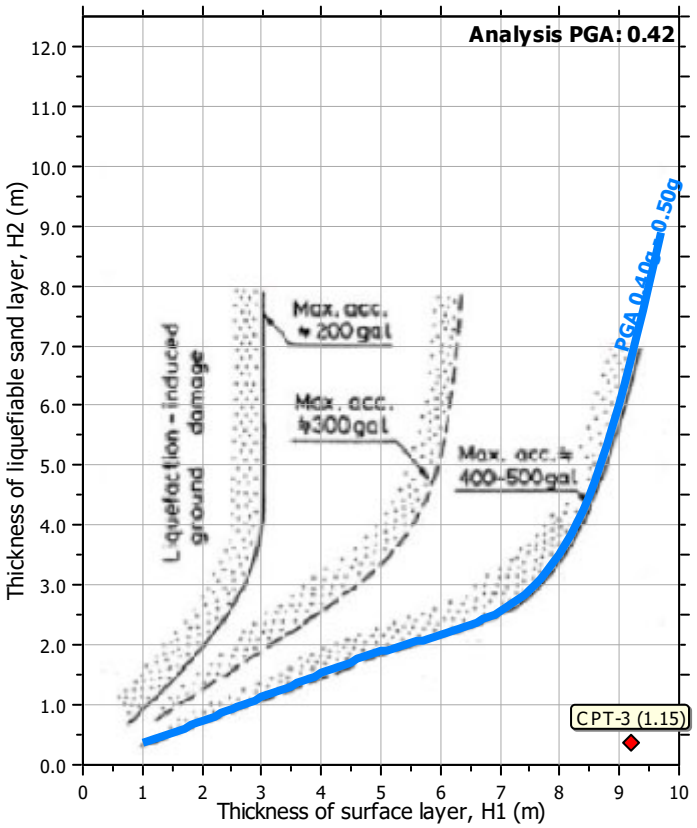
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



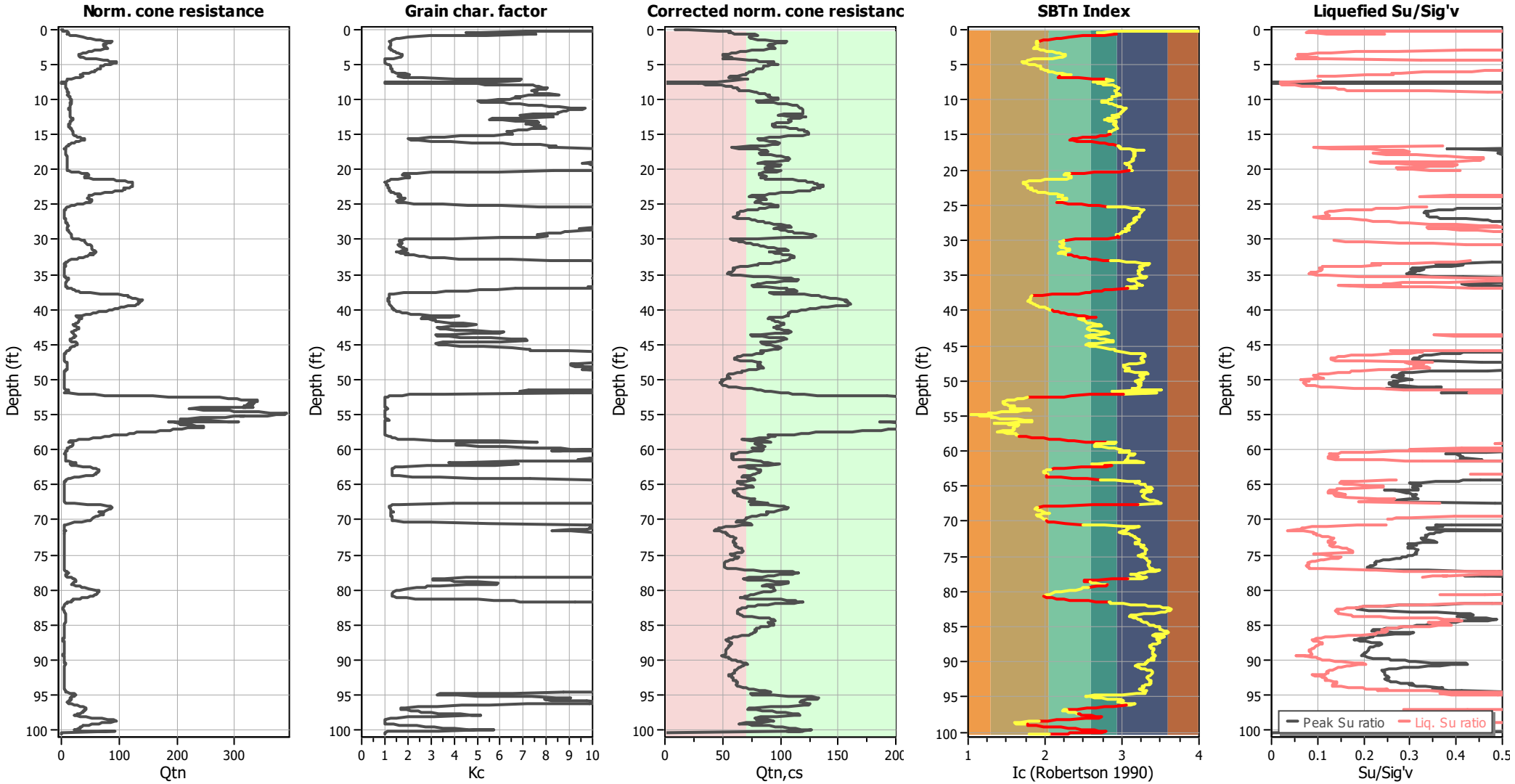




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

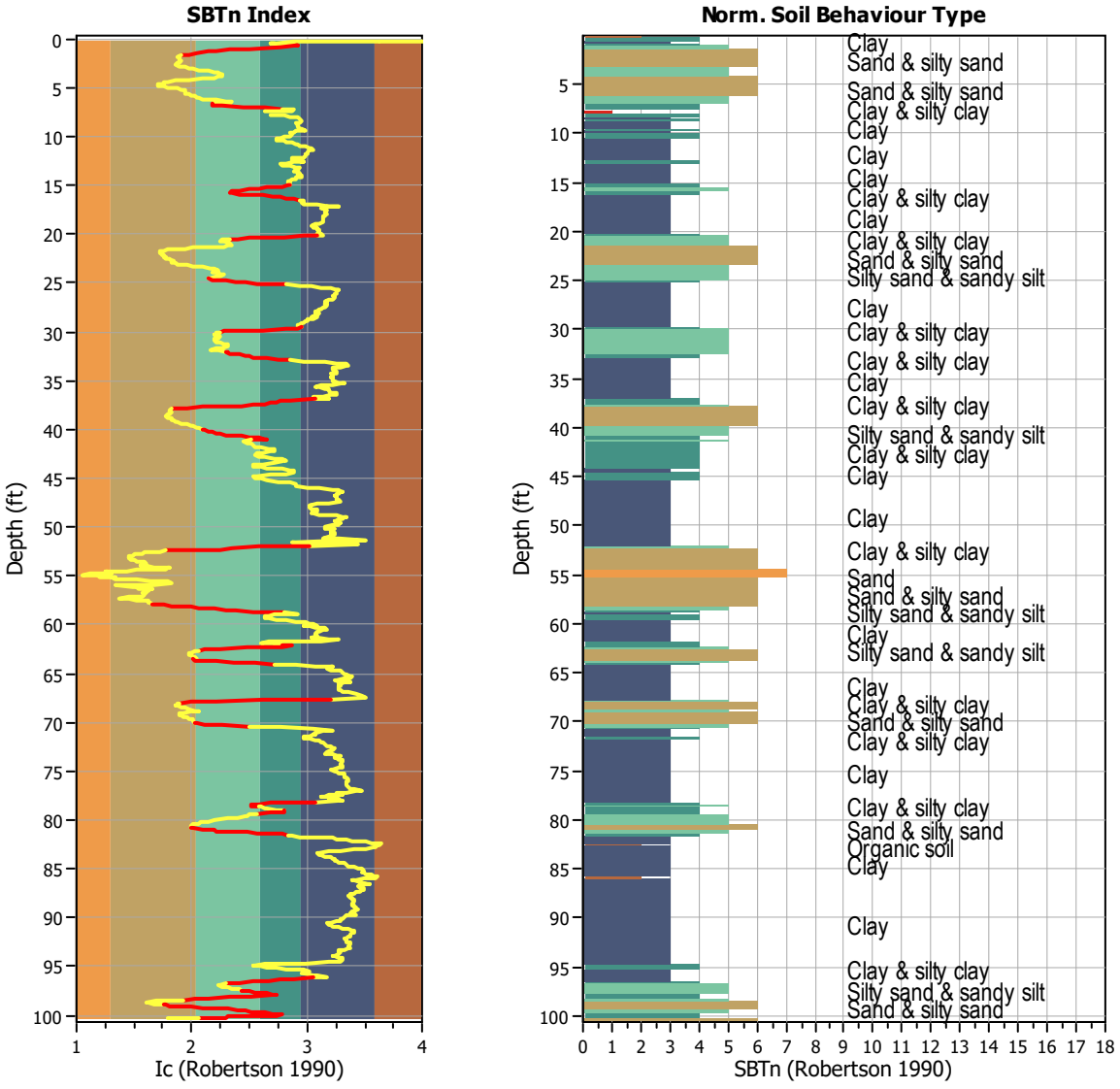
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.12	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.42	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between 1.80 < I_c < 3.0) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0250
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1376
Total points excluded:	224
Exclusion percentage:	16.28%
Number of layers detected:	26

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	12	Start depth: 0.72 (ft)	3	Clay
		End depth: 1.74 (ft)	6	Sand & silty sand
Transition layer 2	6	Start depth: 6.76 (ft)	5	Silty sand & sandy silt
		End depth: 7.19 (ft)	4	Clay & silty clay
Transition layer 3	9	Start depth: 14.99 (ft)	3	Clay
		End depth: 15.67 (ft)	5	Silty sand & sandy silt
Transition layer 4	11	Start depth: 15.76 (ft)	5	Silty sand & sandy silt
		End depth: 16.58 (ft)	3	Clay
Transition layer 5	7	Start depth: 20.21 (ft)	3	Clay
		End depth: 20.60 (ft)	5	Silty sand & sandy silt
Transition layer 6	9	Start depth: 24.64 (ft)	5	Silty sand & sandy silt
		End depth: 25.27 (ft)	3	Clay
Transition layer 7	8	Start depth: 29.55 (ft)	3	Clay
		End depth: 30.13 (ft)	5	Silty sand & sandy silt
Transition layer 8	12	Start depth: 32.12 (ft)	5	Silty sand & sandy silt
		End depth: 32.98 (ft)	3	Clay
Transition layer 9	15	Start depth: 36.97 (ft)	3	Clay
		End depth: 37.97 (ft)	6	Sand & silty sand
Transition layer 10	12	Start depth: 40.09 (ft)	5	Silty sand & sandy silt
		End depth: 40.97 (ft)	4	Clay & silty clay
Transition layer 11	4	Start depth: 40.97 (ft)	4	Clay & silty clay
		End depth: 41.15 (ft)	5	Silty sand & sandy silt
Transition layer 12	8	Start depth: 52.01 (ft)	4	Clay & silty clay
		End depth: 52.45 (ft)	6	Sand & silty sand
Transition layer 13	14	Start depth: 57.92 (ft)	6	Sand & silty sand
		End depth: 58.84 (ft)	3	Clay
Transition layer 14	7	Start depth: 62.10 (ft)	3	Clay
		End depth: 62.74 (ft)	6	Sand & silty sand
Transition layer 15	7	Start depth: 63.61 (ft)	6	Sand & silty sand
		End depth: 64.15 (ft)	3	Clay
Transition layer 16	5	Start depth: 67.68 (ft)	4	Clay & silty clay
		End depth: 68.07 (ft)	6	Sand & silty sand
Transition layer 17	5	Start depth: 70.08 (ft)	6	Sand & silty sand
		End depth: 70.54 (ft)	4	Clay & silty clay
Transition layer 18	4	Start depth: 78.24 (ft)	4	Clay & silty clay
		End depth: 78.47 (ft)	5	Silty sand & sandy silt
Transition layer 19	4	Start depth: 78.53 (ft)	5	Silty sand & sandy silt
		End depth: 78.69 (ft)	4	Clay & silty clay
Transition layer 20	4	Start depth: 79.16 (ft)	4	Clay & silty clay
		End depth: 79.45 (ft)	5	Silty sand & sandy silt
Transition layer 21	15	Start depth: 80.83 (ft)	6	Sand & silty sand
		End depth: 81.56 (ft)	3	Clay
Transition layer 22	7	Start depth: 96.30 (ft)	3	Clay
		End depth: 96.87 (ft)	5	Silty sand & sandy silt
Transition layer 23	8	Start depth: 97.45 (ft)	5	Silty sand & sandy silt
		End depth: 97.88 (ft)	4	Clay & silty clay

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 24	8	Start depth: 97.88 (ft)	4	Clay & silty clay
		End depth: 98.47 (ft)	6	Sand & silty sand
Transition layer 25	14	Start depth: 98.98 (ft)	6	Sand & silty sand
		End depth: 99.95 (ft)	3	Clay
Transition layer 26	9	Start depth: 99.95 (ft)	3	Clay
		End depth: 100.28 (ft)	6	Sand & silty sand

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.04	0.10	0.03	0.00	100.00	87.36
2	0.10	0.10	0.04	0.00	100.00	87.36
3	0.11	0.20	0.05	0.00	100.00	87.36
4	0.16	0.40	0.05	0.00	100.00	87.36
5	0.19	1.01	0.05	0.00	100.00	88.74
6	0.24	2.43	0.05	0.00	71.90	91.34
7	0.31	5.06	0.06	0.00	51.48	93.80
8	0.38	7.29	0.07	0.00	42.56	95.48
9	0.43	7.69	0.08	0.00	39.63	96.43
10	0.49	7.69	0.08	0.00	41.35	96.84
11	0.58	6.58	0.09	0.00	44.64	97.26
12	0.63	6.17	0.10	0.00	49.07	97.85
13	0.67	5.97	0.11	0.00	51.93	98.72
14	0.72	6.02	0.13	0.00	53.54	99.42
15	0.72	6.07	0.13	0.00	52.47	101.17
16	0.84	8.00	0.20	0.00	44.02	103.62
17	0.96	13.76	0.25	0.00	30.61	106.61
18	1.06	25.71	0.28	0.10	23.44	108.76
19	1.24	28.44	0.33	0.10	19.50	109.81
20	1.30	29.76	0.31	0.10	17.10	110.05
21	1.48	36.23	0.28	0.10	14.00	110.41
22	1.59	45.85	0.33	0.10	12.36	111.13
23	1.69	44.33	0.37	0.10	11.12	112.10
24	1.69	52.02	0.37	0.10	10.74	112.65
25	1.74	53.04	0.39	0.10	9.92	112.99
26	1.79	54.66	0.40	0.10	9.87	113.14
27	1.84	53.64	0.39	0.10	10.04	113.01
28	1.88	50.40	0.38	0.10	10.26	112.64
29	1.93	49.70	0.35	0.10	10.40	112.09
30	1.99	48.28	0.32	0.10	10.27	111.60
31	2.03	48.08	0.31	0.10	10.19	111.23
32	2.08	47.87	0.31	0.10	10.14	110.98
33	2.13	47.06	0.29	0.10	10.28	110.80
34	2.22	45.65	0.30	0.10	10.49	110.61
35	2.27	44.84	0.29	0.10	10.68	110.44
36	2.33	44.43	0.28	0.10	10.61	110.26
37	2.42	45.04	0.28	0.10	10.34	110.23
38	2.48	46.86	0.28	0.10	9.95	110.30
39	2.56	48.28	0.28	0.10	9.56	110.53
40	2.65	50.10	0.29	0.10	9.36	110.70
41	2.72	49.90	0.29	0.10	9.62	110.74
42	2.80	46.15	0.29	0.10	10.31	110.44
43	2.89	42.00	0.28	0.10	11.29	109.97
44	2.94	39.17	0.26	0.10	12.40	109.53
45	3.04	35.93	0.26	0.10	13.48	109.00
46	3.14	32.59	0.24	0.10	14.78	108.19
47	3.23	28.44	0.21	0.10	15.91	107.05
48	3.31	26.01	0.18	0.10	17.31	105.88

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	3.37	22.77	0.17	0.10	18.64	104.75
50	3.48	20.34	0.15	0.10	20.16	103.47
51	3.57	18.02	0.12	0.10	20.83	102.23
52	3.65	18.02	0.11	0.10	20.99	101.38
53	3.71	18.02	0.11	0.10	20.91	101.29
54	3.82	18.02	0.11	0.10	20.93	102.11
55	3.91	19.84	0.15	0.10	20.16	103.21
56	4.00	22.67	0.16	0.10	18.85	104.71
57	4.10	25.91	0.19	0.10	15.53	104.42
58	4.19	30.57	0.11	0.10	5.00	104.40
59	4.26	37.15	0.13	0.10	5.00	104.51
60	4.35	46.05	0.17	0.10	5.00	106.46
61	4.44	53.64	0.20	0.19	5.00	107.75
62	4.52	49.70	0.21	0.19	5.00	108.36
63	4.53	50.81	0.21	0.19	5.00	108.59
64	4.58	56.27	0.21	0.19	5.00	108.81
65	4.63	58.00	0.22	0.19	5.00	109.16
66	4.68	59.01	0.23	0.19	5.00	109.49
67	4.72	59.51	0.24	0.19	5.00	109.83
68	4.77	59.31	0.25	0.19	5.00	110.07
69	4.82	58.40	0.26	0.19	5.00	110.22
70	4.88	56.48	0.26	0.19	5.00	110.30
71	4.96	53.74	0.27	0.19	7.94	110.33
72	5.01	50.61	0.27	0.19	8.80	110.33
73	5.08	47.27	0.28	0.19	9.75	110.30
74	5.16	44.43	0.28	0.19	10.61	110.22
75	5.21	42.71	0.28	0.19	11.15	110.15
76	5.30	42.66	0.28	0.19	11.35	110.11
77	5.37	42.66	0.28	0.19	11.37	110.11
78	5.45	42.61	0.28	0.19	11.35	110.10
79	5.52	42.81	0.28	0.19	11.43	110.08
80	5.59	41.90	0.28	0.19	11.67	109.99
81	5.65	40.38	0.27	0.19	12.17	109.79
82	5.74	38.16	0.27	0.19	12.78	109.59
83	5.83	36.84	0.27	0.19	13.36	109.47
84	5.89	36.23	0.27	0.29	13.78	109.49
85	5.97	35.83	0.27	0.29	14.10	109.46
86	6.07	34.92	0.27	0.29	14.65	109.36
87	6.12	32.79	0.27	0.29	15.67	109.20
88	6.22	29.96	0.27	0.29	17.39	109.00
89	6.28	26.52	0.27	0.29	19.71	108.75
90	6.36	23.18	0.27	0.29	22.24	108.30
91	6.46	20.65	0.26	0.29	24.09	107.75
92	6.52	20.04	0.24	0.29	23.83	106.97
93	6.60	21.46	0.20	0.29	21.15	106.06
94	6.70	24.70	0.16	0.29	18.41	104.86
95	6.76	24.49	0.14	0.29	18.15	104.05
96	6.84	19.84	0.15	0.29	21.31	103.55

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	6.94	14.57	0.15	0.29	28.13	103.13
98	7.03	10.32	0.15	0.29	36.85	102.17
99	7.13	7.69	0.14	0.29	45.33	101.02
100	7.19	6.68	0.13	0.29	50.80	99.02
101	7.32	5.47	0.08	0.29	50.53	95.58
102	7.42	5.16	0.02	0.29	46.05	89.63
103	7.49	4.86	0.01	0.29	36.85	87.36
104	7.57	4.76	-0.01	0.29	N/A	87.36
105	7.66	4.55	0.00	0.29	N/A	87.36
106	7.76	4.35	0.01	0.29	39.30	87.36
107	7.77	4.40	0.01	0.29	41.66	87.36
108	7.78	4.40	0.01	0.29	42.16	87.36
109	7.82	4.45	0.01	0.29	43.69	87.36
110	7.87	4.45	0.02	0.29	46.05	87.36
111	7.92	4.45	0.03	0.29	48.69	87.36
112	7.97	4.45	0.03	0.29	50.96	88.91
113	8.01	4.55	0.04	0.29	52.87	90.83
114	8.06	4.76	0.05	0.29	53.56	92.24
115	8.11	4.96	0.06	0.29	53.89	93.35
116	8.20	5.06	0.06	0.29	54.02	94.10
117	8.26	5.16	0.07	0.29	54.67	94.95
118	8.35	5.26	0.08	0.29	55.25	95.57
119	8.40	5.26	0.08	0.38	55.42	95.96
120	8.49	5.36	0.08	0.38	55.15	96.13
121	8.54	5.47	0.08	0.38	54.56	96.42
122	8.64	5.67	0.09	0.38	53.58	96.77
123	8.69	5.97	0.09	0.38	52.70	97.12
124	8.79	6.07	0.09	0.38	53.07	98.37
125	8.84	6.48	0.14	0.38	53.64	99.77
126	8.93	6.88	0.15	0.38	53.23	100.93
127	9.03	7.29	0.15	0.38	53.10	101.61
128	9.08	7.19	0.17	0.38	53.34	101.99
129	9.11	7.14	0.18	0.38	54.44	102.35
130	9.12	7.14	0.18	0.38	54.87	102.44
131	9.17	7.08	0.18	0.38	55.46	102.54
132	9.22	6.98	0.19	0.38	55.68	102.79
133	9.31	7.29	0.19	0.38	57.60	103.02
134	9.36	6.48	0.20	0.38	56.84	103.40
135	9.40	7.69	0.21	0.38	55.49	103.68
136	9.46	8.20	0.21	0.38	52.20	104.01
137	9.51	8.50	0.21	0.38	50.78	104.20
138	9.55	8.70	0.22	0.48	49.80	104.47
139	9.61	9.11	0.23	0.48	49.60	104.86
140	9.69	9.11	0.24	0.48	49.93	105.32
141	9.74	9.11	0.26	0.38	50.53	105.75
142	9.81	9.31	0.27	0.48	50.47	106.17
143	9.89	9.72	0.28	0.38	49.47	106.49
144	9.94	10.22	0.29	0.48	48.57	106.69

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	10.03	10.22	0.28	0.48	47.95	106.73
146	10.08	10.22	0.28	0.48	46.27	105.91
147	10.18	10.22	0.19	0.48	43.86	104.66
148	10.23	10.22	0.16	0.48	42.16	103.72
149	10.33	10.22	0.21	0.48	42.78	104.06
150	10.40	10.22	0.22	0.48	44.53	104.99
151	10.47	10.22	0.24	0.48	46.24	105.54
152	10.51	9.77	0.26	0.48	47.48	106.12
153	10.56	10.17	0.28	0.48	48.53	106.55
154	10.61	10.12	0.29	0.48	48.96	107.12
155	10.67	10.32	0.32	0.48	50.59	107.76
156	10.75	10.02	0.37	0.48	52.01	108.32
157	10.80	10.02	0.37	0.48	53.26	108.59
158	10.85	9.92	0.37	0.48	53.79	108.61
159	10.90	9.72	0.37	0.57	54.58	108.60
160	11.00	9.51	0.38	0.57	55.86	108.56
161	11.05	9.11	0.37	0.57	57.54	108.36
162	11.14	8.50	0.36	0.57	59.49	108.14
163	11.21	8.20	0.36	0.57	61.41	108.08
164	11.29	8.10	0.38	0.57	61.90	108.18
165	11.38	8.40	0.37	0.57	61.40	108.38
166	11.46	8.70	0.39	0.57	60.04	108.48
167	11.52	8.91	0.38	0.57	59.20	108.60
168	11.60	9.01	0.38	0.57	58.74	108.64
169	11.67	9.01	0.39	0.57	58.51	108.69
170	11.72	9.11	0.39	0.57	58.33	108.76
171	11.81	9.21	0.39	0.57	57.50	108.86
172	11.86	9.62	0.39	0.57	57.42	108.90
173	11.96	9.21	0.39	0.57	57.28	108.93
174	12.01	9.41	0.40	0.57	57.36	108.99
175	12.10	9.72	0.40	0.57	56.33	108.48
176	12.16	9.92	0.30	0.57	52.86	107.67
177	12.24	10.53	0.27	0.67	50.46	107.26
178	12.32	10.93	0.34	0.67	50.49	108.00
179	12.39	11.13	0.39	0.67	51.82	109.13
180	12.48	11.44	0.42	0.67	55.21	109.56
181	12.50	9.31	0.43	0.67	56.54	109.82
182	12.54	9.92	0.45	0.67	56.14	110.10
183	12.64	12.95	0.45	0.67	51.14	110.63
184	12.68	14.17	0.46	0.67	46.74	111.06
185	12.77	14.98	0.47	0.67	45.02	111.08
186	12.82	14.98	0.44	0.67	44.58	110.87
187	12.89	14.27	0.42	0.67	45.32	110.45
188	12.97	13.36	0.41	0.67	47.27	110.13
189	13.03	12.45	0.41	0.67	49.63	109.86
190	13.12	11.64	0.40	0.67	52.08	109.64
191	13.16	11.03	0.40	0.67	53.60	109.40
192	13.26	10.93	0.39	0.67	54.00	108.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	13.34	10.73	0.34	0.67	53.03	108.33
194	13.41	10.83	0.31	0.67	51.87	107.54
195	13.50	10.63	0.28	0.67	51.53	107.03
196	13.60	10.32	0.28	0.67	52.24	106.75
197	13.65	10.02	0.28	0.67	53.22	106.76
198	13.75	10.02	0.29	0.67	54.12	106.90
199	13.80	10.02	0.30	0.67	53.54	106.72
200	13.89	10.22	0.26	0.67	53.46	106.90
201	13.94	10.42	0.31	0.76	53.08	107.50
202	14.03	11.23	0.37	0.76	54.97	108.63
203	14.11	10.73	0.41	0.76	55.24	109.48
204	14.13	11.69	0.42	0.76	55.28	110.03
205	14.18	12.15	0.45	0.76	53.47	110.47
206	14.22	12.95	0.46	0.76	52.62	110.95
207	14.28	13.36	0.49	0.76	51.87	111.50
208	14.37	13.97	0.53	0.76	51.36	112.04
209	14.44	14.68	0.56	0.76	50.25	112.56
210	14.51	15.69	0.58	0.76	48.93	112.99
211	14.60	16.50	0.60	0.76	48.02	113.34
212	14.65	16.70	0.62	0.76	47.94	113.59
213	14.75	16.50	0.63	0.76	48.44	113.74
214	14.85	16.45	0.64	0.76	48.93	113.80
215	14.91	16.45	0.63	0.76	49.08	113.80
216	14.99	16.40	0.63	0.76	47.80	113.81
217	15.09	18.12	0.62	0.76	45.25	113.98
218	15.18	20.34	0.63	0.76	41.64	114.15
219	15.25	22.37	0.61	0.76	38.13	114.10
220	15.33	24.09	0.55	0.76	34.47	113.87
221	15.43	27.02	0.52	0.76	30.57	113.72
222	15.51	31.38	0.52	0.76	26.98	113.86
223	15.59	35.53	0.52	0.76	24.54	114.07
224	15.67	36.94	0.52	0.76	23.56	114.17
225	15.76	36.03	0.51	0.86	24.48	114.23
226	15.86	32.39	0.54	0.76	26.98	114.13
227	15.95	27.63	0.54	0.76	31.02	113.82
228	16.05	22.87	0.53	0.76	35.88	113.11
229	16.14	18.72	0.48	0.76	40.89	112.24
230	16.20	16.30	0.45	0.76	44.59	111.36
231	16.28	15.49	0.42	0.76	47.26	110.71
232	16.34	14.17	0.41	0.76	49.02	109.97
233	16.44	12.95	0.36	0.76	51.62	109.16
234	16.50	11.64	0.33	0.86	54.21	108.05
235	16.58	10.22	0.29	0.76	56.10	106.16
236	16.73	8.60	0.17	0.86	57.07	103.07
237	16.82	7.39	0.09	0.76	55.90	98.94
238	16.92	6.78	0.07	0.86	56.73	97.37
239	17.01	6.98	0.12	0.86	64.41	99.23
240	17.11	5.87	0.17	0.86	72.33	101.23

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	17.12	5.72	0.19	0.86	79.64	102.14
242	17.14	5.57	0.19	0.86	75.40	102.95
243	17.19	7.69	0.22	0.86	70.99	103.97
244	17.28	8.10	0.25	0.86	67.48	104.99
245	17.33	8.00	0.26	0.86	68.61	105.59
246	17.43	7.89	0.28	0.86	70.20	105.75
247	17.47	7.69	0.27	0.86	70.55	105.46
248	17.57	7.59	0.24	0.86	70.29	104.78
249	17.65	7.39	0.21	0.86	69.39	104.05
250	17.72	7.39	0.21	0.86	69.90	104.00
251	17.81	7.39	0.23	0.86	69.98	104.48
252	17.86	7.89	0.25	0.86	70.40	105.52
253	17.95	8.30	0.30	0.86	70.27	106.61
254	18.05	8.70	0.35	0.86	69.77	107.59
255	18.10	9.31	0.36	0.86	69.28	108.43
256	18.20	9.62	0.41	0.86	68.75	109.17
257	18.30	10.02	0.44	0.86	69.06	109.74
258	18.39	10.02	0.45	0.86	68.69	110.03
259	18.48	10.32	0.45	0.86	68.26	110.09
260	18.58	10.42	0.45	0.86	68.26	110.10
261	18.66	10.12	0.45	0.86	68.67	110.00
262	18.74	10.02	0.43	0.86	68.65	109.66
263	18.87	10.02	0.39	0.86	65.89	108.15
264	18.97	9.62	0.22	0.86	63.51	106.58
265	19.06	9.31	0.24	0.96	61.57	105.45
266	19.16	9.72	0.27	0.86	62.59	106.45
267	19.25	10.42	0.32	0.96	62.93	107.21
268	19.27	10.22	0.32	0.86	63.88	107.82
269	19.30	10.02	0.35	0.96	64.63	108.39
270	19.34	10.83	0.39	0.96	65.30	109.05
271	19.39	10.83	0.41	0.96	65.04	109.46
272	19.49	10.83	0.41	0.96	65.33	109.38
273	19.55	10.63	0.38	0.96	65.79	108.98
274	19.63	10.02	0.36	0.96	66.38	108.45
275	19.68	9.82	0.34	0.96	66.57	107.82
276	19.74	9.72	0.30	0.96	65.75	107.23
277	19.83	9.72	0.28	0.96	65.45	106.97
278	19.87	9.72	0.31	0.96	65.22	106.85
279	19.94	9.72	0.29	0.96	66.15	107.18
280	20.02	9.72	0.33	0.96	67.03	107.64
281	20.07	9.92	0.36	0.96	67.92	108.78
282	20.17	10.83	0.44	0.96	64.62	109.94
283	20.21	13.46	0.47	0.96	56.54	111.19
284	20.28	18.22	0.50	0.96	46.28	112.30
285	20.36	24.49	0.52	1.05	37.36	113.43
286	20.41	31.88	0.56	1.05	30.98	114.57
287	20.48	38.76	0.62	1.05	26.57	115.62
288	20.55	45.24	0.66	1.05	23.46	116.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	20.60	50.91	0.67	1.05	21.46	116.95
290	20.70	53.44	0.69	1.05	20.55	117.24
291	20.74	53.24	0.71	1.05	20.71	117.40
292	20.79	51.32	0.72	1.05	21.66	117.54
293	20.89	48.89	0.76	1.05	23.50	117.89
294	20.96	45.85	0.85	0.96	23.80	117.32
295	21.04	45.80	0.57	0.96	24.10	117.07
296	21.13	45.80	0.70	0.96	23.70	116.74
297	21.22	45.75	0.76	0.96	23.00	117.62
298	21.29	56.07	0.78	1.05	21.86	118.10
299	21.35	56.27	0.79	1.05	18.50	118.64
300	21.37	73.99	0.80	1.05	15.90	119.09
301	21.42	83.80	0.82	1.05	13.13	119.55
302	21.47	93.32	0.82	1.05	11.52	119.85
303	21.48	101.01	0.82	1.05	10.27	120.06
304	21.52	107.59	0.82	1.05	9.34	120.20
305	21.57	113.46	0.81	1.05	8.57	120.29
306	21.62	118.62	0.80	1.05	7.91	120.35
307	21.66	124.29	0.80	1.05	7.35	120.43
308	21.71	129.05	0.81	1.15	6.92	120.56
309	21.76	132.99	0.82	1.15	6.65	120.75
310	21.81	135.83	0.84	1.15	6.55	120.99
311	21.85	137.14	0.87	1.15	6.57	121.25
312	21.91	137.95	0.90	1.15	6.66	121.49
313	21.95	138.26	0.92	1.15	6.78	121.69
314	22.00	138.06	0.94	1.15	6.89	121.84
315	22.05	138.36	0.96	1.15	6.99	121.96
316	22.10	138.06	0.97	1.15	7.07	122.06
317	22.15	138.26	0.98	1.15	7.14	122.15
318	22.19	138.56	0.99	1.15	7.18	122.24
319	22.24	139.17	1.00	1.15	7.38	122.59
320	22.29	139.98	1.12	1.15	7.48	122.79
321	22.34	140.38	1.07	1.15	7.53	122.89
322	22.39	140.18	1.04	1.15	7.42	122.71
323	22.43	139.57	1.04	1.15	7.44	122.63
324	22.48	138.46	1.05	1.15	7.57	122.64
325	22.55	136.94	1.06	1.15	7.77	122.66
326	22.62	134.92	1.06	1.15	8.48	122.57
327	22.63	118.32	1.06	1.24	8.67	122.48
328	22.72	130.57	1.04	1.24	8.87	122.34
329	22.77	127.73	1.02	1.24	8.53	122.30
330	22.83	125.91	1.02	1.24	8.81	122.33
331	22.91	124.70	1.06	1.24	9.13	122.40
332	22.96	121.96	1.07	1.24	9.51	122.45
333	23.02	118.52	1.06	1.24	9.95	122.36
334	23.10	114.07	1.06	1.24	10.51	122.24
335	23.16	108.91	1.05	1.24	11.23	122.08
336	23.20	102.23	1.04	1.24	12.12	121.86

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	23.26	95.44	1.03	1.24	13.14	121.54
338	23.35	88.66	0.99	1.24	14.37	121.28
339	23.39	81.88	1.01	1.24	15.74	120.92
340	23.48	74.39	0.96	1.24	17.51	120.69
341	23.54	67.71	0.98	1.24	19.01	120.18
342	23.63	62.85	0.89	1.24	19.95	119.45
343	23.69	59.72	0.76	1.24	19.23	117.77
344	23.78	57.59	0.48	1.24	18.61	116.63
345	23.87	57.74	0.60	1.24	18.21	116.01
346	23.88	57.74	0.61	1.24	19.03	116.77
347	23.93	57.89	0.67	1.34	19.95	117.38
348	24.02	56.58	0.77	1.34	20.80	117.95
349	24.04	57.13	0.78	1.34	21.46	118.37
350	24.05	57.13	0.80	1.34	21.78	118.73
351	24.15	57.69	0.89	1.34	21.95	119.14
352	24.20	59.92	0.91	1.34	21.72	119.56
353	24.30	62.65	0.93	1.34	20.63	119.52
354	24.40	65.28	0.83	1.34	19.19	119.11
355	24.46	67.21	0.74	1.34	17.84	118.42
356	24.54	67.21	0.69	1.34	17.34	117.92
357	24.64	64.78	0.69	1.34	18.05	117.78
358	24.73	60.22	0.72	1.34	19.84	117.90
359	24.78	54.76	0.77	1.34	22.46	118.05
360	24.88	48.89	0.80	1.34	25.68	117.95
361	24.94	42.00	0.78	1.24	29.51	117.49
362	25.02	34.82	0.73	1.24	34.04	116.54
363	25.12	28.14	0.65	1.24	39.88	115.47
364	25.17	22.27	0.62	1.24	46.77	114.38
365	25.27	18.12	0.59	1.24	54.06	113.10
366	25.36	14.78	0.46	1.24	61.30	111.68
367	25.43	12.45	0.42	1.24	67.46	110.12
368	25.50	10.53	0.38	1.24	73.11	108.95
369	25.60	9.62	0.33	1.24	77.33	107.97
370	25.64	9.11	0.32	1.24	78.94	107.28
371	25.67	9.01	0.30	1.15	79.14	106.81
372	25.71	9.01	0.28	1.15	78.50	105.99
373	25.79	8.50	0.23	1.15	78.06	104.81
374	25.93	8.00	0.19	1.15	77.81	103.60
375	26.03	8.00	0.18	1.15	77.15	102.74
376	26.13	8.00	0.16	1.15	76.38	102.36
377	26.24	8.00	0.16	1.15	75.73	102.24
378	26.37	8.20	0.17	1.15	75.53	102.41
379	26.47	8.30	0.17	1.15	75.71	102.64
380	26.60	8.20	0.18	1.15	74.72	102.14
381	26.71	8.20	0.14	1.15	72.50	101.53
382	26.85	8.70	0.13	1.15	69.69	101.34
383	26.95	9.31	0.16	1.15	71.29	102.63
384	27.04	8.81	0.22	1.15	71.21	104.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	27.09	10.63	0.25	1.05	71.61	105.86
386	27.19	10.93	0.29	1.05	69.63	106.85
387	27.23	11.23	0.30	1.05	70.05	107.52
388	27.33	11.34	0.32	1.05	70.38	108.10
389	27.40	11.64	0.36	1.05	70.26	108.70
390	27.47	12.25	0.38	1.05	69.48	109.39
391	27.57	12.95	0.41	1.05	68.12	110.02
392	27.66	13.66	0.44	1.05	66.86	110.95
393	27.77	14.88	0.52	1.05	65.56	112.10
394	27.86	16.30	0.60	1.05	64.27	113.38
395	27.96	17.61	0.69	1.05	63.40	114.40
396	28.06	18.22	0.74	1.05	64.03	115.00
397	28.15	17.31	0.77	1.05	65.56	115.03
398	28.25	16.30	0.72	1.05	64.37	114.22
399	28.34	17.46	0.52	1.05	63.64	113.20
400	28.44	15.69	0.53	1.05	61.14	112.70
401	28.54	17.61	0.59	1.05	64.86	113.09
402	28.62	14.98	0.63	1.05	62.81	113.97
403	28.71	19.74	0.70	1.05	62.14	114.69
404	28.77	20.24	0.75	1.05	59.04	115.50
405	28.86	20.75	0.80	1.05	59.06	115.95
406	28.91	21.15	0.82	1.05	58.48	116.29
407	28.97	22.06	0.84	1.05	57.87	116.68
408	29.04	22.87	0.91	1.05	57.17	117.16
409	29.10	23.78	0.96	1.05	56.38	117.71
410	29.15	25.20	1.01	1.05	55.66	118.36
411	29.25	26.42	1.13	1.05	54.03	119.02
412	29.34	27.53	1.19	1.05	53.66	119.56
413	29.38	28.14	1.22	1.05	53.77	119.85
414	29.48	27.53	1.26	1.05	55.21	119.97
415	29.55	27.43	1.26	1.05	55.61	119.94
416	29.63	27.43	1.21	1.05	53.71	119.51
417	29.72	27.33	1.04	1.05	46.70	117.24
418	29.82	30.47	0.29	1.15	36.62	114.29
419	29.88	36.84	0.31	1.15	26.07	110.63
420	29.96	43.12	0.35	1.15	21.97	111.98
421	30.06	55.67	0.40	1.15	20.66	113.06
422	30.13	50.91	0.44	1.05	19.28	113.85
423	30.18	57.39	0.44	1.05	19.21	114.32
424	30.28	59.72	0.48	1.05	18.92	115.08
425	30.37	59.01	0.56	1.05	19.74	116.07
426	30.47	59.82	0.65	1.05	20.55	117.07
427	30.57	62.65	0.72	1.05	20.45	117.89
428	30.66	67.31	0.76	1.05	19.78	118.59
429	30.74	71.76	0.82	1.05	19.08	119.20
430	30.82	74.90	0.87	1.05	18.72	119.77
431	30.90	76.82	0.92	1.15	18.90	120.37
432	31.01	77.12	1.02	1.15	19.54	121.00

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	31.10	76.72	1.12	1.15	20.53	121.75
434	31.19	77.18	1.25	1.15	21.62	122.52
435	31.28	77.23	1.39	1.15	22.44	123.19
436	31.35	78.24	1.47	1.15	22.96	123.75
437	31.43	80.06	1.56	1.15	23.03	124.24
438	31.53	83.20	1.66	1.15	22.94	124.75
439	31.60	86.03	1.75	1.15	21.03	124.07
440	31.67	88.46	1.07	1.15	19.28	123.27
441	31.77	89.68	1.16	1.15	17.72	122.34
442	31.84	90.18	1.26	1.15	18.27	122.84
443	31.91	89.68	1.32	1.15	19.80	123.18
444	31.98	78.64	1.39	1.15	22.19	123.23
445	31.98	68.93	1.40	1.15	23.12	123.39
446	32.04	84.01	1.44	1.24	23.03	123.69
447	32.12	83.20	1.54	1.24	22.36	124.14
448	32.16	80.77	1.60	1.24	23.73	124.42
449	32.27	76.11	1.67	1.24	25.51	124.47
450	32.33	70.04	1.66	1.24	27.40	124.34
451	32.41	66.09	1.63	1.24	28.95	124.00
452	32.50	62.75	1.55	1.24	30.35	123.44
453	32.58	56.48	1.41	1.24	31.97	122.68
454	32.66	50.71	1.29	1.24	34.45	121.67
455	32.74	43.42	1.16	1.24	37.91	120.54
456	32.84	35.73	1.02	1.24	42.91	119.34
457	32.90	29.15	0.95	1.24	48.72	118.12
458	32.98	24.70	0.85	1.24	56.09	116.92
459	33.08	20.85	0.75	1.24	62.41	115.68
460	33.14	16.70	0.69	1.24	70.22	114.44
461	33.22	13.56	0.63	1.24	78.27	113.16
462	33.32	12.04	0.53	1.24	84.25	111.85
463	33.37	10.93	0.46	1.24	85.46	110.42
464	33.47	10.83	0.38	1.24	84.74	109.62
465	33.56	11.34	0.39	1.24	80.65	109.42
466	33.63	12.75	0.41	1.24	77.37	109.72
467	33.71	13.16	0.40	1.24	75.48	109.42
468	33.81	12.04	0.34	1.24	74.83	107.78
469	33.90	10.73	0.19	1.24	75.10	105.75
470	33.95	10.32	0.19	1.24	75.13	103.88
471	34.04	9.82	0.19	1.24	76.22	103.67
472	34.14	10.02	0.18	1.34	77.27	103.52
473	34.17	9.72	0.19	1.24	77.76	103.53
474	34.20	9.62	0.19	1.24	76.51	103.73
475	34.26	10.83	0.19	1.24	75.12	103.91
476	34.35	10.63	0.19	1.24	73.88	103.93
477	34.43	10.32	0.19	1.24	74.71	103.73
478	34.49	10.22	0.18	1.24	74.86	103.40
479	34.59	10.22	0.17	1.24	74.51	102.92
480	34.69	10.02	0.15	1.24	74.15	102.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	34.73	9.92	0.15	1.24	74.31	102.00
482	34.83	9.72	0.15	1.24	74.57	101.78
483	34.90	9.72	0.14	1.24	75.16	101.82
484	34.98	9.72	0.15	1.24	75.52	102.24
485	35.07	10.02	0.17	1.24	76.19	103.35
486	35.16	10.63	0.21	1.24	78.83	105.56
487	35.26	11.03	0.33	1.24	83.16	108.85
488	35.33	12.15	0.55	1.24	81.79	112.16
489	35.40	16.50	0.76	1.34	74.84	114.98
490	35.50	21.56	0.92	1.34	67.00	116.75
491	35.57	24.39	0.97	1.34	63.27	117.70
492	35.65	24.09	1.01	1.34	63.57	118.14
493	35.71	22.77	1.08	1.34	66.27	118.34
494	35.79	21.66	1.09	1.34	69.18	118.25
495	35.85	20.45	1.03	1.34	71.21	117.70
496	35.94	18.93	0.91	1.34	72.32	116.92
497	35.99	18.42	0.83	1.34	72.47	115.84
498	36.08	17.51	0.69	1.34	72.38	114.36
499	36.17	15.49	0.51	1.34	73.86	112.64
500	36.24	13.56	0.46	1.34	75.60	111.22
501	36.33	13.56	0.44	1.34	77.26	110.71
502	36.42	13.56	0.44	1.34	77.95	110.94
503	36.52	13.56	0.50	1.34	73.49	110.01
504	36.61	14.98	0.26	1.34	67.87	109.88
505	36.70	17.61	0.38	1.34	62.71	110.97
506	36.78	20.55	0.63	1.34	62.56	113.90
507	36.85	22.47	0.80	1.34	71.90	115.26
508	36.87	11.64	0.83	1.34	69.07	116.41
509	36.91	26.42	0.92	1.34	63.50	117.24
510	36.97	31.58	0.97	1.43	49.63	118.44
511	37.06	36.13	1.01	1.43	46.01	119.19
512	37.12	37.96	1.11	1.43	43.96	120.10
513	37.20	41.70	1.28	1.43	42.39	121.21
514	37.27	47.47	1.45	1.43	39.71	122.19
515	37.35	53.44	1.50	1.43	36.91	122.63
516	37.44	55.67	1.40	1.43	34.70	122.58
517	37.49	56.48	1.34	1.43	32.26	122.38
518	37.59	63.06	1.30	1.43	27.80	122.53
519	37.64	81.98	1.30	1.43	21.40	123.10
520	37.70	111.84	1.32	1.53	15.68	123.77
521	37.78	139.98	1.32	1.53	11.92	124.31
522	37.83	157.89	1.32	1.53	9.84	124.68
523	37.92	169.13	1.35	1.53	8.83	124.96
524	37.97	175.50	1.38	1.53	8.44	125.29
525	38.07	179.05	1.45	1.53	8.35	125.63
526	38.14	181.78	1.51	1.53	8.44	126.04
527	38.22	184.61	1.60	1.53	8.51	126.51
528	38.31	190.69	1.72	1.53	8.57	127.15

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	38.41	199.80	1.90	1.62	8.22	127.66
530	38.52	213.56	1.89	1.62	7.81	128.17
531	38.64	224.49	2.02	1.62	7.45	128.44
532	38.74	225.00	2.04	1.62	7.89	128.67
533	38.80	204.05	2.10	1.62	8.30	128.80
534	38.89	213.46	2.16	1.82	8.75	128.95
535	38.94	213.66	2.21	1.82	8.74	129.21
536	39.03	213.76	2.31	1.82	9.04	129.51
537	39.13	213.26	2.44	1.82	9.44	129.87
538	39.23	212.65	2.56	1.91	9.96	130.20
539	39.35	208.10	2.67	1.91	10.48	130.39
540	39.42	202.73	2.68	1.91	11.13	130.39
541	39.51	192.20	2.66	1.91	11.86	130.23
542	39.60	181.27	2.62	1.91	12.73	129.97
543	39.70	170.95	2.55	1.91	13.46	129.70
544	39.78	166.19	2.50	1.91	14.13	129.38
545	39.90	156.68	2.40	1.91	14.77	129.07
546	39.99	149.09	2.35	1.91	15.57	128.71
547	40.09	141.29	2.28	1.91	16.39	128.37
548	40.18	133.80	2.21	1.91	17.30	128.04
549	40.23	126.21	2.16	1.91	18.29	127.67
550	40.33	118.02	2.08	1.91	19.50	127.30
551	40.43	109.72	2.03	1.91	20.84	126.92
552	40.52	102.53	1.98	1.91	22.74	126.70
553	40.61	93.22	2.06	1.91	24.63	126.07
554	40.69	81.48	1.71	1.91	27.65	125.27
555	40.80	67.00	1.63	1.91	31.04	124.10
556	40.87	57.39	1.51	1.91	34.44	123.25
557	40.95	55.26	1.38	1.91	37.39	122.50
558	40.97	47.67	1.35	1.91	38.04	122.03
559	41.01	51.11	1.30	2.01	35.69	121.95
560	41.07	64.07	1.26	2.01	31.09	122.03
561	41.15	70.14	1.23	2.01	28.20	122.06
562	41.26	67.91	1.21	1.91	28.17	121.94
563	41.35	63.26	1.21	1.91	29.96	121.73
564	41.47	57.89	1.20	1.91	31.46	121.66
565	41.59	59.61	1.23	1.91	31.96	121.71
566	41.69	61.44	1.24	1.91	31.98	121.95
567	41.78	60.12	1.30	1.91	33.05	122.10
568	41.88	55.87	1.33	1.82	35.75	121.95
569	41.98	48.18	1.27	1.82	39.01	121.52
570	42.08	44.23	1.21	1.82	41.72	120.96
571	42.16	42.91	1.16	1.82	41.89	120.65
572	42.24	45.75	1.14	1.82	39.57	120.77
573	42.31	52.63	1.19	1.91	36.25	121.19
574	42.45	58.30	1.23	1.82	33.81	121.60
575	42.55	59.82	1.24	1.82	32.69	121.82
576	42.60	59.92	1.25	1.82	32.61	121.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	42.70	59.51	1.27	1.82	33.18	122.03
578	42.81	58.50	1.32	1.72	34.70	122.15
579	42.89	54.05	1.36	1.72	37.37	122.12
580	42.98	48.08	1.34	1.72	41.13	121.83
581	43.08	42.61	1.30	1.72	45.23	121.41
582	43.17	38.66	1.28	1.72	47.51	121.07
583	43.27	39.98	1.25	1.72	46.42	120.88
584	43.37	44.43	1.19	1.72	41.14	119.79
585	43.50	46.96	0.69	1.72	35.96	118.51
586	43.61	48.99	0.69	1.72	32.32	117.19
587	43.74	49.59	0.74	1.62	32.41	117.56
588	43.79	49.29	0.79	1.62	33.54	118.20
589	43.86	48.99	0.89	1.43	35.58	118.96
590	43.94	47.06	1.02	1.34	38.25	119.71
591	44.00	45.04	1.11	1.34	41.55	120.34
592	44.08	42.51	1.22	1.34	44.91	120.67
593	44.17	39.37	1.23	1.34	48.70	120.54
594	44.27	34.61	1.15	1.34	51.70	119.87
595	44.42	32.29	1.00	1.34	51.75	119.10
596	44.52	35.53	0.93	1.34	46.94	118.74
597	44.61	43.42	0.93	1.34	39.36	118.80
598	44.71	53.44	0.86	1.34	33.96	119.33
599	44.85	58.80	0.98	1.34	32.04	120.04
600	44.95	57.69	1.13	1.34	32.93	120.75
601	45.09	55.36	1.15	1.34	35.03	121.01
602	45.19	51.82	1.14	1.34	38.27	120.75
603	45.33	43.02	1.11	1.34	43.45	120.27
604	45.42	35.42	1.09	1.34	49.18	119.55
605	45.57	33.00	0.99	1.34	51.89	118.90
606	45.68	34.11	0.92	1.34	52.37	118.05
607	45.81	30.57	0.81	1.34	52.39	116.56
608	45.92	26.62	0.54	1.34	59.16	115.42
609	46.05	22.37	0.69	1.34	66.42	114.50
610	46.16	17.81	0.67	1.24	75.25	114.63
611	46.17	17.71	0.67	1.24	79.56	114.21
612	46.23	17.61	0.63	1.24	79.66	113.87
613	46.29	17.00	0.59	1.24	80.53	113.32
614	46.34	15.89	0.55	1.24	81.48	112.46
615	46.42	15.18	0.46	1.24	81.87	111.41
616	46.48	14.78	0.40	1.24	80.78	110.31
617	46.52	14.68	0.36	1.24	79.61	109.48
618	46.60	14.57	0.33	1.24	78.79	108.88
619	46.67	14.37	0.32	1.24	78.01	108.41
620	46.74	14.47	0.30	1.24	77.35	108.06
621	46.82	14.47	0.29	1.24	76.73	107.71
622	46.88	14.27	0.28	1.34	77.13	107.41
623	46.96	13.76	0.27	1.34	77.21	107.25
624	47.06	14.22	0.27	1.34	77.78	107.20

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	47.15	13.87	0.27	1.34	77.74	107.41
626	47.24	14.17	0.29	1.34	79.57	108.74
627	47.35	15.18	0.43	1.34	80.06	111.84
628	47.49	19.13	0.74	1.34	72.80	113.76
629	47.58	24.70	0.62	1.34	64.43	115.05
630	47.73	28.44	0.64	1.34	60.58	115.11
631	47.83	24.90	0.71	1.34	59.52	115.49
632	47.87	27.78	0.69	1.34	61.47	115.59
633	47.89	25.81	0.69	1.34	59.88	115.52
634	47.94	27.13	0.67	1.34	60.12	115.37
635	48.02	26.92	0.66	1.34	59.63	115.28
636	48.07	26.32	0.66	1.34	60.36	115.24
637	48.12	25.91	0.67	1.34	61.69	115.43
638	48.18	25.61	0.72	1.34	63.36	115.65
639	48.26	24.70	0.74	1.34	64.74	115.83
640	48.31	24.65	0.73	1.34	65.22	115.64
641	48.38	24.39	0.68	1.34	64.33	115.21
642	48.46	24.59	0.62	1.34	62.61	114.59
643	48.52	25.10	0.57	1.34	61.59	113.83
644	48.60	23.48	0.50	1.34	62.06	112.77
645	48.68	20.85	0.41	1.34	65.40	111.58
646	48.74	17.91	0.39	1.34	70.58	110.53
647	48.82	15.79	0.38	1.34	77.29	109.90
648	48.89	14.07	0.36	1.34	82.02	109.37
649	48.99	13.76	0.34	1.34	84.26	108.81
650	49.05	13.56	0.31	1.34	83.16	108.02
651	49.12	13.56	0.26	1.34	81.66	107.12
652	49.18	13.36	0.24	1.34	79.51	106.27
653	49.27	13.66	0.22	1.34	77.50	105.79
654	49.32	14.17	0.21	1.34	75.79	105.36
655	49.42	13.87	0.20	1.43	76.97	105.08
656	49.48	12.55	0.20	1.43	78.75	104.88
657	49.56	12.85	0.21	1.43	79.72	105.05
658	49.66	13.56	0.21	1.43	79.61	105.56
659	49.76	13.36	0.25	1.43	78.83	106.06
660	49.85	14.07	0.25	1.43	75.45	105.30
661	49.99	14.68	0.14	1.43	70.32	104.44
662	50.09	15.79	0.17	1.43	70.12	103.40
663	50.21	12.75	0.18	1.43	73.69	103.83
664	50.24	12.85	0.18	1.53	76.33	103.72
665	50.29	13.97	0.17	1.53	74.08	103.47
666	50.38	13.87	0.15	1.53	73.00	103.13
667	50.47	13.16	0.15	1.53	73.91	102.86
668	50.52	13.06	0.15	1.62	75.96	102.88
669	50.62	12.65	0.16	1.62	76.35	103.11
670	50.66	13.26	0.17	1.62	76.26	103.37
671	50.76	13.46	0.17	1.62	76.25	103.65
672	50.83	13.06	0.18	1.62	73.88	104.35

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	50.91	15.79	0.21	1.62	75.06	105.23
674	51.00	13.97	0.24	1.62	71.94	106.28
675	51.06	17.00	0.25	1.62	67.88	107.32
676	51.15	21.05	0.29	1.62	69.95	108.74
677	51.24	14.88	0.40	1.62	78.64	110.36
678	51.31	13.06	0.52	1.62	100.00	111.65
679	51.39	10.63	0.63	1.62	79.74	113.89
680	51.48	31.88	0.71	1.72	52.10	116.37
681	51.58	53.85	0.83	1.72	50.39	117.73
682	51.68	20.34	1.00	1.72	65.78	117.82
683	51.77	9.21	0.95	1.72	93.85	117.60
684	51.90	23.89	1.17	1.72	59.97	121.42
685	52.01	77.23	2.02	1.72	34.57	125.62
686	52.11	122.06	2.62	1.82	24.20	130.24
687	52.26	186.13	4.47	1.91	20.87	132.32
688	52.30	177.33	4.12	1.91	16.50	133.89
689	52.33	263.97	4.17	2.01	12.89	134.16
690	52.35	303.94	4.21	2.01	9.58	134.71
691	52.40	340.79	4.23	2.10	7.60	135.11
692	52.45	397.77	4.28	2.10	6.58	135.59
693	52.50	405.87	4.66	2.10	5.88	136.22
694	52.55	443.01	5.01	2.20	5.51	137.00
695	52.60	493.01	5.46	2.29	4.93	137.28
696	52.65	523.48	5.64	2.29	4.29	137.28
697	52.71	531.47	4.88	2.29	3.82	137.28
698	52.77	538.36	4.91	2.39	3.33	137.17
699	52.82	555.56	4.74	2.48	2.92	137.04
700	52.88	581.47	4.49	2.48	2.56	137.02
701	52.93	597.26	4.71	2.48	2.35	137.05
702	52.98	597.36	4.69	2.68	2.26	137.26
703	53.03	622.36	4.79	2.77	2.29	137.28
704	53.08	606.07	4.93	2.77	2.33	137.28
705	53.12	596.25	4.80	2.87	2.35	137.28
706	53.17	600.60	4.53	2.96	2.30	137.12
707	53.23	597.67	4.62	2.96	2.17	136.97
708	53.28	603.74	4.51	2.96	2.36	137.15
709	53.37	587.14	4.91	2.96	2.61	137.28
710	53.42	574.49	5.08	2.96	2.84	137.28
711	53.46	590.58	5.02	3.06	3.06	137.28
712	53.53	595.24	5.73	3.06	3.30	137.28
713	53.61	611.13	6.49	3.15	3.78	137.28
714	53.62	585.52	6.56	3.15	4.29	137.28
715	53.65	550.00	6.65	3.15	4.43	137.28
716	53.67	586.48	6.45	3.15	4.49	137.28
717	53.70	577.42	6.61	3.15	4.24	137.28
718	53.74	587.44	6.53	3.25	4.32	137.28
719	53.76	583.50	6.67	3.25	4.30	137.28
720	53.80	580.36	6.60	3.35	4.27	137.28

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	53.84	579.25	6.26	3.35	4.16	137.28
722	53.90	573.68	6.10	3.54	4.02	137.28
723	53.91	581.62	6.13	3.54	4.14	137.28
724	53.95	555.16	6.20	3.35	4.11	137.28
725	53.96	584.00	6.20	3.54	4.03	137.28
726	53.98	600.50	6.20	3.35	3.69	137.28
727	53.99	618.52	6.20	3.54	3.66	137.28
728	54.01	589.67	6.20	3.54	3.83	137.28
729	54.02	568.11	6.20	3.54	4.04	137.28
730	54.03	580.06	6.20	3.44	4.51	137.28
731	54.04	511.13	6.23	3.44	5.55	137.28
732	54.05	423.17	6.26	3.44	7.02	137.28
733	54.09	422.06	6.38	3.44	8.01	137.28
734	54.10	422.52	6.39	3.44	8.11	137.28
735	54.13	420.04	6.40	3.44	8.10	137.28
736	54.14	422.97	6.38	3.54	8.17	137.28
737	54.19	419.73	6.47	3.54	8.19	137.28
738	54.19	425.60	6.59	3.54	8.13	137.28
739	54.24	440.89	6.74	3.54	7.58	137.28
740	54.29	451.01	5.95	3.63	6.38	137.28
741	54.33	478.84	4.90	3.63	4.97	137.18
742	54.38	492.30	4.37	3.73	3.90	136.44
743	54.39	513.56	4.28	3.73	3.34	136.18
744	54.43	532.08	4.28	3.82	3.17	136.44
745	54.48	541.59	4.69	3.92	2.05	135.02
746	54.52	555.46	1.86	4.01	1.07	133.52
747	54.58	572.77	2.20	4.01	0.00	131.47
748	54.62	593.21	2.48	4.01	0.17	132.34
749	54.65	595.24	2.63	4.11	0.34	133.29
750	54.67	624.69	3.14	4.21	0.41	134.02
751	54.71	649.89	3.25	4.30	0.23	134.52
752	54.77	699.69	3.10	4.30	0.00	132.94
753	54.81	688.25	1.22	4.40	0.00	131.29
754	54.85	720.84	1.65	4.49	0.00	129.34
755	54.86	702.93	1.70	4.49	0.00	130.17
756	54.87	703.44	1.76	4.01	0.00	130.82
757	54.91	703.44	2.13	4.01	0.00	131.80
758	54.96	703.94	2.50	4.11	0.00	132.67
759	55.00	713.86	2.56	4.21	0.00	133.08
760	55.01	691.59	2.56	4.30	0.00	133.14
761	55.05	681.88	2.60	4.30	0.00	133.23
762	55.10	663.66	2.72	4.30	0.00	133.31
763	55.12	607.48	2.75	4.30	0.35	133.29
764	55.13	539.98	2.77	3.82	0.72	133.17
765	55.14	565.28	2.75	3.82	0.76	133.02
766	55.19	583.90	2.62	3.92	0.54	132.92
767	55.20	581.37	2.60	3.92	0.51	132.84
768	55.25	563.36	2.67	3.92	0.76	132.97

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	55.29	541.49	2.82	3.92	1.13	133.28
770	55.33	533.19	3.02	3.82	1.75	133.67
771	55.38	484.21	3.29	3.82	3.14	134.78
772	55.48	425.91	4.60	3.73	4.92	135.85
773	55.57	407.69	5.12	3.82	6.63	136.68
774	55.63	400.40	5.18	3.73	8.12	137.28
775	55.72	386.03	6.83	3.82	8.85	137.28
776	55.80	419.53	7.09	3.92	8.57	137.28
777	55.86	487.55	7.03	3.92	5.58	137.28
778	55.97	534.41	2.93	4.01	2.94	135.99
779	56.01	561.43	2.52	4.11	0.84	133.07
780	56.06	585.62	2.75	4.11	2.80	133.29
781	56.11	616.29	3.05	4.21	2.89	134.29
782	56.15	637.24	3.61	4.21	2.94	135.21
783	56.20	668.42	3.85	4.21	3.11	136.08
784	56.27	676.92	4.26	4.21	3.34	136.55
785	56.27	643.97	4.36	3.54	3.72	137.19
786	56.30	671.45	5.00	3.63	4.59	137.28
787	56.33	611.03	5.86	3.63	4.98	137.28
788	56.35	665.99	5.93	3.73	5.33	137.28
789	56.40	665.78	6.04	3.73	5.05	137.28
790	56.41	671.65	6.02	3.73	5.04	137.28
791	56.44	670.44	5.96	3.73	4.83	137.28
792	56.49	702.32	5.96	4.01	4.63	137.28
793	56.54	712.65	6.04	4.01	4.51	137.28
794	56.58	737.34	6.69	4.01	4.47	137.28
795	56.59	761.53	6.82	4.01	4.50	137.28
796	56.64	751.51	6.82	4.11	4.44	137.28
797	56.69	758.80	6.82	4.11	4.36	137.28
798	56.73	783.90	6.89	4.11	4.18	137.28
799	56.78	791.59	6.79	4.01	4.03	137.28
800	56.83	760.01	6.22	3.92	4.01	137.28
801	56.88	726.82	5.89	3.92	4.11	137.28
802	56.89	708.40	5.80	3.92	4.29	137.28
803	56.95	691.29	5.71	3.92	4.27	137.28
804	57.01	677.73	5.02	3.92	4.25	137.28
805	57.07	634.81	4.55	3.92	4.06	137.16
806	57.11	625.10	4.12	3.92	3.10	134.76
807	57.17	598.27	1.33	3.92	2.28	132.45
808	57.26	572.36	1.93	3.92	1.15	128.54
809	57.31	551.41	1.12	3.82	1.89	129.56
810	57.37	517.20	2.07	3.92	2.19	129.21
811	57.45	491.70	1.77	3.82	3.04	129.89
812	57.51	461.74	1.72	3.92	3.56	129.21
813	57.53	400.30	1.71	3.44	4.16	128.95
814	57.59	402.43	1.70	3.35	4.63	128.80
815	57.63	401.31	1.70	3.35	4.68	128.76
816	57.68	393.01	1.70	3.35	4.88	128.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	57.73	380.06	1.70	3.35	5.00	128.66
818	57.78	386.23	1.69	3.25	5.00	128.45
819	57.86	370.64	1.59	3.25	5.00	127.83
820	57.92	322.87	1.37	3.25	5.00	127.38
821	57.98	285.32	1.55	3.15	5.00	126.34
822	58.06	264.17	1.14	3.15	8.62	126.17
823	58.12	240.38	1.42	3.06	10.36	126.82
824	58.21	224.09	2.06	3.06	12.69	127.74
825	58.26	202.63	1.92	2.96	14.68	128.10
826	58.35	186.44	1.85	2.87	16.91	127.69
827	58.41	151.92	1.98	2.77	18.65	126.15
828	58.50	126.31	1.07	2.77	22.32	124.42
829	58.56	90.18	1.13	2.68	25.70	122.30
830	58.64	77.93	1.17	2.68	32.24	121.95
831	58.73	65.49	1.17	2.58	38.56	121.50
832	58.80	47.47	1.15	2.58	46.17	120.90
833	58.84	40.28	1.14	2.58	53.64	120.39
834	58.85	38.87	1.15	2.10	52.29	120.54
835	58.93	52.12	1.18	2.10	46.67	120.88
836	58.98	60.42	1.13	2.10	41.28	121.05
837	59.02	61.74	1.07	2.01	38.75	120.92
838	59.12	63.06	1.05	2.01	37.78	120.90
839	59.17	65.28	1.10	1.91	37.23	121.24
840	59.27	67.81	1.19	1.91	37.05	121.75
841	59.31	68.83	1.26	1.82	37.57	122.15
842	59.41	66.19	1.29	1.82	39.18	122.16
843	59.46	59.41	1.25	1.72	42.47	121.59
844	59.55	48.28	1.11	1.72	47.58	120.51
845	59.65	38.56	0.98	1.62	52.69	118.45
846	59.70	32.08	0.61	1.62	56.48	116.90
847	59.80	32.03	0.70	1.62	57.81	115.98
848	59.89	32.03	0.75	1.62	59.47	116.71
849	59.94	31.98	0.83	1.53	62.29	117.23
850	60.01	29.05	0.89	1.53	64.42	117.61
851	60.02	29.96	0.90	1.05	61.57	118.05
852	60.08	38.87	0.92	1.05	57.81	118.31
853	60.12	37.75	0.91	1.05	56.24	118.23
854	60.17	33.00	0.85	1.05	59.45	117.26
855	60.27	27.83	0.68	0.96	63.29	115.67
856	60.31	24.80	0.53	0.96	66.90	113.84
857	60.37	21.76	0.47	0.96	69.47	112.16
858	60.46	20.04	0.38	0.96	70.56	111.08
859	60.51	20.95	0.36	0.96	68.92	110.12
860	60.61	21.25	0.32	0.96	66.37	109.76
861	60.65	22.06	0.32	0.96	64.85	109.53
862	60.75	22.17	0.33	0.96	64.20	109.61
863	60.81	22.27	0.33	0.96	64.08	109.63
864	60.89	22.27	0.33	0.96	63.94	109.50

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	60.94	22.06	0.31	0.96	63.62	109.62
866	61.03	22.98	0.34	0.96	63.91	109.95
867	61.09	22.77	0.37	0.96	64.04	110.05
868	61.19	22.17	0.32	0.96	64.33	109.85
869	61.24	22.17	0.32	0.96	62.81	109.78
870	61.33	24.49	0.35	0.96	60.69	110.44
871	61.38	26.82	0.39	0.96	65.07	112.24
872	61.47	21.25	0.62	0.96	71.67	113.99
873	61.53	21.36	0.74	0.96	79.17	115.51
874	61.62	22.98	0.84	0.96	67.75	116.60
875	61.70	38.46	0.78	0.96	49.71	119.32
876	61.77	71.96	1.30	0.96	39.07	122.50
877	61.86	89.98	1.86	1.05	35.53	124.72
878	61.95	83.91	1.82	0.96	37.04	125.34
879	61.97	69.13	1.75	0.96	40.15	124.80
880	62.01	64.78	1.66	0.76	44.89	124.10
881	62.10	53.14	1.59	0.96	50.12	122.90
882	62.24	38.56	1.26	0.86	45.56	121.95
883	62.34	74.49	1.03	0.96	29.67	122.37
884	62.49	150.00	1.24	1.05	20.54	123.30
885	62.54	158.20	1.26	1.05	16.26	124.73
886	62.66	185.32	1.44	1.05	14.83	125.34
887	62.74	200.61	1.45	1.05	13.53	125.96
888	62.87	213.05	1.49	1.05	12.71	126.26
889	62.92	221.25	1.54	1.05	12.47	126.53
890	63.03	217.20	1.57	1.05	12.52	126.76
891	63.15	219.03	1.63	1.15	12.78	126.94
892	63.26	217.91	1.66	1.15	13.29	127.02
893	63.37	202.33	1.66	1.15	13.86	126.99
894	63.45	199.80	1.66	1.15	13.98	126.43
895	63.54	198.28	1.34	1.15	13.43	125.53
896	63.61	194.63	1.14	1.15	13.55	124.83
897	63.69	177.93	1.33	1.15	15.16	124.41
898	63.79	143.52	1.25	1.15	19.52	124.50
899	63.89	103.64	1.44	1.15	24.98	122.85
900	63.98	71.25	0.85	1.15	33.14	121.18
901	64.07	50.71	0.88	1.15	41.48	118.58
902	64.15	37.45	0.76	1.15	52.38	117.41
903	64.23	29.15	0.71	1.15	63.17	116.21
904	64.26	23.28	0.70	1.15	71.64	115.56
905	64.29	22.98	0.70	1.43	74.94	115.28
906	64.33	24.39	0.67	1.43	73.52	114.50
907	64.43	22.67	0.50	1.43	71.96	113.44
908	64.47	21.86	0.45	1.53	70.64	112.07
909	64.53	22.27	0.41	1.53	70.50	111.44
910	64.62	21.25	0.40	1.53	73.02	110.99
911	64.72	18.22	0.40	1.53	77.07	110.67
912	64.78	17.81	0.39	1.53	81.00	110.63

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	64.86	17.91	0.41	1.53	81.31	111.04
914	64.96	18.83	0.47	1.62	81.88	112.08
915	65.06	19.53	0.57	1.62	82.82	113.03
916	65.11	19.23	0.60	1.62	84.86	113.77
917	65.21	18.83	0.64	1.62	87.03	114.04
918	65.31	18.42	0.64	1.62	88.72	114.06
919	65.40	18.02	0.62	1.62	86.96	113.18
920	65.50	18.32	0.43	1.62	82.58	111.98
921	65.58	19.33	0.38	1.62	77.73	110.66
922	65.68	19.33	0.38	1.72	76.23	110.07
923	65.78	18.42	0.34	1.72	80.14	109.58
924	65.84	15.18	0.33	1.72	84.20	109.11
925	65.86	15.54	0.33	1.72	87.64	108.93
926	65.87	15.89	0.33	1.72	83.53	109.02
927	65.98	18.02	0.33	1.72	80.56	109.07
928	66.10	17.81	0.33	1.72	79.47	109.53
929	66.21	17.61	0.38	1.72	79.99	110.29
930	66.34	19.13	0.43	1.72	79.70	110.56
931	66.48	18.62	0.36	1.72	78.52	110.82
932	66.62	19.18	0.42	1.72	79.48	110.40
933	66.68	17.51	0.38	1.72	80.06	110.93
934	66.87	19.23	0.44	1.82	82.16	112.09
935	66.96	19.94	0.62	1.82	85.60	113.68
936	67.11	18.22	0.72	1.82	91.78	114.55
937	67.21	16.50	0.70	1.82	96.41	113.97
938	67.35	15.69	0.52	1.82	96.63	113.04
939	67.45	16.40	0.51	1.82	100.00	114.17
940	67.59	16.30	0.99	1.82	74.11	118.15
941	67.68	49.49	1.42	1.82	36.45	123.51
942	67.83	166.29	1.89	1.91	19.64	126.78
943	67.92	263.46	1.98	1.91	12.65	128.48
944	68.02	293.92	1.94	1.91	10.42	129.17
945	68.07	292.10	2.13	2.01	9.92	129.67
946	68.16	310.93	2.28	2.01	9.66	129.78
947	68.26	313.97	1.99	2.01	9.50	129.92
948	68.35	307.79	2.22	2.01	9.90	130.20
949	68.45	301.41	2.56	2.01	10.63	130.56
950	68.55	290.58	2.39	2.01	11.31	130.75
951	68.65	282.39	2.48	2.01	12.31	130.45
952	68.78	242.10	2.43	2.01	13.49	130.30
953	68.78	236.18	2.41	2.01	14.48	130.04
954	68.79	236.18	2.38	2.01	14.61	129.83
955	68.83	230.26	2.26	2.10	13.84	129.35
956	68.93	246.56	1.93	2.20	12.61	128.54
957	68.98	254.15	1.63	2.20	11.06	127.54
958	69.04	259.82	1.45	2.20	10.24	126.83
959	69.12	259.31	1.45	2.20	10.05	126.69
960	69.22	258.60	1.54	2.29	10.33	126.73

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	69.28	248.07	1.50	2.29	10.73	126.58
962	69.36	236.43	1.40	2.29	11.11	126.14
963	69.45	227.63	1.34	2.29	11.72	125.57
964	69.60	206.58	1.26	2.29	12.39	125.02
965	69.70	196.05	1.19	2.29	13.09	124.55
966	69.80	191.80	1.17	2.29	13.36	124.31
967	69.89	192.31	1.17	2.29	13.46	124.27
968	69.98	192.00	1.18	2.39	13.63	124.23
969	70.08	186.03	1.17	2.39	14.12	123.79
970	70.18	167.51	1.02	2.39	16.36	123.38
971	70.32	125.81	1.13	2.39	21.31	122.57
972	70.42	79.55	1.08	2.29	30.56	121.25
973	70.54	47.47	0.86	2.29	44.49	118.96
974	70.66	28.34	0.70	2.29	62.02	116.28
975	70.75	19.64	0.59	2.29	75.05	114.30
976	70.80	22.47	0.52	2.48	75.37	112.45
977	70.89	23.18	0.33	2.48	68.76	110.56
978	70.99	22.17	0.25	2.48	64.60	108.11
979	71.08	21.56	0.21	2.48	63.51	106.54
980	71.17	21.05	0.19	2.58	62.68	105.76
981	71.23	21.56	0.19	2.58	63.23	105.32
982	71.33	20.04	0.18	2.58	62.20	104.96
983	71.42	21.56	0.16	2.58	59.64	104.34
984	71.52	23.48	0.14	2.58	56.37	103.78
985	71.58	23.28	0.14	2.58	56.41	104.37
986	71.67	22.77	0.19	2.58	59.63	105.94
987	71.81	22.47	0.26	2.68	62.96	107.28
988	71.82	22.06	0.26	2.68	64.77	107.94
989	71.86	22.06	0.26	2.68	65.57	107.99
990	71.91	21.66	0.26	2.68	65.98	108.01
991	71.97	21.66	0.26	2.68	66.78	108.09
992	72.05	21.36	0.27	2.68	67.69	108.22
993	72.10	20.95	0.28	2.68	68.75	108.41
994	72.20	20.95	0.29	2.68	69.45	108.55
995	72.25	20.95	0.29	2.77	70.00	108.81
996	72.34	20.95	0.31	2.77	70.88	109.34
997	72.44	21.25	0.35	2.77	72.30	109.98
998	72.53	20.95	0.38	2.77	74.03	110.47
999	72.63	20.34	0.39	2.77	74.87	110.69
1000	72.69	20.95	0.39	2.77	75.74	110.64
1001	72.82	20.04	0.38	2.77	75.05	110.60
1002	72.92	20.95	0.38	2.77	73.32	110.41
1003	73.06	22.27	0.35	2.87	70.40	110.34
1004	73.16	22.98	0.35	2.87	70.10	110.49
1005	73.30	21.66	0.39	2.87	74.63	110.57
1006	73.35	17.81	0.39	2.87	78.07	110.69
1007	73.38	20.04	0.39	2.87	79.92	110.48
1008	73.47	19.64	0.37	2.87	77.08	110.44

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	73.53	20.24	0.37	2.96	76.55	110.30
1010	73.62	20.24	0.36	2.96	76.12	110.24
1011	73.71	19.94	0.36	2.96	77.10	110.31
1012	73.77	19.53	0.38	2.96	79.03	110.64
1013	73.86	19.23	0.42	3.06	81.15	111.10
1014	73.96	19.13	0.45	3.06	82.23	111.57
1015	74.06	19.64	0.47	3.06	82.36	111.89
1016	74.13	19.84	0.48	3.06	81.49	112.15
1017	74.24	20.45	0.48	3.06	80.85	112.33
1018	74.34	20.65	0.50	3.06	80.73	112.54
1019	74.44	20.45	0.51	3.06	81.57	112.67
1020	74.58	20.04	0.51	3.06	81.41	112.52
1021	74.68	20.50	0.47	3.06	78.40	111.21
1022	74.80	20.24	0.27	3.15	74.93	109.94
1023	74.92	20.55	0.31	3.15	73.80	109.11
1024	75.07	19.84	0.36	3.15	75.92	109.75
1025	75.08	19.64	0.36	3.15	77.59	110.03
1026	75.11	19.64	0.36	3.25	78.16	110.07
1027	75.16	19.43	0.37	3.25	78.98	110.30
1028	75.25	19.43	0.39	3.25	80.91	110.74
1029	75.32	18.93	0.43	3.35	82.63	111.17
1030	75.40	18.93	0.44	3.35	83.61	111.30
1031	75.50	18.93	0.42	3.35	83.49	110.99
1032	75.59	18.42	0.38	3.35	83.68	110.27
1033	75.69	17.41	0.34	3.35	84.66	109.43
1034	75.78	16.70	0.31	3.35	85.61	108.57
1035	75.88	16.30	0.28	3.35	85.84	107.84
1036	75.96	16.09	0.26	3.35	85.52	107.10
1037	76.05	15.79	0.24	3.35	84.67	106.59
1038	76.14	16.09	0.23	3.44	84.37	106.31
1039	76.26	15.89	0.23	3.44	84.09	106.37
1040	76.36	16.09	0.24	3.44	84.42	106.50
1041	76.41	16.09	0.24	3.44	84.56	106.55
1042	76.51	15.89	0.23	3.44	85.32	106.38
1043	76.65	15.38	0.23	3.44	86.78	106.27
1044	76.72	15.08	0.24	3.44	88.00	106.27
1045	76.79	15.18	0.24	3.54	88.79	106.37
1046	76.89	15.08	0.24	3.54	90.66	107.25
1047	76.98	15.28	0.33	3.54	97.45	110.24
1048	77.08	15.89	0.64	3.54	92.62	112.89
1049	77.18	22.67	0.68	3.54	84.18	115.44
1050	77.28	27.83	0.85	3.54	77.43	117.59
1051	77.37	29.55	1.20	3.63	80.05	119.52
1052	77.42	26.11	1.45	3.63	81.77	120.82
1053	77.42	30.47	1.49	3.73	80.76	121.59
1054	77.44	33.91	1.59	3.73	75.56	122.42
1055	77.48	37.45	1.79	3.73	72.09	123.26
1056	77.52	40.69	1.91	3.82	69.21	123.98

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1057	77.54	43.52	1.97	3.82	67.19	124.41
1058	77.57	44.43	2.03	3.82	67.13	124.60
1059	77.62	42.00	2.05	3.82	68.46	124.53
1060	77.65	40.18	1.97	3.82	70.82	124.28
1061	77.67	37.96	1.92	3.82	71.65	123.83
1062	77.71	37.85	1.76	3.82	71.90	123.46
1063	77.71	37.75	1.73	3.73	71.69	122.88
1064	77.76	35.32	1.55	3.82	73.39	122.11
1065	77.81	31.07	1.35	3.73	75.70	120.92
1066	77.90	28.74	1.16	3.82	78.54	119.86
1067	77.95	27.13	1.11	3.82	80.91	119.27
1068	78.01	25.91	1.14	3.82	82.45	118.93
1069	78.10	25.81	1.05	3.82	78.83	118.74
1070	78.16	30.87	0.98	3.82	63.10	119.02
1071	78.24	52.02	0.97	3.92	49.66	119.64
1072	78.29	63.76	1.00	3.92	39.63	120.51
1073	78.39	78.54	1.05	3.92	34.27	121.15
1074	78.47	89.78	1.06	3.92	31.50	121.96
1075	78.53	93.42	1.23	3.92	31.16	123.05
1076	78.62	94.84	1.51	3.92	32.43	124.23
1077	78.68	94.33	1.70	3.92	34.74	124.97
1078	78.69	84.31	1.76	3.92	35.67	125.92
1079	78.78	100.10	2.16	3.92	36.75	126.73
1080	78.81	97.27	2.34	3.92	38.10	127.66
1081	78.92	87.04	2.58	3.92	41.97	127.53
1082	79.03	71.36	2.29	3.92	46.36	126.48
1083	79.16	59.92	1.72	3.92	46.07	125.04
1084	79.26	73.78	1.52	4.01	39.53	124.49
1085	79.35	101.31	1.66	4.01	33.43	125.47
1086	79.45	116.80	2.02	4.01	30.53	126.98
1087	79.54	125.00	2.38	4.01	29.73	128.12
1088	79.64	130.77	2.50	4.01	29.16	128.84
1089	79.74	137.75	2.60	4.11	26.56	130.21
1090	79.88	191.60	3.45	4.21	23.02	131.59
1091	79.98	231.27	3.61	4.21	19.11	132.52
1092	80.12	263.76	3.19	4.21	17.02	132.38
1093	80.22	251.11	2.99	4.21	15.38	131.25
1094	80.36	244.53	2.16	4.21	14.66	129.87
1095	80.46	238.56	1.83	4.21	13.44	128.07
1096	80.60	233.20	1.51	4.21	12.69	126.55
1097	80.70	223.58	1.18	4.21	12.64	125.70
1098	80.83	214.78	1.39	4.30	13.47	125.59
1099	80.94	200.81	1.51	4.30	15.55	125.88
1100	81.01	167.71	1.47	4.21	17.35	125.78
1101	81.04	165.18	1.46	4.40	18.79	125.42
1102	81.09	159.61	1.41	4.40	19.43	125.22
1103	81.13	150.30	1.41	4.40	20.68	125.10
1104	81.18	138.66	1.47	4.40	23.02	125.16

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1105	81.23	121.46	1.58	4.40	26.12	125.34
1106	81.28	109.61	1.68	4.40	29.84	125.42
1107	81.33	96.96	1.71	4.40	33.69	125.60
1108	81.37	87.75	1.89	4.40	38.07	125.99
1109	81.42	80.57	2.17	4.40	42.18	126.42
1110	81.47	75.20	2.23	4.40	45.53	126.65
1111	81.52	71.36	2.25	4.40	47.80	126.68
1112	81.56	69.23	2.31	4.40	48.75	126.82
1113	81.61	72.17	2.40	4.40	49.37	126.98
1114	81.64	70.14	2.41	4.40	50.62	127.02
1115	81.70	63.87	2.40	4.40	54.71	126.72
1116	81.75	52.33	2.36	4.40	60.30	126.26
1117	81.79	46.76	2.28	4.40	66.56	125.58
1118	81.82	41.40	2.11	4.40	70.87	124.78
1119	81.86	37.35	1.89	4.40	74.63	123.79
1120	81.91	33.91	1.69	4.40	77.94	122.73
1121	81.95	30.57	1.50	4.40	81.32	121.53
1122	82.00	27.23	1.28	4.40	84.85	120.08
1123	82.09	23.99	1.02	4.40	88.86	118.54
1124	82.15	21.36	0.91	4.40	93.55	117.24
1125	82.19	19.43	0.86	4.49	97.46	116.22
1126	82.26	18.52	0.73	4.49	100.00	115.23
1127	82.34	17.00	0.65	4.49	100.00	114.22
1128	82.39	15.28	0.62	4.49	100.00	113.42
1129	82.48	14.47	0.58	4.59	100.00	112.80
1130	82.58	14.37	0.53	4.59	100.00	112.31
1131	82.62	14.88	0.51	4.59	100.00	111.87
1132	82.70	14.78	0.48	4.59	100.00	111.60
1133	82.77	14.78	0.47	4.59	100.00	111.26
1134	82.87	14.68	0.45	4.59	100.00	111.18
1135	82.96	15.59	0.46	4.68	100.00	111.16
1136	83.06	18.22	0.44	4.68	90.71	111.46
1137	83.16	20.65	0.45	4.68	79.92	111.87
1138	83.25	25.10	0.46	4.78	72.16	112.31
1139	83.34	27.43	0.46	4.78	66.55	112.65
1140	83.44	28.85	0.46	4.87	65.23	113.13
1141	83.54	28.54	0.53	4.87	65.41	113.57
1142	83.64	28.64	0.54	4.87	66.63	114.00
1143	83.73	28.44	0.56	4.87	69.35	114.34
1144	83.83	25.81	0.63	4.87	71.50	114.84
1145	83.85	27.33	0.67	5.07	74.13	115.50
1146	83.89	27.13	0.74	5.07	74.39	116.20
1147	83.94	27.73	0.82	5.07	76.21	117.47
1148	84.04	29.25	1.08	5.07	76.59	118.57
1149	84.09	30.57	1.13	5.07	76.69	119.51
1150	84.13	31.17	1.19	5.07	76.09	119.96
1151	84.18	31.88	1.26	5.07	76.24	120.30
1152	84.25	31.78	1.29	5.07	77.16	120.50

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1153	84.33	30.67	1.30	5.07	79.11	120.53
1154	84.37	29.25	1.31	5.07	81.52	120.45
1155	84.46	28.24	1.30	5.16	83.35	120.16
1156	84.52	27.33	1.20	5.16	84.37	119.78
1157	84.57	26.72	1.15	5.16	84.59	119.32
1158	84.67	26.42	1.10	5.16	84.79	119.04
1159	84.71	26.21	1.08	5.16	85.52	118.94
1160	84.81	25.61	1.12	5.16	87.61	119.09
1161	84.86	24.70	1.19	5.16	90.53	119.33
1162	84.91	23.99	1.23	5.16	93.50	119.49
1163	85.00	23.28	1.24	5.16	95.77	119.52
1164	85.05	22.77	1.24	5.16	97.25	119.32
1165	85.15	22.17	1.16	5.16	97.82	118.97
1166	85.19	21.86	1.09	5.16	97.66	118.30
1167	85.29	21.15	0.96	5.16	97.29	117.62
1168	85.35	20.75	0.90	5.16	97.56	116.95
1169	85.42	20.04	0.86	5.16	98.84	116.52
1170	85.48	19.23	0.83	5.16	100.00	116.19
1171	85.55	18.72	0.81	5.26	100.00	115.89
1172	85.63	18.12	0.79	5.26	100.00	115.64
1173	85.68	17.51	0.78	5.26	100.00	115.45
1174	85.77	17.00	0.77	5.26	100.00	115.34
1175	85.82	16.80	0.77	5.26	100.00	115.39
1176	85.89	17.10	0.80	5.26	100.00	115.55
1177	85.96	18.12	0.81	5.26	100.00	115.74
1178	86.03	19.53	0.79	5.26	98.42	115.81
1179	86.11	21.25	0.76	5.26	92.88	115.75
1180	86.16	22.17	0.74	5.26	88.74	115.62
1181	86.25	22.67	0.72	5.26	89.87	115.47
1182	86.36	19.94	0.73	5.26	94.60	114.88
1183	86.50	17.10	0.62	5.26	100.00	114.26
1184	86.51	17.21	0.61	5.26	100.00	113.63
1185	86.52	17.21	0.60	5.26	100.00	113.28
1186	86.57	17.31	0.54	5.26	100.00	112.52
1187	86.65	17.31	0.44	5.35	96.58	111.56
1188	86.71	17.31	0.41	5.35	94.30	110.68
1189	86.80	17.21	0.38	5.35	94.07	110.11
1190	86.90	16.50	0.35	5.45	95.37	109.44
1191	86.99	15.49	0.32	5.45	97.33	108.73
1192	87.04	15.08	0.30	5.45	98.63	108.13
1193	87.14	14.98	0.28	5.45	98.41	107.81
1194	87.19	15.18	0.28	5.45	97.17	107.78
1195	87.28	15.69	0.29	5.54	95.63	108.26
1196	87.38	16.50	0.33	5.54	93.79	108.83
1197	87.43	17.10	0.34	5.54	91.88	109.36
1198	87.52	17.71	0.35	5.54	89.95	109.63
1199	87.61	18.22	0.36	5.64	88.28	109.78
1200	87.66	18.52	0.36	5.64	87.04	109.79

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1201	87.76	18.62	0.35	5.64	86.65	109.67
1202	87.84	18.32	0.34	5.64	86.71	109.46
1203	87.91	18.12	0.33	5.64	87.47	109.24
1204	88.00	17.71	0.32	5.64	88.37	109.00
1205	88.11	17.31	0.31	5.73	89.54	108.84
1206	88.19	17.10	0.31	5.73	90.39	108.72
1207	88.25	17.00	0.31	5.73	90.81	108.62
1208	88.34	16.90	0.30	5.73	90.64	108.42
1209	88.44	16.90	0.29	5.83	90.17	108.15
1210	88.54	16.90	0.28	5.83	89.58	107.90
1211	88.64	16.90	0.27	5.83	89.37	107.73
1212	88.72	16.80	0.27	5.93	89.61	107.69
1213	88.82	16.70	0.28	5.93	90.07	107.73
1214	88.91	16.70	0.28	5.93	90.83	107.82
1215	89.01	16.50	0.28	5.93	91.58	107.90
1216	89.10	16.40	0.29	5.93	92.45	107.97
1217	89.19	16.30	0.29	6.02	93.00	107.82
1218	89.30	15.99	0.27	6.02	91.00	106.79
1219	89.39	16.09	0.18	6.12	89.02	106.17
1220	89.49	16.60	0.23	6.12	88.22	106.44
1221	89.59	16.90	0.29	6.12	90.32	107.86
1222	89.69	16.95	0.32	6.12	91.89	108.72
1223	89.73	17.00	0.33	6.21	90.02	109.17
1224	89.78	18.83	0.34	6.31	87.19	109.42
1225	89.83	19.33	0.34	6.31	84.28	109.67
1226	89.88	19.64	0.35	6.31	83.80	109.89
1227	89.93	19.64	0.36	6.31	83.63	110.18
1228	90.00	20.04	0.38	6.40	83.30	110.59
1229	90.07	20.75	0.41	6.40	82.14	111.03
1230	90.12	21.56	0.42	6.40	81.06	111.60
1231	90.22	22.27	0.46	6.40	80.51	112.20
1232	90.27	22.67	0.50	6.40	80.53	113.17
1233	90.36	23.89	0.60	6.40	77.53	114.19
1234	90.46	28.14	0.65	6.50	73.54	115.05
1235	90.50	30.06	0.66	6.50	70.62	115.50
1236	90.61	29.35	0.68	6.59	70.53	115.62
1237	90.66	28.74	0.68	6.59	71.78	115.45
1238	90.75	27.73	0.63	6.59	73.00	114.95
1239	90.84	26.11	0.57	6.59	74.84	114.27
1240	90.89	24.39	0.54	6.59	76.93	113.58
1241	90.99	23.38	0.50	6.59	79.28	113.09
1242	91.04	22.37	0.49	6.69	81.25	112.68
1243	91.14	21.46	0.48	6.69	83.54	112.40
1244	91.22	20.65	0.47	6.79	85.84	112.13
1245	91.28	19.84	0.46	6.79	88.45	111.80
1246	91.37	18.72	0.44	6.79	89.92	111.48
1247	91.47	18.93	0.42	6.88	90.14	111.12
1248	91.61	19.03	0.40	6.88	88.70	110.98

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1249	91.71	19.53	0.41	6.88	88.08	110.93
1250	91.81	19.33	0.41	6.88	87.81	110.97
1251	91.87	19.33	0.41	6.98	88.02	110.84
1252	92.00	19.13	0.39	6.98	86.12	110.10
1253	92.10	19.38	0.29	6.98	84.52	109.49
1254	92.20	19.43	0.32	7.07	83.14	109.22
1255	92.33	19.74	0.35	7.07	83.97	109.76
1256	92.38	19.79	0.37	7.07	84.45	110.16
1257	92.43	19.84	0.37	7.26	84.47	110.37
1258	92.48	20.14	0.38	7.26	85.19	110.58
1259	92.56	19.64	0.40	7.36	86.02	110.74
1260	92.63	19.53	0.40	7.36	87.16	110.82
1261	92.67	19.43	0.40	7.36	87.45	110.81
1262	92.72	19.43	0.40	7.36	87.55	110.79
1263	92.77	19.43	0.40	7.36	87.20	110.81
1264	92.86	19.74	0.40	7.46	86.63	110.88
1265	92.92	20.04	0.41	7.46	86.16	111.05
1266	92.97	20.14	0.42	7.55	86.69	111.44
1267	93.05	20.14	0.46	7.55	87.17	111.82
1268	93.10	20.45	0.47	7.55	87.05	112.15
1269	93.16	20.95	0.48	7.55	85.70	112.28
1270	93.25	21.56	0.48	7.65	83.79	112.35
1271	93.35	22.27	0.47	7.65	80.44	112.40
1272	93.40	24.19	0.47	7.65	78.94	112.28
1273	93.49	22.77	0.45	7.74	78.47	112.15
1274	93.56	22.47	0.45	7.74	79.73	111.99
1275	93.64	22.57	0.45	7.74	79.38	112.05
1276	93.73	23.28	0.46	7.74	78.34	112.52
1277	93.83	24.70	0.52	7.84	76.63	113.28
1278	93.88	26.42	0.57	8.03	75.40	114.39
1279	93.97	27.83	0.67	8.03	75.84	115.13
1280	94.07	26.42	0.70	8.03	78.80	115.71
1281	94.17	24.70	0.75	8.03	82.08	116.26
1282	94.26	25.81	0.86	8.03	80.59	116.63
1283	94.36	29.25	0.79	8.03	81.16	117.93
1284	94.45	28.24	1.17	8.03	80.92	119.20
1285	94.55	30.57	1.33	8.12	72.58	120.82
1286	94.64	48.48	1.34	8.12	58.20	121.86
1287	94.72	65.99	1.33	8.03	49.16	122.39
1288	94.74	64.98	1.34	8.03	41.37	122.92
1289	94.77	90.28	1.36	8.31	37.18	123.45
1290	94.85	97.87	1.44	8.31	33.27	124.10
1291	94.90	103.54	1.52	8.31	32.34	124.67
1292	94.95	106.48	1.62	8.31	32.54	125.32
1293	95.01	105.57	1.83	8.31	34.52	126.41
1294	95.09	101.62	2.33	8.31	37.59	127.40
1295	95.14	94.94	2.54	8.31	42.18	128.49
1296	95.23	86.54	3.07	8.31	47.11	129.05

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1297	95.29	77.43	3.22	8.31	52.64	129.44
1298	95.38	69.84	3.34	8.31	57.15	129.42
1299	95.43	65.69	3.35	8.31	59.57	129.33
1300	95.52	66.70	3.28	8.31	59.18	129.26
1301	95.57	70.75	3.23	8.31	56.95	129.08
1302	95.67	72.87	2.99	8.31	55.03	128.58
1303	95.77	69.74	2.61	8.22	56.22	127.67
1304	95.86	56.58	2.39	8.22	62.27	126.89
1305	95.95	44.23	2.56	8.22	64.67	126.27
1306	96.03	57.64	2.16	8.22	71.02	125.95
1307	96.11	37.96	2.38	8.31	66.58	126.41
1308	96.20	58.70	2.78	8.51	62.59	127.77
1309	96.30	80.57	3.26	8.60	51.74	129.50
1310	96.39	100.81	3.60	8.60	44.40	130.84
1311	96.50	122.37	3.84	8.70	38.62	131.75
1312	96.59	145.34	3.92	8.60	32.42	131.58
1313	96.69	166.80	2.74	8.60	26.91	130.69
1314	96.78	182.08	2.25	8.60	22.17	129.05
1315	96.87	191.29	1.93	8.60	20.37	128.23
1316	96.98	184.11	1.94	8.60	20.02	127.84
1317	97.02	180.06	1.94	8.51	21.02	127.82
1318	97.06	168.82	2.00	8.70	21.61	128.14
1319	97.12	179.96	2.21	8.70	22.39	128.67
1320	97.16	177.63	2.41	8.70	23.05	129.34
1321	97.21	172.97	2.61	8.70	24.45	129.98
1322	97.27	170.04	2.93	8.60	25.91	130.63
1323	97.33	168.12	3.21	8.60	27.09	131.15
1324	97.40	166.09	3.29	8.60	27.88	131.39
1325	97.45	163.36	3.29	8.60	28.36	131.45
1326	97.50	161.94	3.32	8.60	29.21	131.67
1327	97.58	158.50	3.65	8.60	30.75	131.92
1328	97.65	146.66	3.76	8.51	32.97	132.07
1329	97.69	135.32	3.76	8.51	35.59	131.79
1330	97.74	120.95	3.57	8.51	38.21	131.25
1331	97.81	108.60	3.32	8.51	40.74	130.65
1332	97.88	101.62	3.24	8.51	42.61	130.19
1333	97.93	98.68	3.18	8.60	40.27	130.07
1334	98.03	125.30	2.99	8.79	31.75	130.21
1335	98.15	191.80	2.67	9.08	23.53	130.24
1336	98.21	230.36	2.44	9.08	17.43	129.79
1337	98.32	262.75	1.96	9.08	13.84	129.24
1338	98.42	299.09	1.85	9.08	10.93	128.66
1339	98.47	343.32	1.71	9.08	5.00	127.75
1340	98.57	405.97	1.08	9.18	5.00	126.30
1341	98.70	416.60	0.89	9.18	4.53	124.66
1342	98.78	412.55	0.91	9.27	4.67	124.49
1343	98.85	382.49	1.03	9.27	5.00	124.66
1344	98.86	321.86	1.03	9.08	5.00	124.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1345	98.92	308.60	1.04	9.08	5.00	124.62
1346	98.98	337.35	1.04	9.18	5.00	124.75
1347	99.03	309.11	1.10	9.08	5.00	125.36
1348	99.11	281.37	1.35	8.98	5.00	126.14
1349	99.18	254.05	1.55	8.98	12.62	127.01
1350	99.23	230.16	1.76	8.89	15.59	128.18
1351	99.32	209.41	2.34	8.79	19.03	129.37
1352	99.37	189.57	2.77	8.79	22.90	130.41
1353	99.45	168.82	3.08	8.79	26.41	130.81
1354	99.56	152.93	3.11	8.79	29.20	131.00
1355	99.64	149.59	3.27	8.79	31.66	131.22
1356	99.71	139.27	3.58	8.79	34.06	131.59
1357	99.75	130.87	3.81	8.89	36.97	131.47
1358	99.90	114.27	3.39	8.79	40.25	131.23
1359	99.95	103.44	3.58	8.70	45.52	131.15
1360	100.04	87.25	4.17	8.70	42.09	132.11
1361	100.14	157.89	4.41	8.98	32.87	133.35
1362	100.14	232.39	4.40	8.98	26.10	134.08
1363	100.15	224.29	4.36	9.08	23.29	134.83
1364	100.19	250.30	5.18	9.18	22.57	136.06
1365	100.21	301.41	6.43	9.27	21.06	137.28
1366	100.24	342.10	7.12	9.27	14.70	135.60
1367	100.28	411.74	0.00	9.46	8.11	131.27
1368	100.31	477.42	0.00	9.56	N/A	87.36
1369	100.33	523.38	0.00	9.56	N/A	87.36
1370	100.38	524.49	0.00	9.56	N/A	87.36
1371	100.39	525.60	0.00	9.56	N/A	87.36
1372	100.43	529.15	0.00	9.65	N/A	87.36
1373	100.48	540.18	0.00	9.65	N/A	87.36
1374	100.53	496.96	0.00	9.56	N/A	87.36
1375	100.57	490.58	0.00	9.65	N/A	87.36
1376	100.60	500.40	0.00	9.94	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.04	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
2	0.10	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
3	0.11	0.00	0.00	0.00	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
4	0.16	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
5	0.19	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
6	0.24	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
7	0.31	0.01	0.00	0.01	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
8	0.38	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
9	0.43	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
10	0.49	0.02	0.00	0.02	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
11	0.58	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
12	0.63	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
13	0.67	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	No
14	0.72	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
15	0.72	0.03	0.00	0.03	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
16	0.84	0.04	0.00	0.04	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
17	0.96	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
18	1.06	0.05	0.00	0.05	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
19	1.24	0.06	0.00	0.06	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
20	1.30	0.07	0.00	0.07	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
21	1.48	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
22	1.59	0.08	0.00	0.08	1.00	0.273	1.68	0.162	1.00	1.10	2.000	Yes
23	1.69	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
24	1.69	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
25	1.74	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	Yes
26	1.79	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
27	1.84	0.09	0.00	0.09	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
28	1.88	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
29	1.93	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
30	1.99	0.10	0.00	0.10	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
31	2.03	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
32	2.08	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
33	2.13	0.11	0.00	0.11	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
34	2.22	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
35	2.27	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
36	2.33	0.12	0.00	0.12	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
37	2.42	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
38	2.48	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
39	2.56	0.13	0.00	0.13	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
40	2.65	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
41	2.72	0.14	0.00	0.14	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
42	2.80	0.15	0.00	0.15	1.00	0.272	1.68	0.162	1.00	1.10	2.000	No
43	2.89	0.15	0.00	0.15	1.00	0.272	1.68	0.161	1.00	1.10	2.000	No
44	2.94	0.16	0.00	0.16	1.00	0.272	1.68	0.161	1.00	1.10	2.000	No
45	3.04	0.16	0.00	0.16	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
46	3.14	0.17	0.00	0.17	0.99	0.272	1.68	0.161	1.00	1.10	2.000	No
47	3.23	0.17	0.00	0.17	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
48	3.31	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	3.37	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
50	3.48	0.18	0.00	0.18	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
51	3.57	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
52	3.65	0.19	0.00	0.19	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
53	3.71	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
54	3.82	0.20	0.00	0.20	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
55	3.91	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
56	4.00	0.21	0.00	0.21	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
57	4.10	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
58	4.19	0.22	0.00	0.22	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
59	4.26	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
60	4.35	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
61	4.44	0.23	0.00	0.23	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
62	4.52	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
63	4.53	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
64	4.58	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
65	4.63	0.24	0.00	0.24	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
66	4.68	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
67	4.72	0.25	0.00	0.25	0.99	0.271	1.68	0.161	1.00	1.10	2.000	No
68	4.77	0.25	0.00	0.25	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
69	4.82	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
70	4.88	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
71	4.96	0.26	0.00	0.26	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
72	5.01	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
73	5.08	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
74	5.16	0.27	0.00	0.27	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
75	5.21	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
76	5.30	0.28	0.00	0.28	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
77	5.37	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
78	5.45	0.29	0.00	0.29	0.99	0.270	1.68	0.161	1.00	1.10	2.000	No
79	5.52	0.29	0.00	0.29	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
80	5.59	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
81	5.65	0.30	0.00	0.30	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
82	5.74	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
83	5.83	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
84	5.89	0.31	0.00	0.31	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
85	5.97	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
86	6.07	0.32	0.00	0.32	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
87	6.12	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
88	6.22	0.33	0.00	0.33	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
89	6.28	0.34	0.00	0.34	0.99	0.270	1.68	0.160	1.00	1.10	2.000	No
90	6.36	0.34	0.00	0.34	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
91	6.46	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
92	6.52	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
93	6.60	0.35	0.00	0.35	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
94	6.70	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	No
95	6.76	0.36	0.00	0.36	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
96	6.84	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	6.94	0.37	0.00	0.37	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
98	7.03	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
99	7.13	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
100	7.19	0.38	0.00	0.38	0.99	0.269	1.68	0.160	1.00	1.10	2.000	Yes
101	7.32	0.39	0.00	0.39	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
102	7.42	0.39	0.00	0.39	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
103	7.49	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
104	7.57	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
105	7.66	0.40	0.00	0.40	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
106	7.76	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
107	7.77	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
108	7.78	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
109	7.82	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
110	7.87	0.41	0.00	0.41	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
111	7.92	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
112	7.97	0.42	0.00	0.42	0.98	0.269	1.68	0.160	1.00	1.10	2.000	No
113	8.01	0.42	0.00	0.42	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
114	8.06	0.42	0.00	0.42	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
115	8.11	0.42	0.00	0.42	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
116	8.20	0.43	0.00	0.43	0.98	0.268	1.68	0.160	1.00	1.10	2.000	No
117	8.26	0.43	0.00	0.43	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
118	8.35	0.44	0.00	0.44	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
119	8.40	0.44	0.00	0.44	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
120	8.49	0.44	0.00	0.44	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
121	8.54	0.44	0.00	0.44	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
122	8.64	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
123	8.69	0.45	0.00	0.45	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
124	8.79	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
125	8.84	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
126	8.93	0.46	0.00	0.46	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
127	9.03	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
128	9.08	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
129	9.11	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
130	9.12	0.47	0.00	0.47	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
131	9.17	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
132	9.22	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
133	9.31	0.48	0.00	0.48	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
134	9.36	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
135	9.40	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
136	9.46	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
137	9.51	0.49	0.00	0.49	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
138	9.55	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
139	9.61	0.50	0.00	0.50	0.98	0.268	1.68	0.159	1.00	1.10	2.000	No
140	9.69	0.50	0.00	0.50	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
141	9.74	0.51	0.00	0.51	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
142	9.81	0.51	0.00	0.51	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
143	9.89	0.51	0.00	0.51	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
144	9.94	0.52	0.00	0.52	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	10.03	0.52	0.00	0.52	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
146	10.08	0.52	0.00	0.52	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
147	10.18	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
148	10.23	0.53	0.00	0.53	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
149	10.33	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
150	10.40	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
151	10.47	0.54	0.00	0.54	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
152	10.51	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
153	10.56	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
154	10.61	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
155	10.67	0.55	0.00	0.55	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
156	10.75	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
157	10.80	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
158	10.85	0.56	0.00	0.56	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
159	10.90	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
160	11.00	0.57	0.00	0.57	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
161	11.05	0.58	0.00	0.58	0.98	0.267	1.68	0.159	1.00	1.10	2.000	No
162	11.14	0.58	0.00	0.58	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
163	11.21	0.58	0.00	0.58	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
164	11.29	0.59	0.00	0.59	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
165	11.38	0.59	0.00	0.59	0.98	0.267	1.68	0.158	1.00	1.10	2.000	No
166	11.46	0.60	0.00	0.60	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
167	11.52	0.60	0.00	0.60	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
168	11.60	0.61	0.00	0.61	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
169	11.67	0.61	0.00	0.61	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
170	11.72	0.61	0.00	0.61	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
171	11.81	0.62	0.00	0.62	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
172	11.86	0.62	0.00	0.62	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
173	11.96	0.63	0.00	0.63	0.98	0.266	1.68	0.158	1.00	1.10	2.000	No
174	12.01	0.63	0.00	0.63	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
175	12.10	0.63	0.00	0.63	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
176	12.16	0.64	0.00	0.64	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
177	12.24	0.64	0.00	0.64	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
178	12.32	0.64	0.00	0.64	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
179	12.39	0.65	0.00	0.65	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
180	12.48	0.65	0.00	0.65	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
181	12.50	0.65	0.00	0.65	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
182	12.54	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
183	12.64	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
184	12.68	0.66	0.00	0.66	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
185	12.77	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
186	12.82	0.67	0.00	0.67	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
187	12.89	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
188	12.97	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
189	13.03	0.68	0.00	0.68	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
190	13.12	0.69	0.00	0.69	0.97	0.266	1.68	0.158	1.00	1.10	2.000	No
191	13.16	0.69	0.00	0.69	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
192	13.26	0.70	0.00	0.70	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	13.34	0.70	0.00	0.70	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
194	13.41	0.70	0.00	0.70	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
195	13.50	0.71	0.00	0.71	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
196	13.60	0.71	0.00	0.71	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
197	13.65	0.72	0.00	0.72	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
198	13.75	0.72	0.00	0.72	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
199	13.80	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
200	13.89	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
201	13.94	0.73	0.00	0.73	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
202	14.03	0.74	0.00	0.74	0.97	0.265	1.68	0.158	1.00	1.10	2.000	No
203	14.11	0.74	0.00	0.74	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
204	14.13	0.74	0.00	0.74	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
205	14.18	0.75	0.00	0.75	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
206	14.22	0.75	0.00	0.75	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
207	14.28	0.75	0.00	0.75	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
208	14.37	0.76	0.00	0.76	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
209	14.44	0.76	0.00	0.76	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
210	14.51	0.76	0.00	0.76	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
211	14.60	0.77	0.00	0.77	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
212	14.65	0.77	0.00	0.77	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
213	14.75	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
214	14.85	0.78	0.00	0.78	0.97	0.265	1.68	0.157	1.00	1.10	2.000	No
215	14.91	0.79	0.00	0.79	0.97	0.264	1.68	0.157	1.00	1.10	2.000	No
216	14.99	0.79	0.00	0.79	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
217	15.09	0.80	0.00	0.80	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
218	15.18	0.80	0.00	0.80	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
219	15.25	0.81	0.00	0.81	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
220	15.33	0.81	0.00	0.81	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
221	15.43	0.82	0.00	0.82	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
222	15.51	0.82	0.00	0.82	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
223	15.59	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
224	15.67	0.83	0.00	0.83	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
225	15.76	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
226	15.86	0.84	0.00	0.84	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
227	15.95	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
228	16.05	0.85	0.00	0.85	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
229	16.14	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
230	16.20	0.86	0.00	0.86	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
231	16.28	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
232	16.34	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
233	16.44	0.87	0.00	0.87	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
234	16.50	0.88	0.00	0.88	0.97	0.264	1.68	0.157	1.00	1.10	2.000	Yes
235	16.58	0.88	0.00	0.88	0.97	0.263	1.68	0.157	1.00	1.10	2.000	Yes
236	16.73	0.89	0.00	0.89	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
237	16.82	0.89	0.00	0.89	0.96	0.263	1.68	0.157	1.00	1.10	2.000	No
238	16.92	0.90	0.00	0.90	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
239	17.01	0.90	0.00	0.90	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
240	17.11	0.91	0.00	0.91	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	17.12	0.91	0.00	0.91	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
242	17.14	0.91	0.00	0.91	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
243	17.19	0.91	0.00	0.91	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
244	17.28	0.92	0.00	0.92	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
245	17.33	0.92	0.00	0.92	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
246	17.43	0.92	0.00	0.92	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
247	17.47	0.93	0.00	0.93	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
248	17.57	0.93	0.00	0.93	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
249	17.65	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
250	17.72	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
251	17.81	0.94	0.00	0.94	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
252	17.86	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
253	17.95	0.95	0.00	0.95	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
254	18.05	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
255	18.10	0.96	0.00	0.96	0.96	0.263	1.68	0.156	1.00	1.10	2.000	No
256	18.20	0.97	0.00	0.97	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
257	18.30	0.97	0.00	0.97	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
258	18.39	0.98	0.00	0.98	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
259	18.48	0.98	0.00	0.98	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
260	18.58	0.99	0.00	0.99	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
261	18.66	0.99	0.00	0.99	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
262	18.74	1.00	0.00	1.00	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
263	18.87	1.00	0.00	1.00	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
264	18.97	1.01	0.00	1.01	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
265	19.06	1.01	0.00	1.01	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
266	19.16	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
267	19.25	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
268	19.27	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
269	19.30	1.02	0.00	1.02	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
270	19.34	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
271	19.39	1.03	0.00	1.03	0.96	0.262	1.68	0.156	1.00	1.10	2.000	No
272	19.49	1.04	0.00	1.04	0.96	0.262	1.68	0.155	1.00	1.10	2.000	No
273	19.55	1.04	0.00	1.04	0.96	0.262	1.68	0.155	1.00	1.10	2.000	No
274	19.63	1.04	0.00	1.04	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
275	19.68	1.05	0.00	1.05	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
276	19.74	1.05	0.00	1.05	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
277	19.83	1.05	0.00	1.05	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
278	19.87	1.06	0.00	1.06	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
279	19.94	1.06	0.00	1.06	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
280	20.02	1.06	0.00	1.06	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
281	20.07	1.07	0.00	1.07	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
282	20.17	1.07	0.00	1.07	0.96	0.261	1.68	0.155	1.00	1.10	2.000	No
283	20.21	1.07	0.00	1.07	0.96	0.261	1.68	0.155	1.00	1.10	2.000	Yes
284	20.28	1.08	0.00	1.08	0.96	0.261	1.68	0.155	1.00	1.10	2.000	Yes
285	20.36	1.08	0.00	1.08	0.96	0.261	1.68	0.155	1.00	1.10	2.000	Yes
286	20.41	1.09	0.00	1.09	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
287	20.48	1.09	0.00	1.09	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
288	20.55	1.09	0.00	1.09	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	20.60	1.10	0.00	1.10	0.96	0.261	1.68	0.155	0.99	1.10	2.000	Yes
290	20.70	1.10	0.00	1.10	0.96	0.261	1.68	0.155	0.99	1.10	2.000	No
291	20.74	1.11	0.00	1.11	0.95	0.261	1.68	0.155	0.99	1.10	2.000	No
292	20.79	1.11	0.00	1.11	0.95	0.261	1.68	0.155	0.99	1.10	2.000	No
293	20.89	1.11	0.00	1.11	0.95	0.261	1.68	0.155	0.99	1.10	2.000	No
294	20.96	1.12	0.00	1.12	0.95	0.261	1.68	0.155	0.99	1.10	2.000	No
295	21.04	1.12	0.00	1.12	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
296	21.13	1.13	0.00	1.13	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
297	21.22	1.13	0.00	1.13	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
298	21.29	1.14	0.00	1.14	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
299	21.35	1.14	0.00	1.14	0.95	0.260	1.68	0.155	0.99	1.10	2.000	No
300	21.37	1.14	0.00	1.14	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
301	21.42	1.14	0.00	1.14	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
302	21.47	1.15	0.00	1.15	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
303	21.48	1.15	0.00	1.15	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
304	21.52	1.15	0.00	1.15	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
305	21.57	1.15	0.00	1.15	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
306	21.62	1.16	0.00	1.16	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
307	21.66	1.16	0.00	1.16	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
308	21.71	1.16	0.00	1.16	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
309	21.76	1.17	0.00	1.17	0.95	0.260	1.68	0.155	0.98	1.10	2.000	No
310	21.81	1.17	0.00	1.17	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
311	21.85	1.17	0.00	1.17	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
312	21.91	1.17	0.00	1.17	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
313	21.95	1.18	0.00	1.18	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
314	22.00	1.18	0.00	1.18	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
315	22.05	1.18	0.00	1.18	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
316	22.10	1.19	0.00	1.19	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
317	22.15	1.19	0.00	1.19	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
318	22.19	1.19	0.00	1.19	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
319	22.24	1.19	0.00	1.19	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
320	22.29	1.20	0.00	1.20	0.95	0.260	1.68	0.154	0.98	1.10	2.000	No
321	22.34	1.20	0.00	1.20	0.95	0.259	1.68	0.154	0.98	1.10	2.000	No
322	22.39	1.20	0.00	1.20	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
323	22.43	1.21	0.00	1.21	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
324	22.48	1.21	0.00	1.21	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
325	22.55	1.21	0.00	1.21	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
326	22.62	1.22	0.00	1.22	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
327	22.63	1.22	0.00	1.22	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
328	22.72	1.22	0.00	1.22	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
329	22.77	1.23	0.00	1.23	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
330	22.83	1.23	0.00	1.23	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
331	22.91	1.24	0.00	1.24	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
332	22.96	1.24	0.00	1.24	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
333	23.02	1.24	0.00	1.24	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
334	23.10	1.25	0.00	1.25	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
335	23.16	1.25	0.00	1.25	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
336	23.20	1.25	0.00	1.25	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	23.26	1.26	0.00	1.26	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
338	23.35	1.26	0.00	1.26	0.95	0.259	1.68	0.154	0.97	1.10	2.000	No
339	23.39	1.27	0.00	1.27	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
340	23.48	1.27	0.00	1.27	0.95	0.259	1.68	0.154	0.96	1.10	2.000	No
341	23.54	1.27	0.00	1.27	0.95	0.258	1.68	0.154	0.96	1.10	2.000	No
342	23.63	1.28	0.00	1.28	0.95	0.258	1.68	0.154	0.96	1.10	2.000	No
343	23.69	1.28	0.00	1.28	0.95	0.258	1.68	0.154	0.96	1.10	2.000	No
344	23.78	1.29	0.00	1.29	0.95	0.258	1.68	0.154	0.96	1.10	2.000	No
345	23.87	1.29	0.00	1.29	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
346	23.88	1.29	0.00	1.29	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
347	23.93	1.30	0.00	1.30	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
348	24.02	1.30	0.00	1.30	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
349	24.04	1.30	0.00	1.30	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
350	24.05	1.30	0.00	1.30	0.95	0.258	1.68	0.153	0.96	1.10	2.000	No
351	24.15	1.31	0.00	1.31	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
352	24.20	1.31	0.00	1.31	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
353	24.30	1.32	0.00	1.32	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
354	24.40	1.32	0.00	1.32	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
355	24.46	1.33	0.00	1.33	0.94	0.258	1.68	0.153	0.96	1.10	2.000	No
356	24.54	1.33	0.00	1.33	0.94	0.258	1.68	0.153	0.95	1.10	2.000	No
357	24.64	1.34	0.00	1.34	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
358	24.73	1.34	0.00	1.34	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
359	24.78	1.35	0.00	1.35	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
360	24.88	1.35	0.00	1.35	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
361	24.94	1.36	0.00	1.36	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
362	25.02	1.36	0.00	1.36	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
363	25.12	1.37	0.00	1.37	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
364	25.17	1.37	0.00	1.37	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
365	25.27	1.38	0.00	1.38	0.94	0.257	1.68	0.153	0.95	1.10	2.000	Yes
366	25.36	1.38	0.00	1.38	0.94	0.257	1.68	0.153	0.95	1.10	2.000	No
367	25.43	1.38	0.00	1.38	0.94	0.257	1.68	0.153	0.95	1.10	2.000	No
368	25.50	1.39	0.00	1.39	0.94	0.257	1.68	0.153	0.95	1.10	2.000	No
369	25.60	1.39	0.00	1.39	0.94	0.257	1.68	0.152	0.95	1.10	2.000	No
370	25.64	1.40	0.00	1.40	0.94	0.256	1.68	0.152	0.95	1.10	2.000	No
371	25.67	1.40	0.00	1.40	0.94	0.256	1.68	0.152	0.95	1.10	2.000	No
372	25.71	1.40	0.00	1.40	0.94	0.256	1.68	0.152	0.95	1.10	2.000	No
373	25.79	1.40	0.00	1.40	0.94	0.256	1.68	0.152	0.95	1.10	2.000	No
374	25.93	1.41	0.00	1.41	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
375	26.03	1.42	0.00	1.42	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
376	26.13	1.42	0.00	1.42	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
377	26.24	1.43	0.00	1.43	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
378	26.37	1.43	0.00	1.43	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
379	26.47	1.44	0.00	1.44	0.94	0.256	1.68	0.152	0.94	1.10	2.000	No
380	26.60	1.45	0.00	1.45	0.94	0.255	1.68	0.152	0.94	1.10	2.000	No
381	26.71	1.45	0.00	1.45	0.94	0.255	1.68	0.152	0.94	1.10	2.000	No
382	26.85	1.46	0.00	1.46	0.93	0.255	1.68	0.152	0.94	1.10	2.000	No
383	26.95	1.46	0.00	1.46	0.93	0.255	1.68	0.152	0.94	1.10	2.000	No
384	27.04	1.47	0.00	1.47	0.93	0.255	1.68	0.152	0.94	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	27.09	1.47	0.00	1.47	0.93	0.255	1.68	0.152	0.94	1.10	2.000	No
386	27.19	1.48	0.00	1.48	0.93	0.255	1.68	0.151	0.94	1.10	2.000	No
387	27.23	1.48	0.00	1.48	0.93	0.255	1.68	0.151	0.94	1.10	2.000	No
388	27.33	1.48	0.00	1.48	0.93	0.255	1.68	0.151	0.93	1.10	2.000	No
389	27.40	1.49	0.00	1.49	0.93	0.255	1.68	0.151	0.93	1.10	2.000	No
390	27.47	1.49	0.00	1.49	0.93	0.255	1.68	0.151	0.93	1.10	2.000	No
391	27.57	1.50	0.00	1.50	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
392	27.66	1.50	0.00	1.50	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
393	27.77	1.51	0.00	1.51	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
394	27.86	1.51	0.00	1.51	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
395	27.96	1.52	0.00	1.52	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
396	28.06	1.52	0.00	1.52	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
397	28.15	1.53	0.00	1.53	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
398	28.25	1.54	0.00	1.54	0.93	0.254	1.68	0.151	0.93	1.10	2.000	No
399	28.34	1.54	0.00	1.54	0.93	0.253	1.68	0.151	0.93	1.10	2.000	No
400	28.44	1.55	0.00	1.55	0.93	0.253	1.68	0.151	0.93	1.10	2.000	No
401	28.54	1.55	0.00	1.55	0.93	0.253	1.68	0.151	0.93	1.10	2.000	No
402	28.62	1.56	0.00	1.56	0.93	0.253	1.68	0.150	0.93	1.10	2.000	No
403	28.71	1.56	0.00	1.56	0.93	0.253	1.68	0.150	0.93	1.10	2.000	No
404	28.77	1.56	0.00	1.56	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
405	28.86	1.57	0.00	1.57	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
406	28.91	1.57	0.00	1.57	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
407	28.97	1.58	0.00	1.58	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
408	29.04	1.58	0.00	1.58	0.93	0.253	1.68	0.150	0.92	1.10	2.000	No
409	29.10	1.58	0.00	1.58	0.92	0.253	1.68	0.150	0.92	1.10	2.000	No
410	29.15	1.59	0.00	1.59	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
411	29.25	1.59	0.00	1.59	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
412	29.34	1.60	0.00	1.60	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
413	29.38	1.60	0.00	1.60	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
414	29.48	1.61	0.00	1.61	0.92	0.252	1.68	0.150	0.92	1.10	2.000	No
415	29.55	1.61	0.00	1.61	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
416	29.63	1.62	0.00	1.62	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
417	29.72	1.62	0.00	1.62	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
418	29.82	1.63	0.00	1.63	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
419	29.88	1.63	0.00	1.63	0.92	0.251	1.68	0.149	0.92	1.10	2.000	Yes
420	29.96	1.63	0.00	1.63	0.92	0.251	1.68	0.149	0.92	1.10	2.000	Yes
421	30.06	1.64	0.00	1.64	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
422	30.13	1.64	0.00	1.64	0.92	0.252	1.68	0.150	0.92	1.10	2.000	Yes
423	30.18	1.65	0.01	1.64	0.92	0.252	1.68	0.150	0.92	1.10	0.180	No
424	30.28	1.65	0.01	1.64	0.92	0.252	1.68	0.150	0.92	1.10	0.180	No
425	30.37	1.66	0.01	1.65	0.92	0.253	1.68	0.150	0.92	1.10	0.180	No
426	30.47	1.66	0.01	1.65	0.92	0.253	1.68	0.150	0.92	1.10	0.181	No
427	30.57	1.67	0.02	1.65	0.92	0.253	1.68	0.151	0.91	1.10	0.181	No
428	30.66	1.68	0.02	1.65	0.92	0.254	1.68	0.151	0.91	1.10	0.181	No
429	30.74	1.68	0.02	1.66	0.92	0.254	1.68	0.151	0.91	1.10	0.181	No
430	30.82	1.68	0.03	1.66	0.92	0.254	1.68	0.151	0.91	1.10	0.182	No
431	30.90	1.69	0.03	1.66	0.92	0.254	1.68	0.151	0.91	1.10	0.182	No
432	31.01	1.70	0.03	1.66	0.92	0.255	1.68	0.151	0.91	1.10	0.182	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	31.10	1.70	0.03	1.67	0.91	0.255	1.68	0.151	0.91	1.10	0.183	No
434	31.19	1.71	0.04	1.67	0.91	0.255	1.68	0.152	0.91	1.10	0.183	No
435	31.28	1.71	0.04	1.67	0.91	0.255	1.68	0.152	0.91	1.10	0.183	No
436	31.35	1.72	0.04	1.67	0.91	0.256	1.68	0.152	0.91	1.10	0.183	No
437	31.43	1.72	0.04	1.68	0.91	0.256	1.68	0.152	0.91	1.10	0.183	No
438	31.53	1.73	0.05	1.68	0.91	0.256	1.68	0.152	0.91	1.10	0.184	No
439	31.60	1.73	0.05	1.68	0.91	0.256	1.68	0.152	0.91	1.10	0.184	No
440	31.67	1.74	0.05	1.68	0.91	0.257	1.68	0.153	0.91	1.10	0.184	No
441	31.77	1.74	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.184	No
442	31.84	1.75	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.185	No
443	31.91	1.75	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.185	No
444	31.98	1.76	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.185	No
445	31.98	1.76	0.06	1.69	0.91	0.257	1.68	0.153	0.91	1.10	0.185	No
446	32.04	1.76	0.06	1.70	0.91	0.258	1.68	0.153	0.91	1.10	0.185	No
447	32.12	1.76	0.07	1.70	0.91	0.258	1.68	0.153	0.91	1.10	2.000	Yes
448	32.16	1.77	0.07	1.70	0.91	0.258	1.68	0.153	0.91	1.10	2.000	Yes
449	32.27	1.77	0.07	1.70	0.91	0.258	1.68	0.153	0.91	1.10	2.000	Yes
450	32.33	1.78	0.07	1.70	0.91	0.258	1.68	0.154	0.91	1.10	2.000	Yes
451	32.41	1.78	0.08	1.71	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
452	32.50	1.79	0.08	1.71	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
453	32.58	1.79	0.08	1.71	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
454	32.66	1.80	0.08	1.71	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
455	32.74	1.80	0.09	1.72	0.91	0.259	1.68	0.154	0.91	1.10	2.000	Yes
456	32.84	1.81	0.09	1.72	0.90	0.260	1.68	0.154	0.91	1.10	2.000	Yes
457	32.90	1.81	0.09	1.72	0.90	0.260	1.68	0.154	0.91	1.10	2.000	Yes
458	32.98	1.82	0.09	1.72	0.90	0.260	1.68	0.155	0.91	1.10	2.000	Yes
459	33.08	1.82	0.10	1.73	0.90	0.260	1.68	0.155	0.91	1.10	0.188	No
460	33.14	1.83	0.10	1.73	0.90	0.260	1.68	0.155	0.91	1.10	0.188	No
461	33.22	1.83	0.10	1.73	0.90	0.261	1.68	0.155	0.91	1.10	0.188	No
462	33.32	1.84	0.10	1.73	0.90	0.261	1.68	0.155	0.91	1.10	0.188	No
463	33.37	1.84	0.11	1.73	0.90	0.261	1.68	0.155	0.91	1.10	0.188	No
464	33.47	1.84	0.11	1.74	0.90	0.261	1.68	0.155	0.91	1.10	0.189	No
465	33.56	1.85	0.11	1.74	0.90	0.261	1.68	0.155	0.91	1.10	0.189	No
466	33.63	1.85	0.11	1.74	0.90	0.262	1.68	0.156	0.91	1.10	0.189	No
467	33.71	1.86	0.12	1.74	0.90	0.262	1.68	0.156	0.91	1.10	0.189	No
468	33.81	1.86	0.12	1.74	0.90	0.262	1.68	0.156	0.90	1.10	0.189	No
469	33.90	1.87	0.12	1.75	0.90	0.262	1.68	0.156	0.90	1.10	0.190	No
470	33.95	1.87	0.12	1.75	0.90	0.262	1.68	0.156	0.90	1.10	0.190	No
471	34.04	1.88	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
472	34.14	1.88	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
473	34.17	1.88	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
474	34.20	1.88	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
475	34.26	1.89	0.13	1.75	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
476	34.35	1.89	0.14	1.76	0.90	0.263	1.68	0.156	0.90	1.10	0.190	No
477	34.43	1.90	0.14	1.76	0.89	0.263	1.68	0.157	0.90	1.10	0.191	No
478	34.49	1.90	0.14	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No
479	34.59	1.90	0.14	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No
480	34.69	1.91	0.15	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	34.73	1.91	0.15	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No
482	34.83	1.92	0.15	1.76	0.89	0.264	1.68	0.157	0.90	1.10	0.191	No
483	34.90	1.92	0.15	1.77	0.89	0.264	1.68	0.157	0.90	1.10	0.192	No
484	34.98	1.92	0.16	1.77	0.89	0.265	1.68	0.157	0.90	1.10	0.192	No
485	35.07	1.93	0.16	1.77	0.89	0.265	1.68	0.157	0.90	1.10	0.192	No
486	35.16	1.93	0.16	1.77	0.89	0.265	1.68	0.157	0.90	1.10	0.192	No
487	35.26	1.94	0.16	1.77	0.89	0.265	1.68	0.158	0.90	1.10	0.192	No
488	35.33	1.94	0.17	1.78	0.89	0.265	1.68	0.158	0.90	1.10	0.192	No
489	35.40	1.95	0.17	1.78	0.89	0.265	1.68	0.158	0.90	1.10	0.192	No
490	35.50	1.95	0.17	1.78	0.89	0.266	1.68	0.158	0.90	1.10	0.193	No
491	35.57	1.96	0.17	1.78	0.89	0.266	1.68	0.158	0.90	1.10	0.193	No
492	35.65	1.96	0.18	1.78	0.89	0.266	1.68	0.158	0.90	1.10	0.193	No
493	35.71	1.96	0.18	1.79	0.89	0.266	1.68	0.158	0.90	1.10	0.193	No
494	35.79	1.97	0.18	1.79	0.88	0.266	1.68	0.158	0.90	1.10	0.193	No
495	35.85	1.97	0.18	1.79	0.88	0.266	1.68	0.158	0.90	1.10	0.193	No
496	35.94	1.98	0.19	1.79	0.88	0.266	1.68	0.158	0.90	1.10	0.193	No
497	35.99	1.98	0.19	1.79	0.88	0.266	1.68	0.158	0.90	1.10	0.194	No
498	36.08	1.99	0.19	1.80	0.88	0.266	1.68	0.158	0.90	1.10	0.194	No
499	36.17	1.99	0.19	1.80	0.88	0.267	1.68	0.158	0.90	1.10	0.194	No
500	36.24	1.99	0.19	1.80	0.88	0.267	1.68	0.159	0.90	1.10	0.194	No
501	36.33	2.00	0.20	1.80	0.88	0.267	1.68	0.159	0.90	1.10	0.194	No
502	36.42	2.00	0.20	1.80	0.88	0.267	1.68	0.159	0.90	1.10	0.194	No
503	36.52	2.01	0.20	1.81	0.88	0.267	1.68	0.159	0.90	1.10	0.194	No
504	36.61	2.02	0.21	1.81	0.88	0.267	1.68	0.159	0.90	1.10	0.195	No
505	36.70	2.02	0.21	1.81	0.88	0.267	1.68	0.159	0.90	1.10	0.195	No
506	36.78	2.02	0.21	1.81	0.88	0.268	1.68	0.159	0.90	1.10	0.195	No
507	36.85	2.03	0.21	1.82	0.88	0.268	1.68	0.159	0.90	1.10	0.195	No
508	36.87	2.03	0.21	1.82	0.88	0.268	1.68	0.159	0.90	1.10	0.195	No
509	36.91	2.03	0.22	1.82	0.88	0.268	1.68	0.159	0.90	1.10	0.195	No
510	36.97	2.04	0.22	1.82	0.88	0.268	1.68	0.159	0.90	1.10	2.000	Yes
511	37.06	2.04	0.22	1.82	0.88	0.268	1.68	0.159	0.90	1.10	2.000	Yes
512	37.12	2.04	0.22	1.82	0.87	0.268	1.68	0.159	0.90	1.10	2.000	Yes
513	37.20	2.05	0.22	1.82	0.87	0.268	1.68	0.159	0.90	1.10	2.000	Yes
514	37.27	2.05	0.23	1.83	0.87	0.268	1.68	0.159	0.90	1.10	2.000	Yes
515	37.35	2.06	0.23	1.83	0.87	0.268	1.68	0.159	0.90	1.10	2.000	Yes
516	37.44	2.06	0.23	1.83	0.87	0.268	1.68	0.160	0.90	1.10	2.000	Yes
517	37.49	2.07	0.23	1.83	0.87	0.268	1.68	0.160	0.90	1.10	2.000	Yes
518	37.59	2.07	0.24	1.84	0.87	0.269	1.68	0.160	0.90	1.10	2.000	Yes
519	37.64	2.08	0.24	1.84	0.87	0.269	1.68	0.160	0.90	1.10	2.000	Yes
520	37.70	2.08	0.24	1.84	0.87	0.269	1.68	0.160	0.90	1.10	2.000	Yes
521	37.78	2.09	0.24	1.84	0.87	0.269	1.68	0.160	0.89	1.10	2.000	Yes
522	37.83	2.09	0.24	1.84	0.87	0.269	1.68	0.160	0.89	1.10	2.000	Yes
523	37.92	2.09	0.25	1.85	0.87	0.269	1.68	0.160	0.89	1.10	2.000	Yes
524	37.97	2.10	0.25	1.85	0.87	0.269	1.68	0.160	0.89	1.10	2.000	Yes
525	38.07	2.10	0.25	1.85	0.87	0.269	1.68	0.160	0.89	1.10	0.197	No
526	38.14	2.11	0.25	1.85	0.87	0.269	1.68	0.160	0.89	1.10	0.197	No
527	38.22	2.11	0.26	1.86	0.87	0.269	1.68	0.160	0.89	1.10	0.197	No
528	38.31	2.12	0.26	1.86	0.87	0.269	1.68	0.160	0.89	1.10	0.197	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	38.41	2.12	0.26	1.86	0.86	0.269	1.68	0.160	0.89	1.10	0.197	No
530	38.52	2.13	0.27	1.87	0.86	0.269	1.68	0.160	0.89	1.10	0.197	No
531	38.64	2.14	0.27	1.87	0.86	0.269	1.68	0.160	0.89	1.10	0.197	No
532	38.74	2.15	0.27	1.87	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
533	38.80	2.15	0.27	1.88	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
534	38.89	2.16	0.28	1.88	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
535	38.94	2.16	0.28	1.88	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
536	39.03	2.17	0.28	1.88	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
537	39.13	2.17	0.28	1.89	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
538	39.23	2.18	0.29	1.89	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
539	39.35	2.19	0.29	1.89	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
540	39.42	2.19	0.29	1.90	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
541	39.51	2.20	0.30	1.90	0.86	0.270	1.68	0.160	0.89	1.10	0.198	No
542	39.60	2.20	0.30	1.90	0.85	0.270	1.68	0.160	0.89	1.10	0.199	No
543	39.70	2.21	0.30	1.91	0.85	0.270	1.68	0.161	0.89	1.10	0.199	No
544	39.78	2.21	0.31	1.91	0.85	0.270	1.68	0.161	0.89	1.10	0.199	No
545	39.90	2.22	0.31	1.91	0.85	0.270	1.68	0.161	0.89	1.10	0.199	No
546	39.99	2.23	0.31	1.92	0.85	0.270	1.68	0.161	0.89	1.10	0.199	No
547	40.09	2.23	0.31	1.92	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
548	40.18	2.24	0.32	1.92	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
549	40.23	2.24	0.32	1.92	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
550	40.33	2.25	0.32	1.93	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
551	40.43	2.26	0.33	1.93	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
552	40.52	2.26	0.33	1.93	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
553	40.61	2.27	0.33	1.94	0.85	0.270	1.68	0.161	0.89	1.10	2.000	Yes
554	40.69	2.27	0.33	1.94	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
555	40.80	2.28	0.34	1.94	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
556	40.87	2.28	0.34	1.94	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
557	40.95	2.29	0.34	1.95	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
558	40.97	2.29	0.34	1.95	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
559	41.01	2.29	0.34	1.95	0.84	0.270	1.68	0.161	0.89	1.10	2.000	Yes
560	41.07	2.30	0.35	1.95	0.84	0.270	1.68	0.161	0.88	1.10	2.000	Yes
561	41.15	2.30	0.35	1.95	0.84	0.270	1.68	0.161	0.88	1.10	2.000	Yes
562	41.26	2.31	0.35	1.96	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
563	41.35	2.31	0.35	1.96	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
564	41.47	2.32	0.36	1.96	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
565	41.59	2.33	0.36	1.97	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
566	41.69	2.33	0.36	1.97	0.84	0.270	1.68	0.161	0.88	1.10	0.200	No
567	41.78	2.34	0.37	1.97	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
568	41.88	2.34	0.37	1.97	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
569	41.98	2.35	0.37	1.98	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
570	42.08	2.36	0.38	1.98	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
571	42.16	2.36	0.38	1.98	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
572	42.24	2.37	0.38	1.98	0.83	0.270	1.68	0.161	0.88	1.10	0.200	No
573	42.31	2.37	0.38	1.99	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
574	42.45	2.38	0.39	1.99	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
575	42.55	2.38	0.39	1.99	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
576	42.60	2.39	0.39	1.99	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	42.70	2.39	0.40	2.00	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
578	42.81	2.40	0.40	2.00	0.83	0.270	1.68	0.161	0.88	1.10	0.201	No
579	42.89	2.41	0.40	2.00	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
580	42.98	2.41	0.41	2.01	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
581	43.08	2.42	0.41	2.01	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
582	43.17	2.42	0.41	2.01	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
583	43.27	2.43	0.41	2.01	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
584	43.37	2.43	0.42	2.02	0.82	0.270	1.68	0.161	0.88	1.10	0.201	No
585	43.50	2.44	0.42	2.02	0.82	0.270	1.68	0.160	0.88	1.10	0.201	No
586	43.61	2.45	0.42	2.02	0.82	0.270	1.68	0.160	0.88	1.10	0.201	No
587	43.74	2.46	0.43	2.03	0.82	0.270	1.68	0.160	0.88	1.10	0.201	No
588	43.79	2.46	0.43	2.03	0.82	0.270	1.68	0.160	0.88	1.10	0.201	No
589	43.86	2.46	0.43	2.03	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
590	43.94	2.47	0.43	2.03	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
591	44.00	2.47	0.44	2.04	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
592	44.08	2.48	0.44	2.04	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
593	44.17	2.48	0.44	2.04	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
594	44.27	2.49	0.45	2.04	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
595	44.42	2.50	0.45	2.05	0.81	0.270	1.68	0.160	0.88	1.10	0.201	No
596	44.52	2.50	0.45	2.05	0.81	0.269	1.68	0.160	0.88	1.10	0.201	No
597	44.61	2.51	0.46	2.05	0.81	0.269	1.68	0.160	0.88	1.10	0.201	No
598	44.71	2.51	0.46	2.06	0.81	0.269	1.68	0.160	0.88	1.10	0.201	No
599	44.85	2.52	0.46	2.06	0.81	0.269	1.68	0.160	0.88	1.10	0.201	No
600	44.95	2.53	0.47	2.06	0.80	0.269	1.68	0.160	0.88	1.10	0.201	No
601	45.09	2.54	0.47	2.07	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
602	45.19	2.54	0.47	2.07	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
603	45.33	2.55	0.48	2.07	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
604	45.42	2.56	0.48	2.08	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
605	45.57	2.57	0.49	2.08	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
606	45.68	2.57	0.49	2.08	0.80	0.269	1.68	0.160	0.87	1.10	0.201	No
607	45.81	2.58	0.49	2.09	0.80	0.268	1.68	0.160	0.87	1.10	0.201	No
608	45.92	2.59	0.50	2.09	0.79	0.268	1.68	0.160	0.87	1.10	0.201	No
609	46.05	2.59	0.50	2.09	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
610	46.16	2.60	0.50	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
611	46.17	2.60	0.50	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
612	46.23	2.60	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
613	46.29	2.61	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
614	46.34	2.61	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
615	46.42	2.62	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
616	46.48	2.62	0.51	2.10	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
617	46.52	2.62	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
618	46.60	2.63	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
619	46.67	2.63	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
620	46.74	2.63	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
621	46.82	2.64	0.52	2.11	0.79	0.268	1.68	0.159	0.87	1.10	0.201	No
622	46.88	2.64	0.53	2.11	0.78	0.268	1.68	0.159	0.87	1.10	0.201	No
623	46.96	2.64	0.53	2.12	0.78	0.268	1.68	0.159	0.87	1.10	0.201	No
624	47.06	2.65	0.53	2.12	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	47.15	2.65	0.54	2.12	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
626	47.24	2.66	0.54	2.12	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
627	47.35	2.67	0.54	2.12	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
628	47.49	2.67	0.55	2.13	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
629	47.58	2.68	0.55	2.13	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
630	47.73	2.69	0.55	2.13	0.78	0.267	1.68	0.159	0.87	1.10	0.201	No
631	47.83	2.69	0.56	2.14	0.77	0.267	1.68	0.158	0.87	1.10	0.201	No
632	47.87	2.70	0.56	2.14	0.77	0.267	1.68	0.158	0.87	1.10	0.201	No
633	47.89	2.70	0.56	2.14	0.77	0.267	1.68	0.158	0.87	1.10	0.201	No
634	47.94	2.70	0.56	2.14	0.77	0.267	1.68	0.158	0.87	1.10	0.201	No
635	48.02	2.70	0.56	2.14	0.77	0.266	1.68	0.158	0.87	1.10	0.201	No
636	48.07	2.71	0.56	2.14	0.77	0.266	1.68	0.158	0.87	1.10	0.201	No
637	48.12	2.71	0.57	2.14	0.77	0.266	1.68	0.158	0.87	1.10	0.201	No
638	48.18	2.71	0.57	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.201	No
639	48.26	2.72	0.57	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
640	48.31	2.72	0.57	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
641	48.38	2.72	0.57	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
642	48.46	2.73	0.58	2.15	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
643	48.52	2.73	0.58	2.16	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
644	48.60	2.74	0.58	2.16	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
645	48.68	2.74	0.58	2.16	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
646	48.74	2.75	0.58	2.16	0.77	0.266	1.68	0.158	0.87	1.10	0.200	No
647	48.82	2.75	0.59	2.16	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
648	48.89	2.75	0.59	2.16	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
649	48.99	2.76	0.59	2.17	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
650	49.05	2.76	0.59	2.17	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
651	49.12	2.77	0.60	2.17	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
652	49.18	2.77	0.60	2.17	0.76	0.265	1.68	0.158	0.87	1.10	0.200	No
653	49.27	2.77	0.60	2.17	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
654	49.32	2.78	0.60	2.17	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
655	49.42	2.78	0.61	2.18	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
656	49.48	2.78	0.61	2.18	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
657	49.56	2.79	0.61	2.18	0.76	0.265	1.68	0.157	0.87	1.10	0.200	No
658	49.66	2.79	0.61	2.18	0.76	0.264	1.68	0.157	0.87	1.10	0.200	No
659	49.76	2.80	0.62	2.18	0.76	0.264	1.68	0.157	0.87	1.10	0.200	No
660	49.85	2.80	0.62	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
661	49.99	2.81	0.62	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
662	50.09	2.82	0.63	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
663	50.21	2.82	0.63	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
664	50.24	2.82	0.63	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
665	50.29	2.83	0.63	2.19	0.75	0.264	1.68	0.157	0.86	1.10	0.200	No
666	50.38	2.83	0.64	2.20	0.75	0.264	1.68	0.157	0.86	1.10	0.199	No
667	50.47	2.84	0.64	2.20	0.75	0.264	1.68	0.157	0.86	1.10	0.199	No
668	50.52	2.84	0.64	2.20	0.75	0.263	1.68	0.157	0.86	1.10	0.199	No
669	50.62	2.84	0.64	2.20	0.75	0.263	1.68	0.157	0.86	1.10	0.199	No
670	50.66	2.85	0.64	2.20	0.75	0.263	1.68	0.156	0.86	1.10	0.199	No
671	50.76	2.85	0.65	2.20	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
672	50.83	2.85	0.65	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	50.91	2.86	0.65	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
674	51.00	2.86	0.66	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
675	51.06	2.87	0.66	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
676	51.15	2.87	0.66	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
677	51.24	2.88	0.66	2.21	0.74	0.263	1.68	0.156	0.86	1.10	0.199	No
678	51.31	2.88	0.67	2.22	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
679	51.39	2.89	0.67	2.22	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
680	51.48	2.89	0.67	2.22	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
681	51.58	2.90	0.67	2.22	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
682	51.68	2.90	0.68	2.23	0.74	0.262	1.68	0.156	0.86	1.10	0.199	No
683	51.77	2.91	0.68	2.23	0.73	0.262	1.68	0.156	0.86	1.10	0.199	No
684	51.90	2.92	0.68	2.23	0.73	0.262	1.68	0.155	0.86	1.10	0.199	No
685	52.01	2.92	0.69	2.24	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
686	52.11	2.93	0.69	2.24	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
687	52.26	2.94	0.69	2.24	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
688	52.30	2.94	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
689	52.33	2.94	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
690	52.35	2.95	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
691	52.40	2.95	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
692	52.45	2.95	0.70	2.25	0.73	0.261	1.68	0.155	0.86	1.10	2.000	Yes
693	52.50	2.96	0.70	2.25	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
694	52.55	2.96	0.70	2.26	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
695	52.60	2.96	0.71	2.26	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
696	52.65	2.97	0.71	2.26	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
697	52.71	2.97	0.71	2.26	0.73	0.260	1.68	0.155	0.86	1.10	0.198	No
698	52.77	2.97	0.71	2.26	0.72	0.260	1.68	0.155	0.86	1.10	0.198	No
699	52.82	2.98	0.71	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
700	52.88	2.98	0.71	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
701	52.93	2.99	0.72	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
702	52.98	2.99	0.72	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
703	53.03	2.99	0.72	2.27	0.72	0.260	1.68	0.154	0.86	1.10	0.198	No
704	53.08	2.99	0.72	2.27	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
705	53.12	3.00	0.72	2.28	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
706	53.17	3.00	0.72	2.28	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
707	53.23	3.01	0.72	2.28	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
708	53.28	3.01	0.73	2.28	0.72	0.259	1.68	0.154	0.86	1.10	0.198	No
709	53.37	3.01	0.73	2.29	0.72	0.259	1.68	0.154	0.86	1.10	0.197	No
710	53.42	3.02	0.73	2.29	0.72	0.259	1.68	0.154	0.86	1.10	0.197	No
711	53.46	3.02	0.73	2.29	0.72	0.259	1.68	0.154	0.86	1.10	0.197	No
712	53.53	3.03	0.73	2.29	0.72	0.259	1.68	0.154	0.86	1.10	0.197	No
713	53.61	3.03	0.74	2.29	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
714	53.62	3.03	0.74	2.30	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
715	53.65	3.03	0.74	2.30	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
716	53.67	3.04	0.74	2.30	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
717	53.70	3.04	0.74	2.30	0.72	0.258	1.68	0.154	0.86	1.10	0.197	No
718	53.74	3.04	0.74	2.30	0.72	0.258	1.68	0.153	0.86	1.10	0.197	No
719	53.76	3.04	0.74	2.30	0.72	0.258	1.68	0.153	0.86	1.10	0.197	No
720	53.80	3.04	0.74	2.30	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	53.84	3.05	0.74	2.30	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
722	53.90	3.05	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
723	53.91	3.05	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
724	53.95	3.05	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
725	53.96	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
726	53.98	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
727	53.99	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
728	54.01	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
729	54.02	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
730	54.03	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
731	54.04	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
732	54.05	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
733	54.09	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
734	54.10	3.06	0.75	2.31	0.71	0.258	1.68	0.153	0.86	1.10	0.197	No
735	54.13	3.07	0.75	2.31	0.71	0.257	1.68	0.153	0.86	1.10	0.197	No
736	54.14	3.07	0.75	2.31	0.71	0.257	1.68	0.153	0.86	1.10	0.197	No
737	54.19	3.07	0.75	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
738	54.19	3.07	0.75	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
739	54.24	3.07	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
740	54.29	3.08	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
741	54.33	3.08	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
742	54.38	3.08	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
743	54.39	3.09	0.76	2.32	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
744	54.43	3.09	0.76	2.33	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
745	54.48	3.09	0.76	2.33	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
746	54.52	3.09	0.77	2.33	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
747	54.58	3.10	0.77	2.33	0.71	0.257	1.68	0.153	0.85	1.10	0.197	No
748	54.62	3.10	0.77	2.33	0.71	0.257	1.68	0.152	0.85	1.10	0.196	No
749	54.65	3.10	0.77	2.33	0.71	0.257	1.68	0.152	0.85	1.10	0.196	No
750	54.67	3.10	0.77	2.33	0.71	0.256	1.68	0.152	0.85	1.10	0.196	No
751	54.71	3.11	0.77	2.34	0.71	0.256	1.68	0.152	0.85	1.10	0.196	No
752	54.77	3.11	0.77	2.34	0.71	0.256	1.68	0.152	0.85	1.10	0.196	No
753	54.81	3.11	0.77	2.34	0.71	0.256	1.68	0.152	0.85	1.10	0.196	No
754	54.85	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
755	54.86	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
756	54.87	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
757	54.91	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
758	54.96	3.12	0.78	2.34	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
759	55.00	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
760	55.01	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
761	55.05	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
762	55.10	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
763	55.12	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
764	55.13	3.13	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
765	55.14	3.14	0.78	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
766	55.19	3.14	0.79	2.35	0.70	0.256	1.68	0.152	0.85	1.10	0.196	No
767	55.20	3.14	0.79	2.35	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
768	55.25	3.14	0.79	2.35	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	55.29	3.14	0.79	2.36	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
770	55.33	3.15	0.79	2.36	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
771	55.38	3.15	0.79	2.36	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
772	55.48	3.16	0.80	2.36	0.70	0.255	1.68	0.152	0.85	1.10	0.196	No
773	55.57	3.16	0.80	2.37	0.70	0.255	1.68	0.151	0.85	1.10	0.196	No
774	55.63	3.17	0.80	2.37	0.70	0.255	1.68	0.151	0.85	1.10	0.196	No
775	55.72	3.17	0.80	2.37	0.70	0.255	1.68	0.151	0.85	1.10	0.196	No
776	55.80	3.18	0.80	2.37	0.70	0.254	1.68	0.151	0.85	1.10	0.195	No
777	55.86	3.18	0.81	2.38	0.70	0.254	1.68	0.151	0.85	1.10	0.195	No
778	55.97	3.19	0.81	2.38	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
779	56.01	3.19	0.81	2.38	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
780	56.06	3.20	0.81	2.38	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
781	56.11	3.20	0.81	2.39	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
782	56.15	3.20	0.82	2.39	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
783	56.20	3.21	0.82	2.39	0.69	0.254	1.68	0.151	0.85	1.10	0.195	No
784	56.27	3.21	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
785	56.27	3.21	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
786	56.30	3.21	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
787	56.33	3.22	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
788	56.35	3.22	0.82	2.39	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
789	56.40	3.22	0.82	2.40	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
790	56.41	3.22	0.82	2.40	0.69	0.253	1.68	0.151	0.85	1.10	0.195	No
791	56.44	3.22	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
792	56.49	3.23	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
793	56.54	3.23	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
794	56.58	3.23	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
795	56.59	3.23	0.83	2.40	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
796	56.64	3.24	0.83	2.41	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
797	56.69	3.24	0.83	2.41	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
798	56.73	3.24	0.83	2.41	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
799	56.78	3.25	0.84	2.41	0.69	0.253	1.68	0.150	0.85	1.10	0.195	No
800	56.83	3.25	0.84	2.41	0.69	0.252	1.68	0.150	0.85	1.10	0.195	No
801	56.88	3.25	0.84	2.41	0.69	0.252	1.68	0.150	0.85	1.10	0.195	No
802	56.89	3.25	0.84	2.42	0.69	0.252	1.68	0.150	0.85	1.10	0.195	No
803	56.95	3.26	0.84	2.42	0.69	0.252	1.68	0.150	0.85	1.10	0.195	No
804	57.01	3.26	0.84	2.42	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
805	57.07	3.27	0.84	2.42	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
806	57.11	3.27	0.85	2.42	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
807	57.17	3.27	0.85	2.43	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
808	57.26	3.28	0.85	2.43	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
809	57.31	3.28	0.85	2.43	0.68	0.252	1.68	0.150	0.85	1.10	0.194	No
810	57.37	3.29	0.85	2.43	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
811	57.45	3.29	0.86	2.43	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
812	57.51	3.30	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
813	57.53	3.30	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
814	57.59	3.30	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
815	57.63	3.30	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
816	57.68	3.31	0.86	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	57.73	3.31	0.87	2.44	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
818	57.78	3.31	0.87	2.45	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
819	57.86	3.32	0.87	2.45	0.68	0.251	1.68	0.149	0.85	1.10	0.194	No
820	57.92	3.32	0.87	2.45	0.68	0.250	1.68	0.149	0.85	1.10	2.000	Yes
821	57.98	3.33	0.87	2.45	0.68	0.250	1.68	0.149	0.85	1.10	2.000	Yes
822	58.06	3.33	0.88	2.45	0.68	0.250	1.68	0.149	0.85	1.10	2.000	Yes
823	58.12	3.33	0.88	2.46	0.68	0.250	1.68	0.149	0.84	1.10	2.000	Yes
824	58.21	3.34	0.88	2.46	0.67	0.250	1.68	0.149	0.84	1.10	2.000	Yes
825	58.26	3.34	0.88	2.46	0.67	0.250	1.68	0.149	0.84	1.10	2.000	Yes
826	58.35	3.35	0.88	2.46	0.67	0.250	1.68	0.148	0.84	1.10	2.000	Yes
827	58.41	3.35	0.89	2.47	0.67	0.250	1.68	0.148	0.84	1.10	2.000	Yes
828	58.50	3.36	0.89	2.47	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
829	58.56	3.36	0.89	2.47	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
830	58.64	3.37	0.89	2.47	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
831	58.73	3.37	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
832	58.80	3.38	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
833	58.84	3.38	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	2.000	Yes
834	58.85	3.38	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	0.193	No
835	58.93	3.38	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	0.193	No
836	58.98	3.39	0.90	2.48	0.67	0.249	1.68	0.148	0.84	1.10	0.193	No
837	59.02	3.39	0.91	2.48	0.67	0.249	1.68	0.148	0.84	1.10	0.193	No
838	59.12	3.40	0.91	2.49	0.67	0.248	1.68	0.148	0.84	1.10	0.193	No
839	59.17	3.40	0.91	2.49	0.67	0.248	1.68	0.148	0.84	1.10	0.193	No
840	59.27	3.40	0.91	2.49	0.67	0.248	1.68	0.148	0.84	1.10	0.193	No
841	59.31	3.41	0.91	2.49	0.66	0.248	1.68	0.147	0.84	1.10	0.193	No
842	59.41	3.41	0.92	2.50	0.66	0.248	1.68	0.147	0.84	1.10	0.192	No
843	59.46	3.42	0.92	2.50	0.66	0.248	1.68	0.147	0.84	1.10	0.192	No
844	59.55	3.42	0.92	2.50	0.66	0.248	1.68	0.147	0.84	1.10	0.192	No
845	59.65	3.43	0.93	2.50	0.66	0.248	1.68	0.147	0.84	1.10	0.192	No
846	59.70	3.43	0.93	2.50	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
847	59.80	3.44	0.93	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
848	59.89	3.44	0.93	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
849	59.94	3.44	0.93	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
850	60.01	3.45	0.94	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
851	60.02	3.45	0.94	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
852	60.08	3.45	0.94	2.51	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
853	60.12	3.46	0.94	2.52	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
854	60.17	3.46	0.94	2.52	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
855	60.27	3.46	0.94	2.52	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
856	60.31	3.47	0.95	2.52	0.66	0.247	1.68	0.147	0.84	1.10	0.192	No
857	60.37	3.47	0.95	2.52	0.66	0.246	1.68	0.146	0.84	1.10	0.192	No
858	60.46	3.47	0.95	2.52	0.66	0.246	1.68	0.146	0.84	1.10	0.192	No
859	60.51	3.48	0.95	2.53	0.66	0.246	1.68	0.146	0.84	1.10	0.192	No
860	60.61	3.48	0.95	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.192	No
861	60.65	3.49	0.96	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.192	No
862	60.75	3.49	0.96	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No
863	60.81	3.49	0.96	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No
864	60.89	3.50	0.96	2.53	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	60.94	3.50	0.97	2.54	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No
866	61.03	3.51	0.97	2.54	0.65	0.246	1.68	0.146	0.84	1.10	0.191	No
867	61.09	3.51	0.97	2.54	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
868	61.19	3.51	0.97	2.54	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
869	61.24	3.52	0.97	2.54	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
870	61.33	3.52	0.98	2.54	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
871	61.38	3.52	0.98	2.55	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
872	61.47	3.53	0.98	2.55	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
873	61.53	3.53	0.98	2.55	0.65	0.245	1.68	0.146	0.84	1.10	0.191	No
874	61.62	3.54	0.99	2.55	0.65	0.245	1.68	0.145	0.84	1.10	0.191	No
875	61.70	3.54	0.99	2.55	0.65	0.245	1.68	0.145	0.84	1.10	0.191	No
876	61.77	3.55	0.99	2.56	0.65	0.244	1.68	0.145	0.84	1.10	0.191	No
877	61.86	3.55	0.99	2.56	0.64	0.244	1.68	0.145	0.84	1.10	0.191	No
878	61.95	3.56	1.00	2.56	0.64	0.244	1.68	0.145	0.84	1.10	0.191	No
879	61.97	3.56	1.00	2.56	0.64	0.244	1.68	0.145	0.84	1.10	0.191	No
880	62.01	3.56	1.00	2.56	0.64	0.244	1.68	0.145	0.84	1.10	2.000	No
881	62.10	3.57	1.00	2.57	0.64	0.244	1.68	0.145	0.84	1.10	2.000	Yes
882	62.24	3.58	1.01	2.57	0.64	0.244	1.68	0.145	0.84	1.10	2.000	Yes
883	62.34	3.58	1.01	2.57	0.64	0.244	1.68	0.145	0.84	1.10	2.000	Yes
884	62.49	3.59	1.01	2.58	0.64	0.243	1.68	0.145	0.84	1.10	2.000	Yes
885	62.54	3.60	1.02	2.58	0.64	0.243	1.68	0.145	0.84	1.10	2.000	Yes
886	62.66	3.60	1.02	2.58	0.64	0.243	1.68	0.144	0.84	1.10	2.000	Yes
887	62.74	3.61	1.02	2.59	0.64	0.243	1.68	0.144	0.84	1.10	2.000	Yes
888	62.87	3.62	1.03	2.59	0.64	0.243	1.68	0.144	0.84	1.10	2.000	No
889	62.92	3.62	1.03	2.59	0.64	0.243	1.68	0.144	0.84	1.10	2.000	No
890	63.03	3.63	1.03	2.60	0.64	0.243	1.68	0.144	0.84	1.10	2.000	No
891	63.15	3.63	1.03	2.60	0.63	0.242	1.68	0.144	0.84	1.10	2.000	No
892	63.26	3.64	1.04	2.60	0.63	0.242	1.68	0.144	0.84	1.10	2.000	No
893	63.37	3.65	1.04	2.61	0.63	0.242	1.68	0.144	0.83	1.10	2.000	No
894	63.45	3.65	1.04	2.61	0.63	0.242	1.68	0.144	0.83	1.10	2.000	No
895	63.54	3.66	1.05	2.61	0.63	0.242	1.68	0.144	0.83	1.10	2.000	No
896	63.61	3.66	1.05	2.61	0.63	0.242	1.68	0.144	0.83	1.10	2.000	Yes
897	63.69	3.67	1.05	2.62	0.63	0.241	1.68	0.144	0.83	1.10	2.000	Yes
898	63.79	3.67	1.05	2.62	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
899	63.89	3.68	1.06	2.62	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
900	63.98	3.69	1.06	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
901	64.07	3.69	1.06	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
902	64.15	3.70	1.07	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	Yes
903	64.23	3.70	1.07	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	No
904	64.26	3.70	1.07	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	No
905	64.29	3.70	1.07	2.63	0.63	0.241	1.68	0.143	0.83	1.10	2.000	No
906	64.33	3.71	1.07	2.64	0.63	0.241	1.68	0.143	0.83	1.10	2.000	No
907	64.43	3.71	1.07	2.64	0.63	0.240	1.68	0.143	0.83	1.10	2.000	No
908	64.47	3.71	1.08	2.64	0.63	0.240	1.68	0.143	0.83	1.10	2.000	No
909	64.53	3.72	1.08	2.64	0.63	0.240	1.68	0.143	0.83	1.10	2.000	No
910	64.62	3.72	1.08	2.64	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No
911	64.72	3.73	1.08	2.64	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No
912	64.78	3.73	1.09	2.65	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	64.86	3.74	1.09	2.65	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No
914	64.96	3.74	1.09	2.65	0.62	0.240	1.68	0.143	0.83	1.10	2.000	No
915	65.06	3.75	1.09	2.65	0.62	0.240	1.68	0.142	0.83	1.10	2.000	No
916	65.11	3.75	1.10	2.65	0.62	0.240	1.68	0.142	0.83	1.10	2.000	No
917	65.21	3.76	1.10	2.66	0.62	0.240	1.68	0.142	0.83	1.10	2.000	No
918	65.31	3.76	1.10	2.66	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
919	65.40	3.77	1.10	2.66	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
920	65.50	3.77	1.11	2.66	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
921	65.58	3.78	1.11	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
922	65.68	3.78	1.11	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
923	65.78	3.79	1.12	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
924	65.84	3.79	1.12	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
925	65.86	3.79	1.12	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
926	65.87	3.79	1.12	2.67	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
927	65.98	3.80	1.12	2.68	0.62	0.239	1.68	0.142	0.83	1.10	2.000	No
928	66.10	3.80	1.13	2.68	0.61	0.238	1.68	0.142	0.83	1.10	2.000	No
929	66.21	3.81	1.13	2.68	0.61	0.238	1.68	0.142	0.83	1.10	2.000	No
930	66.34	3.82	1.13	2.68	0.61	0.238	1.68	0.142	0.83	1.10	2.000	No
931	66.48	3.83	1.14	2.69	0.61	0.238	1.68	0.141	0.83	1.10	2.000	No
932	66.62	3.83	1.14	2.69	0.61	0.238	1.68	0.141	0.83	1.10	2.000	No
933	66.68	3.84	1.14	2.69	0.61	0.238	1.68	0.141	0.83	1.10	2.000	No
934	66.87	3.85	1.15	2.70	0.61	0.238	1.68	0.141	0.83	1.10	2.000	No
935	66.96	3.85	1.15	2.70	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
936	67.11	3.86	1.16	2.70	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
937	67.21	3.87	1.16	2.71	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
938	67.35	3.87	1.17	2.71	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
939	67.45	3.88	1.17	2.71	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
940	67.59	3.89	1.17	2.72	0.61	0.237	1.68	0.141	0.83	1.10	2.000	No
941	67.68	3.89	1.18	2.72	0.61	0.237	1.68	0.141	0.83	1.10	2.000	Yes
942	67.83	3.90	1.18	2.72	0.60	0.236	1.68	0.141	0.83	1.10	2.000	Yes
943	67.92	3.91	1.18	2.73	0.60	0.236	1.68	0.140	0.83	1.10	2.000	Yes
944	68.02	3.92	1.19	2.73	0.60	0.236	1.68	0.140	0.83	1.10	2.000	Yes
945	68.07	3.92	1.19	2.73	0.60	0.236	1.68	0.140	0.83	1.10	2.000	Yes
946	68.16	3.93	1.19	2.73	0.60	0.236	1.68	0.140	0.83	1.10	2.000	No
947	68.26	3.93	1.19	2.74	0.60	0.236	1.68	0.140	0.83	1.10	2.000	No
948	68.35	3.94	1.20	2.74	0.60	0.236	1.68	0.140	0.83	1.10	2.000	No
949	68.45	3.94	1.20	2.74	0.60	0.236	1.68	0.140	0.83	1.10	2.000	No
950	68.55	3.95	1.20	2.75	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
951	68.65	3.96	1.21	2.75	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
952	68.78	3.97	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
953	68.78	3.97	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
954	68.79	3.97	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
955	68.83	3.97	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
956	68.93	3.98	1.21	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
957	68.98	3.98	1.22	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
958	69.04	3.98	1.22	2.76	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
959	69.12	3.99	1.22	2.77	0.60	0.235	1.68	0.140	0.83	1.10	2.000	No
960	69.22	3.99	1.22	2.77	0.60	0.235	1.68	0.139	0.82	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	69.28	4.00	1.23	2.77	0.60	0.235	1.68	0.139	0.82	1.10	2.000	No
962	69.36	4.00	1.23	2.77	0.60	0.234	1.68	0.139	0.82	1.10	2.000	No
963	69.45	4.01	1.23	2.78	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
964	69.60	4.02	1.24	2.78	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
965	69.70	4.02	1.24	2.79	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
966	69.80	4.03	1.24	2.79	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
967	69.89	4.04	1.24	2.79	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
968	69.98	4.04	1.25	2.79	0.59	0.234	1.68	0.139	0.82	1.10	2.000	No
969	70.08	4.05	1.25	2.80	0.59	0.234	1.68	0.139	0.82	1.10	2.000	Yes
970	70.18	4.05	1.25	2.80	0.59	0.234	1.68	0.139	0.82	1.10	2.000	Yes
971	70.32	4.06	1.26	2.80	0.59	0.233	1.68	0.139	0.82	1.10	2.000	Yes
972	70.42	4.07	1.26	2.81	0.59	0.233	1.68	0.139	0.82	1.10	2.000	Yes
973	70.54	4.08	1.26	2.81	0.59	0.233	1.68	0.139	0.82	1.10	2.000	Yes
974	70.66	4.08	1.27	2.81	0.59	0.233	1.68	0.139	0.82	1.10	2.000	No
975	70.75	4.09	1.27	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
976	70.80	4.09	1.27	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
977	70.89	4.10	1.28	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
978	70.99	4.10	1.28	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
979	71.08	4.11	1.28	2.82	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
980	71.17	4.11	1.28	2.83	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
981	71.23	4.11	1.29	2.83	0.59	0.233	1.68	0.138	0.82	1.10	2.000	No
982	71.33	4.12	1.29	2.83	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
983	71.42	4.12	1.29	2.83	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
984	71.52	4.13	1.30	2.83	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
985	71.58	4.13	1.30	2.83	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
986	71.67	4.14	1.30	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
987	71.81	4.14	1.30	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
988	71.82	4.14	1.30	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
989	71.86	4.15	1.31	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
990	71.91	4.15	1.31	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
991	71.97	4.15	1.31	2.84	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
992	72.05	4.16	1.31	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
993	72.10	4.16	1.31	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
994	72.20	4.17	1.32	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
995	72.25	4.17	1.32	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
996	72.34	4.17	1.32	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
997	72.44	4.18	1.32	2.85	0.58	0.232	1.68	0.138	0.82	1.10	2.000	No
998	72.53	4.18	1.33	2.86	0.58	0.231	1.68	0.138	0.82	1.10	2.000	No
999	72.63	4.19	1.33	2.86	0.58	0.231	1.68	0.138	0.82	1.10	2.000	No
1000	72.69	4.19	1.33	2.86	0.58	0.231	1.68	0.138	0.82	1.10	2.000	No
1001	72.82	4.20	1.34	2.86	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1002	72.92	4.20	1.34	2.87	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1003	73.06	4.21	1.34	2.87	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1004	73.16	4.22	1.35	2.87	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1005	73.30	4.23	1.35	2.87	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1006	73.35	4.23	1.35	2.88	0.58	0.231	1.68	0.137	0.82	1.10	2.000	No
1007	73.38	4.23	1.35	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1008	73.47	4.24	1.36	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	73.53	4.24	1.36	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1010	73.62	4.24	1.36	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1011	73.71	4.25	1.36	2.88	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1012	73.77	4.25	1.37	2.89	0.57	0.231	1.68	0.137	0.82	1.10	2.000	No
1013	73.86	4.26	1.37	2.89	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1014	73.96	4.26	1.37	2.89	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1015	74.06	4.27	1.37	2.89	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1016	74.13	4.27	1.38	2.90	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1017	74.24	4.28	1.38	2.90	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1018	74.34	4.28	1.38	2.90	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1019	74.44	4.29	1.39	2.90	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1020	74.58	4.30	1.39	2.91	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1021	74.68	4.30	1.39	2.91	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1022	74.80	4.31	1.40	2.91	0.57	0.230	1.68	0.137	0.82	1.10	2.000	No
1023	74.92	4.32	1.40	2.91	0.57	0.230	1.68	0.136	0.82	1.10	2.000	No
1024	75.07	4.32	1.41	2.92	0.57	0.230	1.68	0.136	0.82	1.10	2.000	No
1025	75.08	4.32	1.41	2.92	0.57	0.230	1.68	0.136	0.82	1.10	2.000	No
1026	75.11	4.33	1.41	2.92	0.57	0.230	1.68	0.136	0.82	1.10	2.000	No
1027	75.16	4.33	1.41	2.92	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1028	75.25	4.33	1.41	2.92	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1029	75.32	4.34	1.41	2.92	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1030	75.40	4.34	1.42	2.93	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1031	75.50	4.35	1.42	2.93	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1032	75.59	4.35	1.42	2.93	0.57	0.229	1.68	0.136	0.82	1.10	2.000	No
1033	75.69	4.36	1.43	2.93	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1034	75.78	4.36	1.43	2.93	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1035	75.88	4.37	1.43	2.94	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1036	75.96	4.37	1.43	2.94	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1037	76.05	4.38	1.44	2.94	0.56	0.229	1.68	0.136	0.82	1.10	2.000	No
1038	76.14	4.38	1.44	2.94	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1039	76.26	4.39	1.44	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1040	76.36	4.39	1.45	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1041	76.41	4.40	1.45	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1042	76.51	4.40	1.45	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1043	76.65	4.41	1.46	2.95	0.56	0.229	1.68	0.136	0.81	1.10	2.000	No
1044	76.72	4.41	1.46	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1045	76.79	4.42	1.46	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1046	76.89	4.42	1.46	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1047	76.98	4.43	1.47	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1048	77.08	4.43	1.47	2.96	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1049	77.18	4.44	1.47	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1050	77.28	4.44	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1051	77.37	4.45	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1052	77.42	4.45	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1053	77.42	4.45	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1054	77.44	4.45	1.48	2.97	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1055	77.48	4.46	1.48	2.98	0.56	0.228	1.68	0.136	0.81	1.10	2.000	No
1056	77.52	4.46	1.48	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1057	77.54	4.46	1.48	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1058	77.57	4.46	1.48	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1059	77.62	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1060	77.65	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1061	77.67	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1062	77.71	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1063	77.71	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1064	77.76	4.47	1.49	2.98	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1065	77.81	4.48	1.49	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1066	77.90	4.48	1.49	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1067	77.95	4.49	1.50	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1068	78.01	4.49	1.50	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1069	78.10	4.49	1.50	2.99	0.56	0.228	1.68	0.135	0.81	1.10	2.000	No
1070	78.16	4.50	1.50	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1071	78.24	4.50	1.51	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1072	78.29	4.51	1.51	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1073	78.39	4.51	1.51	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1074	78.47	4.52	1.51	3.00	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1075	78.53	4.52	1.51	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1076	78.62	4.53	1.52	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1077	78.68	4.53	1.52	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1078	78.69	4.53	1.52	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1079	78.78	4.54	1.52	3.01	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1080	78.81	4.54	1.52	3.02	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1081	78.92	4.55	1.53	3.02	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1082	79.03	4.55	1.53	3.02	0.55	0.227	1.68	0.135	0.81	1.10	2.000	No
1083	79.16	4.56	1.53	3.03	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1084	79.26	4.57	1.54	3.03	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1085	79.35	4.57	1.54	3.03	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1086	79.45	4.58	1.54	3.04	0.55	0.227	1.68	0.135	0.81	1.10	2.000	Yes
1087	79.54	4.58	1.55	3.04	0.55	0.226	1.68	0.135	0.81	1.10	2.000	No
1088	79.64	4.59	1.55	3.04	0.55	0.226	1.68	0.135	0.81	1.10	2.000	No
1089	79.74	4.60	1.55	3.05	0.55	0.226	1.68	0.135	0.81	1.10	2.000	No
1090	79.88	4.61	1.56	3.05	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1091	79.98	4.61	1.56	3.05	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1092	80.12	4.62	1.56	3.06	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1093	80.22	4.63	1.57	3.06	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1094	80.36	4.64	1.57	3.07	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1095	80.46	4.64	1.57	3.07	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1096	80.60	4.65	1.58	3.07	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1097	80.70	4.66	1.58	3.08	0.55	0.226	1.68	0.134	0.81	1.10	2.000	No
1098	80.83	4.67	1.59	3.08	0.55	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1099	80.94	4.67	1.59	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1100	81.01	4.68	1.59	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1101	81.04	4.68	1.59	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1102	81.09	4.68	1.59	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1103	81.13	4.69	1.60	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1104	81.18	4.69	1.60	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1105	81.23	4.69	1.60	3.09	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1106	81.28	4.70	1.60	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1107	81.33	4.70	1.60	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1108	81.37	4.70	1.60	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1109	81.42	4.70	1.60	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1110	81.47	4.71	1.61	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1111	81.52	4.71	1.61	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1112	81.56	4.71	1.61	3.10	0.54	0.225	1.68	0.134	0.81	1.10	2.000	Yes
1113	81.61	4.72	1.61	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1114	81.64	4.72	1.61	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1115	81.70	4.72	1.61	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1116	81.75	4.73	1.61	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1117	81.79	4.73	1.62	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1118	81.82	4.73	1.62	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1119	81.86	4.73	1.62	3.11	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1120	81.91	4.74	1.62	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1121	81.95	4.74	1.62	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1122	82.00	4.74	1.62	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1123	82.09	4.75	1.63	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1124	82.15	4.75	1.63	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1125	82.19	4.75	1.63	3.12	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1126	82.26	4.76	1.63	3.13	0.54	0.225	1.68	0.134	0.81	1.10	2.000	No
1127	82.34	4.76	1.63	3.13	0.54	0.225	1.68	0.133	0.81	1.10	2.000	No
1128	82.39	4.76	1.63	3.13	0.54	0.225	1.68	0.133	0.81	1.10	2.000	No
1129	82.48	4.77	1.64	3.13	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1130	82.58	4.77	1.64	3.13	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1131	82.62	4.78	1.64	3.13	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1132	82.70	4.78	1.64	3.14	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1133	82.77	4.78	1.65	3.14	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1134	82.87	4.79	1.65	3.14	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1135	82.96	4.80	1.65	3.14	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1136	83.06	4.80	1.66	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1137	83.16	4.81	1.66	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1138	83.25	4.81	1.66	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1139	83.34	4.82	1.66	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1140	83.44	4.82	1.67	3.15	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1141	83.54	4.83	1.67	3.16	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1142	83.64	4.83	1.67	3.16	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1143	83.73	4.84	1.68	3.16	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1144	83.83	4.84	1.68	3.16	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1145	83.85	4.85	1.68	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1146	83.89	4.85	1.68	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1147	83.94	4.85	1.68	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1148	84.04	4.86	1.69	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1149	84.09	4.86	1.69	3.17	0.54	0.224	1.68	0.133	0.80	1.10	2.000	No
1150	84.13	4.86	1.69	3.17	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1151	84.18	4.87	1.69	3.17	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1152	84.25	4.87	1.69	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1153	84.33	4.87	1.69	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1154	84.37	4.88	1.70	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1155	84.46	4.88	1.70	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1156	84.52	4.89	1.70	3.18	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1157	84.57	4.89	1.70	3.19	0.53	0.224	1.68	0.133	0.80	1.10	2.000	No
1158	84.67	4.89	1.71	3.19	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1159	84.71	4.90	1.71	3.19	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1160	84.81	4.90	1.71	3.19	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1161	84.86	4.91	1.71	3.19	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1162	84.91	4.91	1.71	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1163	85.00	4.91	1.72	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1164	85.05	4.92	1.72	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1165	85.15	4.92	1.72	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1166	85.19	4.93	1.72	3.20	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1167	85.29	4.93	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1168	85.35	4.94	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1169	85.42	4.94	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1170	85.48	4.94	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1171	85.55	4.95	1.73	3.21	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1172	85.63	4.95	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1173	85.68	4.95	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1174	85.77	4.96	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1175	85.82	4.96	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1176	85.89	4.97	1.74	3.22	0.53	0.223	1.68	0.133	0.80	1.10	2.000	No
1177	85.96	4.97	1.75	3.22	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1178	86.03	4.97	1.75	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1179	86.11	4.98	1.75	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1180	86.16	4.98	1.75	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1181	86.25	4.99	1.76	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1182	86.36	4.99	1.76	3.23	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1183	86.50	5.00	1.76	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1184	86.51	5.00	1.76	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1185	86.52	5.00	1.76	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1186	86.57	5.01	1.76	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1187	86.65	5.01	1.77	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1188	86.71	5.01	1.77	3.24	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1189	86.80	5.02	1.77	3.25	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1190	86.90	5.02	1.78	3.25	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1191	86.99	5.03	1.78	3.25	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1192	87.04	5.03	1.78	3.25	0.53	0.223	1.68	0.132	0.80	1.10	2.000	No
1193	87.14	5.04	1.78	3.25	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1194	87.19	5.04	1.78	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1195	87.28	5.04	1.79	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1196	87.38	5.05	1.79	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1197	87.43	5.05	1.79	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1198	87.52	5.06	1.79	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1199	87.61	5.06	1.80	3.26	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No
1200	87.66	5.07	1.80	3.27	0.53	0.222	1.68	0.132	0.80	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1201	87.76	5.07	1.80	3.27	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1202	87.84	5.07	1.80	3.27	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1203	87.91	5.08	1.81	3.27	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1204	88.00	5.08	1.81	3.27	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1205	88.11	5.09	1.81	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1206	88.19	5.09	1.82	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1207	88.25	5.10	1.82	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1208	88.34	5.10	1.82	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1209	88.44	5.11	1.82	3.28	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1210	88.54	5.11	1.83	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1211	88.64	5.12	1.83	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1212	88.72	5.12	1.83	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1213	88.82	5.13	1.84	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1214	88.91	5.13	1.84	3.29	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1215	89.01	5.14	1.84	3.30	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1216	89.10	5.14	1.84	3.30	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1217	89.19	5.15	1.85	3.30	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1218	89.30	5.15	1.85	3.30	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1219	89.39	5.16	1.85	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1220	89.49	5.16	1.86	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1221	89.59	5.17	1.86	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1222	89.69	5.17	1.86	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1223	89.73	5.18	1.86	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1224	89.78	5.18	1.87	3.31	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1225	89.83	5.18	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1226	89.88	5.19	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1227	89.93	5.19	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1228	90.00	5.19	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1229	90.07	5.20	1.87	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1230	90.12	5.20	1.88	3.32	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1231	90.22	5.20	1.88	3.33	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1232	90.27	5.21	1.88	3.33	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1233	90.36	5.21	1.88	3.33	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1234	90.46	5.22	1.89	3.33	0.52	0.222	1.68	0.132	0.80	1.10	2.000	No
1235	90.50	5.22	1.89	3.33	0.52	0.222	1.68	0.132	0.79	1.10	2.000	No
1236	90.61	5.23	1.89	3.34	0.52	0.222	1.68	0.132	0.79	1.10	2.000	No
1237	90.66	5.23	1.89	3.34	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1238	90.75	5.23	1.90	3.34	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1239	90.84	5.24	1.90	3.34	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1240	90.89	5.24	1.90	3.34	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1241	90.99	5.25	1.90	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1242	91.04	5.25	1.90	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1243	91.14	5.26	1.91	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1244	91.22	5.26	1.91	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1245	91.28	5.26	1.91	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1246	91.37	5.27	1.91	3.35	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1247	91.47	5.28	1.92	3.36	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No
1248	91.61	5.28	1.92	3.36	0.52	0.221	1.68	0.132	0.79	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1249	91.71	5.29	1.93	3.36	0.52	0.221	1.68	0.131	0.79	1.10	2.000	No
1250	91.81	5.29	1.93	3.37	0.52	0.221	1.68	0.131	0.79	1.10	2.000	No
1251	91.87	5.30	1.93	3.37	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1252	92.00	5.30	1.93	3.37	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1253	92.10	5.31	1.94	3.37	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1254	92.20	5.32	1.94	3.37	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1255	92.33	5.32	1.94	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1256	92.38	5.33	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1257	92.43	5.33	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1258	92.48	5.33	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1259	92.56	5.33	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1260	92.63	5.34	1.95	3.38	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1261	92.67	5.34	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1262	92.72	5.34	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1263	92.77	5.35	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1264	92.86	5.35	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1265	92.92	5.35	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1266	92.97	5.36	1.96	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1267	93.05	5.36	1.97	3.39	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1268	93.10	5.37	1.97	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1269	93.16	5.37	1.97	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1270	93.25	5.37	1.97	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1271	93.35	5.38	1.98	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1272	93.40	5.38	1.98	3.40	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1273	93.49	5.39	1.98	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1274	93.56	5.39	1.98	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1275	93.64	5.40	1.99	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1276	93.73	5.40	1.99	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1277	93.83	5.41	1.99	3.41	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1278	93.88	5.41	1.99	3.42	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1279	93.97	5.41	2.00	3.42	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1280	94.07	5.42	2.00	3.42	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1281	94.17	5.43	2.00	3.42	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1282	94.26	5.43	2.01	3.43	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1283	94.36	5.44	2.01	3.43	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1284	94.45	5.44	2.01	3.43	0.51	0.221	1.68	0.131	0.79	1.10	2.000	No
1285	94.55	5.45	2.01	3.43	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1286	94.64	5.45	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1287	94.72	5.46	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1288	94.74	5.46	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1289	94.77	5.46	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1290	94.85	5.47	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1291	94.90	5.47	2.02	3.44	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1292	94.95	5.47	2.03	3.45	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1293	95.01	5.48	2.03	3.45	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1294	95.09	5.48	2.03	3.45	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1295	95.14	5.48	2.03	3.45	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1296	95.23	5.49	2.04	3.46	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1297	95.29	5.49	2.04	3.46	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1298	95.38	5.50	2.04	3.46	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1299	95.43	5.50	2.04	3.46	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1300	95.52	5.51	2.04	3.47	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1301	95.57	5.51	2.05	3.47	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1302	95.67	5.52	2.05	3.47	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1303	95.77	5.53	2.05	3.47	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1304	95.86	5.53	2.05	3.48	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1305	95.95	5.54	2.06	3.48	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1306	96.03	5.54	2.06	3.48	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1307	96.11	5.55	2.06	3.48	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1308	96.20	5.55	2.07	3.49	0.51	0.220	1.68	0.131	0.79	1.10	2.000	No
1309	96.30	5.56	2.07	3.49	0.51	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1310	96.39	5.57	2.07	3.49	0.51	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1311	96.50	5.57	2.07	3.50	0.51	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1312	96.59	5.58	2.08	3.50	0.50	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1313	96.69	5.58	2.08	3.50	0.50	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1314	96.78	5.59	2.08	3.51	0.50	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1315	96.87	5.60	2.09	3.51	0.50	0.220	1.68	0.131	0.79	1.10	2.000	Yes
1316	96.98	5.60	2.09	3.51	0.50	0.220	1.68	0.130	0.79	1.10	2.000	No
1317	97.02	5.61	2.09	3.51	0.50	0.220	1.68	0.130	0.79	1.10	2.000	No
1318	97.06	5.61	2.09	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1319	97.12	5.61	2.09	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1320	97.16	5.62	2.10	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1321	97.21	5.62	2.10	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1322	97.27	5.62	2.10	3.52	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1323	97.33	5.63	2.10	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1324	97.40	5.63	2.10	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	No
1325	97.45	5.63	2.10	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1326	97.50	5.64	2.11	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1327	97.58	5.64	2.11	3.53	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1328	97.65	5.65	2.11	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1329	97.69	5.65	2.11	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1330	97.74	5.65	2.11	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1331	97.81	5.66	2.12	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1332	97.88	5.66	2.12	3.54	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1333	97.93	5.67	2.12	3.55	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1334	98.03	5.67	2.12	3.55	0.50	0.219	1.68	0.130	0.79	1.10	2.000	Yes
1335	98.15	5.68	2.13	3.55	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1336	98.21	5.68	2.13	3.56	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1337	98.32	5.69	2.13	3.56	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1338	98.42	5.70	2.13	3.56	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1339	98.47	5.70	2.14	3.56	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1340	98.57	5.71	2.14	3.57	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1341	98.70	5.71	2.14	3.57	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1342	98.78	5.72	2.15	3.57	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1343	98.85	5.72	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1344	98.86	5.72	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1345	98.92	5.73	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	No
1346	98.98	5.73	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1347	99.03	5.74	2.15	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1348	99.11	5.74	2.16	3.58	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1349	99.18	5.74	2.16	3.59	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1350	99.23	5.75	2.16	3.59	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1351	99.32	5.75	2.16	3.59	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1352	99.37	5.76	2.16	3.59	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1353	99.45	5.76	2.17	3.60	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1354	99.56	5.77	2.17	3.60	0.50	0.219	1.68	0.130	0.78	1.10	2.000	Yes
1355	99.64	5.77	2.17	3.60	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1356	99.71	5.78	2.17	3.60	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1357	99.75	5.78	2.18	3.61	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1358	99.90	5.79	2.18	3.61	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1359	99.95	5.80	2.18	3.61	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1360	100.04	5.80	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1361	100.14	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1362	100.14	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1363	100.15	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1364	100.19	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1365	100.21	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1366	100.24	5.81	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1367	100.28	5.82	2.19	3.62	0.50	0.218	1.68	0.130	0.78	1.10	2.000	Yes
1368	100.31	5.82	2.19	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1369	100.33	5.82	2.19	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1370	100.38	5.82	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1371	100.39	5.82	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1372	100.43	5.82	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1373	100.48	5.83	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1374	100.53	5.83	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1375	100.57	5.83	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No
1376	100.60	5.83	2.20	3.63	0.50	0.218	1.68	0.130	0.78	1.10	2.000	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.04	0.10	4.06	37.76	1.00	0.16	54.25	8.56	4.000	No	Yes	2.00
2	0.10	0.13	4.06	31.79	1.00	0.21	54.25	11.25	4.000	No	Yes	2.00
3	0.11	0.23	4.06	19.95	1.00	0.37	54.25	19.92	4.000	No	Yes	2.00
4	0.16	0.54	4.06	8.78	1.00	0.85	54.25	46.18	4.000	No	Yes	2.00
5	0.19	1.28	3.64	3.82	1.00	2.04	26.86	54.86	4.000	No	Yes	2.00
6	0.24	2.83	3.19	1.88	1.00	4.54	12.41	56.29	4.000	No	Yes	2.00
7	0.31	4.93	2.89	1.26	0.88	7.89	7.08	55.92	4.000	No	Yes	2.00
8	0.38	6.68	2.74	1.06	0.83	10.70	5.13	54.91	4.000	No	Yes	2.00
9	0.43	7.56	2.68	1.02	0.81	12.11	4.55	55.04	4.000	No	Yes	2.00
10	0.49	7.32	2.72	1.13	0.82	11.72	4.88	57.26	4.000	No	Yes	2.00
11	0.58	6.81	2.78	1.31	0.84	10.90	5.56	60.65	4.000	No	Yes	2.00
12	0.63	6.24	2.85	1.60	0.86	9.98	6.53	65.19	4.000	No	Yes	2.00
13	0.67	6.05	2.90	1.88	0.88	9.68	7.19	69.56	4.000	No	Yes	2.00
14	0.72	6.02	2.92	2.08	0.89	9.62	7.57	72.80	4.000	Yes	Yes	2.00
15	0.72	6.70	2.91	2.29	0.88	10.70	7.32	78.32	4.000	Yes	Yes	2.00
16	0.84	9.28	2.77	2.08	0.84	14.84	5.43	80.63	4.000	Yes	Yes	2.00
17	0.96	15.82	2.50	1.53	0.76	25.35	2.97	75.23	4.000	Yes	No	2.00
18	1.06	22.64	2.32	1.27	0.71	36.29	2.02	73.35	4.000	Yes	No	2.00
19	1.24	27.97	2.21	1.11	0.67	44.84	1.65	74.08	4.000	Yes	No	2.00
20	1.30	31.48	2.14	0.98	0.65	50.47	1.49	75.12	4.000	Yes	No	2.00
21	1.48	37.28	2.04	0.82	0.62	59.78	1.34	80.22	4.000	Yes	No	2.00
22	1.59	42.14	1.98	0.77	0.60	67.57	1.29	87.16	4.000	Yes	No	2.00
23	1.69	47.40	1.93	0.75	0.59	76.02	1.26	95.52	4.000	Yes	No	2.00
24	1.69	49.80	1.91	0.76	0.58	79.87	1.25	99.55	4.000	Yes	No	2.00
25	1.74	53.24	1.88	0.73	0.57	85.40	1.22	104.46	4.000	Yes	No	2.00
26	1.79	53.78	1.88	0.73	0.57	86.26	1.22	105.40	4.000	No	No	2.00
27	1.84	52.90	1.89	0.73	0.57	84.84	1.23	104.08	4.000	No	No	2.00
28	1.88	51.25	1.89	0.73	0.58	82.18	1.23	101.34	4.000	No	No	2.00
29	1.93	49.46	1.90	0.71	0.58	79.31	1.24	98.11	4.000	No	No	2.00
30	1.99	48.69	1.90	0.68	0.58	78.06	1.23	96.29	4.000	No	No	2.00
31	2.03	48.08	1.89	0.65	0.58	77.07	1.23	94.90	4.000	No	No	2.00
32	2.08	47.67	1.89	0.64	0.57	76.42	1.23	93.98	4.000	No	No	2.00
33	2.13	46.86	1.90	0.64	0.58	75.11	1.23	92.67	4.000	No	No	2.00
34	2.22	45.85	1.90	0.64	0.58	73.48	1.24	91.09	4.000	No	No	2.00
35	2.27	44.97	1.91	0.64	0.58	72.07	1.24	89.70	4.000	No	No	2.00
36	2.33	44.77	1.91	0.63	0.58	71.74	1.24	89.16	4.000	No	No	2.00
37	2.42	45.44	1.90	0.61	0.58	72.81	1.24	89.96	4.000	No	No	2.00
38	2.48	46.73	1.88	0.60	0.57	74.86	1.22	91.66	4.000	No	No	2.00
39	2.56	48.41	1.86	0.59	0.57	77.57	1.21	94.03	4.000	No	No	2.00
40	2.65	49.43	1.86	0.59	0.56	79.19	1.21	95.47	4.000	No	No	2.00
41	2.72	48.72	1.87	0.60	0.57	78.04	1.21	94.74	4.000	No	No	2.00
42	2.80	46.02	1.90	0.62	0.58	73.70	1.23	90.99	4.000	No	No	2.00
43	2.89	42.44	1.94	0.65	0.59	67.94	1.26	85.67	4.000	No	No	2.00
44	2.94	39.03	1.98	0.69	0.60	62.46	1.29	80.64	4.000	No	No	2.00
45	3.04	35.90	2.02	0.71	0.61	57.42	1.32	76.04	4.000	No	No	2.00
46	3.14	32.32	2.07	0.73	0.63	51.66	1.37	70.91	4.000	No	No	2.00
47	3.23	29.01	2.10	0.73	0.64	46.34	1.42	65.97	4.000	No	No	2.00
48	3.31	25.74	2.15	0.73	0.65	41.07	1.50	61.64	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	3.37	23.04	2.19	0.72	0.66	36.73	1.59	58.33	4.000	No	No	2.00
50	3.48	20.38	2.23	0.72	0.68	32.44	1.71	55.35	4.000	No	No	2.00
51	3.57	18.79	2.25	0.67	0.68	29.89	1.76	52.71	4.000	No	No	2.00
52	3.65	18.02	2.26	0.63	0.69	28.64	1.78	50.93	4.000	No	No	2.00
53	3.71	18.02	2.26	0.63	0.68	28.64	1.77	50.70	4.000	No	No	2.00
54	3.82	18.63	2.26	0.67	0.68	29.60	1.77	52.47	4.000	No	No	2.00
55	3.91	20.18	2.23	0.70	0.68	32.09	1.71	54.73	4.000	No	No	2.00
56	4.00	22.81	2.20	0.73	0.67	36.30	1.60	58.22	4.000	No	No	2.00
57	4.10	26.38	2.09	0.58	0.64	42.04	1.41	59.10	4.000	No	No	2.00
58	4.19	31.21	1.98	0.46	0.60	49.79	1.00	49.79	4.000	No	No	2.00
59	4.26	37.92	1.86	0.36	0.57	60.57	1.00	60.57	4.000	No	No	2.00
60	4.35	45.62	1.79	0.37	0.54	72.92	1.00	72.92	4.000	No	No	2.00
61	4.44	49.80	1.77	0.39	0.54	79.63	1.00	79.63	4.000	No	No	2.00
62	4.52	51.39	1.76	0.41	0.54	82.17	1.00	82.17	4.000	No	No	2.00
63	4.53	52.26	1.76	0.41	0.54	83.58	1.00	83.58	4.000	No	No	2.00
64	4.58	55.03	1.73	0.39	0.53	88.02	1.00	88.02	4.000	No	No	2.00
65	4.63	57.76	1.71	0.39	0.52	92.41	1.00	92.41	4.000	No	No	2.00
66	4.68	58.84	1.70	0.39	0.52	94.14	1.00	94.14	4.000	No	No	2.00
67	4.72	59.28	1.71	0.41	0.52	94.84	1.00	94.84	4.000	No	No	2.00
68	4.77	59.08	1.72	0.42	0.52	94.51	1.00	94.51	4.000	No	No	2.00
69	4.82	58.07	1.73	0.44	0.53	92.88	1.00	92.88	4.000	No	No	2.00
70	4.88	56.21	1.76	0.47	0.54	89.89	1.00	89.89	4.000	No	No	2.00
71	4.96	53.61	1.79	0.50	0.55	85.71	1.14	97.96	4.000	No	No	2.00
72	5.01	50.54	1.83	0.54	0.56	80.78	1.18	95.67	4.000	No	No	2.00
73	5.08	47.44	1.87	0.59	0.57	75.78	1.22	92.32	4.000	No	No	2.00
74	5.16	44.81	1.91	0.63	0.58	71.55	1.24	88.93	4.000	No	No	2.00
75	5.21	43.27	1.93	0.65	0.59	69.07	1.26	86.85	4.000	No	No	2.00
76	5.30	42.68	1.94	0.66	0.59	68.12	1.26	86.01	4.000	No	No	2.00
77	5.37	42.65	1.94	0.66	0.59	68.06	1.26	85.96	4.000	No	No	2.00
78	5.45	42.70	1.94	0.66	0.59	68.13	1.26	86.01	4.000	No	No	2.00
79	5.52	42.44	1.94	0.66	0.59	67.72	1.26	85.64	4.000	No	No	2.00
80	5.59	41.70	1.95	0.67	0.59	66.52	1.27	84.54	4.000	No	No	2.00
81	5.65	40.15	1.97	0.69	0.60	64.02	1.28	82.25	4.000	No	No	2.00
82	5.74	38.46	1.99	0.71	0.61	61.30	1.30	79.83	4.000	No	No	2.00
83	5.83	37.08	2.02	0.73	0.61	59.07	1.32	77.99	4.000	No	No	2.00
84	5.89	36.30	2.03	0.75	0.62	57.82	1.33	77.16	4.000	No	No	2.00
85	5.97	35.66	2.04	0.77	0.62	56.79	1.35	76.43	4.000	No	No	2.00
86	6.07	34.52	2.06	0.79	0.63	54.94	1.37	75.11	4.000	No	No	2.00
87	6.12	32.56	2.10	0.84	0.64	51.79	1.41	73.14	4.000	No	No	2.00
88	6.22	29.76	2.15	0.92	0.65	47.28	1.51	71.19	4.000	No	No	2.00
89	6.28	26.56	2.22	1.04	0.67	42.13	1.67	70.33	4.000	No	No	2.00
90	6.36	23.45	2.29	1.15	0.70	37.14	1.90	70.41	4.000	No	No	2.00
91	6.46	21.29	2.34	1.22	0.71	33.66	2.09	70.43	4.000	No	No	2.00
92	6.52	20.72	2.33	1.14	0.71	32.73	2.06	67.56	4.000	No	No	2.00
93	6.60	22.07	2.26	0.92	0.69	34.89	1.79	62.55	4.000	No	No	2.00
94	6.70	23.55	2.18	0.72	0.66	37.27	1.57	58.59	4.000	No	No	2.00
95	6.76	23.01	2.17	0.66	0.66	36.39	1.55	56.58	4.000	Yes	No	2.00
96	6.84	19.64	2.27	0.77	0.69	30.96	1.81	55.94	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	6.94	14.91	2.44	1.05	0.74	23.37	2.60	60.83	4.000	Yes	No	2.00
98	7.03	10.86	2.63	1.42	0.80	16.85	4.02	67.75	4.000	Yes	Yes	2.00
99	7.13	8.23	2.79	1.78	0.84	12.62	5.71	72.04	4.000	Yes	Yes	2.00
100	7.19	6.62	2.88	1.83	0.87	10.02	6.93	69.39	4.000	Yes	Yes	2.00
101	7.32	5.77	2.88	1.39	0.87	8.65	6.87	59.40	4.000	No	Yes	2.00
102	7.42	5.17	2.80	0.72	0.85	7.67	5.87	44.99	4.000	No	Yes	2.00
103	7.49	4.93	2.63	0.13	0.80	7.28	4.02	29.29	4.000	No	Yes	2.00
104	7.57	4.73	N/A	-0.03	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
105	7.66	4.56	N/A	-0.01	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
106	7.76	4.44	2.68	0.13	0.81	6.47	4.48	29.00	4.000	No	Yes	2.00
107	7.77	4.39	2.72	0.22	0.82	6.39	4.95	31.63	4.000	No	Yes	2.00
108	7.78	4.42	2.73	0.25	0.83	6.44	5.05	32.53	4.000	No	Yes	2.00
109	7.82	4.44	2.76	0.33	0.84	6.47	5.36	34.69	4.000	No	Yes	2.00
110	7.87	4.45	2.80	0.46	0.85	6.49	5.86	38.07	4.000	No	Yes	2.00
111	7.92	4.45	2.85	0.63	0.86	6.49	6.45	41.83	4.000	No	Yes	2.00
112	7.97	4.49	2.88	0.80	0.87	6.54	6.96	45.53	4.000	No	Yes	2.00
113	8.01	4.59	2.91	1.01	0.88	6.70	7.41	49.66	4.000	No	Yes	2.00
114	8.06	4.76	2.92	1.17	0.89	6.97	7.58	52.81	4.000	No	Yes	2.00
115	8.11	4.93	2.93	1.29	0.89	7.24	7.65	55.42	4.000	No	Yes	2.00
116	8.20	5.06	2.93	1.38	0.89	7.45	7.68	57.24	4.000	No	Yes	2.00
117	8.26	5.16	2.94	1.51	0.89	7.60	7.84	59.63	4.000	No	Yes	2.00
118	8.35	5.23	2.95	1.61	1.00	7.70	7.98	61.50	4.000	No	Yes	2.00
119	8.40	5.30	2.95	1.67	1.00	7.81	8.02	62.65	4.000	No	Yes	2.00
120	8.49	5.37	2.95	1.68	0.89	7.91	7.96	62.99	4.000	No	Yes	2.00
121	8.54	5.51	2.94	1.69	0.89	8.13	7.81	63.54	4.000	No	Yes	2.00
122	8.64	5.71	2.93	1.68	0.89	8.45	7.58	64.06	4.000	No	Yes	2.00
123	8.69	5.91	2.91	1.68	0.88	8.77	7.37	64.63	4.000	No	Yes	2.00
124	8.79	6.18	2.92	1.87	0.88	9.19	7.46	68.57	4.000	No	Yes	2.00
125	8.84	6.48	2.93	2.12	0.89	9.68	7.59	73.49	4.000	No	Yes	2.00
126	8.93	6.89	2.92	2.28	0.88	10.32	7.50	77.37	4.000	No	Yes	2.00
127	9.03	7.13	2.92	2.39	0.88	10.69	7.46	79.83	4.000	No	Yes	2.00
128	9.08	7.21	2.92	2.47	0.88	10.83	7.52	81.47	4.000	No	Yes	2.00
129	9.11	7.16	2.94	2.63	0.89	10.75	7.78	83.66	4.000	No	Yes	2.00
130	9.12	7.13	2.95	2.68	0.89	10.69	7.89	84.32	4.000	No	Yes	2.00
131	9.17	7.07	2.95	2.75	1.00	10.60	8.03	85.13	4.000	No	Yes	2.00
132	9.22	7.12	2.96	2.81	1.00	10.67	8.09	86.32	4.000	No	Yes	2.00
133	9.31	6.92	2.99	3.02	1.00	10.34	8.56	88.56	4.000	No	Yes	2.00
134	9.36	7.16	2.98	3.04	1.00	10.72	8.37	89.76	4.000	No	Yes	2.00
135	9.40	7.46	2.95	2.98	1.00	11.20	8.04	90.10	4.000	No	Yes	2.00
136	9.46	8.14	2.90	2.76	0.88	12.28	7.25	89.07	4.000	No	Yes	2.00
137	9.51	8.47	2.88	2.68	0.87	12.82	6.92	88.75	4.000	No	Yes	2.00
138	9.55	8.78	2.86	2.65	0.87	13.30	6.70	89.10	4.000	No	Yes	2.00
139	9.61	8.98	2.86	2.71	0.87	13.63	6.65	90.65	4.000	No	Yes	2.00
140	9.69	9.12	2.87	2.83	0.87	13.84	6.73	93.09	4.000	No	Yes	2.00
141	9.74	9.18	2.88	2.97	0.87	13.94	6.87	95.71	4.000	No	Yes	2.00
142	9.81	9.39	2.88	3.05	0.87	14.26	6.85	97.70	4.000	No	Yes	2.00
143	9.89	9.76	2.86	3.02	0.87	14.85	6.62	98.33	4.000	No	Yes	2.00
144	9.94	10.06	2.84	2.98	0.86	15.33	6.42	98.43	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	10.03	10.23	2.83	2.93	0.86	15.59	6.28	97.94	4.000	No	Yes	2.00
146	10.08	10.23	2.80	2.62	0.85	15.59	5.91	92.18	4.000	No	Yes	2.00
147	10.18	10.23	2.76	2.21	0.84	15.58	5.40	84.12	4.000	No	Yes	2.00
148	10.23	10.23	2.73	1.94	0.83	15.58	5.05	78.62	4.000	No	Yes	2.00
149	10.33	10.23	2.74	2.03	0.83	15.57	5.17	80.55	4.000	No	Yes	2.00
150	10.40	10.23	2.77	2.31	0.84	15.56	5.54	86.20	4.000	No	Yes	2.00
151	10.47	10.08	2.80	2.55	0.85	15.32	5.91	90.44	4.000	No	Yes	2.00
152	10.51	10.06	2.83	2.76	0.86	15.28	6.18	94.42	4.000	No	Yes	2.00
153	10.56	10.03	2.84	2.94	0.86	15.23	6.41	97.63	4.000	No	Yes	2.00
154	10.61	10.21	2.85	3.10	0.86	15.52	6.51	100.97	4.000	No	Yes	2.00
155	10.67	10.16	2.88	3.41	0.87	15.43	6.88	106.14	4.000	No	Yes	2.00
156	10.75	10.13	2.90	3.70	0.88	15.37	7.21	110.80	4.000	No	Yes	2.00
157	10.80	9.99	2.92	3.91	0.88	15.15	7.50	113.70	4.000	No	Yes	2.00
158	10.85	9.89	2.93	3.98	0.89	14.99	7.63	114.35	4.000	No	Yes	2.00
159	10.90	9.72	2.94	4.07	0.89	14.71	7.82	115.05	4.000	No	Yes	2.00
160	11.00	9.45	2.96	4.21	1.00	14.27	8.13	116.05	4.000	No	Yes	2.00
161	11.05	9.05	2.99	4.36	1.00	13.61	8.55	116.32	4.000	No	Yes	2.00
162	11.14	8.61	3.01	4.54	1.00	12.90	9.04	116.64	4.000	No	Yes	2.00
163	11.21	8.27	3.04	4.77	1.00	12.36	9.53	117.80	4.000	No	Yes	2.00
164	11.29	8.24	3.05	4.86	1.00	12.30	9.66	118.79	4.000	No	Yes	2.00
165	11.38	8.41	3.04	4.86	1.00	12.56	9.53	119.67	4.000	No	Yes	2.00
166	11.46	8.68	3.02	4.71	1.00	12.98	9.18	119.19	4.000	No	Yes	2.00
167	11.52	8.88	3.01	4.64	1.00	13.30	8.96	119.26	4.000	No	Yes	2.00
168	11.60	8.98	3.00	4.60	1.00	13.46	8.85	119.12	4.000	No	Yes	2.00
169	11.67	9.05	3.00	4.58	1.00	13.56	8.79	119.24	4.000	No	Yes	2.00
170	11.72	9.12	3.00	4.58	1.00	13.67	8.75	119.52	4.000	No	Yes	2.00
171	11.81	9.32	2.99	4.50	1.00	13.98	8.54	119.37	4.000	No	Yes	2.00
172	11.86	9.35	2.98	4.50	1.00	14.03	8.52	119.54	4.000	No	Yes	2.00
173	11.96	9.42	2.98	4.48	1.00	14.07	8.48	119.37	4.000	No	Yes	2.00
174	12.01	9.45	2.98	4.50	1.00	14.06	8.50	119.58	4.000	No	Yes	2.00
175	12.10	9.69	2.97	4.05	0.89	13.55	8.25	111.75	4.000	No	Yes	2.00
176	12.16	10.07	2.91	3.44	0.88	13.97	7.41	103.51	4.000	No	Yes	2.00
177	12.24	10.47	2.88	3.08	0.87	14.38	6.85	98.49	4.000	No	Yes	2.00
178	12.32	10.87	2.88	3.24	0.87	14.89	6.86	102.09	4.000	No	Yes	2.00
179	12.39	11.18	2.90	3.63	0.88	15.29	7.16	109.53	4.000	No	Yes	2.00
180	12.48	10.64	2.95	4.13	0.89	14.47	7.97	115.36	4.000	No	Yes	2.00
181	12.50	10.23	2.97	4.52	1.00	14.64	8.30	121.50	4.000	No	Yes	2.00
182	12.54	10.74	2.96	4.40	0.89	14.58	8.20	119.55	4.000	No	Yes	2.00
183	12.64	12.36	2.89	3.89	0.87	16.65	7.01	116.68	4.000	No	Yes	2.00
184	12.68	14.04	2.81	3.45	0.85	18.79	6.01	113.05	4.000	No	Yes	2.00
185	12.77	14.72	2.78	3.24	0.84	19.54	5.64	110.30	4.000	No	Yes	2.00
186	12.82	14.75	2.78	3.14	0.84	19.48	5.55	108.15	4.000	No	Yes	2.00
187	12.89	14.21	2.79	3.12	0.84	18.67	5.71	106.60	4.000	No	Yes	2.00
188	12.97	13.37	2.82	3.26	0.85	17.49	6.13	107.25	4.000	No	Yes	2.00
189	13.03	12.49	2.86	3.45	0.87	16.30	6.66	108.51	4.000	No	Yes	2.00
190	13.12	11.72	2.90	3.66	0.88	15.20	7.22	109.85	4.000	No	Yes	2.00
191	13.16	11.21	2.93	3.77	0.89	14.50	7.58	109.96	4.000	No	Yes	2.00
192	13.26	10.91	2.93	3.69	0.89	13.99	7.68	107.43	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	13.34	10.84	2.92	3.42	0.88	13.79	7.45	102.72	4.000	No	Yes	2.00
194	13.41	10.74	2.90	3.11	0.88	13.56	7.18	97.27	4.000	No	Yes	2.00
195	13.50	10.60	2.89	2.96	0.88	13.27	7.10	94.19	4.000	No	Yes	2.00
196	13.60	10.33	2.90	2.95	0.88	12.84	7.26	93.25	4.000	No	Yes	2.00
197	13.65	10.13	2.92	3.04	0.88	12.55	7.49	94.05	4.000	No	Yes	2.00
198	13.75	10.03	2.93	3.14	0.89	12.35	7.71	95.17	4.000	No	Yes	2.00
199	13.80	10.10	2.92	3.04	0.89	12.37	7.57	93.67	4.000	No	Yes	2.00
200	13.89	10.23	2.92	3.06	0.89	12.47	7.55	94.18	4.000	No	Yes	2.00
201	13.94	10.63	2.92	3.15	0.88	12.95	7.46	96.59	4.000	No	Yes	2.00
202	14.03	10.80	2.95	3.59	0.89	13.13	7.91	103.87	4.000	No	Yes	2.00
203	14.11	11.23	2.95	3.82	0.89	13.59	7.98	108.45	4.000	No	Yes	2.00
204	14.13	11.53	2.95	3.97	0.89	13.97	7.99	111.61	4.000	No	Yes	2.00
205	14.18	12.27	2.92	3.86	0.89	14.85	7.55	112.19	4.000	No	Yes	2.00
206	14.22	12.83	2.91	3.88	0.88	15.50	7.35	113.98	4.000	No	Yes	2.00
207	14.28	13.44	2.90	3.92	0.88	16.19	7.18	116.20	4.000	No	Yes	2.00
208	14.37	14.01	2.89	3.98	0.88	16.81	7.06	118.62	4.000	No	Yes	2.00
209	14.44	14.79	2.87	3.97	0.87	17.68	6.80	120.24	4.000	No	Yes	2.00
210	14.51	15.63	2.85	3.90	0.86	18.60	6.50	120.95	4.000	No	Yes	2.00
211	14.60	16.31	2.83	3.86	0.86	19.30	6.30	121.55	4.000	No	Yes	2.00
212	14.65	16.58	2.83	3.91	0.86	19.57	6.28	122.89	4.000	No	Yes	2.00
213	14.75	16.56	2.84	3.99	0.86	19.44	6.39	124.23	4.000	No	Yes	2.00
214	14.85	16.48	2.85	4.06	0.86	19.22	6.50	124.95	4.000	No	Yes	2.00
215	14.91	16.44	2.85	4.07	0.86	19.11	6.54	124.89	4.000	No	Yes	2.00
216	14.99	17.00	2.83	3.89	0.86	19.64	6.25	122.73	4.000	Yes	Yes	2.00
217	15.09	18.30	2.79	3.60	0.84	21.01	5.69	119.59	4.000	Yes	Yes	2.00
218	15.18	20.29	2.72	3.20	0.82	23.13	4.94	114.33	4.000	Yes	Yes	2.00
219	15.25	22.28	2.66	2.79	0.80	25.25	4.26	107.53	4.000	Yes	Yes	2.00
220	15.33	24.50	2.58	2.38	0.78	27.58	3.60	99.22	4.000	Yes	No	2.00
221	15.43	27.51	2.50	1.99	0.76	30.70	2.96	90.92	4.000	Yes	No	2.00
222	15.51	31.32	2.41	1.70	0.73	34.70	2.45	84.95	4.000	Yes	No	2.00
223	15.59	34.63	2.35	1.53	0.71	38.13	2.14	81.77	4.000	Yes	No	2.00
224	15.67	36.18	2.33	1.46	0.71	39.65	2.03	80.65	4.000	Yes	No	2.00
225	15.76	35.13	2.35	1.53	0.71	38.36	2.14	81.98	4.000	Yes	No	2.00
226	15.86	32.03	2.41	1.71	0.73	34.86	2.45	85.36	4.000	Yes	No	2.00
227	15.95	27.64	2.51	2.00	0.76	30.01	3.03	90.95	4.000	Yes	No	2.00
228	16.05	23.08	2.61	2.33	0.79	24.94	3.85	95.91	4.000	Yes	Yes	2.00
229	16.14	19.31	2.71	2.64	0.82	20.73	4.79	99.32	4.000	Yes	Yes	2.00
230	16.20	16.85	2.78	2.83	0.84	17.98	5.55	99.84	4.000	Yes	Yes	2.00
231	16.28	15.33	2.82	2.95	0.85	16.24	6.13	99.52	4.000	Yes	Yes	2.00
232	16.34	14.21	2.85	2.97	0.86	14.97	6.52	97.62	4.000	Yes	Yes	2.00
233	16.44	12.93	2.89	3.04	0.88	13.48	7.12	95.96	4.000	Yes	Yes	2.00
234	16.50	11.61	2.93	3.03	0.89	12.00	7.73	92.73	4.000	Yes	Yes	2.00
235	16.58	10.17	2.96	2.83	1.00	10.54	8.19	86.31	4.000	Yes	Yes	2.00
236	16.73	8.75	2.98	2.31	1.00	8.85	8.43	74.57	4.000	No	Yes	2.00
237	16.82	7.60	2.96	1.61	1.00	7.51	8.14	61.14	4.000	No	Yes	2.00
238	16.92	7.06	2.97	1.45	1.00	6.86	8.35	57.29	4.000	No	Yes	2.00
239	17.01	6.56	3.09	2.09	1.00	6.26	10.33	64.67	4.000	No	Yes	2.00
240	17.11	6.20	3.19	2.99	1.00	5.84	12.54	73.17	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	17.12	5.73	3.28	3.81	1.00	5.31	14.74	78.30	4.000	No	Yes	2.00
242	17.14	6.34	3.23	3.66	1.00	5.97	13.44	80.31	4.000	No	Yes	2.00
243	17.19	7.13	3.17	3.53	1.00	6.82	12.15	82.92	4.000	No	Yes	2.00
244	17.28	7.94	3.13	3.46	1.00	7.67	11.16	85.58	4.000	No	Yes	2.00
245	17.33	8.01	3.14	3.72	1.00	7.71	11.48	88.52	4.000	No	Yes	2.00
246	17.43	7.87	3.16	3.90	1.00	7.52	11.93	89.67	4.000	No	Yes	2.00
247	17.47	7.74	3.17	3.85	1.00	7.35	12.03	88.37	4.000	No	Yes	2.00
248	17.57	7.57	3.16	3.62	1.00	7.12	11.95	85.14	4.000	No	Yes	2.00
249	17.65	7.47	3.15	3.35	1.00	6.98	11.70	81.63	4.000	No	Yes	2.00
250	17.72	7.40	3.16	3.37	1.00	6.88	11.84	81.46	4.000	No	Yes	2.00
251	17.81	7.57	3.16	3.48	1.00	7.02	11.86	83.22	4.000	No	Yes	2.00
252	17.86	7.87	3.17	3.79	1.00	7.32	11.98	87.65	4.000	No	Yes	2.00
253	17.95	8.31	3.16	4.07	1.00	7.73	11.95	92.32	4.000	No	Yes	2.00
254	18.05	8.78	3.16	4.29	1.00	8.18	11.81	96.52	4.000	No	Yes	2.00
255	18.10	9.22	3.15	4.49	1.00	8.61	11.67	100.43	4.000	No	Yes	2.00
256	18.20	9.66	3.14	4.65	1.00	9.01	11.52	103.80	4.000	No	Yes	2.00
257	18.30	9.90	3.15	4.85	1.00	9.20	11.60	106.76	4.000	No	Yes	2.00
258	18.39	10.13	3.14	4.89	1.00	9.38	11.50	107.91	4.000	No	Yes	2.00
259	18.48	10.27	3.14	4.83	1.00	9.47	11.38	107.71	4.000	No	Yes	2.00
260	18.58	10.30	3.14	4.82	1.00	9.44	11.38	107.46	4.000	No	Yes	2.00
261	18.66	10.20	3.14	4.82	1.00	9.30	11.49	106.87	4.000	No	Yes	2.00
262	18.74	10.07	3.14	4.69	1.00	9.12	11.49	104.74	4.000	No	Yes	2.00
263	18.87	9.90	3.11	3.92	1.00	8.88	10.73	95.26	4.000	No	Yes	2.00
264	18.97	9.66	3.07	3.27	1.00	8.59	10.09	86.69	4.000	No	Yes	2.00
265	19.06	9.56	3.05	2.85	1.00	8.45	9.58	80.90	4.000	No	Yes	2.00
266	19.16	9.83	3.06	3.14	1.00	8.66	9.84	85.25	4.000	No	Yes	2.00
267	19.25	10.13	3.06	3.34	1.00	8.91	9.93	88.50	4.000	No	Yes	2.00
268	19.27	10.23	3.08	3.58	1.00	9.00	10.18	91.69	4.000	No	Yes	2.00
269	19.30	10.37	3.09	3.79	1.00	9.12	10.39	94.70	4.000	No	Yes	2.00
270	19.34	10.57	3.10	4.04	1.00	9.29	10.57	98.19	4.000	No	Yes	2.00
271	19.39	10.84	3.09	4.12	1.00	9.53	10.50	100.00	4.000	No	Yes	2.00
272	19.49	10.78	3.10	4.12	1.00	9.41	10.57	99.51	4.000	No	Yes	2.00
273	19.55	10.51	3.10	4.04	1.00	9.12	10.70	97.54	4.000	No	Yes	2.00
274	19.63	10.17	3.11	3.94	1.00	8.75	10.86	95.04	4.000	No	Yes	2.00
275	19.68	9.87	3.11	3.78	1.00	8.43	10.91	92.04	4.000	No	Yes	2.00
276	19.74	9.77	3.10	3.54	1.00	8.31	10.69	88.83	4.000	No	Yes	2.00
277	19.83	9.73	3.10	3.44	1.00	8.24	10.61	87.40	4.000	No	Yes	2.00
278	19.87	9.73	3.10	3.38	1.00	8.22	10.55	86.67	4.000	No	Yes	2.00
279	19.94	9.73	3.11	3.54	1.00	8.19	10.80	88.39	4.000	No	Yes	2.00
280	20.02	9.80	3.12	3.73	1.00	8.21	11.04	90.64	4.000	No	Yes	2.00
281	20.07	10.17	3.13	4.13	1.00	8.54	11.28	96.33	4.000	No	Yes	2.00
282	20.17	11.42	3.09	4.10	1.00	9.65	10.38	100.21	4.000	No	Yes	2.00
283	20.21	14.18	2.97	3.57	1.00	12.20	8.30	101.25	4.000	Yes	Yes	2.00
284	20.28	18.74	2.80	2.81	0.85	16.43	5.92	97.16	4.000	Yes	Yes	2.00
285	20.36	24.88	2.64	2.22	0.80	22.08	4.11	90.84	4.000	Yes	Yes	2.00
286	20.41	31.73	2.51	1.86	0.76	28.40	3.02	85.89	4.000	Yes	No	2.00
287	20.48	38.64	2.40	1.64	0.73	34.74	2.39	83.15	4.000	Yes	No	2.00
288	20.55	44.99	2.33	1.49	0.71	40.52	2.02	82.00	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	20.60	49.88	2.27	1.39	0.69	44.99	1.82	81.90	4.000	Yes	No	2.00
290	20.70	52.55	2.25	1.34	0.68	47.28	1.74	82.23	4.000	No	No	2.00
291	20.74	52.68	2.25	1.37	0.68	47.32	1.75	82.97	4.000	No	No	2.00
292	20.79	51.17	2.28	1.45	0.69	45.83	1.84	84.31	4.000	No	No	2.00
293	20.89	48.70	2.33	1.63	0.71	43.39	2.03	87.95	4.000	No	No	2.00
294	20.96	46.86	2.33	1.59	0.71	41.58	2.06	85.66	4.000	No	No	2.00
295	21.04	45.83	2.34	1.58	0.71	40.52	2.09	84.84	4.000	No	No	2.00
296	21.13	45.80	2.33	1.51	0.71	40.36	2.05	82.71	4.000	No	No	2.00
297	21.22	49.22	2.31	1.55	0.70	43.31	1.97	85.52	4.000	No	No	2.00
298	21.29	52.71	2.28	1.51	0.69	46.38	1.86	86.23	4.000	No	No	2.00
299	21.35	62.13	2.19	1.30	0.66	54.84	1.58	86.56	4.000	No	No	2.00
300	21.37	71.37	2.10	1.15	0.64	63.21	1.42	89.97	4.000	No	No	2.00
301	21.42	83.72	2.01	0.98	0.61	74.37	1.31	97.64	4.000	No	No	2.00
302	21.47	92.73	1.95	0.89	0.59	82.47	1.27	104.48	4.000	No	No	2.00
303	21.48	100.66	1.90	0.82	0.58	89.69	1.23	110.65	4.000	No	No	2.00
304	21.52	107.37	1.85	0.77	0.56	95.73	1.20	115.32	4.000	No	No	2.00
305	21.57	113.24	1.82	0.73	0.55	100.98	1.17	118.63	4.000	No	No	2.00
306	21.62	118.81	1.79	0.69	0.54	105.91	1.14	120.85	4.000	No	No	2.00
307	21.66	124.00	1.76	0.65	0.54	110.52	1.10	122.11	4.000	No	No	2.00
308	21.71	128.79	1.74	0.63	0.53	114.75	1.07	122.79	4.000	No	No	2.00
309	21.76	132.64	1.73	0.62	0.53	118.10	1.04	123.42	4.000	No	No	2.00
310	21.81	135.34	1.72	0.63	0.52	120.38	1.03	124.51	4.000	No	No	2.00
311	21.85	136.99	1.72	0.64	0.53	121.70	1.04	126.15	4.000	No	No	2.00
312	21.91	137.80	1.73	0.66	0.53	122.24	1.05	127.87	4.000	No	No	2.00
313	21.95	138.11	1.73	0.67	0.53	122.32	1.06	129.40	4.000	No	No	2.00
314	22.00	138.24	1.74	0.69	0.53	122.26	1.07	130.49	4.000	No	No	2.00
315	22.05	138.18	1.75	0.70	0.53	122.02	1.08	131.33	4.000	No	No	2.00
316	22.10	138.24	1.75	0.71	0.53	121.90	1.08	132.00	4.000	No	No	2.00
317	22.15	138.31	1.75	0.72	0.53	121.77	1.09	132.56	4.000	No	No	2.00
318	22.19	138.68	1.75	0.72	0.53	121.94	1.09	133.12	4.000	No	No	2.00
319	22.24	139.25	1.76	0.75	0.54	122.24	1.11	135.35	4.000	No	No	2.00
320	22.29	139.86	1.77	0.77	0.54	122.58	1.11	136.60	4.000	No	No	2.00
321	22.34	140.20	1.77	0.78	0.54	122.70	1.12	137.16	4.000	No	No	2.00
322	22.39	140.06	1.77	0.76	0.54	122.45	1.11	135.89	4.000	No	No	2.00
323	22.43	139.42	1.77	0.76	0.54	121.72	1.11	135.26	4.000	No	No	2.00
324	22.48	138.34	1.77	0.76	0.54	120.56	1.12	135.08	4.000	No	No	2.00
325	22.55	136.79	1.78	0.78	0.54	118.95	1.13	134.76	4.000	No	No	2.00
326	22.62	130.08	1.82	0.82	0.55	112.68	1.17	131.90	4.000	No	No	2.00
327	22.63	127.95	1.83	0.83	0.56	110.75	1.18	130.57	4.000	No	No	2.00
328	22.72	125.56	1.83	0.84	0.56	108.31	1.19	128.61	4.000	No	No	2.00
329	22.77	128.09	1.82	0.81	0.55	110.46	1.17	129.57	4.000	No	No	2.00
330	22.83	126.13	1.83	0.83	0.56	108.51	1.19	128.59	4.000	No	No	2.00
331	22.91	124.21	1.85	0.86	0.56	106.52	1.20	127.55	4.000	No	No	2.00
332	22.96	121.74	1.86	0.88	0.57	104.15	1.21	126.09	4.000	No	No	2.00
333	23.02	118.20	1.88	0.91	0.57	100.84	1.22	123.45	4.000	No	No	2.00
334	23.10	113.85	1.90	0.94	0.58	96.74	1.24	119.96	4.000	No	No	2.00
335	23.16	108.42	1.93	0.98	0.59	91.79	1.26	115.60	4.000	No	No	2.00
336	23.20	102.21	1.97	1.03	0.60	86.20	1.28	110.62	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	23.26	95.46	2.01	1.08	0.61	80.15	1.31	105.23	4.000	No	No	2.00
338	23.35	88.68	2.05	1.15	0.62	74.00	1.36	100.36	4.000	No	No	2.00
339	23.39	81.66	2.10	1.23	0.64	67.80	1.42	95.97	4.000	No	No	2.00
340	23.48	74.68	2.15	1.34	0.65	61.55	1.51	93.11	4.000	No	No	2.00
341	23.54	68.33	2.20	1.41	0.67	55.99	1.61	90.41	4.000	No	No	2.00
342	23.63	63.44	2.23	1.41	0.68	51.67	1.69	87.24	4.000	No	No	2.00
343	23.69	60.07	2.21	1.21	0.67	48.84	1.63	79.68	4.000	No	No	2.00
344	23.78	58.37	2.19	1.08	0.66	47.34	1.59	75.09	4.000	No	No	2.00
345	23.87	57.71	2.18	1.00	0.66	46.70	1.56	72.76	4.000	No	No	2.00
346	23.88	57.81	2.20	1.11	0.67	46.69	1.62	75.51	4.000	No	No	2.00
347	23.93	57.42	2.23	1.22	0.68	46.23	1.69	78.05	4.000	No	No	2.00
348	24.02	57.22	2.25	1.33	0.68	45.85	1.76	80.73	4.000	No	No	2.00
349	24.04	56.97	2.27	1.41	0.69	45.57	1.82	82.98	4.000	No	No	2.00
350	24.05	57.34	2.28	1.47	0.69	45.82	1.85	84.83	4.000	No	No	2.00
351	24.15	58.27	2.28	1.52	0.69	46.42	1.87	86.71	4.000	No	No	2.00
352	24.20	60.11	2.28	1.55	0.69	47.86	1.85	88.32	4.000	No	No	2.00
353	24.30	62.64	2.25	1.45	0.68	49.86	1.75	87.06	4.000	No	No	2.00
354	24.40	65.07	2.21	1.31	0.67	51.83	1.63	84.41	4.000	No	No	2.00
355	24.46	66.59	2.16	1.15	0.66	53.10	1.53	81.44	4.000	No	No	2.00
356	24.54	66.42	2.15	1.08	0.65	52.90	1.50	79.49	4.000	No	No	2.00
357	24.64	64.09	2.17	1.11	0.66	50.78	1.55	78.59	4.000	Yes	No	2.00
358	24.73	59.94	2.22	1.24	0.68	47.12	1.68	79.13	4.000	Yes	No	2.00
359	24.78	54.64	2.30	1.43	0.70	42.55	1.92	81.62	4.000	Yes	No	2.00
360	24.88	48.57	2.38	1.66	0.72	37.36	2.28	85.25	4.000	Yes	No	2.00
361	24.94	41.92	2.47	1.90	0.75	31.81	2.80	89.16	4.000	Yes	No	2.00
362	25.02	35.00	2.57	2.14	0.78	26.12	3.52	92.04	4.000	Yes	No	2.00
363	25.12	28.43	2.69	2.46	0.81	20.76	4.59	95.35	4.000	Yes	Yes	2.00
364	25.17	22.86	2.81	2.88	0.85	16.30	6.02	98.17	4.000	Yes	Yes	2.00
365	25.27	18.41	2.93	3.27	0.89	12.75	7.69	98.13	4.000	Yes	Yes	2.00
366	25.36	15.13	3.04	3.56	1.00	9.96	9.50	94.69	4.000	No	Yes	2.00
367	25.43	12.60	3.13	3.75	1.00	8.11	11.16	90.44	4.000	No	Yes	2.00
368	25.50	10.88	3.20	3.97	1.00	6.84	12.76	87.31	4.000	No	Yes	2.00
369	25.60	9.77	3.25	4.08	1.00	6.01	14.03	84.31	4.000	No	Yes	2.00
370	25.64	9.26	3.27	4.02	1.00	5.64	14.52	81.86	4.000	No	Yes	2.00
371	25.67	9.06	3.28	3.90	1.00	5.48	14.58	79.98	4.000	No	Yes	2.00
372	25.71	8.86	3.27	3.61	1.00	5.33	14.38	76.65	4.000	No	Yes	2.00
373	25.79	8.52	3.26	3.26	1.00	5.07	14.25	72.22	4.000	No	Yes	2.00
374	25.93	8.18	3.26	2.95	1.00	4.80	14.17	68.01	4.000	No	Yes	2.00
375	26.03	8.02	3.25	2.70	1.00	4.66	13.97	65.11	4.000	No	Yes	2.00
376	26.13	8.02	3.24	2.57	1.00	4.64	13.74	63.74	4.000	No	Yes	2.00
377	26.24	8.08	3.23	2.50	1.00	4.67	13.54	63.18	4.000	No	Yes	2.00
378	26.37	8.18	3.23	2.51	1.00	4.71	13.48	63.49	4.000	No	Yes	2.00
379	26.47	8.25	3.23	2.56	1.00	4.73	13.53	64.09	4.000	No	Yes	2.00
380	26.60	8.25	3.22	2.39	1.00	4.71	13.24	62.33	4.000	No	Yes	2.00
381	26.71	8.38	3.19	2.15	1.00	4.78	12.59	60.15	4.000	No	Yes	2.00
382	26.85	8.75	3.16	1.96	1.00	5.00	11.78	58.94	4.000	No	Yes	2.00
383	26.95	8.96	3.18	2.26	1.00	5.12	12.24	62.69	4.000	No	Yes	2.00
384	27.04	9.60	3.18	2.57	1.00	5.54	12.21	67.66	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	27.09	10.14	3.18	2.92	1.00	5.90	12.33	72.68	4.000	No	Yes	2.00
386	27.19	10.95	3.16	2.98	1.00	6.42	11.76	75.49	4.000	No	Yes	2.00
387	27.23	11.18	3.16	3.16	1.00	6.56	11.88	78.01	4.000	No	Yes	2.00
388	27.33	11.42	3.17	3.32	1.00	6.70	11.98	80.22	4.000	No	Yes	2.00
389	27.40	11.76	3.16	3.46	1.00	6.91	11.94	82.48	4.000	No	Yes	2.00
390	27.47	12.30	3.15	3.56	1.00	7.25	11.72	84.94	4.000	No	Yes	2.00
391	27.57	12.97	3.14	3.59	1.00	7.66	11.34	86.93	4.000	No	Yes	2.00
392	27.66	13.85	3.12	3.70	1.00	8.22	10.99	90.36	4.000	No	Yes	2.00
393	27.77	14.96	3.10	3.87	1.00	8.93	10.64	94.93	4.000	No	Yes	2.00
394	27.86	16.28	3.08	4.09	1.00	9.76	10.29	100.42	4.000	No	Yes	2.00
395	27.96	17.39	3.07	4.27	1.00	10.45	10.06	105.14	4.000	No	Yes	2.00
396	28.06	17.73	3.08	4.52	1.00	10.63	10.22	108.70	4.000	No	Yes	2.00
397	28.15	17.29	3.10	4.70	1.00	10.31	10.64	109.63	4.000	No	Yes	2.00
398	28.25	17.04	3.08	4.30	1.00	10.10	10.32	104.18	4.000	No	Yes	2.00
399	28.34	16.50	3.07	3.92	1.00	9.71	10.12	98.29	4.000	No	Yes	2.00
400	28.44	16.94	3.04	3.53	1.00	9.96	9.46	94.21	4.000	No	Yes	2.00
401	28.54	16.11	3.09	4.00	1.00	9.38	10.45	98.03	4.000	No	Yes	2.00
402	28.62	17.46	3.06	4.02	1.00	10.22	9.90	101.19	4.000	No	Yes	2.00
403	28.71	18.34	3.05	4.14	1.00	10.74	9.72	104.45	4.000	No	Yes	2.00
404	28.77	20.26	3.01	4.01	1.00	11.95	8.92	106.63	4.000	No	Yes	2.00
405	28.86	20.73	3.01	4.13	1.00	12.21	8.93	109.00	4.000	No	Yes	2.00
406	28.91	21.34	3.00	4.15	1.00	12.56	8.78	110.37	4.000	No	Yes	2.00
407	28.97	22.04	2.99	4.19	1.00	12.99	8.63	112.06	4.000	No	Yes	2.00
408	29.04	22.92	2.98	4.23	1.00	13.50	8.45	114.13	4.000	No	Yes	2.00
409	29.10	23.97	2.97	4.28	1.00	14.13	8.26	116.69	4.000	No	Yes	2.00
410	29.15	25.15	2.96	4.38	1.00	14.85	8.08	120.01	4.000	No	Yes	2.00
411	29.25	26.40	2.93	4.48	0.89	16.30	7.69	125.36	4.000	No	Yes	2.00
412	29.34	27.38	2.93	4.58	0.89	16.91	7.60	128.48	4.000	No	Yes	2.00
413	29.38	27.75	2.93	4.68	0.89	17.12	7.63	130.55	4.000	No	Yes	2.00
414	29.48	27.72	2.95	4.76	1.00	16.25	7.97	129.55	4.000	No	Yes	2.00
415	29.55	27.48	2.96	4.80	1.00	16.06	8.07	129.61	4.000	Yes	Yes	2.00
416	29.63	27.41	2.93	4.54	0.89	16.75	7.61	127.50	4.000	Yes	Yes	2.00
417	29.72	28.43	2.81	3.17	0.85	17.61	6.01	105.80	4.000	Yes	Yes	2.00
418	29.82	31.56	2.63	1.83	0.80	20.09	3.98	79.94	4.000	Yes	Yes	2.00
419	29.88	36.83	2.39	0.90	0.73	24.31	2.33	56.65	4.000	Yes	No	2.00
420	29.96	45.23	2.29	0.81	0.69	30.47	1.87	56.98	4.000	Yes	No	2.00
421	30.06	49.92	2.25	0.82	0.68	33.83	1.75	59.16	4.000	Yes	No	2.00
422	30.13	54.67	2.21	0.81	0.67	37.29	1.64	60.99	4.000	Yes	No	2.00
423	30.18	56.02	2.21	0.84	0.67	38.21	1.63	62.30	0.102	No	No	0.57
424	30.28	58.72	2.20	0.87	0.67	40.06	1.61	64.44	0.105	No	No	0.58
425	30.37	59.53	2.22	0.98	0.67	40.40	1.67	67.53	0.109	No	No	0.60
426	30.47	60.51	2.25	1.10	0.68	40.85	1.74	71.05	0.113	No	No	0.63
427	30.57	63.28	2.24	1.15	0.68	42.69	1.73	73.87	0.117	No	No	0.65
428	30.66	67.26	2.22	1.17	0.67	45.46	1.67	76.12	0.121	No	No	0.67
429	30.74	71.34	2.20	1.17	0.67	48.33	1.62	78.31	0.125	No	No	0.69
430	30.82	74.51	2.19	1.19	0.67	50.51	1.59	80.52	0.129	No	No	0.71
431	30.90	76.30	2.20	1.26	0.67	51.60	1.61	82.93	0.133	No	No	0.73
432	31.01	76.90	2.22	1.35	0.67	51.74	1.66	85.67	0.138	No	No	0.76

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	31.10	77.02	2.24	1.50	0.68	51.51	1.74	89.47	0.147	No	No	0.80
434	31.19	77.06	2.28	1.66	0.69	51.19	1.84	93.96	0.157	No	No	0.86
435	31.28	77.57	2.30	1.81	0.70	51.24	1.92	98.21	0.168	No	No	0.92
436	31.35	78.53	2.31	1.92	0.70	51.70	1.97	101.82	0.178	No	No	0.97
437	31.43	80.52	2.31	1.98	0.70	52.90	1.98	104.59	0.186	No	No	1.02
438	31.53	83.11	2.31	2.04	0.70	54.53	1.97	107.28	0.195	No	No	1.06
439	31.60	85.91	2.26	1.77	0.69	56.74	1.78	101.10	0.176	No	No	0.96
440	31.67	88.07	2.21	1.54	0.67	58.52	1.64	95.74	0.162	No	No	0.88
441	31.77	89.46	2.16	1.33	0.66	59.74	1.53	91.18	0.150	No	No	0.82
442	31.84	89.86	2.18	1.41	0.66	59.77	1.56	93.40	0.156	No	No	0.84
443	31.91	86.18	2.22	1.57	0.68	56.78	1.68	95.19	0.160	No	No	0.87
444	31.98	79.10	2.29	1.77	0.70	51.41	1.89	97.23	0.165	No	No	0.89
445	31.98	77.21	2.32	1.87	0.70	49.95	1.99	99.23	0.171	No	No	0.92
446	32.04	78.73	2.31	1.90	0.70	50.91	1.98	100.65	0.175	No	No	0.94
447	32.12	82.68	2.30	1.89	0.70	53.56	1.91	102.19	4.000	Yes	No	2.00
448	32.16	80.04	2.33	2.05	0.71	51.46	2.05	105.63	4.000	Yes	No	2.00
449	32.27	75.66	2.38	2.23	0.72	48.11	2.26	108.77	4.000	Yes	No	2.00
450	32.33	70.76	2.42	2.40	0.74	44.53	2.50	111.51	4.000	Yes	No	2.00
451	32.41	66.31	2.46	2.50	0.75	41.33	2.72	112.40	4.000	Yes	No	2.00
452	32.50	61.79	2.49	2.55	0.76	38.14	2.93	111.66	4.000	Yes	No	2.00
453	32.58	56.66	2.53	2.59	0.77	34.61	3.18	110.12	4.000	Yes	No	2.00
454	32.66	50.22	2.58	2.66	0.78	30.23	3.59	108.68	4.000	Yes	No	2.00
455	32.74	43.30	2.65	2.79	0.80	25.56	4.22	107.79	4.000	Yes	Yes	2.00
456	32.84	36.12	2.75	3.04	0.83	20.76	5.20	107.96	4.000	Yes	Yes	2.00
457	32.90	29.88	2.85	3.36	0.86	16.68	6.45	107.62	4.000	Yes	Yes	2.00
458	32.98	24.92	2.96	3.68	1.00	12.71	8.19	104.08	4.000	Yes	Yes	2.00
459	33.08	20.77	3.06	4.02	1.00	10.40	9.80	101.84	3.600	No	Yes	2.00
460	33.14	17.05	3.16	4.51	1.00	8.34	11.93	99.50	3.600	No	Yes	2.00
461	33.22	14.12	3.27	5.00	1.00	6.71	14.31	96.06	3.600	No	Yes	2.00
462	33.32	12.19	3.34	5.20	1.00	5.64	16.21	91.43	3.600	No	Yes	2.00
463	33.37	11.28	3.35	4.81	1.00	5.14	16.60	85.28	3.600	No	Yes	2.00
464	33.47	11.05	3.34	4.46	1.00	4.99	16.37	81.70	3.600	No	Yes	2.00
465	33.56	11.66	3.30	4.00	1.00	5.30	15.06	79.85	3.600	No	Yes	2.00
466	33.63	12.43	3.26	3.78	1.00	5.71	14.04	80.15	3.600	No	Yes	2.00
467	33.71	12.67	3.23	3.53	1.00	5.82	13.47	78.37	3.600	No	Yes	2.00
468	33.81	11.99	3.22	3.07	1.00	5.44	13.27	72.19	3.600	No	Yes	2.00
469	33.90	11.05	3.23	2.64	1.00	4.92	13.35	65.65	3.600	No	Yes	2.00
470	33.95	10.31	3.23	2.27	1.00	4.51	13.36	60.28	3.600	No	Yes	2.00
471	34.04	10.07	3.24	2.29	1.00	4.37	13.69	59.84	3.600	No	Yes	2.00
472	34.14	9.87	3.25	2.32	1.00	4.25	14.01	59.54	3.600	No	Yes	2.00
473	34.17	9.81	3.26	2.35	1.00	4.21	14.16	59.63	3.600	No	Yes	2.00
474	34.20	10.07	3.24	2.31	1.00	4.35	13.78	59.92	3.600	No	Yes	2.00
475	34.26	10.38	3.23	2.26	1.00	4.50	13.36	60.14	3.600	No	Yes	2.00
476	34.35	10.61	3.21	2.19	1.00	4.61	12.99	59.91	3.600	No	Yes	2.00
477	34.43	10.41	3.22	2.20	1.00	4.49	13.24	59.45	3.600	No	Yes	2.00
478	34.49	10.27	3.22	2.15	1.00	4.41	13.28	58.59	3.600	No	Yes	2.00
479	34.59	10.17	3.22	2.05	1.00	4.34	13.18	57.25	3.600	No	Yes	2.00
480	34.69	10.07	3.21	1.94	1.00	4.28	13.07	55.91	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	34.73	9.90	3.22	1.88	1.00	4.18	13.12	54.88	3.600	No	Yes	2.00
482	34.83	9.80	3.22	1.86	1.00	4.12	13.19	54.34	3.600	No	Yes	2.00
483	34.90	9.74	3.23	1.89	1.00	4.07	13.37	54.48	3.600	No	Yes	2.00
484	34.98	9.84	3.23	1.97	1.00	4.12	13.48	55.47	3.600	No	Yes	2.00
485	35.07	10.14	3.24	2.18	1.00	4.26	13.68	58.28	3.600	No	Yes	2.00
486	35.16	10.58	3.27	2.77	1.00	4.47	14.49	64.79	3.600	No	Yes	2.00
487	35.26	11.29	3.32	3.92	1.00	4.82	15.85	76.48	3.600	No	Yes	2.00
488	35.33	13.25	3.31	4.84	1.00	5.82	15.42	89.71	3.600	No	Yes	2.00
489	35.40	16.76	3.22	5.02	1.00	7.61	13.28	101.03	3.600	No	Yes	2.00
490	35.50	20.84	3.12	4.66	1.00	9.67	11.03	106.70	3.600	No	Yes	2.00
491	35.57	23.37	3.07	4.51	1.00	10.95	10.02	109.72	3.600	No	Yes	2.00
492	35.65	23.77	3.07	4.67	1.00	11.12	10.10	112.36	3.600	No	Yes	2.00
493	35.71	22.86	3.11	5.08	1.00	10.64	10.83	115.22	3.600	No	Yes	2.00
494	35.79	21.65	3.15	5.43	1.00	9.99	11.64	116.27	3.600	No	Yes	2.00
495	35.85	20.37	3.18	5.49	1.00	9.32	12.22	113.90	3.600	No	Yes	2.00
496	35.94	19.29	3.19	5.34	1.00	8.75	12.53	109.71	3.600	No	Yes	2.00
497	35.99	18.31	3.19	4.97	1.00	8.24	12.58	103.66	3.600	No	Yes	2.00
498	36.08	17.16	3.19	4.47	1.00	7.64	12.55	95.94	3.600	No	Yes	2.00
499	36.17	15.54	3.21	4.09	1.00	6.80	12.98	88.35	3.600	No	Yes	2.00
500	36.24	14.22	3.23	3.84	1.00	6.13	13.50	82.76	3.600	No	Yes	2.00
501	36.33	13.58	3.25	3.84	1.00	5.79	14.00	81.11	3.600	No	Yes	2.00
502	36.42	13.58	3.26	3.97	1.00	5.77	14.22	82.08	3.600	No	Yes	2.00
503	36.52	14.05	3.21	3.32	1.00	5.99	12.88	77.16	3.600	No	Yes	2.00
504	36.61	15.40	3.13	2.85	1.00	6.64	11.27	74.88	3.600	No	Yes	2.00
505	36.70	17.73	3.06	2.69	1.00	7.78	9.87	76.79	3.600	No	Yes	2.00
506	36.78	20.23	3.06	3.31	1.00	8.99	9.83	88.43	3.600	No	Yes	2.00
507	36.85	18.24	3.19	4.64	1.00	7.99	12.41	99.18	3.600	No	Yes	2.00
508	36.87	20.20	3.15	4.68	1.00	8.95	11.61	103.88	3.600	No	Yes	2.00
509	36.91	23.23	3.07	4.28	1.00	10.43	10.08	105.17	3.600	No	Yes	2.00
510	36.97	31.40	2.86	3.30	0.87	15.73	6.66	104.77	4.000	Yes	Yes	2.00
511	37.06	35.24	2.80	3.11	0.85	17.97	5.86	105.20	4.000	Yes	Yes	2.00
512	37.12	38.62	2.76	3.10	0.84	19.91	5.42	107.91	4.000	Yes	Yes	2.00
513	37.20	42.40	2.74	3.17	0.83	22.04	5.10	112.33	4.000	Yes	Yes	2.00
514	37.27	47.56	2.69	3.09	0.81	25.06	4.56	114.30	4.000	Yes	Yes	2.00
515	37.35	52.21	2.63	2.89	0.80	27.88	4.03	112.42	4.000	Yes	Yes	2.00
516	37.44	55.22	2.59	2.66	0.78	29.75	3.64	108.21	4.000	Yes	No	2.00
517	37.49	58.42	2.53	2.39	0.77	31.83	3.23	102.76	4.000	Yes	No	2.00
518	37.59	67.19	2.43	2.02	0.74	37.46	2.56	95.81	4.000	Yes	No	2.00
519	37.64	85.65	2.27	1.57	0.69	49.64	1.82	90.11	4.000	Yes	No	2.00
520	37.70	111.29	2.10	1.20	0.64	67.10	1.41	94.79	4.000	Yes	No	2.00
521	37.78	136.59	1.96	0.98	0.60	84.81	1.28	108.37	4.000	Yes	No	2.00
522	37.83	155.69	1.88	0.87	0.57	98.45	1.22	120.19	4.000	Yes	No	2.00
523	37.92	167.53	1.83	0.82	0.56	106.83	1.19	126.68	4.000	Yes	No	2.00
524	37.97	174.58	1.81	0.81	0.55	111.69	1.17	130.53	4.000	Yes	No	2.00
525	38.07	178.80	1.81	0.82	0.55	114.34	1.16	133.13	0.299	No	No	1.52
526	38.14	181.84	1.81	0.85	0.55	116.07	1.17	135.64	0.312	No	No	1.59
527	38.22	185.72	1.82	0.88	0.55	118.33	1.17	138.68	0.328	No	No	1.67
528	38.31	191.72	1.82	0.92	0.55	121.94	1.17	143.23	0.353	No	No	1.79

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	38.41	201.37	1.80	0.92	0.55	128.37	1.16	148.66	0.386	No	No	1.96
530	38.52	212.64	1.79	0.92	0.54	135.94	1.14	154.32	0.422	No	No	2.00
531	38.64	221.04	1.77	0.91	0.54	141.59	1.11	157.41	0.443	No	No	2.00
532	38.74	217.87	1.79	0.95	0.54	138.67	1.14	158.10	0.448	No	No	2.00
533	38.80	214.19	1.81	0.99	0.55	135.62	1.16	157.57	0.444	No	No	2.00
534	38.89	210.42	1.83	1.04	0.56	132.43	1.18	156.57	0.437	No	No	2.00
535	38.94	213.65	1.83	1.05	0.56	134.37	1.18	158.84	0.453	No	No	2.00
536	39.03	213.59	1.84	1.10	0.56	133.74	1.19	159.69	0.459	No	No	2.00
537	39.13	213.25	1.86	1.15	0.57	132.81	1.21	160.46	0.464	No	No	2.00
538	39.23	211.36	1.88	1.22	0.57	130.76	1.22	160.12	0.462	No	No	2.00
539	39.35	207.85	1.90	1.28	0.58	127.69	1.24	158.27	0.449	No	No	2.00
540	39.42	201.04	1.93	1.34	0.59	122.59	1.26	154.08	0.420	No	No	2.00
541	39.51	192.09	1.96	1.40	0.60	116.15	1.28	148.22	0.383	No	No	1.93
542	39.60	181.50	1.99	1.45	0.61	108.71	1.30	141.37	0.343	No	No	1.73
543	39.70	172.83	2.02	1.50	0.61	102.65	1.32	135.85	0.313	No	No	1.58
544	39.78	164.63	2.04	1.53	0.62	97.07	1.35	130.75	0.288	No	No	1.45
545	39.90	157.35	2.06	1.56	0.63	92.05	1.37	126.28	0.267	No	No	1.34
546	39.99	149.05	2.09	1.60	0.64	86.44	1.41	121.65	0.247	No	No	1.24
547	40.09	141.42	2.12	1.64	0.64	81.31	1.45	117.75	4.000	Yes	No	2.00
548	40.18	133.79	2.15	1.68	0.65	76.23	1.50	114.33	4.000	Yes	No	2.00
549	40.23	126.04	2.18	1.74	0.66	71.16	1.56	111.30	4.000	Yes	No	2.00
550	40.33	118.01	2.22	1.81	0.67	65.88	1.65	108.90	4.000	Yes	No	2.00
551	40.43	110.12	2.25	1.88	0.68	60.74	1.76	107.17	4.000	Yes	No	2.00
552	40.52	101.85	2.31	2.03	0.70	55.31	1.95	107.68	4.000	Yes	No	2.00
553	40.61	92.44	2.36	2.12	0.71	49.44	2.15	106.53	4.000	Yes	No	2.00
554	40.69	80.59	2.43	2.30	0.74	42.14	2.54	106.96	4.000	Yes	No	2.00
555	40.80	68.65	2.51	2.44	0.76	35.01	3.03	106.21	4.000	Yes	No	2.00
556	40.87	59.91	2.58	2.61	0.78	29.84	3.59	107.20	4.000	Yes	No	2.00
557	40.95	53.47	2.64	2.76	0.80	26.09	4.12	107.50	4.000	Yes	Yes	2.00
558	40.97	51.37	2.65	2.73	0.80	24.94	4.24	105.79	4.000	Yes	Yes	2.00
559	41.01	54.31	2.61	2.50	0.79	26.70	3.81	101.77	4.000	Yes	Yes	2.00
560	41.07	61.80	2.51	2.12	0.76	31.20	3.04	94.92	4.000	Yes	No	2.00
561	41.15	67.40	2.44	1.89	0.74	34.61	2.61	90.47	4.000	Yes	No	2.00
562	41.26	67.13	2.44	1.87	0.74	34.39	2.61	89.74	0.147	No	No	0.74
563	41.35	63.05	2.48	1.98	0.75	31.86	2.87	91.40	0.151	No	No	0.76
564	41.47	60.28	2.52	2.09	0.76	30.09	3.10	93.27	0.155	No	No	0.78
565	41.59	59.67	2.53	2.13	0.77	29.62	3.18	94.19	0.158	No	No	0.79
566	41.69	60.42	2.53	2.16	0.77	29.94	3.18	95.29	0.160	No	No	0.80
567	41.78	59.17	2.55	2.27	0.77	29.08	3.36	97.63	0.167	No	No	0.83
568	41.88	54.75	2.61	2.48	0.79	26.41	3.82	100.94	3.600	No	Yes	2.00
569	41.98	49.45	2.67	2.69	0.81	23.32	4.43	103.21	3.600	No	Yes	2.00
570	42.08	45.13	2.72	2.83	0.83	20.88	4.96	103.54	3.600	No	Yes	2.00
571	42.16	44.32	2.73	2.78	0.83	20.43	4.99	102.01	3.600	No	Yes	2.00
572	42.24	47.12	2.68	2.60	0.81	21.98	4.53	99.69	3.600	No	Yes	2.00
573	42.31	52.25	2.62	2.38	0.79	24.86	3.91	97.23	3.600	No	Yes	2.00
574	42.45	56.94	2.57	2.24	0.78	27.44	3.48	95.61	0.161	No	No	0.80
575	42.55	59.37	2.54	2.18	0.77	28.78	3.30	94.91	0.160	No	No	0.80
576	42.60	59.78	2.54	2.18	0.77	28.96	3.29	95.14	0.160	No	No	0.80

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	42.70	59.34	2.55	2.25	0.77	28.59	3.38	96.60	0.164	No	No	0.82
578	42.81	57.38	2.59	2.39	0.78	27.33	3.64	99.43	0.171	No	No	0.85
579	42.89	53.57	2.64	2.62	0.80	25.06	4.12	103.15	3.600	No	Yes	2.00
580	42.98	48.27	2.71	2.91	0.82	22.02	4.84	106.61	3.600	No	Yes	2.00
581	43.08	43.14	2.79	3.21	0.84	19.16	5.69	108.99	3.600	No	Yes	2.00
582	43.17	40.44	2.83	3.35	0.86	17.68	6.18	109.35	3.600	No	Yes	2.00
583	43.27	41.05	2.81	3.20	0.85	18.01	5.94	107.03	3.600	No	Yes	2.00
584	43.37	43.81	2.71	2.52	0.82	19.71	4.84	95.48	3.600	No	Yes	2.00
585	43.50	46.82	2.61	1.93	0.79	21.62	3.86	83.44	3.600	No	Yes	2.00
586	43.61	48.54	2.54	1.53	0.77	22.85	3.24	73.95	0.118	No	No	0.59
587	43.74	49.31	2.54	1.57	0.77	23.16	3.25	75.29	0.120	No	No	0.60
588	43.79	49.31	2.56	1.72	0.78	22.99	3.44	79.06	0.126	No	No	0.63
589	43.86	48.47	2.60	1.95	0.79	22.31	3.79	84.59	3.600	No	Yes	2.00
590	43.94	47.05	2.66	2.26	0.81	21.30	4.28	91.16	3.600	No	Yes	2.00
591	44.00	44.89	2.72	2.63	0.82	19.92	4.92	98.08	3.600	No	Yes	2.00
592	44.08	42.33	2.78	2.98	0.84	18.39	5.62	103.37	3.600	No	Yes	2.00
593	44.17	38.85	2.85	3.30	0.86	16.48	6.45	106.26	3.600	No	Yes	2.00
594	44.27	35.44	2.90	3.43	0.88	14.71	7.14	105.00	3.600	No	Yes	2.00
595	44.42	34.16	2.90	3.25	0.88	14.09	7.15	100.72	3.600	No	Yes	2.00
596	44.52	37.10	2.82	2.76	0.85	15.69	6.06	95.03	3.600	No	Yes	2.00
597	44.61	44.15	2.68	2.18	0.81	19.52	4.49	87.72	3.600	No	Yes	2.00
598	44.71	51.91	2.57	1.87	0.78	23.77	3.51	83.46	0.134	No	No	0.67
599	44.85	56.66	2.53	1.83	0.77	26.27	3.19	83.87	0.135	No	No	0.67
600	44.95	57.30	2.55	1.98	0.77	26.40	3.34	88.11	0.144	No	No	0.71
601	45.09	54.98	2.59	2.17	0.79	24.92	3.69	92.06	0.153	No	No	0.76
602	45.19	50.09	2.66	2.39	0.81	22.17	4.29	95.00	3.600	No	Yes	2.00
603	45.33	43.44	2.76	2.73	0.83	18.53	5.31	98.48	3.600	No	Yes	2.00
604	45.42	37.17	2.85	3.08	0.86	15.25	6.56	100.02	3.600	No	Yes	2.00
605	45.57	34.20	2.90	3.17	0.88	13.74	7.18	98.64	3.600	No	Yes	2.00
606	45.68	32.58	2.91	3.02	0.88	12.98	7.29	94.66	3.600	No	Yes	2.00
607	45.81	30.45	2.91	2.71	0.88	12.02	7.30	87.72	3.600	No	Yes	2.00
608	45.92	26.54	3.01	2.83	1.00	9.26	8.96	82.93	3.600	No	Yes	2.00
609	46.05	22.29	3.11	3.22	1.00	7.59	10.87	82.51	3.600	No	Yes	2.00
610	46.16	19.32	3.23	4.05	1.00	6.43	13.40	86.12	3.600	No	Yes	2.00
611	46.17	17.73	3.28	4.34	1.00	5.82	14.71	85.57	3.600	No	Yes	2.00
612	46.23	17.46	3.28	4.24	1.00	5.70	14.75	84.09	3.600	No	Yes	2.00
613	46.29	16.85	3.29	4.16	1.00	5.46	15.02	82.02	3.600	No	Yes	2.00
614	46.34	16.04	3.31	3.98	1.00	5.15	15.32	78.81	3.600	No	Yes	2.00
615	46.42	15.30	3.31	3.71	1.00	4.85	15.44	74.90	3.600	No	Yes	2.00
616	46.48	14.90	3.30	3.33	1.00	4.69	15.10	70.80	3.600	No	Yes	2.00
617	46.52	14.69	3.28	3.04	1.00	4.61	14.73	67.86	3.600	No	Yes	2.00
618	46.60	14.56	3.27	2.84	1.00	4.55	14.47	65.79	3.600	No	Yes	2.00
619	46.67	14.49	3.26	2.68	1.00	4.51	14.23	64.21	3.600	No	Yes	2.00
620	46.74	14.45	3.25	2.57	1.00	4.49	14.03	63.02	3.600	No	Yes	2.00
621	46.82	14.42	3.25	2.46	1.00	4.47	13.84	61.88	3.600	No	Yes	2.00
622	46.88	14.19	3.25	2.42	1.00	4.37	13.96	61.07	3.600	No	Yes	2.00
623	46.96	14.10	3.25	2.39	1.00	4.33	13.99	60.61	3.600	No	Yes	2.00
624	47.06	13.97	3.26	2.41	1.00	4.27	14.16	60.52	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	47.15	14.11	3.26	2.45	1.00	4.31	14.15	61.03	3.600	No	Yes	2.00
626	47.24	14.43	3.28	2.83	1.00	4.42	14.72	65.10	3.600	No	Yes	2.00
627	47.35	16.18	3.29	3.62	1.00	5.07	14.87	75.39	3.600	No	Yes	2.00
628	47.49	19.69	3.20	3.51	1.00	6.36	12.67	80.67	3.600	No	Yes	2.00
629	47.58	24.11	3.09	3.10	1.00	8.00	10.33	82.65	3.600	No	Yes	2.00
630	47.73	26.03	3.03	2.80	1.00	8.69	9.32	80.95	3.600	No	Yes	2.00
631	47.83	27.06	3.02	2.79	1.00	9.05	9.05	81.84	3.600	No	Yes	2.00
632	47.87	26.18	3.04	2.97	1.00	8.71	9.55	83.19	3.600	No	Yes	2.00
633	47.89	26.93	3.02	2.82	1.00	8.98	9.14	82.12	3.600	No	Yes	2.00
634	47.94	26.64	3.02	2.81	1.00	8.87	9.20	81.59	3.600	No	Yes	2.00
635	48.02	26.81	3.02	2.75	1.00	8.91	9.08	80.90	3.600	No	Yes	2.00
636	48.07	26.40	3.03	2.79	1.00	8.75	9.26	81.07	3.600	No	Yes	2.00
637	48.12	25.97	3.05	2.94	1.00	8.58	9.61	82.45	3.600	No	Yes	2.00
638	48.18	25.43	3.07	3.12	1.00	8.37	10.05	84.09	3.600	No	Yes	2.00
639	48.26	25.01	3.09	3.28	1.00	8.20	10.42	85.42	3.600	No	Yes	2.00
640	48.31	24.60	3.10	3.27	1.00	8.04	10.54	84.77	3.600	No	Yes	2.00
641	48.38	24.56	3.08	3.09	1.00	8.01	10.30	82.58	3.600	No	Yes	2.00
642	48.46	24.71	3.06	2.82	1.00	8.05	9.85	79.31	3.600	No	Yes	2.00
643	48.52	24.41	3.05	2.59	1.00	7.93	9.58	75.99	3.600	No	Yes	2.00
644	48.60	23.16	3.05	2.42	1.00	7.46	9.70	72.40	3.600	No	Yes	2.00
645	48.68	20.77	3.10	2.41	1.00	6.57	10.59	69.64	3.600	No	Yes	2.00
646	48.74	18.20	3.17	2.55	1.00	5.63	12.04	67.76	3.600	No	Yes	2.00
647	48.82	15.94	3.25	2.86	1.00	4.80	14.01	67.24	3.600	No	Yes	2.00
648	48.89	14.56	3.31	3.07	1.00	4.29	15.49	66.41	3.600	No	Yes	2.00
649	48.99	13.82	3.34	3.08	1.00	4.01	16.21	64.98	3.600	No	Yes	2.00
650	49.05	13.65	3.32	2.83	1.00	3.94	15.85	62.48	3.600	No	Yes	2.00
651	49.12	13.51	3.31	2.54	1.00	3.89	15.38	59.74	3.600	No	Yes	2.00
652	49.18	13.55	3.28	2.25	1.00	3.89	14.70	57.20	3.600	No	Yes	2.00
653	49.27	13.75	3.26	2.06	1.00	3.96	14.08	55.71	3.600	No	Yes	2.00
654	49.32	13.92	3.24	1.91	1.00	4.01	13.56	54.42	3.600	No	Yes	2.00
655	49.42	13.55	3.25	1.92	1.00	3.87	13.92	53.88	3.600	No	Yes	2.00
656	49.48	13.11	3.27	1.97	1.00	3.71	14.46	53.63	3.600	No	Yes	2.00
657	49.56	13.01	3.28	2.04	1.00	3.66	14.76	54.09	3.600	No	Yes	2.00
658	49.66	13.28	3.28	2.12	1.00	3.75	14.73	55.25	3.600	No	Yes	2.00
659	49.76	13.68	3.27	2.16	1.00	3.89	14.49	56.33	3.600	No	Yes	2.00
660	49.85	14.06	3.23	1.87	1.00	4.01	13.46	54.00	3.600	No	Yes	2.00
661	49.99	14.87	3.17	1.52	1.00	4.29	11.96	51.28	3.600	No	Yes	2.00
662	50.09	14.43	3.16	1.38	1.00	4.12	11.90	49.07	3.600	No	Yes	2.00
663	50.21	13.82	3.21	1.57	1.00	3.89	12.94	50.39	3.600	No	Yes	2.00
664	50.24	13.21	3.24	1.66	1.00	3.68	13.72	50.47	3.600	No	Yes	2.00
665	50.29	13.59	3.21	1.54	1.00	3.81	13.05	49.66	3.600	No	Yes	2.00
666	50.38	13.69	3.20	1.45	1.00	3.83	12.73	48.82	3.600	No	Yes	2.00
667	50.47	13.39	3.21	1.45	1.00	3.72	13.00	48.36	3.600	No	Yes	2.00
668	50.52	12.98	3.24	1.53	1.00	3.57	13.61	48.61	3.600	No	Yes	2.00
669	50.62	13.01	3.24	1.57	1.00	3.58	13.73	49.09	3.600	No	Yes	2.00
670	50.66	13.15	3.24	1.60	1.00	3.62	13.70	49.58	3.600	No	Yes	2.00
671	50.76	13.28	3.24	1.64	1.00	3.66	13.70	50.11	3.600	No	Yes	2.00
672	50.83	14.13	3.21	1.63	1.00	3.95	12.99	51.29	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	50.91	14.30	3.23	1.81	1.00	4.00	13.34	53.36	3.600	No	Yes	2.00
674	51.00	15.61	3.19	1.82	1.00	4.45	12.42	55.29	3.600	No	Yes	2.00
675	51.06	17.36	3.13	1.78	1.00	5.06	11.27	56.99	3.600	No	Yes	2.00
676	51.15	17.67	3.16	2.10	1.00	5.15	11.86	61.08	3.600	No	Yes	2.00
677	51.24	16.35	3.27	2.96	1.00	4.68	14.43	67.57	3.600	No	Yes	2.00
678	51.31	12.88	3.51	5.15	1.00	3.47	21.69	75.27	3.600	No	Yes	2.00
679	51.39	18.55	3.28	3.96	1.00	5.43	14.77	80.15	3.600	No	Yes	2.00
680	51.48	32.14	2.90	2.47	0.88	11.43	7.23	82.64	3.600	No	Yes	2.00
681	51.58	35.38	2.87	2.60	0.87	12.78	6.83	87.30	3.600	No	Yes	2.00
682	51.68	27.82	3.10	3.71	1.00	8.59	10.70	91.85	3.600	No	Yes	2.00
683	51.77	17.84	3.45	6.98	1.00	5.13	19.49	100.06	3.600	No	Yes	2.00
684	51.90	36.80	3.02	4.07	1.00	11.62	9.16	106.47	3.600	No	Yes	2.00
685	52.01	74.42	2.58	2.71	0.78	30.49	3.61	110.20	4.000	Yes	No	2.00
686	52.11	128.50	2.34	2.42	0.71	57.50	2.11	121.05	4.000	Yes	No	2.00
687	52.26	161.87	2.25	2.35	0.68	74.64	1.77	131.90	4.000	Yes	No	2.00
688	52.30	209.17	2.12	2.06	0.65	100.78	1.45	146.55	4.000	Yes	No	2.00
689	52.33	248.44	2.00	1.70	0.61	124.60	1.31	162.63	4.000	Yes	No	2.00
690	52.35	302.93	1.87	1.40	0.57	158.50	1.21	192.22	4.000	Yes	No	2.00
691	52.40	347.53	1.78	1.23	0.54	187.07	1.12	209.95	4.000	Yes	No	2.00
692	52.45	381.51	1.72	1.16	0.53	208.63	1.04	216.58	4.000	Yes	No	2.00
693	52.50	415.58	1.69	1.13	0.51	229.89	1.00	229.89	4.000	No	No	2.00
694	52.55	447.33	1.67	1.14	0.51	248.98	1.00	248.98	4.000	No	No	2.00
695	52.60	486.53	1.63	1.11	0.50	273.15	1.00	273.15	4.000	No	No	2.00
696	52.65	516.02	1.60	1.04	0.50	289.64	1.00	289.64	4.000	No	No	2.00
697	52.71	531.14	1.57	0.97	0.50	297.95	1.00	297.95	4.000	No	No	2.00
698	52.77	541.83	1.53	0.90	0.50	303.79	1.00	303.79	4.000	No	No	2.00
699	52.82	558.50	1.51	0.85	0.50	312.99	1.00	312.99	4.000	No	No	2.00
700	52.88	578.13	1.48	0.81	0.50	323.84	1.00	323.84	4.000	No	No	2.00
701	52.93	592.07	1.46	0.79	0.50	331.46	1.00	331.46	4.000	No	No	2.00
702	52.98	605.70	1.46	0.78	0.50	338.95	1.00	338.95	4.000	No	No	2.00
703	53.03	608.64	1.46	0.79	0.50	340.39	1.00	340.39	4.000	No	No	2.00
704	53.08	608.27	1.46	0.80	0.50	340.01	1.00	340.01	4.000	No	No	2.00
705	53.12	601.01	1.47	0.80	0.50	335.78	1.00	335.78	4.000	No	No	2.00
706	53.17	598.22	1.46	0.78	0.50	333.99	1.00	333.99	4.000	No	No	2.00
707	53.23	600.71	1.45	0.76	0.50	335.19	1.00	335.19	4.000	No	No	2.00
708	53.28	596.23	1.47	0.79	0.50	332.45	1.00	332.45	4.000	No	No	2.00
709	53.37	588.50	1.48	0.83	0.50	327.80	1.00	327.80	4.000	No	No	2.00
710	53.42	584.11	1.50	0.86	0.50	325.17	1.00	325.17	4.000	No	No	2.00
711	53.46	586.81	1.52	0.90	0.50	326.50	1.00	326.50	4.000	No	No	2.00
712	53.53	599.03	1.53	0.96	0.50	333.09	1.00	333.09	4.000	No	No	2.00
713	53.61	597.34	1.56	1.05	0.50	331.84	1.00	331.84	4.000	No	No	2.00
714	53.62	582.26	1.60	1.13	0.50	323.39	1.00	323.39	4.000	No	No	2.00
715	53.65	574.05	1.60	1.15	0.50	318.67	1.00	318.67	4.000	No	No	2.00
716	53.67	571.35	1.61	1.16	0.50	317.12	1.00	317.12	4.000	No	No	2.00
717	53.70	583.83	1.59	1.12	0.50	323.95	1.00	323.95	4.000	No	No	2.00
718	53.74	582.83	1.60	1.14	0.50	323.26	1.00	323.26	4.000	No	No	2.00
719	53.76	583.81	1.60	1.14	0.50	323.74	1.00	323.74	4.000	No	No	2.00
720	53.80	581.08	1.59	1.13	0.50	322.06	1.00	322.06	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	53.84	577.81	1.59	1.10	0.50	320.07	1.00	320.07	4.000	No	No	2.00
722	53.90	578.23	1.58	1.07	0.50	320.12	1.00	320.12	4.000	No	No	2.00
723	53.91	570.20	1.59	1.08	0.50	315.61	1.00	315.61	4.000	No	No	2.00
724	53.95	573.64	1.58	1.08	0.50	317.38	1.00	317.38	4.000	No	No	2.00
725	53.96	579.94	1.58	1.07	0.50	320.83	1.00	320.83	4.000	No	No	2.00
726	53.98	601.06	1.56	1.04	0.50	332.48	1.00	332.48	4.000	No	No	2.00
727	53.99	602.95	1.56	1.03	0.50	333.50	1.00	333.50	4.000	No	No	2.00
728	54.01	592.15	1.57	1.05	0.50	327.46	1.00	327.46	4.000	No	No	2.00
729	54.02	579.33	1.58	1.08	0.50	320.31	1.00	320.31	4.000	No	No	2.00
730	54.03	553.15	1.61	1.13	0.50	305.74	1.00	305.74	4.000	No	No	2.00
731	54.04	504.84	1.67	1.24	0.51	276.21	1.00	276.21	4.000	No	No	2.00
732	54.05	452.17	1.75	1.40	0.53	241.19	1.08	260.14	4.000	No	No	2.00
733	54.09	422.63	1.79	1.51	0.55	221.81	1.15	254.46	4.000	No	No	2.00
734	54.10	421.59	1.80	1.53	0.55	220.94	1.15	254.57	4.000	No	No	2.00
735	54.13	421.89	1.80	1.53	0.55	221.06	1.15	254.64	4.000	No	No	2.00
736	54.14	420.96	1.80	1.54	0.55	220.34	1.16	254.59	4.000	No	No	2.00
737	54.19	422.82	1.80	1.54	0.55	221.19	1.16	255.77	4.000	No	No	2.00
738	54.19	428.79	1.80	1.55	0.55	224.52	1.15	258.95	4.000	No	No	2.00
739	54.24	439.22	1.77	1.47	0.54	231.86	1.12	259.93	4.000	No	No	2.00
740	54.29	456.97	1.71	1.29	0.52	245.94	1.02	249.88	4.000	No	No	2.00
741	54.33	474.10	1.64	1.08	0.50	261.31	1.00	261.31	4.000	No	No	2.00
742	54.38	494.95	1.57	0.92	0.50	272.80	1.00	272.80	4.000	No	No	2.00
743	54.39	512.70	1.53	0.85	0.50	282.62	1.00	282.62	4.000	No	No	2.00
744	54.43	529.13	1.52	0.84	0.50	291.66	1.00	291.66	4.000	No	No	2.00
745	54.48	543.10	1.44	0.67	0.50	299.32	1.00	299.32	4.000	No	No	2.00
746	54.52	556.66	1.36	0.53	0.50	306.76	1.00	306.76	4.000	No	No	2.00
747	54.58	573.87	1.26	0.38	0.50	316.20	1.00	316.20	4.000	No	No	2.00
748	54.62	587.13	1.28	0.42	0.50	323.46	1.00	323.46	4.000	No	No	2.00
749	54.65	604.44	1.29	0.46	0.50	333.00	1.00	333.00	4.000	No	No	2.00
750	54.67	623.33	1.30	0.48	0.50	343.41	1.00	343.41	4.000	No	No	2.00
751	54.71	658.15	1.28	0.48	0.50	362.60	1.00	362.60	4.000	No	No	2.00
752	54.77	679.34	1.20	0.37	0.50	374.21	1.00	374.21	4.000	No	No	2.00
753	54.81	702.99	1.11	0.28	0.50	387.19	1.00	387.19	4.000	No	No	2.00
754	54.85	704.07	1.04	0.22	0.50	387.70	1.00	387.70	4.000	No	No	2.00
755	54.86	709.13	1.06	0.24	0.50	390.48	1.00	390.48	4.000	No	No	2.00
756	54.87	703.33	1.09	0.27	0.50	387.26	1.00	387.26	4.000	No	No	2.00
757	54.91	703.66	1.13	0.30	0.50	387.35	1.00	387.35	4.000	No	No	2.00
758	54.96	707.14	1.16	0.34	0.50	389.17	1.00	389.17	4.000	No	No	2.00
759	55.00	703.19	1.18	0.36	0.50	386.89	1.00	386.89	4.000	No	No	2.00
760	55.01	695.84	1.19	0.37	0.50	382.82	1.00	382.82	4.000	No	No	2.00
761	55.05	679.11	1.21	0.39	0.50	373.47	1.00	373.47	4.000	No	No	2.00
762	55.10	651.07	1.24	0.42	0.50	357.87	1.00	357.87	4.000	No	No	2.00
763	55.12	603.77	1.29	0.46	0.50	331.72	1.00	331.72	4.000	No	No	2.00
764	55.13	570.97	1.33	0.49	0.50	313.58	1.00	313.58	4.000	No	No	2.00
765	55.14	563.11	1.33	0.48	0.50	309.22	1.00	309.22	4.000	No	No	2.00
766	55.19	576.91	1.31	0.46	0.50	316.75	1.00	316.75	4.000	No	No	2.00
767	55.20	576.27	1.31	0.46	0.50	316.38	1.00	316.38	4.000	No	No	2.00
768	55.25	562.13	1.33	0.48	0.50	308.48	1.00	308.48	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	55.29	546.07	1.37	0.52	0.50	299.55	1.00	299.55	4.000	No	No	2.00
770	55.33	519.69	1.42	0.59	0.50	284.92	1.00	284.92	4.000	No	No	2.00
771	55.38	481.16	1.52	0.76	0.50	263.59	1.00	263.59	4.000	No	No	2.00
772	55.48	439.32	1.63	0.99	0.50	240.38	1.00	240.38	4.000	No	No	2.00
773	55.57	411.39	1.73	1.22	0.53	218.55	1.04	227.87	4.000	No	No	2.00
774	55.63	398.09	1.80	1.45	0.55	206.42	1.15	237.94	4.000	No	No	2.00
775	55.72	402.04	1.83	1.60	0.56	206.08	1.19	244.53	4.000	No	No	2.00
776	55.80	431.09	1.82	1.63	0.55	221.88	1.17	260.68	4.000	No	No	2.00
777	55.86	480.55	1.67	1.19	0.51	259.76	1.00	259.76	4.000	No	No	2.00
778	55.97	527.85	1.51	0.79	0.50	288.32	1.00	288.32	4.000	No	No	2.00
779	56.01	560.55	1.34	0.49	0.50	306.20	1.00	306.20	4.000	No	No	2.00
780	56.06	587.84	1.50	0.47	1.00	186.61	1.00	186.61	0.684	No	No	2.00
781	56.11	613.11	1.50	0.51	1.00	194.57	1.00	194.57	0.765	No	No	2.00
782	56.15	640.71	1.51	0.55	1.00	203.27	1.00	203.27	4.000	No	No	2.00
783	56.20	660.92	1.52	0.59	1.00	209.60	1.00	209.60	4.000	No	No	2.00
784	56.27	663.16	1.53	0.63	1.00	210.15	1.00	210.15	4.000	No	No	2.00
785	56.27	664.17	1.56	0.69	1.00	210.45	1.00	210.45	4.000	No	No	2.00
786	56.30	642.20	1.61	0.79	1.00	203.39	1.00	203.39	4.000	No	No	2.00
787	56.33	649.54	1.64	0.87	1.00	205.64	1.00	205.64	4.000	No	No	2.00
788	56.35	647.65	1.66	0.92	1.00	205.00	1.00	205.00	4.000	No	No	2.00
789	56.40	667.86	1.64	0.90	1.00	211.31	1.00	211.31	4.000	No	No	2.00
790	56.41	669.34	1.64	0.90	1.00	211.76	1.00	211.76	4.000	No	No	2.00
791	56.44	681.53	1.63	0.88	1.00	215.53	1.00	215.53	4.000	No	No	2.00
792	56.49	695.19	1.62	0.87	1.00	219.75	1.00	219.75	4.000	No	No	2.00
793	56.54	717.49	1.61	0.87	1.00	226.71	1.00	226.71	4.000	No	No	2.00
794	56.58	737.23	1.61	0.89	1.00	232.85	1.00	232.85	4.000	No	No	2.00
795	56.59	750.18	1.61	0.91	1.00	236.93	1.00	236.93	4.000	No	No	2.00
796	56.64	757.34	1.60	0.90	1.00	239.07	1.00	239.07	4.000	No	No	2.00
797	56.69	764.80	1.60	0.90	1.00	241.29	1.00	241.29	4.000	No	No	2.00
798	56.73	778.16	1.59	0.88	1.00	245.40	1.00	245.40	4.000	No	No	2.00
799	56.78	778.56	1.58	0.86	1.00	245.38	1.00	245.38	4.000	No	No	2.00
800	56.83	759.53	1.58	0.83	1.00	239.22	1.00	239.22	4.000	No	No	2.00
801	56.88	731.80	1.58	0.82	1.00	230.32	1.00	230.32	4.000	No	No	2.00
802	56.89	708.89	1.60	0.82	1.00	223.03	1.00	223.03	4.000	No	No	2.00
803	56.95	692.53	1.59	0.80	1.00	217.71	1.00	217.71	4.000	No	No	2.00
804	57.01	668.00	1.59	0.77	1.00	209.81	1.00	209.81	4.000	No	No	2.00
805	57.07	645.94	1.58	0.71	1.00	202.70	1.00	202.70	4.000	No	No	2.00
806	57.11	619.45	1.52	0.54	1.00	194.25	1.00	194.25	0.762	No	No	2.00
807	57.17	598.63	1.46	0.41	1.00	187.56	1.00	187.56	0.694	No	No	2.00
808	57.26	574.07	1.37	0.26	1.00	179.66	1.00	179.66	0.619	No	No	2.00
809	57.31	547.05	1.43	0.31	1.00	171.06	1.00	171.06	0.546	No	No	2.00
810	57.37	520.16	1.45	0.32	1.00	162.50	1.00	162.50	0.479	No	No	2.00
811	57.45	490.27	1.51	0.38	1.00	152.96	1.00	152.96	0.413	No	No	2.00
812	57.51	451.30	1.55	0.39	1.00	140.63	1.00	140.63	0.339	No	No	1.75
813	57.53	421.54	1.59	0.41	1.00	131.27	1.00	131.27	0.290	No	No	1.50
814	57.59	401.40	1.62	0.43	1.00	124.87	1.00	124.87	0.261	No	No	1.35
815	57.63	398.96	1.62	0.43	1.00	124.05	1.00	124.05	0.258	No	No	1.33
816	57.68	391.51	1.63	0.44	1.00	121.66	1.00	121.66	0.247	No	No	1.28

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	57.73	386.48	1.64	0.44	1.00	120.01	1.00	120.01	0.241	No	No	1.24
818	57.78	379.02	1.65	0.44	1.00	117.62	1.00	117.62	0.231	No	No	1.19
819	57.86	359.96	1.66	0.43	1.00	111.55	1.00	111.55	0.209	No	No	1.08
820	57.92	326.32	1.71	0.47	1.00	100.97	1.00	100.97	4.000	Yes	No	2.00
821	57.98	290.83	1.76	0.47	1.00	89.82	1.00	89.82	4.000	Yes	No	2.00
822	58.06	263.33	1.82	0.53	1.00	81.16	1.18	95.51	4.000	Yes	No	2.00
823	58.12	242.92	1.90	0.64	1.00	74.75	1.24	92.39	4.000	Yes	No	2.00
824	58.21	222.41	1.99	0.82	1.00	68.28	1.30	88.73	4.000	Yes	No	2.00
825	58.26	204.43	2.06	0.97	1.00	62.64	1.37	85.71	4.000	Yes	No	2.00
826	58.35	180.37	2.14	1.08	1.00	55.10	1.48	81.38	4.000	Yes	No	2.00
827	58.41	154.93	2.19	1.08	1.00	47.15	1.59	74.91	4.000	Yes	No	2.00
828	58.50	122.84	2.29	1.16	1.00	37.13	1.90	70.73	4.000	Yes	No	2.00
829	58.56	98.18	2.38	1.18	1.00	29.45	2.28	67.27	4.000	Yes	No	2.00
830	58.64	77.90	2.53	1.55	1.00	23.14	3.23	74.61	4.000	Yes	No	2.00
831	58.73	63.67	2.66	1.93	1.00	18.70	4.34	81.15	4.000	Yes	Yes	2.00
832	58.80	51.12	2.80	2.41	1.00	14.80	5.89	87.16	4.000	Yes	Yes	2.00
833	58.84	42.24	2.93	2.94	1.00	12.04	7.59	91.44	4.000	Yes	Yes	2.00
834	58.85	43.79	2.90	2.86	1.00	12.52	7.27	91.06	3.600	No	Yes	2.00
835	58.93	50.50	2.81	2.45	1.00	14.59	6.00	87.49	3.600	No	Yes	2.00
836	58.98	58.12	2.72	2.06	1.00	16.94	4.87	82.49	3.600	No	Yes	2.00
837	59.02	61.77	2.67	1.86	1.00	18.06	4.38	79.02	3.600	No	Yes	2.00
838	59.12	63.39	2.65	1.79	1.00	18.54	4.19	77.74	3.600	No	Yes	2.00
839	59.17	65.41	2.64	1.79	1.00	19.15	4.09	78.34	3.600	No	Yes	2.00
840	59.27	67.33	2.63	1.85	1.00	19.73	4.06	80.06	3.600	No	Yes	2.00
841	59.31	67.64	2.64	1.94	1.00	19.81	4.15	82.31	3.600	No	Yes	2.00
842	59.41	64.84	2.68	2.06	1.00	18.93	4.46	84.40	3.600	No	Yes	2.00
843	59.46	57.99	2.74	2.22	1.00	16.81	5.11	85.91	3.600	No	Yes	2.00
844	59.55	48.77	2.83	2.45	1.00	13.96	6.20	86.53	3.600	No	Yes	2.00
845	59.65	39.66	2.91	2.48	1.00	11.14	7.37	82.12	3.600	No	Yes	2.00
846	59.70	34.25	2.97	2.47	1.00	9.47	8.28	78.48	3.600	No	Yes	2.00
847	59.80	32.07	2.99	2.40	1.00	8.80	8.61	75.77	3.600	No	Yes	2.00
848	59.89	32.04	3.01	2.66	1.00	8.78	9.03	79.29	3.600	No	Yes	2.00
849	59.94	31.04	3.06	2.98	1.00	8.47	9.76	82.68	3.600	No	Yes	2.00
850	60.01	30.35	3.09	3.25	1.00	8.25	10.33	85.21	3.600	No	Yes	2.00
851	60.02	32.64	3.04	3.10	1.00	8.95	9.57	85.70	3.600	No	Yes	2.00
852	60.08	35.54	2.99	2.84	1.00	9.83	8.61	84.70	3.600	No	Yes	2.00
853	60.12	36.56	2.97	2.70	1.00	10.14	8.23	83.40	3.600	No	Yes	2.00
854	60.17	32.87	3.01	2.76	1.00	9.01	9.03	81.32	3.600	No	Yes	2.00
855	60.27	28.56	3.07	2.73	1.00	7.68	10.03	76.99	3.600	No	Yes	2.00
856	60.31	24.81	3.12	2.61	1.00	6.53	11.00	71.83	3.600	No	Yes	2.00
857	60.37	22.21	3.15	2.46	1.00	5.73	11.72	67.16	3.600	No	Yes	2.00
858	60.46	20.93	3.17	2.32	1.00	5.33	12.03	64.16	3.600	No	Yes	2.00
859	60.51	20.76	3.15	2.06	1.00	5.28	11.57	61.05	3.600	No	Yes	2.00
860	60.61	21.43	3.11	1.87	1.00	5.48	10.86	59.48	3.600	No	Yes	2.00
861	60.65	21.84	3.09	1.76	1.00	5.60	10.44	58.49	3.600	No	Yes	2.00
862	60.75	22.18	3.08	1.74	1.00	5.70	10.27	58.52	3.600	No	Yes	2.00
863	60.81	22.25	3.08	1.74	1.00	5.72	10.24	58.52	3.600	No	Yes	2.00
864	60.89	22.21	3.08	1.71	1.00	5.70	10.20	58.14	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	60.94	22.45	3.07	1.71	1.00	5.77	10.12	58.37	3.600	No	Yes	2.00
866	61.03	22.62	3.08	1.77	1.00	5.81	10.19	59.27	3.600	No	Yes	2.00
867	61.09	22.65	3.08	1.79	1.00	5.82	10.23	59.56	3.600	No	Yes	2.00
868	61.19	22.38	3.08	1.78	1.00	5.74	10.30	59.09	3.600	No	Yes	2.00
869	61.24	22.96	3.06	1.69	1.00	5.91	9.90	58.48	3.600	No	Yes	2.00
870	61.33	24.51	3.03	1.68	1.00	6.37	9.35	59.55	3.600	No	Yes	2.00
871	61.38	24.20	3.09	2.19	1.00	6.28	10.50	65.92	3.600	No	Yes	2.00
872	61.47	23.16	3.18	2.97	1.00	5.95	12.35	73.50	3.600	No	Yes	2.00
873	61.53	21.88	3.28	3.99	1.00	5.56	14.59	81.14	3.600	No	Yes	2.00
874	61.62	27.61	3.13	3.27	1.00	7.29	11.24	81.97	3.600	No	Yes	2.00
875	61.70	44.48	2.86	2.37	1.00	12.39	6.68	82.73	3.600	No	Yes	2.00
876	61.77	66.81	2.67	2.07	1.00	19.14	4.44	84.93	3.600	No	Yes	2.00
877	61.86	81.96	2.60	2.12	1.00	23.70	3.78	89.66	3.600	No	Yes	2.00
878	61.95	81.02	2.63	2.34	1.00	23.39	4.06	94.89	3.600	No	Yes	2.00
879	61.97	72.62	2.69	2.53	1.00	20.85	4.65	96.91	3.600	No	Yes	2.00
880	62.01	62.36	2.78	2.84	1.00	17.75	5.62	99.66	4.000	No	Yes	2.00
881	62.10	52.17	2.87	3.09	1.00	14.66	6.77	99.23	4.000	Yes	Yes	2.00
882	62.24	55.41	2.79	2.50	1.00	15.61	5.76	89.92	4.000	Yes	Yes	2.00
883	62.34	87.70	2.48	1.40	1.00	25.31	2.83	71.54	4.000	Yes	No	2.00
884	62.49	127.58	2.25	0.95	1.00	37.26	1.74	64.77	4.000	Yes	No	2.00
885	62.54	164.52	2.11	0.82	1.00	48.34	1.44	69.68	4.000	Yes	No	2.00
886	62.66	181.39	2.07	0.78	1.00	53.35	1.37	73.33	4.000	Yes	No	2.00
887	62.74	199.68	2.02	0.75	1.00	58.78	1.33	77.94	4.000	Yes	No	2.00
888	62.87	211.65	1.99	0.72	1.00	62.29	1.30	80.99	4.000	No	No	2.00
889	62.92	217.18	1.98	0.72	1.00	63.92	1.29	82.65	4.000	No	No	2.00
890	63.03	219.18	1.98	0.73	1.00	64.44	1.29	83.41	4.000	No	No	2.00
891	63.15	218.06	1.99	0.76	1.00	64.03	1.30	83.38	4.000	No	No	2.00
892	63.26	213.11	2.01	0.79	1.00	62.49	1.32	82.35	4.000	No	No	2.00
893	63.37	206.70	2.03	0.82	1.00	60.51	1.34	80.92	4.000	No	No	2.00
894	63.45	200.15	2.04	0.79	1.00	58.51	1.34	78.49	4.000	No	No	2.00
895	63.54	197.59	2.02	0.71	1.00	57.70	1.32	76.31	4.000	No	No	2.00
896	63.61	190.30	2.02	0.68	1.00	55.49	1.33	73.61	4.000	Yes	No	2.00
897	63.69	172.04	2.08	0.74	1.00	50.02	1.39	69.47	4.000	Yes	No	2.00
898	63.79	141.71	2.22	0.97	1.00	40.98	1.65	67.77	4.000	Yes	No	2.00
899	63.89	106.15	2.36	1.15	1.00	30.39	2.20	66.74	4.000	Yes	No	2.00
900	63.98	75.22	2.55	1.47	1.00	21.20	3.37	71.48	4.000	Yes	No	2.00
901	64.07	53.15	2.72	1.67	1.00	14.65	4.91	71.91	4.000	Yes	Yes	2.00
902	64.15	39.12	2.91	2.21	1.00	10.48	7.30	76.48	4.000	Yes	Yes	2.00
903	64.23	29.98	3.07	2.76	1.00	7.77	10.00	77.68	4.000	No	Yes	2.00
904	64.26	25.15	3.18	3.28	1.00	6.34	12.34	78.26	4.000	No	Yes	2.00
905	64.29	23.57	3.22	3.48	1.00	5.87	13.31	78.14	4.000	No	Yes	2.00
906	64.33	23.37	3.21	3.17	1.00	5.81	12.89	74.86	4.000	No	Yes	2.00
907	64.43	22.99	3.19	2.81	1.00	5.69	12.43	70.78	4.000	No	Yes	2.00
908	64.47	22.29	3.17	2.45	1.00	5.48	12.05	66.07	4.000	No	Yes	2.00
909	64.53	21.82	3.17	2.32	1.00	5.34	12.01	64.15	4.000	No	Yes	2.00
910	64.62	20.60	3.20	2.39	1.00	4.98	12.74	63.40	4.000	No	Yes	2.00
911	64.72	19.12	3.25	2.57	1.00	4.53	13.95	63.23	4.000	No	Yes	2.00
912	64.78	18.00	3.30	2.81	1.00	4.20	15.17	63.74	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	64.86	18.21	3.30	2.92	1.00	4.26	15.26	65.01	4.000	No	Yes	2.00
914	64.96	18.78	3.31	3.20	1.00	4.42	15.44	68.31	4.000	No	Yes	2.00
915	65.06	19.22	3.32	3.52	1.00	4.55	15.74	71.61	4.000	No	Yes	2.00
916	65.11	19.22	3.34	3.90	1.00	4.55	16.41	74.58	4.000	No	Yes	2.00
917	65.21	18.85	3.37	4.16	1.00	4.43	17.13	75.90	4.000	No	Yes	2.00
918	65.31	18.45	3.39	4.32	1.00	4.31	17.70	76.26	4.000	No	Yes	2.00
919	65.40	18.28	3.37	3.90	1.00	4.25	17.10	72.77	4.000	No	Yes	2.00
920	65.50	18.58	3.32	3.22	1.00	4.34	15.67	67.97	4.000	No	Yes	2.00
921	65.58	19.02	3.26	2.59	1.00	4.46	14.15	63.13	4.000	No	Yes	2.00
922	65.68	19.05	3.24	2.38	1.00	4.47	13.69	61.17	4.000	No	Yes	2.00
923	65.78	17.67	3.29	2.52	1.00	4.06	14.89	60.45	4.000	No	Yes	2.00
924	65.84	16.40	3.34	2.66	1.00	3.69	16.19	59.69	4.000	No	Yes	2.00
925	65.86	15.56	3.38	2.83	1.00	3.44	17.33	59.62	4.000	No	Yes	2.00
926	65.87	16.51	3.33	2.60	1.00	3.72	15.97	59.36	4.000	No	Yes	2.00
927	65.98	17.26	3.29	2.44	1.00	3.93	15.03	59.09	4.000	No	Yes	2.00
928	66.10	17.84	3.28	2.46	1.00	4.09	14.69	60.13	4.000	No	Yes	2.00
929	66.21	18.21	3.29	2.65	1.00	4.20	14.85	62.32	4.000	No	Yes	2.00
930	66.34	18.48	3.28	2.68	1.00	4.27	14.76	63.01	4.000	No	Yes	2.00
931	66.48	19.00	3.27	2.66	1.00	4.42	14.39	63.55	4.000	No	Yes	2.00
932	66.62	18.46	3.28	2.63	1.00	4.25	14.69	62.45	4.000	No	Yes	2.00
933	66.68	18.67	3.29	2.78	1.00	4.31	14.87	64.07	4.000	No	Yes	2.00
934	66.87	18.92	3.31	3.19	1.00	4.37	15.53	67.94	4.000	No	Yes	2.00
935	66.96	19.16	3.35	3.89	1.00	4.44	16.65	73.89	4.000	No	Yes	2.00
936	67.11	18.25	3.42	4.74	1.00	4.17	18.76	78.15	4.000	No	Yes	2.00
937	67.21	16.83	3.47	4.99	1.00	3.75	20.42	76.60	4.000	No	Yes	2.00
938	67.35	16.22	3.48	4.67	1.00	3.57	20.50	73.18	4.000	No	Yes	2.00
939	67.45	16.16	3.52	5.49	1.00	3.55	21.95	77.86	4.000	No	Yes	2.00
940	67.59	27.42	3.21	4.13	1.00	6.79	13.06	88.71	4.000	No	Yes	2.00
941	67.68	77.39	2.62	1.95	1.00	21.19	3.95	83.67	4.000	Yes	Yes	2.00
942	67.83	159.77	2.22	1.13	1.00	44.89	1.66	74.68	4.000	Yes	No	2.00
943	67.92	241.25	1.99	0.82	1.00	68.29	1.30	88.64	4.000	Yes	No	2.00
944	68.02	283.19	1.90	0.72	1.00	80.28	1.24	99.35	4.000	Yes	No	2.00
945	68.07	299.01	1.88	0.72	1.00	84.78	1.22	103.71	4.000	Yes	No	2.00
946	68.16	305.70	1.87	0.71	1.00	86.62	1.22	105.26	4.000	No	No	2.00
947	68.26	310.93	1.86	0.70	1.00	88.04	1.21	106.54	4.000	No	No	2.00
948	68.35	307.75	1.88	0.74	1.00	87.05	1.22	106.44	4.000	No	No	2.00
949	68.45	299.96	1.91	0.81	1.00	84.74	1.24	105.37	4.000	No	No	2.00
950	68.55	291.49	1.94	0.86	1.00	82.23	1.26	103.72	4.000	No	No	2.00
951	68.65	271.72	1.98	0.91	1.00	76.50	1.29	98.57	4.000	No	No	2.00
952	68.78	253.59	2.02	0.98	1.00	71.23	1.32	94.35	4.000	No	No	2.00
953	68.78	238.18	2.05	1.03	1.00	66.83	1.36	90.91	4.000	No	No	2.00
954	68.79	234.24	2.06	1.02	1.00	65.70	1.37	89.70	4.000	No	No	2.00
955	68.83	237.70	2.03	0.94	1.00	66.66	1.34	89.08	4.000	No	No	2.00
956	68.93	243.69	1.99	0.81	1.00	68.30	1.30	88.59	4.000	No	No	2.00
957	68.98	253.54	1.93	0.67	1.00	71.08	1.25	89.18	4.000	No	No	2.00
958	69.04	257.79	1.89	0.60	1.00	72.25	1.23	89.05	4.000	No	No	2.00
959	69.12	259.28	1.89	0.58	1.00	72.61	1.23	89.10	4.000	No	No	2.00
960	69.22	255.36	1.90	0.59	1.00	71.43	1.24	88.23	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	69.28	247.73	1.91	0.61	1.00	69.22	1.25	86.25	4.000	No	No	2.00
962	69.36	237.41	1.93	0.61	1.00	66.24	1.26	83.22	4.000	No	No	2.00
963	69.45	223.58	1.95	0.61	1.00	62.26	1.27	79.21	4.000	No	No	2.00
964	69.60	210.12	1.98	0.61	1.00	58.37	1.29	75.34	4.000	No	No	2.00
965	69.70	198.18	2.01	0.62	1.00	54.94	1.31	72.05	4.000	No	No	2.00
966	69.80	193.42	2.01	0.62	1.00	53.54	1.32	70.68	4.000	No	No	2.00
967	69.89	192.07	2.02	0.62	1.00	53.12	1.32	70.30	4.000	No	No	2.00
968	69.98	190.15	2.02	0.63	1.00	52.53	1.33	69.82	4.000	No	No	2.00
969	70.08	181.88	2.04	0.63	1.00	50.15	1.35	67.53	4.000	Yes	No	2.00
970	70.18	159.82	2.12	0.71	1.00	43.89	1.45	63.51	4.000	Yes	No	2.00
971	70.32	124.32	2.27	0.89	1.00	33.85	1.81	61.16	4.000	Yes	No	2.00
972	70.42	84.31	2.50	1.27	1.00	22.56	2.96	66.77	4.000	Yes	No	2.00
973	70.54	51.82	2.77	1.84	1.00	13.41	5.53	74.19	4.000	Yes	Yes	2.00
974	70.66	31.85	3.05	2.58	1.00	7.79	9.69	75.54	4.000	No	Yes	2.00
975	70.75	23.52	3.23	3.11	1.00	5.45	13.34	72.70	4.000	No	Yes	2.00
976	70.80	21.80	3.23	2.72	1.00	4.97	13.43	66.71	4.000	No	Yes	2.00
977	70.89	22.64	3.14	1.98	1.00	5.20	11.52	59.87	4.000	No	Yes	2.00
978	70.99	22.34	3.09	1.45	1.00	5.11	10.38	53.00	4.000	No	Yes	2.00
979	71.08	21.63	3.07	1.23	1.00	4.90	10.09	49.46	4.000	No	Yes	2.00
980	71.17	21.43	3.06	1.12	1.00	4.84	9.87	47.79	4.000	No	Yes	2.00
981	71.23	20.92	3.07	1.10	1.00	4.70	10.01	47.05	4.000	No	Yes	2.00
982	71.33	21.09	3.05	1.03	1.00	4.74	9.74	46.20	4.000	No	Yes	2.00
983	71.42	21.73	3.02	0.90	1.00	4.92	9.08	44.64	4.000	No	Yes	2.00
984	71.52	22.81	2.97	0.78	1.00	5.22	8.26	43.06	4.000	No	Yes	2.00
985	71.58	23.21	2.97	0.82	1.00	5.33	8.27	44.01	4.000	No	Yes	2.00
986	71.67	22.88	3.02	1.04	1.00	5.23	9.07	47.43	4.000	No	Yes	2.00
987	71.81	22.47	3.06	1.28	1.00	5.11	9.94	50.76	4.000	No	Yes	2.00
988	71.82	22.24	3.09	1.43	1.00	5.04	10.42	52.55	4.000	No	Yes	2.00
989	71.86	21.97	3.10	1.47	1.00	4.96	10.64	52.82	4.000	No	Yes	2.00
990	71.91	21.83	3.11	1.49	1.00	4.92	10.75	52.95	4.000	No	Yes	2.00
991	71.97	21.60	3.12	1.53	1.00	4.86	10.97	53.27	4.000	No	Yes	2.00
992	72.05	21.36	3.13	1.58	1.00	4.79	11.22	53.72	4.000	No	Yes	2.00
993	72.10	21.13	3.14	1.65	1.00	4.72	11.52	54.35	4.000	No	Yes	2.00
994	72.20	20.99	3.15	1.70	1.00	4.68	11.71	54.79	4.000	No	Yes	2.00
995	72.25	20.99	3.16	1.76	1.00	4.67	11.87	55.49	4.000	No	Yes	2.00
996	72.34	21.09	3.17	1.88	1.00	4.70	12.12	56.94	4.000	No	Yes	2.00
997	72.44	21.09	3.19	2.06	1.00	4.69	12.53	58.80	4.000	No	Yes	2.00
998	72.53	20.89	3.21	2.23	1.00	4.63	13.04	60.40	4.000	No	Yes	2.00
999	72.63	20.79	3.22	2.32	1.00	4.60	13.29	61.13	4.000	No	Yes	2.00
1000	72.69	20.48	3.23	2.36	1.00	4.51	13.55	61.14	4.000	No	Yes	2.00
1001	72.82	20.69	3.23	2.31	1.00	4.56	13.34	60.87	4.000	No	Yes	2.00
1002	72.92	21.13	3.20	2.18	1.00	4.68	12.83	60.05	4.000	No	Yes	2.00
1003	73.06	22.11	3.17	2.01	1.00	4.95	11.98	59.27	4.000	No	Yes	2.00
1004	73.16	22.34	3.16	2.02	1.00	5.01	11.90	59.57	4.000	No	Yes	2.00
1005	73.30	20.86	3.22	2.28	1.00	4.59	13.21	60.65	4.000	No	Yes	2.00
1006	73.35	19.88	3.26	2.50	1.00	4.32	14.25	61.53	4.000	No	Yes	2.00
1007	73.38	19.20	3.29	2.56	1.00	4.13	14.83	61.23	4.000	No	Yes	2.00
1008	73.47	20.02	3.25	2.39	1.00	4.35	13.95	60.67	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	73.53	20.08	3.24	2.33	1.00	4.37	13.79	60.20	4.000	No	Yes	2.00
1010	73.62	20.18	3.24	2.30	1.00	4.39	13.66	59.95	4.000	No	Yes	2.00
1011	73.71	19.95	3.25	2.36	1.00	4.32	13.95	60.28	4.000	No	Yes	2.00
1012	73.77	19.61	3.28	2.54	1.00	4.23	14.55	61.46	4.000	No	Yes	2.00
1013	73.86	19.34	3.30	2.76	1.00	4.15	15.21	63.08	4.000	No	Yes	2.00
1014	73.96	19.38	3.31	2.94	1.00	4.15	15.56	64.61	4.000	No	Yes	2.00
1015	74.06	19.58	3.32	3.02	1.00	4.20	15.60	65.59	4.000	No	Yes	2.00
1016	74.13	20.02	3.31	3.02	1.00	4.32	15.32	66.22	4.000	No	Yes	2.00
1017	74.24	20.36	3.30	3.02	1.00	4.41	15.12	66.66	4.000	No	Yes	2.00
1018	74.34	20.56	3.30	3.06	1.00	4.46	15.08	67.26	4.000	No	Yes	2.00
1019	74.44	20.42	3.31	3.15	1.00	4.42	15.35	67.81	4.000	No	Yes	2.00
1020	74.58	20.37	3.30	3.10	1.00	4.40	15.30	67.28	4.000	No	Yes	2.00
1021	74.68	20.30	3.27	2.60	1.00	4.38	14.35	62.80	4.000	No	Yes	2.00
1022	74.80	20.47	3.22	2.16	1.00	4.42	13.30	58.74	4.000	No	Yes	2.00
1023	74.92	20.26	3.21	1.96	1.00	4.35	12.97	56.43	4.000	No	Yes	2.00
1024	75.07	20.06	3.24	2.18	1.00	4.29	13.60	58.35	4.000	No	Yes	2.00
1025	75.08	19.75	3.26	2.32	1.00	4.21	14.10	59.34	4.000	No	Yes	2.00
1026	75.11	19.62	3.26	2.36	1.00	4.17	14.28	59.53	4.000	No	Yes	2.00
1027	75.16	19.55	3.27	2.45	1.00	4.15	14.53	60.28	4.000	No	Yes	2.00
1028	75.25	19.31	3.30	2.65	1.00	4.08	15.14	61.74	4.000	No	Yes	2.00
1029	75.32	19.14	3.32	2.86	1.00	4.03	15.69	63.23	4.000	No	Yes	2.00
1030	75.40	18.98	3.33	2.95	1.00	3.98	16.00	63.73	4.000	No	Yes	2.00
1031	75.50	18.81	3.33	2.87	1.00	3.93	15.96	62.77	4.000	No	Yes	2.00
1032	75.59	18.30	3.33	2.72	1.00	3.79	16.02	60.75	4.000	No	Yes	2.00
1033	75.69	17.56	3.34	2.60	1.00	3.59	16.34	58.60	4.000	No	Yes	2.00
1034	75.78	16.85	3.35	2.48	1.00	3.39	16.66	56.46	4.000	No	Yes	2.00
1035	75.88	16.41	3.36	2.34	1.00	3.27	16.73	54.66	4.000	No	Yes	2.00
1036	75.96	16.11	3.35	2.19	1.00	3.18	16.62	52.90	4.000	No	Yes	2.00
1037	76.05	16.04	3.34	2.06	1.00	3.16	16.34	51.65	4.000	No	Yes	2.00
1038	76.14	15.97	3.34	1.99	1.00	3.14	16.25	51.00	4.000	No	Yes	2.00
1039	76.26	16.07	3.34	1.99	1.00	3.16	16.16	51.09	4.000	No	Yes	2.00
1040	76.36	16.07	3.34	2.03	1.00	3.16	16.26	51.38	4.000	No	Yes	2.00
1041	76.41	16.07	3.34	2.04	1.00	3.16	16.31	51.50	4.000	No	Yes	2.00
1042	76.51	15.84	3.35	2.05	1.00	3.09	16.56	51.17	4.000	No	Yes	2.00
1043	76.65	15.50	3.37	2.09	1.00	2.99	17.04	51.04	4.000	No	Yes	2.00
1044	76.72	15.26	3.38	2.15	1.00	2.93	17.45	51.12	4.000	No	Yes	2.00
1045	76.79	15.16	3.39	2.21	1.00	2.90	17.72	51.39	4.000	No	Yes	2.00
1046	76.89	15.23	3.41	2.47	1.00	2.91	18.36	53.53	4.000	No	Yes	2.00
1047	76.98	15.47	3.48	3.62	1.00	2.98	20.80	61.89	4.000	No	Yes	2.00
1048	77.08	18.00	3.43	4.02	1.00	3.65	19.05	69.60	4.000	No	Yes	2.00
1049	77.18	22.18	3.34	4.06	1.00	4.77	16.19	77.29	4.000	No	Yes	2.00
1050	77.28	26.73	3.26	4.08	1.00	5.99	14.06	84.26	4.000	No	Yes	2.00
1051	77.37	27.88	3.29	4.98	1.00	6.30	14.87	93.62	4.000	No	Yes	2.00
1052	77.42	28.76	3.31	5.68	1.00	6.53	15.41	100.64	4.000	No	Yes	2.00
1053	77.42	30.22	3.30	5.86	1.00	6.92	15.09	104.44	4.000	No	Yes	2.00
1054	77.44	34.00	3.23	5.50	1.00	7.94	13.49	107.05	4.000	No	Yes	2.00
1055	77.48	37.40	3.19	5.36	1.00	8.85	12.47	110.31	4.000	No	Yes	2.00
1056	77.52	40.61	3.15	5.24	1.00	9.70	11.65	113.00	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	77.54	42.94	3.12	5.12	1.00	10.33	11.08	114.44	4.000	No	Yes	2.00
1058	77.57	43.37	3.12	5.18	1.00	10.44	11.07	115.54	4.000	No	Yes	2.00
1059	77.62	42.26	3.14	5.33	1.00	10.14	11.44	115.93	4.000	No	Yes	2.00
1060	77.65	40.10	3.17	5.56	1.00	9.55	12.10	115.64	4.000	No	Yes	2.00
1061	77.67	38.72	3.18	5.50	1.00	9.18	12.34	113.32	4.000	No	Yes	2.00
1062	77.71	37.91	3.19	5.40	1.00	8.96	12.41	111.24	4.000	No	Yes	2.00
1063	77.71	37.03	3.18	5.16	1.00	8.73	12.35	107.78	4.000	No	Yes	2.00
1064	77.76	34.77	3.20	5.10	1.00	8.12	12.85	104.25	4.000	No	Yes	2.00
1065	77.81	31.76	3.23	4.96	1.00	7.31	13.53	98.88	4.000	No	Yes	2.00
1066	77.90	29.03	3.27	4.92	1.00	6.57	14.40	94.60	4.000	No	Yes	2.00
1067	77.95	27.32	3.30	4.97	1.00	6.11	15.14	92.44	4.000	No	Yes	2.00
1068	78.01	26.34	3.32	5.03	1.00	5.84	15.63	91.29	4.000	No	Yes	2.00
1069	78.10	27.59	3.27	4.56	1.00	6.17	14.49	89.37	4.000	No	Yes	2.00
1070	78.16	36.29	3.07	3.14	1.00	8.49	9.98	84.71	4.000	No	Yes	2.00
1071	78.24	48.94	2.86	2.21	1.00	11.86	6.66	79.05	4.000	Yes	Yes	2.00
1072	78.29	64.83	2.68	1.67	1.00	16.10	4.54	73.14	4.000	Yes	Yes	2.00
1073	78.39	77.42	2.58	1.42	1.00	19.44	3.56	69.27	4.000	Yes	No	2.00
1074	78.47	87.30	2.52	1.35	1.00	22.06	3.11	68.51	4.000	Yes	No	2.00
1075	78.53	92.74	2.51	1.44	1.00	23.49	3.05	71.72	4.000	Yes	No	2.00
1076	78.62	94.25	2.54	1.65	1.00	23.88	3.25	77.71	4.000	Yes	No	2.00
1077	78.68	91.22	2.59	1.91	1.00	23.06	3.64	84.02	4.000	Yes	No	2.00
1078	78.69	92.97	2.61	2.12	1.00	23.52	3.81	89.57	4.000	Yes	Yes	2.00
1079	78.78	93.95	2.63	2.33	1.00	23.76	4.00	95.10	4.000	No	Yes	2.00
1080	78.81	94.86	2.65	2.61	1.00	24.00	4.25	102.04	4.000	No	Yes	2.00
1081	78.92	85.28	2.73	2.97	1.00	21.43	5.01	107.35	4.000	No	Yes	2.00
1082	79.03	72.83	2.81	3.21	1.00	18.11	5.93	107.43	4.000	No	Yes	2.00
1083	79.16	68.41	2.80	2.88	1.00	16.91	5.87	99.26	4.000	Yes	Yes	2.00
1084	79.26	78.39	2.68	2.21	1.00	19.54	4.53	88.45	4.000	Yes	Yes	2.00
1085	79.35	97.35	2.56	1.87	1.00	24.54	3.42	83.92	4.000	Yes	No	2.00
1086	79.45	114.43	2.50	1.84	1.00	29.03	2.95	85.78	4.000	Yes	No	2.00
1087	79.54	124.25	2.48	1.92	1.00	31.60	2.84	89.58	4.000	No	No	2.00
1088	79.64	131.23	2.47	1.97	1.00	33.41	2.75	91.91	4.000	No	No	2.00
1089	79.74	153.43	2.40	1.91	1.00	39.23	2.39	93.85	4.000	No	No	2.00
1090	79.88	186.93	2.31	1.77	1.00	48.00	1.98	94.86	4.000	No	No	2.00
1091	79.98	228.94	2.20	1.52	1.00	59.00	1.62	95.73	4.000	No	No	2.00
1092	80.12	248.77	2.14	1.34	1.00	64.13	1.48	95.14	4.000	No	No	2.00
1093	80.22	253.19	2.09	1.12	1.00	65.23	1.40	91.22	4.000	No	No	2.00
1094	80.36	244.79	2.06	0.97	1.00	62.94	1.37	86.07	4.000	No	No	2.00
1095	80.46	238.82	2.02	0.78	1.00	61.33	1.32	81.11	4.000	No	No	2.00
1096	80.60	231.84	1.99	0.66	1.00	59.42	1.30	77.21	4.000	No	No	2.00
1097	80.70	223.91	1.99	0.62	1.00	57.30	1.30	74.37	4.000	No	No	2.00
1098	80.83	213.12	2.02	0.65	1.00	54.42	1.32	72.04	4.000	Yes	No	2.00
1099	80.94	194.49	2.09	0.77	1.00	49.51	1.41	69.62	4.000	Yes	No	2.00
1100	81.01	177.96	2.15	0.85	1.00	45.17	1.50	67.91	4.000	Yes	No	2.00
1101	81.04	164.23	2.19	0.91	1.00	41.58	1.60	66.50	4.000	Yes	No	2.00
1102	81.09	158.43	2.21	0.93	1.00	40.05	1.65	65.97	4.000	Yes	No	2.00
1103	81.13	149.59	2.25	0.99	1.00	37.74	1.75	66.04	4.000	Yes	No	2.00
1104	81.18	136.87	2.31	1.12	1.00	34.41	1.98	67.98	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1105	81.23	123.31	2.39	1.33	1.00	30.87	2.34	72.13	4.000	Yes	No	2.00
1106	81.28	109.41	2.48	1.58	1.00	27.24	2.85	77.64	4.000	Yes	No	2.00
1107	81.33	98.17	2.57	1.89	1.00	24.30	3.46	84.19	4.000	Yes	No	2.00
1108	81.37	88.49	2.65	2.30	1.00	21.78	4.25	92.48	4.000	Yes	Yes	2.00
1109	81.42	81.24	2.73	2.74	1.00	19.88	5.05	100.46	4.000	Yes	Yes	2.00
1110	81.47	75.77	2.79	3.12	1.00	18.46	5.75	106.15	4.000	Yes	Yes	2.00
1111	81.52	71.99	2.83	3.36	1.00	17.47	6.25	109.13	4.000	Yes	Yes	2.00
1112	81.56	70.98	2.85	3.50	1.00	17.20	6.46	111.09	4.000	Yes	Yes	2.00
1113	81.61	70.58	2.86	3.61	1.00	17.08	6.60	112.75	4.000	No	Yes	2.00
1114	81.64	68.79	2.88	3.76	1.00	16.62	6.89	114.41	4.000	No	Yes	2.00
1115	81.70	62.18	2.94	4.16	1.00	14.89	7.85	116.91	4.000	No	Yes	2.00
1116	81.75	54.38	3.03	4.72	1.00	12.87	9.25	118.94	4.000	No	Yes	2.00
1117	81.79	46.89	3.11	5.33	1.00	10.92	10.91	119.14	4.000	No	Yes	2.00
1118	81.82	41.90	3.17	5.62	1.00	9.62	12.12	116.62	4.000	No	Yes	2.00
1119	81.86	37.62	3.22	5.76	1.00	8.51	13.21	112.49	4.000	No	Yes	2.00
1120	81.91	34.01	3.26	5.79	1.00	7.57	14.21	107.66	4.000	No	Yes	2.00
1121	81.95	30.63	3.30	5.75	1.00	6.70	15.27	102.27	4.000	No	Yes	2.00
1122	82.00	27.33	3.34	5.61	1.00	5.84	16.41	95.81	4.000	No	Yes	2.00
1123	82.09	24.26	3.39	5.48	1.00	5.04	17.74	89.46	4.000	No	Yes	2.00
1124	82.15	21.66	3.44	5.50	1.00	4.37	19.38	84.64	4.000	No	Yes	2.00
1125	82.19	19.83	3.48	5.52	1.00	3.89	20.80	81.03	4.000	No	Yes	2.00
1126	82.26	18.38	3.52	5.48	1.00	3.52	22.06	77.56	4.000	No	Yes	2.00
1127	82.34	17.00	3.56	5.45	1.00	3.16	23.49	74.17	4.000	No	Yes	2.00
1128	82.39	15.65	3.61	5.65	1.00	2.81	25.58	71.81	4.000	No	Yes	2.00
1129	82.48	14.77	3.64	5.76	1.00	2.58	27.14	69.97	4.000	No	Yes	2.00
1130	82.58	14.64	3.64	5.47	1.00	2.54	26.84	68.21	4.000	No	Yes	2.00
1131	82.62	14.74	3.62	5.09	1.00	2.57	25.95	66.60	4.000	No	Yes	2.00
1132	82.70	14.88	3.60	4.83	1.00	2.60	25.23	65.56	4.000	No	Yes	2.00
1133	82.77	14.81	3.59	4.65	1.00	2.58	24.98	64.46	4.000	No	Yes	2.00
1134	82.87	15.08	3.57	4.45	1.00	2.65	24.19	64.01	4.000	No	Yes	2.00
1135	82.96	16.23	3.51	3.90	1.00	2.94	21.57	63.38	4.000	No	Yes	2.00
1136	83.06	18.22	3.41	3.33	1.00	3.45	18.38	63.34	4.000	No	Yes	2.00
1137	83.16	21.39	3.29	2.70	1.00	4.26	14.82	63.10	4.000	No	Yes	2.00
1138	83.25	24.46	3.19	2.32	1.00	5.04	12.49	62.94	4.000	No	Yes	2.00
1139	83.34	27.20	3.11	2.06	1.00	5.74	10.91	62.57	4.000	No	Yes	2.00
1140	83.44	28.34	3.10	2.06	1.00	6.03	10.55	63.55	4.000	No	Yes	2.00
1141	83.54	28.75	3.10	2.14	1.00	6.12	10.60	64.89	4.000	No	Yes	2.00
1142	83.64	28.61	3.12	2.29	1.00	6.08	10.93	66.49	4.000	No	Yes	2.00
1143	83.73	27.70	3.15	2.52	1.00	5.84	11.68	68.29	4.000	No	Yes	2.00
1144	83.83	27.26	3.18	2.77	1.00	5.73	12.30	70.46	4.000	No	Yes	2.00
1145	83.85	26.83	3.21	3.11	1.00	5.62	13.07	73.38	4.000	No	Yes	2.00
1146	83.89	27.47	3.22	3.29	1.00	5.78	13.14	75.93	4.000	No	Yes	2.00
1147	83.94	28.11	3.24	3.78	1.00	5.94	13.69	81.26	4.000	No	Yes	2.00
1148	84.04	29.26	3.25	4.14	1.00	6.23	13.80	85.92	4.000	No	Yes	2.00
1149	84.09	30.40	3.25	4.44	1.00	6.51	13.83	90.10	4.000	No	Yes	2.00
1150	84.13	31.28	3.24	4.51	1.00	6.74	13.65	91.94	4.000	No	Yes	2.00
1151	84.18	31.68	3.24	4.64	1.00	6.83	13.70	93.61	4.000	No	Yes	2.00
1152	84.25	31.52	3.25	4.81	1.00	6.79	13.97	94.85	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1153	84.33	30.64	3.28	5.04	1.00	6.56	14.57	95.60	4.000	No	Yes	2.00
1154	84.37	29.46	3.31	5.29	1.00	6.26	15.33	95.90	4.000	No	Yes	2.00
1155	84.46	28.35	3.33	5.40	1.00	5.97	15.91	94.98	4.000	No	Yes	2.00
1156	84.52	27.50	3.34	5.37	1.00	5.75	16.25	93.43	4.000	No	Yes	2.00
1157	84.57	26.90	3.34	5.22	1.00	5.59	16.32	91.27	4.000	No	Yes	2.00
1158	84.67	26.52	3.34	5.14	1.00	5.49	16.38	90.00	4.000	No	Yes	2.00
1159	84.71	26.15	3.35	5.18	1.00	5.40	16.62	89.72	4.000	No	Yes	2.00
1160	84.81	25.58	3.38	5.48	1.00	5.25	17.32	90.86	4.000	No	Yes	2.00
1161	84.86	24.84	3.41	5.93	1.00	5.06	18.32	92.62	4.000	No	Yes	2.00
1162	84.91	24.06	3.44	6.37	1.00	4.86	19.36	94.03	4.000	No	Yes	2.00
1163	85.00	23.42	3.47	6.69	1.00	4.69	20.18	94.63	4.000	No	Yes	2.00
1164	85.05	22.81	3.48	6.79	1.00	4.53	20.72	93.94	4.000	No	Yes	2.00
1165	85.15	22.34	3.49	6.69	1.00	4.41	20.94	92.30	4.000	No	Yes	2.00
1166	85.19	21.80	3.49	6.36	1.00	4.27	20.88	89.13	4.000	No	Yes	2.00
1167	85.29	21.33	3.48	6.00	1.00	4.15	20.74	85.98	4.000	No	Yes	2.00
1168	85.35	20.72	3.49	5.75	1.00	3.99	20.84	83.14	4.000	No	Yes	2.00
1169	85.42	20.08	3.50	5.71	1.00	3.82	21.32	81.54	4.000	No	Yes	2.00
1170	85.48	19.40	3.52	5.78	1.00	3.65	22.03	80.45	4.000	No	Yes	2.00
1171	85.55	18.77	3.54	5.87	1.00	3.49	22.80	79.50	4.000	No	Yes	2.00
1172	85.63	18.19	3.56	5.98	1.00	3.34	23.58	78.76	4.000	No	Yes	2.00
1173	85.68	17.62	3.58	6.16	1.00	3.19	24.50	78.25	4.000	No	Yes	2.00
1174	85.77	17.18	3.60	6.34	1.00	3.08	25.34	78.03	4.000	No	Yes	2.00
1175	85.82	17.04	3.61	6.47	1.00	3.04	25.74	78.34	4.000	No	Yes	2.00
1176	85.89	17.42	3.60	6.38	1.00	3.13	25.13	78.79	4.000	No	Yes	2.00
1177	85.96	18.33	3.56	5.99	1.00	3.36	23.51	79.01	4.000	No	Yes	2.00
1178	86.03	19.71	3.49	5.35	1.00	3.71	21.16	78.44	4.000	No	Yes	2.00
1179	86.11	21.06	3.44	4.76	1.00	4.04	19.14	77.40	4.000	No	Yes	2.00
1180	86.16	22.11	3.39	4.32	1.00	4.30	17.71	76.21	4.000	No	Yes	2.00
1181	86.25	21.67	3.40	4.38	1.00	4.19	18.09	75.81	4.000	No	Yes	2.00
1182	86.36	19.98	3.45	4.62	1.00	3.76	19.76	74.32	4.000	No	Yes	2.00
1183	86.50	18.16	3.52	4.99	1.00	3.30	22.08	72.85	4.000	No	Yes	2.00
1184	86.51	17.25	3.55	5.00	1.00	3.07	23.09	70.91	4.000	No	Yes	2.00
1185	86.52	17.32	3.53	4.74	1.00	3.09	22.53	69.58	4.000	No	Yes	2.00
1186	86.57	17.35	3.51	4.25	1.00	3.10	21.58	66.80	4.000	No	Yes	2.00
1187	86.65	17.39	3.48	3.72	1.00	3.10	20.48	63.50	4.000	No	Yes	2.00
1188	86.71	17.35	3.45	3.31	1.00	3.09	19.65	60.73	4.000	No	Yes	2.00
1189	86.80	17.08	3.45	3.15	1.00	3.02	19.57	59.11	4.000	No	Yes	2.00
1190	86.90	16.48	3.46	3.06	1.00	2.87	20.04	57.42	4.000	No	Yes	2.00
1191	86.99	15.77	3.48	3.01	1.00	2.69	20.75	55.74	4.000	No	Yes	2.00
1192	87.04	15.26	3.50	2.94	1.00	2.56	21.24	54.32	4.000	No	Yes	2.00
1193	87.14	15.16	3.49	2.85	1.00	2.53	21.16	53.51	4.000	No	Yes	2.00
1194	87.19	15.36	3.48	2.77	1.00	2.58	20.70	53.36	4.000	No	Yes	2.00
1195	87.28	15.87	3.46	2.79	1.00	2.70	20.13	54.40	4.000	No	Yes	2.00
1196	87.38	16.51	3.45	2.81	1.00	2.86	19.47	55.67	4.000	No	Yes	2.00
1197	87.43	17.18	3.42	2.82	1.00	3.03	18.79	56.85	4.000	No	Yes	2.00
1198	87.52	17.76	3.40	2.76	1.00	3.17	18.12	57.36	4.000	No	Yes	2.00
1199	87.61	18.23	3.38	2.70	1.00	3.28	17.55	57.58	4.000	No	Yes	2.00
1200	87.66	18.53	3.37	2.63	1.00	3.35	17.13	57.47	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1201	87.76	18.57	3.37	2.58	1.00	3.36	17.00	57.12	4.000	No	Yes	2.00
1202	87.84	18.43	3.37	2.54	1.00	3.32	17.02	56.58	4.000	No	Yes	2.00
1203	87.91	18.13	3.37	2.53	1.00	3.25	17.27	56.08	4.000	No	Yes	2.00
1204	88.00	17.79	3.39	2.53	1.00	3.16	17.58	55.54	4.000	No	Yes	2.00
1205	88.11	17.46	3.40	2.56	1.00	3.07	17.98	55.23	4.000	No	Yes	2.00
1206	88.19	17.22	3.41	2.58	1.00	3.01	18.27	55.01	4.000	No	Yes	2.00
1207	88.25	17.08	3.41	2.59	1.00	2.98	18.42	54.79	4.000	No	Yes	2.00
1208	88.34	17.02	3.41	2.53	1.00	2.96	18.36	54.27	4.000	No	Yes	2.00
1209	88.44	16.98	3.41	2.45	1.00	2.94	18.20	53.59	4.000	No	Yes	2.00
1210	88.54	16.98	3.40	2.37	1.00	2.94	17.99	52.93	4.000	No	Yes	2.00
1211	88.64	16.95	3.40	2.33	1.00	2.93	17.92	52.52	4.000	No	Yes	2.00
1212	88.72	16.88	3.40	2.33	1.00	2.91	18.00	52.42	4.000	No	Yes	2.00
1213	88.82	16.82	3.40	2.36	1.00	2.89	18.16	52.53	4.000	No	Yes	2.00
1214	88.91	16.72	3.41	2.41	1.00	2.87	18.42	52.79	4.000	No	Yes	2.00
1215	89.01	16.62	3.42	2.47	1.00	2.84	18.68	53.02	4.000	No	Yes	2.00
1216	89.10	16.49	3.43	2.53	1.00	2.80	18.99	53.22	4.000	No	Yes	2.00
1217	89.19	16.32	3.44	2.53	1.00	2.76	19.19	52.91	4.000	No	Yes	2.00
1218	89.30	16.21	3.41	2.22	1.00	2.73	18.48	50.44	4.000	No	Yes	2.00
1219	89.39	16.31	3.39	2.02	1.00	2.75	17.80	48.98	4.000	No	Yes	2.00
1220	89.49	16.62	3.38	2.03	1.00	2.82	17.53	49.49	4.000	No	Yes	2.00
1221	89.59	16.90	3.41	2.39	1.00	2.89	18.25	52.76	4.000	No	Yes	2.00
1222	89.69	17.04	3.42	2.65	1.00	2.92	18.79	54.90	4.000	No	Yes	2.00
1223	89.73	17.68	3.40	2.64	1.00	3.08	18.14	55.86	4.000	No	Yes	2.00
1224	89.78	18.48	3.37	2.53	1.00	3.27	17.18	56.23	4.000	No	Yes	2.00
1225	89.83	19.36	3.34	2.42	1.00	3.49	16.22	56.56	4.000	No	Yes	2.00
1226	89.88	19.63	3.33	2.44	1.00	3.55	16.06	57.05	4.000	No	Yes	2.00
1227	89.93	19.86	3.33	2.48	1.00	3.61	16.01	57.77	4.000	No	Yes	2.00
1228	90.00	20.24	3.33	2.55	1.00	3.70	15.90	58.79	4.000	No	Yes	2.00
1229	90.07	20.88	3.31	2.57	1.00	3.85	15.53	59.82	4.000	No	Yes	2.00
1230	90.12	21.62	3.30	2.62	1.00	4.03	15.19	61.24	4.000	No	Yes	2.00
1231	90.22	22.26	3.29	2.71	1.00	4.19	15.01	62.84	4.000	No	Yes	2.00
1232	90.27	23.04	3.29	2.93	1.00	4.37	15.02	65.70	4.000	No	Yes	2.00
1233	90.36	24.99	3.26	2.95	1.00	4.85	14.09	68.34	4.000	No	Yes	2.00
1234	90.46	27.46	3.21	2.86	1.00	5.45	12.89	70.27	4.000	No	Yes	2.00
1235	90.50	29.28	3.17	2.76	1.00	5.89	12.05	71.01	4.000	No	Yes	2.00
1236	90.61	29.48	3.17	2.77	1.00	5.94	12.02	71.39	4.000	No	Yes	2.00
1237	90.66	28.70	3.18	2.82	1.00	5.75	12.38	71.12	4.000	No	Yes	2.00
1238	90.75	27.62	3.20	2.80	1.00	5.48	12.73	69.74	4.000	No	Yes	2.00
1239	90.84	26.17	3.22	2.78	1.00	5.12	13.28	67.94	4.000	No	Yes	2.00
1240	90.89	24.72	3.25	2.77	1.00	4.76	13.90	66.20	4.000	No	Yes	2.00
1241	90.99	23.48	3.28	2.82	1.00	4.45	14.63	65.12	4.000	No	Yes	2.00
1242	91.04	22.50	3.30	2.86	1.00	4.21	15.24	64.21	4.000	No	Yes	2.00
1243	91.14	21.59	3.33	2.94	1.00	3.99	15.98	63.69	4.000	No	Yes	2.00
1244	91.22	20.75	3.36	3.03	1.00	3.78	16.73	63.19	4.000	No	Yes	2.00
1245	91.28	19.83	3.39	3.13	1.00	3.55	17.61	62.55	4.000	No	Yes	2.00
1246	91.37	19.26	3.40	3.14	1.00	3.41	18.11	61.75	4.000	No	Yes	2.00
1247	91.47	18.99	3.40	3.07	1.00	3.34	18.18	60.75	4.000	No	Yes	2.00
1248	91.61	19.26	3.39	2.94	1.00	3.40	17.69	60.19	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1249	91.71	19.40	3.38	2.89	1.00	3.43	17.48	59.97	4.000	No	Yes	2.00
1250	91.81	19.50	3.38	2.88	1.00	3.45	17.39	60.03	4.000	No	Yes	2.00
1251	91.87	19.36	3.38	2.86	1.00	3.42	17.46	59.68	4.000	No	Yes	2.00
1252	92.00	19.38	3.36	2.58	1.00	3.42	16.82	57.50	4.000	No	Yes	2.00
1253	92.10	19.41	3.34	2.37	1.00	3.42	16.30	55.77	4.000	No	Yes	2.00
1254	92.20	19.62	3.32	2.25	1.00	3.47	15.85	54.98	4.000	No	Yes	2.00
1255	92.33	19.76	3.33	2.39	1.00	3.50	16.12	56.37	4.000	No	Yes	2.00
1256	92.38	19.89	3.34	2.50	1.00	3.53	16.27	57.43	4.000	No	Yes	2.00
1257	92.43	20.03	3.34	2.54	1.00	3.56	16.28	57.96	4.000	No	Yes	2.00
1258	92.48	19.98	3.35	2.62	1.00	3.55	16.52	58.57	4.000	No	Yes	2.00
1259	92.56	19.88	3.36	2.71	1.00	3.52	16.79	59.09	4.000	No	Yes	2.00
1260	92.63	19.64	3.37	2.79	1.00	3.46	17.17	59.41	4.000	No	Yes	2.00
1261	92.67	19.57	3.37	2.81	1.00	3.44	17.27	59.42	4.000	No	Yes	2.00
1262	92.72	19.54	3.38	2.81	1.00	3.43	17.30	59.38	4.000	No	Yes	2.00
1263	92.77	19.64	3.37	2.79	1.00	3.46	17.18	59.37	4.000	No	Yes	2.00
1264	92.86	19.84	3.37	2.77	1.00	3.50	16.99	59.49	4.000	No	Yes	2.00
1265	92.92	20.08	3.36	2.78	1.00	3.56	16.84	59.88	4.000	No	Yes	2.00
1266	92.97	20.21	3.37	2.90	1.00	3.59	17.01	61.03	4.000	No	Yes	2.00
1267	93.05	20.35	3.37	3.02	1.00	3.62	17.17	62.12	4.000	No	Yes	2.00
1268	93.10	20.62	3.37	3.09	1.00	3.68	17.13	63.07	4.000	No	Yes	2.00
1269	93.16	21.10	3.35	3.03	1.00	3.79	16.68	63.28	4.000	No	Yes	2.00
1270	93.25	21.70	3.33	2.92	1.00	3.94	16.06	63.20	4.000	No	Yes	2.00
1271	93.35	22.78	3.29	2.71	1.00	4.19	14.99	62.84	4.000	No	Yes	2.00
1272	93.40	23.19	3.27	2.59	1.00	4.29	14.52	62.27	4.000	No	Yes	2.00
1273	93.49	23.25	3.27	2.54	1.00	4.30	14.38	61.82	4.000	No	Yes	2.00
1274	93.56	22.71	3.28	2.58	1.00	4.17	14.77	61.55	4.000	No	Yes	2.00
1275	93.64	22.88	3.28	2.57	1.00	4.21	14.66	61.65	4.000	No	Yes	2.00
1276	93.73	23.63	3.27	2.60	1.00	4.38	14.34	62.81	4.000	No	Yes	2.00
1277	93.83	24.91	3.25	2.65	1.00	4.69	13.81	64.72	4.000	No	Yes	2.00
1278	93.88	26.43	3.23	2.80	1.00	5.05	13.44	67.85	4.000	No	Yes	2.00
1279	93.97	27.01	3.24	3.00	1.00	5.18	13.58	70.35	4.000	No	Yes	2.00
1280	94.07	26.43	3.27	3.36	1.00	5.04	14.48	72.95	4.000	No	Yes	2.00
1281	94.17	25.76	3.31	3.78	1.00	4.87	15.51	75.57	4.000	No	Yes	2.00
1282	94.26	26.70	3.29	3.75	1.00	5.09	15.04	76.60	4.000	No	Yes	2.00
1283	94.36	27.88	3.30	4.18	1.00	5.37	15.22	81.75	4.000	No	Yes	2.00
1284	94.45	29.47	3.30	4.56	1.00	5.75	15.14	87.02	4.000	No	Yes	2.00
1285	94.55	35.88	3.19	4.21	1.00	7.27	12.61	91.74	4.000	No	Yes	2.00
1286	94.64	48.46	3.00	3.11	1.00	10.27	8.71	89.52	4.000	No	Yes	2.00
1287	94.72	59.93	2.85	2.46	1.00	13.01	6.55	85.22	4.000	No	Yes	2.00
1288	94.74	73.87	2.72	1.96	1.00	16.33	4.89	79.85	4.000	No	Yes	2.00
1289	94.77	84.50	2.64	1.75	1.00	18.86	4.08	76.98	4.000	No	Yes	2.00
1290	94.85	97.35	2.56	1.57	1.00	21.92	3.39	74.39	4.000	No	No	2.00
1291	94.90	102.75	2.54	1.57	1.00	23.20	3.24	75.17	4.000	No	No	2.00
1292	94.95	105.32	2.54	1.66	1.00	23.80	3.27	77.89	4.000	No	No	2.00
1293	95.01	104.68	2.58	1.94	1.00	23.63	3.61	85.22	4.000	No	No	2.00
1294	95.09	100.83	2.64	2.34	1.00	22.70	4.16	94.37	4.000	No	Yes	2.00
1295	95.14	94.49	2.73	2.97	1.00	21.18	5.05	107.02	4.000	No	Yes	2.00
1296	95.23	86.42	2.82	3.64	1.00	19.25	6.10	117.34	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1297	95.29	78.06	2.91	4.43	1.00	17.25	7.36	126.89	4.000	No	Yes	2.00
1298	95.38	71.11	2.98	5.04	1.00	15.59	8.45	131.69	4.000	No	Yes	2.00
1299	95.43	67.53	3.02	5.36	1.00	14.73	9.06	133.43	4.000	No	Yes	2.00
1300	95.52	67.83	3.01	5.27	1.00	14.79	8.96	132.50	4.000	No	Yes	2.00
1301	95.57	70.23	2.98	4.89	1.00	15.35	8.40	128.95	4.000	No	Yes	2.00
1302	95.67	71.24	2.95	4.48	1.00	15.58	7.93	123.49	4.000	No	Yes	2.00
1303	95.77	66.52	2.97	4.36	1.00	14.45	8.22	118.72	4.000	No	Yes	2.00
1304	95.86	56.97	3.06	4.90	1.00	12.17	9.76	118.80	4.000	No	Yes	2.00
1305	95.95	52.94	3.09	5.00	1.00	11.21	10.40	116.56	4.000	No	Yes	2.00
1306	96.03	46.73	3.17	5.75	1.00	9.74	12.16	118.40	4.000	No	Yes	2.00
1307	96.11	51.55	3.12	5.30	1.00	10.87	10.92	118.64	4.000	No	Yes	2.00
1308	96.20	59.20	3.06	5.23	1.00	12.66	9.84	124.65	4.000	No	Yes	2.00
1309	96.30	80.15	2.90	4.31	1.00	17.59	7.15	125.73	4.000	Yes	Yes	2.00
1310	96.39	101.37	2.77	3.72	1.00	22.58	5.51	124.50	4.000	Yes	Yes	2.00
1311	96.50	122.96	2.67	3.23	1.00	27.64	4.35	120.31	4.000	Yes	Yes	2.00
1312	96.59	144.96	2.54	2.51	1.00	32.80	3.25	106.72	4.000	Yes	No	2.00
1313	96.69	164.86	2.41	1.87	1.00	37.45	2.44	91.36	4.000	Yes	No	2.00
1314	96.78	180.18	2.29	1.32	1.00	41.02	1.89	77.51	4.000	Yes	No	2.00
1315	96.87	185.95	2.24	1.13	1.00	42.35	1.72	72.98	4.000	Yes	No	2.00
1316	96.98	185.28	2.23	1.08	1.00	42.15	1.69	71.40	4.000	No	No	2.00
1317	97.02	177.79	2.26	1.14	1.00	40.38	1.78	71.90	4.000	No	No	2.00
1318	97.06	176.40	2.27	1.20	1.00	40.04	1.83	73.47	4.000	No	No	2.00
1319	97.12	175.60	2.30	1.30	1.00	39.84	1.91	76.16	4.000	No	No	2.00
1320	97.16	176.98	2.31	1.41	1.00	40.15	1.98	79.48	4.000	No	No	2.00
1321	97.21	173.67	2.35	1.58	1.00	39.35	2.13	83.99	4.000	No	No	2.00
1322	97.27	170.50	2.39	1.77	1.00	38.59	2.31	89.17	4.000	No	No	2.00
1323	97.33	168.21	2.42	1.93	1.00	38.04	2.46	93.67	4.000	No	No	2.00
1324	97.40	165.98	2.44	2.03	1.00	37.49	2.57	96.33	4.000	No	No	2.00
1325	97.45	163.92	2.45	2.09	1.00	37.00	2.64	97.51	4.000	Yes	No	2.00
1326	97.50	161.39	2.47	2.20	1.00	36.39	2.76	100.38	4.000	Yes	No	2.00
1327	97.58	155.82	2.50	2.38	1.00	35.06	2.99	104.78	4.000	Yes	No	2.00
1328	97.65	146.95	2.55	2.64	1.00	32.97	3.34	110.26	4.000	Yes	No	2.00
1329	97.69	134.43	2.60	2.87	1.00	30.04	3.79	113.95	4.000	Yes	Yes	2.00
1330	97.74	121.75	2.66	3.06	1.00	27.07	4.27	115.68	4.000	Yes	Yes	2.00
1331	97.81	110.51	2.71	3.22	1.00	24.44	4.76	116.42	4.000	Yes	Yes	2.00
1332	97.88	103.09	2.74	3.33	1.00	22.69	5.14	116.63	4.000	Yes	Yes	2.00
1333	97.93	108.66	2.70	3.05	1.00	23.98	4.67	111.98	4.000	Yes	Yes	2.00
1334	98.03	138.72	2.52	2.22	1.00	30.95	3.15	97.35	4.000	Yes	No	2.00
1335	98.15	182.62	2.33	1.53	1.00	41.12	2.03	83.50	4.000	Yes	No	2.00
1336	98.21	228.43	2.15	1.06	1.00	51.75	1.51	78.05	4.000	Yes	No	2.00
1337	98.32	264.20	2.03	0.81	1.00	60.00	1.34	80.19	4.000	Yes	No	2.00
1338	98.42	301.85	1.92	0.62	1.00	68.69	1.25	85.96	4.000	Yes	No	2.00
1339	98.47	349.59	1.79	0.45	1.00	79.73	1.00	79.73	4.000	Yes	No	2.00
1340	98.57	388.76	1.69	0.32	1.00	88.75	1.00	88.75	4.000	No	No	2.00
1341	98.70	411.84	1.61	0.24	1.00	94.00	1.00	94.00	4.000	No	No	2.00
1342	98.78	404.01	1.62	0.24	1.00	92.13	1.00	92.13	4.000	No	No	2.00
1343	98.85	372.43	1.67	0.27	1.00	84.79	1.00	84.79	4.000	No	No	2.00
1344	98.86	337.78	1.74	0.31	1.00	76.77	1.00	76.77	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1345	98.92	322.73	1.77	0.33	1.00	73.26	1.00	73.26	4.000	No	No	2.00
1346	98.98	318.48	1.78	0.34	1.00	72.24	1.00	72.24	4.000	Yes	No	2.00
1347	99.03	309.41	1.81	0.38	1.00	70.12	1.00	70.12	4.000	Yes	No	2.00
1348	99.11	281.64	1.90	0.48	1.00	63.67	1.00	63.67	4.000	Yes	No	2.00
1349	99.18	255.32	1.99	0.62	1.00	57.57	1.30	74.69	4.000	Yes	No	2.00
1350	99.23	231.33	2.09	0.83	1.00	52.01	1.41	73.25	4.000	Yes	No	2.00
1351	99.32	209.84	2.20	1.12	1.00	47.02	1.62	76.01	4.000	Yes	No	2.00
1352	99.37	189.39	2.31	1.49	1.00	42.29	1.96	83.05	4.000	Yes	No	2.00
1353	99.45	170.57	2.40	1.81	1.00	37.93	2.37	90.04	4.000	Yes	No	2.00
1354	99.56	157.24	2.47	2.08	1.00	34.83	2.76	96.01	4.000	Yes	No	2.00
1355	99.64	147.39	2.52	2.34	1.00	32.55	3.13	101.90	4.000	Yes	No	2.00
1356	99.71	140.04	2.57	2.64	1.00	30.84	3.53	108.77	4.000	Yes	No	2.00
1357	99.75	128.26	2.63	2.93	1.00	28.12	4.04	113.72	4.000	Yes	Yes	2.00
1358	99.90	116.32	2.70	3.25	1.00	25.35	4.67	118.27	4.000	Yes	Yes	2.00
1359	99.95	101.78	2.79	3.87	1.00	22.01	5.75	126.55	4.000	Yes	Yes	2.00
1360	100.04	116.32	2.73	3.67	1.00	25.32	5.03	127.45	4.000	Yes	Yes	2.00
1361	100.14	159.30	2.55	2.82	1.00	35.14	3.33	116.89	4.000	Yes	No	2.00
1362	100.14	204.99	2.39	2.20	1.00	45.59	2.33	106.43	4.000	Yes	No	2.00
1363	100.15	235.79	2.32	2.02	1.00	52.64	2.00	105.52	4.000	Yes	No	2.00
1364	100.19	258.80	2.30	2.10	1.00	57.89	1.93	111.71	4.000	Yes	No	2.00
1365	100.21	298.07	2.26	2.14	1.00	66.86	1.78	119.29	4.000	Yes	No	2.00
1366	100.24	351.88	2.06	1.31	1.00	79.16	1.37	108.37	4.000	Yes	No	2.00
1367	100.28	410.56	1.80	0.59	1.00	92.54	1.15	106.62	4.000	Yes	No	2.00
1368	100.31	470.98	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1369	100.33	508.57	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1370	100.38	524.63	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1371	100.39	526.55	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1372	100.43	531.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1373	100.48	522.24	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1374	100.53	509.38	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1375	100.57	496.12	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1376	100.60	497.27	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.04	2.00	0.00	0.00	0.06	0.00	0.10	2.00	0.00	0.00	0.06	0.00
0.11	2.00	0.00	0.00	0.01	0.00	0.16	2.00	0.00	0.00	0.05	0.00
0.19	2.00	0.00	0.00	0.04	0.00	0.24	2.00	0.00	0.00	0.05	0.00
0.31	2.00	0.00	0.00	0.07	0.00	0.38	2.00	0.00	0.00	0.07	0.00
0.43	2.00	0.00	0.00	0.05	0.00	0.49	2.00	0.00	0.00	0.06	0.00
0.58	2.00	0.00	0.00	0.09	0.00	0.63	2.00	0.00	0.00	0.05	0.00
0.67	2.00	0.00	0.00	0.04	0.00	0.72	2.00	0.00	0.00	0.05	0.00
0.72	2.00	0.00	0.00	0.01	0.00	0.84	2.00	0.00	0.00	0.12	0.00
0.96	2.00	0.00	0.00	0.12	0.00	1.06	2.00	0.00	0.00	0.09	0.00
1.24	2.00	0.00	0.00	0.19	0.00	1.30	2.00	0.00	0.00	0.06	0.00
1.48	2.00	0.00	0.00	0.18	0.00	1.59	2.00	0.00	0.00	0.10	0.00
1.69	2.00	0.00	0.00	0.10	0.00	1.69	2.00	0.00	0.00	0.01	0.00
1.74	2.00	0.00	0.00	0.05	0.00	1.79	2.00	0.00	0.00	0.04	0.00
1.84	2.00	0.00	0.00	0.05	0.00	1.88	2.00	0.00	0.00	0.05	0.00
1.93	2.00	0.00	0.00	0.05	0.00	1.99	2.00	0.00	0.00	0.06	0.00
2.03	2.00	0.00	0.00	0.04	0.00	2.08	2.00	0.00	0.00	0.05	0.00
2.13	2.00	0.00	0.00	0.05	0.00	2.22	2.00	0.00	0.00	0.09	0.00
2.27	2.00	0.00	0.00	0.06	0.00	2.33	2.00	0.00	0.00	0.05	0.00
2.42	2.00	0.00	0.00	0.09	0.00	2.48	2.00	0.00	0.00	0.07	0.00
2.56	2.00	0.00	0.00	0.07	0.00	2.65	2.00	0.00	0.00	0.10	0.00
2.72	2.00	0.00	0.00	0.07	0.00	2.80	2.00	0.00	0.00	0.08	0.00
2.89	2.00	0.00	0.00	0.09	0.00	2.94	2.00	0.00	0.00	0.05	0.00
3.04	2.00	0.00	0.00	0.10	0.00	3.14	2.00	0.00	0.00	0.10	0.00
3.23	2.00	0.00	0.00	0.10	0.00	3.31	2.00	0.00	0.00	0.07	0.00
3.37	2.00	0.00	0.00	0.06	0.00	3.48	2.00	0.00	0.00	0.11	0.00
3.57	2.00	0.00	0.00	0.09	0.00	3.65	2.00	0.00	0.00	0.09	0.00
3.71	2.00	0.00	0.00	0.06	0.00	3.82	2.00	0.00	0.00	0.11	0.00
3.91	2.00	0.00	0.00	0.09	0.00	4.00	2.00	0.00	0.00	0.10	0.00
4.10	2.00	0.00	0.00	0.09	0.00	4.19	2.00	0.00	0.00	0.10	0.00
4.26	2.00	0.00	0.00	0.07	0.00	4.35	2.00	0.00	0.00	0.09	0.00
4.44	2.00	0.00	0.00	0.10	0.00	4.52	2.00	0.00	0.00	0.08	0.00
4.53	2.00	0.00	0.00	0.01	0.00	4.58	2.00	0.00	0.00	0.05	0.00
4.63	2.00	0.00	0.00	0.05	0.00	4.68	2.00	0.00	0.00	0.05	0.00
4.72	2.00	0.00	0.00	0.04	0.00	4.77	2.00	0.00	0.00	0.05	0.00
4.82	2.00	0.00	0.00	0.05	0.00	4.88	2.00	0.00	0.00	0.06	0.00
4.96	2.00	0.00	0.00	0.08	0.00	5.01	2.00	0.00	0.00	0.05	0.00
5.08	2.00	0.00	0.00	0.07	0.00	5.16	2.00	0.00	0.00	0.08	0.00
5.21	2.00	0.00	0.00	0.05	0.00	5.30	2.00	0.00	0.00	0.09	0.00
5.37	2.00	0.00	0.00	0.07	0.00	5.45	2.00	0.00	0.00	0.08	0.00
5.52	2.00	0.00	0.00	0.07	0.00	5.59	2.00	0.00	0.00	0.07	0.00
5.65	2.00	0.00	0.00	0.06	0.00	5.74	2.00	0.00	0.00	0.08	0.00
5.83	2.00	0.00	0.00	0.09	0.00	5.89	2.00	0.00	0.00	0.06	0.00
5.97	2.00	0.00	0.00	0.08	0.00	6.07	2.00	0.00	0.00	0.09	0.00
6.12	2.00	0.00	0.00	0.05	0.00	6.22	2.00	0.00	0.00	0.10	0.00
6.28	2.00	0.00	0.00	0.06	0.00	6.36	2.00	0.00	0.00	0.08	0.00
6.46	2.00	0.00	0.00	0.10	0.00	6.52	2.00	0.00	0.00	0.06	0.00
6.60	2.00	0.00	0.00	0.09	0.00	6.70	2.00	0.00	0.00	0.09	0.00
6.76	2.00	0.00	0.00	0.07	0.00	6.84	2.00	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
6.94	2.00	0.00	0.00	0.10	0.00	7.03	2.00	0.00	0.00	0.09	0.00
7.13	2.00	0.00	0.00	0.09	0.00	7.19	2.00	0.00	0.00	0.06	0.00
7.32	2.00	0.00	0.00	0.13	0.00	7.42	2.00	0.00	0.00	0.10	0.00
7.49	2.00	0.00	0.00	0.07	0.00	7.57	2.00	0.00	0.00	0.08	0.00
7.66	2.00	0.00	0.00	0.09	0.00	7.76	2.00	0.00	0.00	0.10	0.00
7.77	2.00	0.00	0.00	0.01	0.00	7.78	2.00	0.00	0.00	0.00	0.00
7.82	2.00	0.00	0.00	0.04	0.00	7.87	2.00	0.00	0.00	0.05	0.00
7.92	2.00	0.00	0.00	0.04	0.00	7.97	2.00	0.00	0.00	0.05	0.00
8.01	2.00	0.00	0.00	0.04	0.00	8.06	2.00	0.00	0.00	0.05	0.00
8.11	2.00	0.00	0.00	0.05	0.00	8.20	2.00	0.00	0.00	0.09	0.00
8.26	2.00	0.00	0.00	0.06	0.00	8.35	2.00	0.00	0.00	0.09	0.00
8.40	2.00	0.00	0.00	0.06	0.00	8.49	2.00	0.00	0.00	0.09	0.00
8.54	2.00	0.00	0.00	0.05	0.00	8.64	2.00	0.00	0.00	0.09	0.00
8.69	2.00	0.00	0.00	0.05	0.00	8.79	2.00	0.00	0.00	0.10	0.00
8.84	2.00	0.00	0.00	0.05	0.00	8.93	2.00	0.00	0.00	0.09	0.00
9.03	2.00	0.00	0.00	0.10	0.00	9.08	2.00	0.00	0.00	0.06	0.00
9.11	2.00	0.00	0.00	0.02	0.00	9.12	2.00	0.00	0.00	0.01	0.00
9.17	2.00	0.00	0.00	0.05	0.00	9.22	2.00	0.00	0.00	0.05	0.00
9.31	2.00	0.00	0.00	0.10	0.00	9.36	2.00	0.00	0.00	0.05	0.00
9.40	2.00	0.00	0.00	0.03	0.00	9.46	2.00	0.00	0.00	0.06	0.00
9.51	2.00	0.00	0.00	0.05	0.00	9.55	2.00	0.00	0.00	0.04	0.00
9.61	2.00	0.00	0.00	0.06	0.00	9.69	2.00	0.00	0.00	0.09	0.00
9.74	2.00	0.00	0.00	0.05	0.00	9.81	2.00	0.00	0.00	0.07	0.00
9.89	2.00	0.00	0.00	0.07	0.00	9.94	2.00	0.00	0.00	0.05	0.00
10.03	2.00	0.00	0.00	0.09	0.00	10.08	2.00	0.00	0.00	0.05	0.00
10.18	2.00	0.00	0.00	0.11	0.00	10.23	2.00	0.00	0.00	0.04	0.00
10.33	2.00	0.00	0.00	0.10	0.00	10.40	2.00	0.00	0.00	0.07	0.00
10.47	2.00	0.00	0.00	0.07	0.00	10.51	2.00	0.00	0.00	0.04	0.00
10.56	2.00	0.00	0.00	0.05	0.00	10.61	2.00	0.00	0.00	0.05	0.00
10.67	2.00	0.00	0.00	0.05	0.00	10.75	2.00	0.00	0.00	0.08	0.00
10.80	2.00	0.00	0.00	0.05	0.00	10.85	2.00	0.00	0.00	0.05	0.00
10.90	2.00	0.00	0.00	0.04	0.00	11.00	2.00	0.00	0.00	0.10	0.00
11.05	2.00	0.00	0.00	0.06	0.00	11.14	2.00	0.00	0.00	0.09	0.00
11.21	2.00	0.00	0.00	0.07	0.00	11.29	2.00	0.00	0.00	0.08	0.00
11.38	2.00	0.00	0.00	0.09	0.00	11.46	2.00	0.00	0.00	0.08	0.00
11.52	2.00	0.00	0.00	0.06	0.00	11.60	2.00	0.00	0.00	0.08	0.00
11.67	2.00	0.00	0.00	0.07	0.00	11.72	2.00	0.00	0.00	0.05	0.00
11.81	2.00	0.00	0.00	0.09	0.00	11.86	2.00	0.00	0.00	0.05	0.00
11.96	2.00	0.00	0.00	0.10	0.00	12.01	2.00	0.00	0.00	0.05	0.00
12.10	2.00	0.00	0.00	0.09	0.00	12.16	2.00	0.00	0.00	0.06	0.00
12.24	2.00	0.00	0.00	0.09	0.00	12.32	2.00	0.00	0.00	0.07	0.00
12.39	2.00	0.00	0.00	0.08	0.00	12.48	2.00	0.00	0.00	0.09	0.00
12.50	2.00	0.00	0.00	0.01	0.00	12.54	2.00	0.00	0.00	0.04	0.00
12.64	2.00	0.00	0.00	0.10	0.00	12.68	2.00	0.00	0.00	0.05	0.00
12.77	2.00	0.00	0.00	0.08	0.00	12.82	2.00	0.00	0.00	0.06	0.00
12.89	2.00	0.00	0.00	0.07	0.00	12.97	2.00	0.00	0.00	0.08	0.00
13.03	2.00	0.00	0.00	0.06	0.00	13.12	2.00	0.00	0.00	0.09	0.00
13.16	2.00	0.00	0.00	0.05	0.00	13.26	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
13.34	2.00	0.00	0.00	0.08	0.00	13.41	2.00	0.00	0.00	0.06	0.00
13.50	2.00	0.00	0.00	0.09	0.00	13.60	2.00	0.00	0.00	0.10	0.00
13.65	2.00	0.00	0.00	0.05	0.00	13.75	2.00	0.00	0.00	0.10	0.00
13.80	2.00	0.00	0.00	0.06	0.00	13.89	2.00	0.00	0.00	0.09	0.00
13.94	2.00	0.00	0.00	0.05	0.00	14.03	2.00	0.00	0.00	0.09	0.00
14.11	2.00	0.00	0.00	0.07	0.00	14.13	2.00	0.00	0.00	0.02	0.00
14.18	2.00	0.00	0.00	0.05	0.00	14.22	2.00	0.00	0.00	0.04	0.00
14.28	2.00	0.00	0.00	0.06	0.00	14.37	2.00	0.00	0.00	0.09	0.00
14.44	2.00	0.00	0.00	0.07	0.00	14.51	2.00	0.00	0.00	0.08	0.00
14.60	2.00	0.00	0.00	0.09	0.00	14.65	2.00	0.00	0.00	0.05	0.00
14.75	2.00	0.00	0.00	0.10	0.00	14.85	2.00	0.00	0.00	0.10	0.00
14.91	2.00	0.00	0.00	0.06	0.00	14.99	2.00	0.00	0.00	0.08	0.00
15.09	2.00	0.00	0.00	0.09	0.00	15.18	2.00	0.00	0.00	0.09	0.00
15.25	2.00	0.00	0.00	0.07	0.00	15.33	2.00	0.00	0.00	0.08	0.00
15.43	2.00	0.00	0.00	0.10	0.00	15.51	2.00	0.00	0.00	0.09	0.00
15.59	2.00	0.00	0.00	0.08	0.00	15.67	2.00	0.00	0.00	0.08	0.00
15.76	2.00	0.00	0.00	0.09	0.00	15.86	2.00	0.00	0.00	0.10	0.00
15.95	2.00	0.00	0.00	0.09	0.00	16.05	2.00	0.00	0.00	0.10	0.00
16.14	2.00	0.00	0.00	0.09	0.00	16.20	2.00	0.00	0.00	0.06	0.00
16.28	2.00	0.00	0.00	0.09	0.00	16.34	2.00	0.00	0.00	0.05	0.00
16.44	2.00	0.00	0.00	0.10	0.00	16.50	2.00	0.00	0.00	0.06	0.00
16.58	2.00	0.00	0.00	0.08	0.00	16.73	2.00	0.00	0.00	0.15	0.00
16.82	2.00	0.00	0.00	0.09	0.00	16.92	2.00	0.00	0.00	0.10	0.00
17.01	2.00	0.00	0.00	0.09	0.00	17.11	2.00	0.00	0.00	0.09	0.00
17.12	2.00	0.00	0.00	0.01	0.00	17.14	2.00	0.00	0.00	0.02	0.00
17.19	2.00	0.00	0.00	0.05	0.00	17.28	2.00	0.00	0.00	0.09	0.00
17.33	2.00	0.00	0.00	0.05	0.00	17.43	2.00	0.00	0.00	0.10	0.00
17.47	2.00	0.00	0.00	0.05	0.00	17.57	2.00	0.00	0.00	0.10	0.00
17.65	2.00	0.00	0.00	0.08	0.00	17.72	2.00	0.00	0.00	0.06	0.00
17.81	2.00	0.00	0.00	0.09	0.00	17.86	2.00	0.00	0.00	0.05	0.00
17.95	2.00	0.00	0.00	0.10	0.00	18.05	2.00	0.00	0.00	0.10	0.00
18.10	2.00	0.00	0.00	0.05	0.00	18.20	2.00	0.00	0.00	0.10	0.00
18.30	2.00	0.00	0.00	0.10	0.00	18.39	2.00	0.00	0.00	0.10	0.00
18.48	2.00	0.00	0.00	0.09	0.00	18.58	2.00	0.00	0.00	0.10	0.00
18.66	2.00	0.00	0.00	0.08	0.00	18.74	2.00	0.00	0.00	0.08	0.00
18.87	2.00	0.00	0.00	0.13	0.00	18.97	2.00	0.00	0.00	0.10	0.00
19.06	2.00	0.00	0.00	0.10	0.00	19.16	2.00	0.00	0.00	0.10	0.00
19.25	2.00	0.00	0.00	0.10	0.00	19.27	2.00	0.00	0.00	0.01	0.00
19.30	2.00	0.00	0.00	0.03	0.00	19.34	2.00	0.00	0.00	0.04	0.00
19.39	2.00	0.00	0.00	0.05	0.00	19.49	2.00	0.00	0.00	0.10	0.00
19.55	2.00	0.00	0.00	0.06	0.00	19.63	2.00	0.00	0.00	0.08	0.00
19.68	2.00	0.00	0.00	0.05	0.00	19.74	2.00	0.00	0.00	0.06	0.00
19.83	2.00	0.00	0.00	0.08	0.00	19.87	2.00	0.00	0.00	0.05	0.00
19.94	2.00	0.00	0.00	0.07	0.00	20.02	2.00	0.00	0.00	0.08	0.00
20.07	2.00	0.00	0.00	0.05	0.00	20.17	2.00	0.00	0.00	0.10	0.00
20.21	2.00	0.00	0.00	0.05	0.00	20.28	2.00	0.00	0.00	0.07	0.00
20.36	2.00	0.00	0.00	0.08	0.00	20.41	2.00	0.00	0.00	0.05	0.00
20.48	2.00	0.00	0.00	0.07	0.00	20.55	2.00	0.00	0.00	0.07	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
20.60	2.00	0.00	0.00	0.05	0.00	20.70	2.00	0.00	0.00	0.10	0.00
20.74	2.00	0.00	0.00	0.05	0.00	20.79	2.00	0.00	0.00	0.05	0.00
20.89	2.00	0.00	0.00	0.09	0.00	20.96	2.00	0.00	0.00	0.08	0.00
21.04	2.00	0.00	0.00	0.07	0.00	21.13	2.00	0.00	0.00	0.09	0.00
21.22	2.00	0.00	0.00	0.09	0.00	21.29	2.00	0.00	0.00	0.06	0.00
21.35	2.00	0.00	0.00	0.06	0.00	21.37	2.00	0.00	0.00	0.03	0.00
21.42	2.00	0.00	0.00	0.05	0.00	21.47	2.00	0.00	0.00	0.05	0.00
21.48	2.00	0.00	0.00	0.01	0.00	21.52	2.00	0.00	0.00	0.04	0.00
21.57	2.00	0.00	0.00	0.05	0.00	21.62	2.00	0.00	0.00	0.05	0.00
21.66	2.00	0.00	0.00	0.05	0.00	21.71	2.00	0.00	0.00	0.05	0.00
21.76	2.00	0.00	0.00	0.05	0.00	21.81	2.00	0.00	0.00	0.05	0.00
21.85	2.00	0.00	0.00	0.04	0.00	21.91	2.00	0.00	0.00	0.05	0.00
21.95	2.00	0.00	0.00	0.05	0.00	22.00	2.00	0.00	0.00	0.05	0.00
22.05	2.00	0.00	0.00	0.04	0.00	22.10	2.00	0.00	0.00	0.05	0.00
22.15	2.00	0.00	0.00	0.05	0.00	22.19	2.00	0.00	0.00	0.05	0.00
22.24	2.00	0.00	0.00	0.05	0.00	22.29	2.00	0.00	0.00	0.05	0.00
22.34	2.00	0.00	0.00	0.05	0.00	22.39	2.00	0.00	0.00	0.05	0.00
22.43	2.00	0.00	0.00	0.05	0.00	22.48	2.00	0.00	0.00	0.05	0.00
22.55	2.00	0.00	0.00	0.06	0.00	22.62	2.00	0.00	0.00	0.07	0.00
22.63	2.00	0.00	0.00	0.01	0.00	22.72	2.00	0.00	0.00	0.10	0.00
22.77	2.00	0.00	0.00	0.04	0.00	22.83	2.00	0.00	0.00	0.06	0.00
22.91	2.00	0.00	0.00	0.08	0.00	22.96	2.00	0.00	0.00	0.05	0.00
23.02	2.00	0.00	0.00	0.05	0.00	23.10	2.00	0.00	0.00	0.09	0.00
23.16	2.00	0.00	0.00	0.06	0.00	23.20	2.00	0.00	0.00	0.05	0.00
23.26	2.00	0.00	0.00	0.06	0.00	23.35	2.00	0.00	0.00	0.09	0.00
23.39	2.00	0.00	0.00	0.04	0.00	23.48	2.00	0.00	0.00	0.09	0.00
23.54	2.00	0.00	0.00	0.06	0.00	23.63	2.00	0.00	0.00	0.09	0.00
23.69	2.00	0.00	0.00	0.06	0.00	23.78	2.00	0.00	0.00	0.09	0.00
23.87	2.00	0.00	0.00	0.09	0.00	23.88	2.00	0.00	0.00	0.01	0.00
23.93	2.00	0.00	0.00	0.05	0.00	24.02	2.00	0.00	0.00	0.10	0.00
24.04	2.00	0.00	0.00	0.01	0.00	24.05	2.00	0.00	0.00	0.02	0.00
24.15	2.00	0.00	0.00	0.10	0.00	24.20	2.00	0.00	0.00	0.05	0.00
24.30	2.00	0.00	0.00	0.10	0.00	24.40	2.00	0.00	0.00	0.09	0.00
24.46	2.00	0.00	0.00	0.07	0.00	24.54	2.00	0.00	0.00	0.08	0.00
24.64	2.00	0.00	0.00	0.10	0.00	24.73	2.00	0.00	0.00	0.09	0.00
24.78	2.00	0.00	0.00	0.06	0.00	24.88	2.00	0.00	0.00	0.09	0.00
24.94	2.00	0.00	0.00	0.06	0.00	25.02	2.00	0.00	0.00	0.08	0.00
25.12	2.00	0.00	0.00	0.10	0.00	25.17	2.00	0.00	0.00	0.05	0.00
25.27	2.00	0.00	0.00	0.10	0.00	25.36	2.00	0.00	0.00	0.09	0.00
25.43	2.00	0.00	0.00	0.07	0.00	25.50	2.00	0.00	0.00	0.08	0.00
25.60	2.00	0.00	0.00	0.10	0.00	25.64	2.00	0.00	0.00	0.04	0.00
25.67	2.00	0.00	0.00	0.03	0.00	25.71	2.00	0.00	0.00	0.04	0.00
25.79	2.00	0.00	0.00	0.09	0.00	25.93	2.00	0.00	0.00	0.14	0.00
26.03	2.00	0.00	0.00	0.10	0.00	26.13	2.00	0.00	0.00	0.10	0.00
26.24	2.00	0.00	0.00	0.11	0.00	26.37	2.00	0.00	0.00	0.13	0.00
26.47	2.00	0.00	0.00	0.10	0.00	26.60	2.00	0.00	0.00	0.13	0.00
26.71	2.00	0.00	0.00	0.11	0.00	26.85	2.00	0.00	0.00	0.15	0.00
26.95	2.00	0.00	0.00	0.09	0.00	27.04	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
27.09	2.00	0.00	0.00	0.05	0.00	27.19	2.00	0.00	0.00	0.10	0.00
27.23	2.00	0.00	0.00	0.05	0.00	27.33	2.00	0.00	0.00	0.10	0.00
27.40	2.00	0.00	0.00	0.07	0.00	27.47	2.00	0.00	0.00	0.07	0.00
27.57	2.00	0.00	0.00	0.11	0.00	27.66	2.00	0.00	0.00	0.09	0.00
27.77	2.00	0.00	0.00	0.10	0.00	27.86	2.00	0.00	0.00	0.10	0.00
27.96	2.00	0.00	0.00	0.10	0.00	28.06	2.00	0.00	0.00	0.10	0.00
28.15	2.00	0.00	0.00	0.09	0.00	28.25	2.00	0.00	0.00	0.10	0.00
28.34	2.00	0.00	0.00	0.09	0.00	28.44	2.00	0.00	0.00	0.10	0.00
28.54	2.00	0.00	0.00	0.10	0.00	28.62	2.00	0.00	0.00	0.08	0.00
28.71	2.00	0.00	0.00	0.09	0.00	28.77	2.00	0.00	0.00	0.05	0.00
28.86	2.00	0.00	0.00	0.09	0.00	28.91	2.00	0.00	0.00	0.05	0.00
28.97	2.00	0.00	0.00	0.05	0.00	29.04	2.00	0.00	0.00	0.08	0.00
29.10	2.00	0.00	0.00	0.06	0.00	29.15	2.00	0.00	0.00	0.05	0.00
29.25	2.00	0.00	0.00	0.10	0.00	29.34	2.00	0.00	0.00	0.09	0.00
29.38	2.00	0.00	0.00	0.04	0.00	29.48	2.00	0.00	0.00	0.10	0.00
29.55	2.00	0.00	0.00	0.06	0.00	29.63	2.00	0.00	0.00	0.09	0.00
29.72	2.00	0.00	0.00	0.09	0.00	29.82	2.00	0.00	0.00	0.10	0.00
29.88	2.00	0.00	0.00	0.06	0.00	29.96	2.00	0.00	0.00	0.08	0.00
30.06	2.00	0.00	0.00	0.09	0.00	30.13	2.00	0.00	0.00	0.07	0.00
30.18	0.57	0.00	0.00	0.04	0.03	30.28	0.58	0.00	0.00	0.10	0.07
30.37	0.60	0.00	0.00	0.09	0.06	30.47	0.63	0.00	0.00	0.10	0.06
30.57	0.65	0.00	0.00	0.10	0.06	30.66	0.67	0.00	0.00	0.10	0.05
30.74	0.69	0.00	0.00	0.08	0.04	30.82	0.71	0.00	0.00	0.08	0.04
30.90	0.73	0.00	0.00	0.08	0.04	31.01	0.76	0.00	0.00	0.11	0.04
31.10	0.80	0.00	0.00	0.08	0.03	31.19	0.86	0.00	0.00	0.09	0.02
31.28	0.92	0.00	0.00	0.09	0.01	31.35	0.97	0.00	0.00	0.06	0.00
31.43	1.02	0.00	0.00	0.09	0.00	31.53	1.06	0.00	0.00	0.09	0.00
31.60	0.96	0.00	0.00	0.07	0.00	31.67	0.88	0.00	0.00	0.08	0.01
31.77	0.82	0.00	0.00	0.10	0.03	31.84	0.84	0.00	0.00	0.07	0.02
31.91	0.87	0.00	0.00	0.07	0.01	31.98	0.89	0.00	0.00	0.07	0.01
31.98	0.92	0.00	0.00	0.01	0.00	32.04	0.94	0.00	0.00	0.05	0.00
32.12	2.00	0.00	0.00	0.08	0.00	32.16	2.00	0.00	0.00	0.05	0.00
32.27	2.00	0.00	0.00	0.10	0.00	32.33	2.00	0.00	0.00	0.06	0.00
32.41	2.00	0.00	0.00	0.08	0.00	32.50	2.00	0.00	0.00	0.09	0.00
32.58	2.00	0.00	0.00	0.08	0.00	32.66	2.00	0.00	0.00	0.07	0.00
32.74	2.00	0.00	0.00	0.09	0.00	32.84	2.00	0.00	0.00	0.10	0.00
32.90	2.00	0.00	0.00	0.06	0.00	32.98	2.00	0.00	0.00	0.09	0.00
33.08	2.00	0.00	0.00	0.09	0.00	33.14	2.00	0.00	0.00	0.07	0.00
33.22	2.00	0.00	0.00	0.08	0.00	33.32	2.00	0.00	0.00	0.10	0.00
33.37	2.00	0.00	0.00	0.05	0.00	33.47	2.00	0.00	0.00	0.10	0.00
33.56	2.00	0.00	0.00	0.09	0.00	33.63	2.00	0.00	0.00	0.07	0.00
33.71	2.00	0.00	0.00	0.08	0.00	33.81	2.00	0.00	0.00	0.09	0.00
33.90	2.00	0.00	0.00	0.09	0.00	33.95	2.00	0.00	0.00	0.05	0.00
34.04	2.00	0.00	0.00	0.09	0.00	34.14	2.00	0.00	0.00	0.10	0.00
34.17	2.00	0.00	0.00	0.02	0.00	34.20	2.00	0.00	0.00	0.04	0.00
34.26	2.00	0.00	0.00	0.05	0.00	34.35	2.00	0.00	0.00	0.09	0.00
34.43	2.00	0.00	0.00	0.08	0.00	34.49	2.00	0.00	0.00	0.06	0.00
34.59	2.00	0.00	0.00	0.09	0.00	34.69	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
34.73	2.00	0.00	0.00	0.05	0.00	34.83	2.00	0.00	0.00	0.10	0.00
34.90	2.00	0.00	0.00	0.07	0.00	34.98	2.00	0.00	0.00	0.08	0.00
35.07	2.00	0.00	0.00	0.09	0.00	35.16	2.00	0.00	0.00	0.10	0.00
35.26	2.00	0.00	0.00	0.10	0.00	35.33	2.00	0.00	0.00	0.07	0.00
35.40	2.00	0.00	0.00	0.07	0.00	35.50	2.00	0.00	0.00	0.10	0.00
35.57	2.00	0.00	0.00	0.06	0.00	35.65	2.00	0.00	0.00	0.08	0.00
35.71	2.00	0.00	0.00	0.06	0.00	35.79	2.00	0.00	0.00	0.09	0.00
35.85	2.00	0.00	0.00	0.06	0.00	35.94	2.00	0.00	0.00	0.08	0.00
35.99	2.00	0.00	0.00	0.06	0.00	36.08	2.00	0.00	0.00	0.08	0.00
36.17	2.00	0.00	0.00	0.10	0.00	36.24	2.00	0.00	0.00	0.07	0.00
36.33	2.00	0.00	0.00	0.08	0.00	36.42	2.00	0.00	0.00	0.09	0.00
36.52	2.00	0.00	0.00	0.10	0.00	36.61	2.00	0.00	0.00	0.09	0.00
36.70	2.00	0.00	0.00	0.09	0.00	36.78	2.00	0.00	0.00	0.08	0.00
36.85	2.00	0.00	0.00	0.07	0.00	36.87	2.00	0.00	0.00	0.01	0.00
36.91	2.00	0.00	0.00	0.05	0.00	36.97	2.00	0.00	0.00	0.06	0.00
37.06	2.00	0.00	0.00	0.09	0.00	37.12	2.00	0.00	0.00	0.06	0.00
37.20	2.00	0.00	0.00	0.08	0.00	37.27	2.00	0.00	0.00	0.08	0.00
37.35	2.00	0.00	0.00	0.07	0.00	37.44	2.00	0.00	0.00	0.09	0.00
37.49	2.00	0.00	0.00	0.05	0.00	37.59	2.00	0.00	0.00	0.10	0.00
37.64	2.00	0.00	0.00	0.05	0.00	37.70	2.00	0.00	0.00	0.07	0.00
37.78	2.00	0.00	0.00	0.08	0.00	37.83	2.00	0.00	0.00	0.05	0.00
37.92	2.00	0.00	0.00	0.09	0.00	37.97	2.00	0.00	0.00	0.05	0.00
38.07	1.52	0.00	0.00	0.09	0.00	38.14	1.59	0.00	0.00	0.07	0.00
38.22	1.67	0.00	0.00	0.08	0.00	38.31	1.79	0.00	0.00	0.09	0.00
38.41	1.96	0.00	0.00	0.09	0.00	38.52	2.00	0.00	0.00	0.11	0.00
38.64	2.00	0.00	0.00	0.13	0.00	38.74	2.00	0.00	0.00	0.10	0.00
38.80	2.00	0.00	0.00	0.06	0.00	38.89	2.00	0.00	0.00	0.08	0.00
38.94	2.00	0.00	0.00	0.05	0.00	39.03	2.00	0.00	0.00	0.09	0.00
39.13	2.00	0.00	0.00	0.10	0.00	39.23	2.00	0.00	0.00	0.10	0.00
39.35	2.00	0.00	0.00	0.12	0.00	39.42	2.00	0.00	0.00	0.07	0.00
39.51	1.93	0.00	0.00	0.09	0.00	39.60	1.73	0.00	0.00	0.09	0.00
39.70	1.58	0.00	0.00	0.10	0.00	39.78	1.45	0.00	0.00	0.07	0.00
39.90	1.34	0.00	0.00	0.12	0.00	39.99	1.24	0.00	0.00	0.09	0.00
40.09	2.00	0.00	0.00	0.10	0.00	40.18	2.00	0.00	0.00	0.09	0.00
40.23	2.00	0.00	0.00	0.05	0.00	40.33	2.00	0.00	0.00	0.10	0.00
40.43	2.00	0.00	0.00	0.10	0.00	40.52	2.00	0.00	0.00	0.09	0.00
40.61	2.00	0.00	0.00	0.08	0.00	40.69	2.00	0.00	0.00	0.09	0.00
40.80	2.00	0.00	0.00	0.10	0.00	40.87	2.00	0.00	0.00	0.08	0.00
40.95	2.00	0.00	0.00	0.08	0.00	40.97	2.00	0.00	0.00	0.02	0.00
41.01	2.00	0.00	0.00	0.04	0.00	41.07	2.00	0.00	0.00	0.06	0.00
41.15	2.00	0.00	0.00	0.08	0.00	41.26	0.74	0.00	0.00	0.11	0.03
41.35	0.76	0.00	0.00	0.09	0.02	41.47	0.78	0.00	0.00	0.12	0.03
41.59	0.79	0.00	0.00	0.12	0.03	41.69	0.80	0.00	0.00	0.10	0.02
41.78	0.83	0.00	0.00	0.09	0.02	41.88	2.00	0.00	0.00	0.10	0.00
41.98	2.00	0.00	0.00	0.10	0.00	42.08	2.00	0.00	0.00	0.10	0.00
42.16	2.00	0.00	0.00	0.08	0.00	42.24	2.00	0.00	0.00	0.08	0.00
42.31	2.00	0.00	0.00	0.07	0.00	42.45	0.80	0.00	0.00	0.14	0.03
42.55	0.80	0.00	0.00	0.09	0.02	42.60	0.80	0.00	0.00	0.05	0.01

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
42.70	0.82	0.00	0.00	0.10	0.02	42.81	0.85	0.00	0.00	0.11	0.02
42.89	2.00	0.00	0.00	0.08	0.00	42.98	2.00	0.00	0.00	0.10	0.00
43.08	2.00	0.00	0.00	0.10	0.00	43.17	2.00	0.00	0.00	0.09	0.00
43.27	2.00	0.00	0.00	0.10	0.00	43.37	2.00	0.00	0.00	0.09	0.00
43.50	2.00	0.00	0.00	0.14	0.00	43.61	0.59	0.00	0.00	0.10	0.04
43.74	0.60	0.00	0.00	0.13	0.06	43.79	0.63	0.00	0.00	0.05	0.02
43.86	2.00	0.00	0.00	0.07	0.00	43.94	2.00	0.00	0.00	0.07	0.00
44.00	2.00	0.00	0.00	0.06	0.00	44.08	2.00	0.00	0.00	0.08	0.00
44.17	2.00	0.00	0.00	0.09	0.00	44.27	2.00	0.00	0.00	0.10	0.00
44.42	2.00	0.00	0.00	0.14	0.00	44.52	2.00	0.00	0.00	0.10	0.00
44.61	2.00	0.00	0.00	0.10	0.00	44.71	0.67	0.00	0.00	0.09	0.03
44.85	0.67	0.00	0.00	0.14	0.05	44.95	0.71	0.00	0.00	0.10	0.03
45.09	0.76	0.00	0.00	0.14	0.03	45.19	2.00	0.00	0.00	0.10	0.00
45.33	2.00	0.00	0.00	0.14	0.00	45.42	2.00	0.00	0.00	0.10	0.00
45.57	2.00	0.00	0.00	0.14	0.00	45.68	2.00	0.00	0.00	0.11	0.00
45.81	2.00	0.00	0.00	0.14	0.00	45.92	2.00	0.00	0.00	0.11	0.00
46.05	2.00	0.00	0.00	0.13	0.00	46.16	2.00	0.00	0.00	0.10	0.00
46.17	2.00	0.00	0.00	0.01	0.00	46.23	2.00	0.00	0.00	0.06	0.00
46.29	2.00	0.00	0.00	0.05	0.00	46.34	2.00	0.00	0.00	0.05	0.00
46.42	2.00	0.00	0.00	0.09	0.00	46.48	2.00	0.00	0.00	0.05	0.00
46.52	2.00	0.00	0.00	0.05	0.00	46.60	2.00	0.00	0.00	0.08	0.00
46.67	2.00	0.00	0.00	0.07	0.00	46.74	2.00	0.00	0.00	0.07	0.00
46.82	2.00	0.00	0.00	0.08	0.00	46.88	2.00	0.00	0.00	0.06	0.00
46.96	2.00	0.00	0.00	0.09	0.00	47.06	2.00	0.00	0.00	0.09	0.00
47.15	2.00	0.00	0.00	0.10	0.00	47.24	2.00	0.00	0.00	0.09	0.00
47.35	2.00	0.00	0.00	0.10	0.00	47.49	2.00	0.00	0.00	0.14	0.00
47.58	2.00	0.00	0.00	0.09	0.00	47.73	2.00	0.00	0.00	0.15	0.00
47.83	2.00	0.00	0.00	0.10	0.00	47.87	2.00	0.00	0.00	0.04	0.00
47.89	2.00	0.00	0.00	0.02	0.00	47.94	2.00	0.00	0.00	0.05	0.00
48.02	2.00	0.00	0.00	0.08	0.00	48.07	2.00	0.00	0.00	0.05	0.00
48.12	2.00	0.00	0.00	0.05	0.00	48.18	2.00	0.00	0.00	0.06	0.00
48.26	2.00	0.00	0.00	0.08	0.00	48.31	2.00	0.00	0.00	0.06	0.00
48.38	2.00	0.00	0.00	0.06	0.00	48.46	2.00	0.00	0.00	0.08	0.00
48.52	2.00	0.00	0.00	0.06	0.00	48.60	2.00	0.00	0.00	0.08	0.00
48.68	2.00	0.00	0.00	0.08	0.00	48.74	2.00	0.00	0.00	0.06	0.00
48.82	2.00	0.00	0.00	0.08	0.00	48.89	2.00	0.00	0.00	0.07	0.00
48.99	2.00	0.00	0.00	0.10	0.00	49.05	2.00	0.00	0.00	0.06	0.00
49.12	2.00	0.00	0.00	0.08	0.00	49.18	2.00	0.00	0.00	0.06	0.00
49.27	2.00	0.00	0.00	0.09	0.00	49.32	2.00	0.00	0.00	0.05	0.00
49.42	2.00	0.00	0.00	0.09	0.00	49.48	2.00	0.00	0.00	0.06	0.00
49.56	2.00	0.00	0.00	0.09	0.00	49.66	2.00	0.00	0.00	0.10	0.00
49.76	2.00	0.00	0.00	0.09	0.00	49.85	2.00	0.00	0.00	0.09	0.00
49.99	2.00	0.00	0.00	0.14	0.00	50.09	2.00	0.00	0.00	0.10	0.00
50.21	2.00	0.00	0.00	0.12	0.00	50.24	2.00	0.00	0.00	0.03	0.00
50.29	2.00	0.00	0.00	0.05	0.00	50.38	2.00	0.00	0.00	0.09	0.00
50.47	2.00	0.00	0.00	0.09	0.00	50.52	2.00	0.00	0.00	0.05	0.00
50.62	2.00	0.00	0.00	0.10	0.00	50.66	2.00	0.00	0.00	0.05	0.00
50.76	2.00	0.00	0.00	0.10	0.00	50.83	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
50.91	2.00	0.00	0.00	0.09	0.00	51.00	2.00	0.00	0.00	0.09	0.00
51.06	2.00	0.00	0.00	0.06	0.00	51.15	2.00	0.00	0.00	0.08	0.00
51.24	2.00	0.00	0.00	0.10	0.00	51.31	2.00	0.00	0.00	0.07	0.00
51.39	2.00	0.00	0.00	0.08	0.00	51.48	2.00	0.00	0.00	0.09	0.00
51.58	2.00	0.00	0.00	0.10	0.00	51.68	2.00	0.00	0.00	0.10	0.00
51.77	2.00	0.00	0.00	0.10	0.00	51.90	2.00	0.00	0.00	0.13	0.00
52.01	2.00	0.00	0.00	0.11	0.00	52.11	2.00	0.00	0.00	0.10	0.00
52.26	2.00	0.00	0.00	0.14	0.00	52.30	2.00	0.00	0.00	0.05	0.00
52.33	2.00	0.00	0.00	0.03	0.00	52.35	2.00	0.00	0.00	0.02	0.00
52.40	2.00	0.00	0.00	0.05	0.00	52.45	2.00	0.00	0.00	0.05	0.00
52.50	2.00	0.00	0.00	0.05	0.00	52.55	2.00	0.00	0.00	0.05	0.00
52.60	2.00	0.00	0.00	0.05	0.00	52.65	2.00	0.00	0.00	0.05	0.00
52.71	2.00	0.00	0.00	0.07	0.00	52.77	2.00	0.00	0.00	0.05	0.00
52.82	2.00	0.00	0.00	0.05	0.00	52.88	2.00	0.00	0.00	0.06	0.00
52.93	2.00	0.00	0.00	0.06	0.00	52.98	2.00	0.00	0.00	0.05	0.00
53.03	2.00	0.00	0.00	0.05	0.00	53.08	2.00	0.00	0.00	0.05	0.00
53.12	2.00	0.00	0.00	0.04	0.00	53.17	2.00	0.00	0.00	0.05	0.00
53.23	2.00	0.00	0.00	0.05	0.00	53.28	2.00	0.00	0.00	0.06	0.00
53.37	2.00	0.00	0.00	0.09	0.00	53.42	2.00	0.00	0.00	0.05	0.00
53.46	2.00	0.00	0.00	0.05	0.00	53.53	2.00	0.00	0.00	0.06	0.00
53.61	2.00	0.00	0.00	0.08	0.00	53.62	2.00	0.00	0.00	0.01	0.00
53.65	2.00	0.00	0.00	0.04	0.00	53.67	2.00	0.00	0.00	0.01	0.00
53.70	2.00	0.00	0.00	0.04	0.00	53.74	2.00	0.00	0.00	0.04	0.00
53.76	2.00	0.00	0.00	0.02	0.00	53.80	2.00	0.00	0.00	0.04	0.00
53.84	2.00	0.00	0.00	0.05	0.00	53.90	2.00	0.00	0.00	0.05	0.00
53.91	2.00	0.00	0.00	0.01	0.00	53.95	2.00	0.00	0.00	0.04	0.00
53.96	2.00	0.00	0.00	0.01	0.00	53.98	2.00	0.00	0.00	0.02	0.00
53.99	2.00	0.00	0.00	0.01	0.00	54.01	2.00	0.00	0.00	0.01	0.00
54.02	2.00	0.00	0.00	0.01	0.00	54.03	2.00	0.00	0.00	0.01	0.00
54.04	2.00	0.00	0.00	0.01	0.00	54.05	2.00	0.00	0.00	0.01	0.00
54.09	2.00	0.00	0.00	0.04	0.00	54.10	2.00	0.00	0.00	0.01	0.00
54.13	2.00	0.00	0.00	0.04	0.00	54.14	2.00	0.00	0.00	0.01	0.00
54.19	2.00	0.00	0.00	0.05	0.00	54.19	2.00	0.00	0.00	0.01	0.00
54.24	2.00	0.00	0.00	0.05	0.00	54.29	2.00	0.00	0.00	0.04	0.00
54.33	2.00	0.00	0.00	0.05	0.00	54.38	2.00	0.00	0.00	0.05	0.00
54.39	2.00	0.00	0.00	0.01	0.00	54.43	2.00	0.00	0.00	0.04	0.00
54.48	2.00	0.00	0.00	0.05	0.00	54.52	2.00	0.00	0.00	0.05	0.00
54.58	2.00	0.00	0.00	0.05	0.00	54.62	2.00	0.00	0.00	0.04	0.00
54.65	2.00	0.00	0.00	0.03	0.00	54.67	2.00	0.00	0.00	0.02	0.00
54.71	2.00	0.00	0.00	0.04	0.00	54.77	2.00	0.00	0.00	0.05	0.00
54.81	2.00	0.00	0.00	0.05	0.00	54.85	2.00	0.00	0.00	0.04	0.00
54.86	2.00	0.00	0.00	0.01	0.00	54.87	2.00	0.00	0.00	0.01	0.00
54.91	2.00	0.00	0.00	0.04	0.00	54.96	2.00	0.00	0.00	0.04	0.00
55.00	2.00	0.00	0.00	0.04	0.00	55.01	2.00	0.00	0.00	0.01	0.00
55.05	2.00	0.00	0.00	0.05	0.00	55.10	2.00	0.00	0.00	0.05	0.00
55.12	2.00	0.00	0.00	0.01	0.00	55.13	2.00	0.00	0.00	0.02	0.00
55.14	2.00	0.00	0.00	0.01	0.00	55.19	2.00	0.00	0.00	0.05	0.00
55.20	2.00	0.00	0.00	0.01	0.00	55.25	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
55.29	2.00	0.00	0.00	0.04	0.00	55.33	2.00	0.00	0.00	0.04	0.00
55.38	2.00	0.00	0.00	0.05	0.00	55.48	2.00	0.00	0.00	0.10	0.00
55.57	2.00	0.00	0.00	0.09	0.00	55.63	2.00	0.00	0.00	0.05	0.00
55.72	2.00	0.00	0.00	0.10	0.00	55.80	2.00	0.00	0.00	0.08	0.00
55.86	2.00	0.00	0.00	0.06	0.00	55.97	2.00	0.00	0.00	0.10	0.00
56.01	2.00	0.00	0.00	0.05	0.00	56.06	2.00	0.00	0.00	0.05	0.00
56.11	2.00	0.00	0.00	0.05	0.00	56.15	2.00	0.00	0.00	0.04	0.00
56.20	2.00	0.00	0.00	0.05	0.00	56.27	2.00	0.00	0.00	0.06	0.00
56.27	2.00	0.00	0.00	0.01	0.00	56.30	2.00	0.00	0.00	0.03	0.00
56.33	2.00	0.00	0.00	0.03	0.00	56.35	2.00	0.00	0.00	0.01	0.00
56.40	2.00	0.00	0.00	0.05	0.00	56.41	2.00	0.00	0.00	0.01	0.00
56.44	2.00	0.00	0.00	0.04	0.00	56.49	2.00	0.00	0.00	0.05	0.00
56.54	2.00	0.00	0.00	0.04	0.00	56.58	2.00	0.00	0.00	0.05	0.00
56.59	2.00	0.00	0.00	0.01	0.00	56.64	2.00	0.00	0.00	0.05	0.00
56.69	2.00	0.00	0.00	0.05	0.00	56.73	2.00	0.00	0.00	0.04	0.00
56.78	2.00	0.00	0.00	0.05	0.00	56.83	2.00	0.00	0.00	0.05	0.00
56.88	2.00	0.00	0.00	0.05	0.00	56.89	2.00	0.00	0.00	0.02	0.00
56.95	2.00	0.00	0.00	0.06	0.00	57.01	2.00	0.00	0.00	0.06	0.00
57.07	2.00	0.00	0.00	0.06	0.00	57.11	2.00	0.00	0.00	0.05	0.00
57.17	2.00	0.00	0.00	0.06	0.00	57.26	2.00	0.00	0.00	0.09	0.00
57.31	2.00	0.00	0.00	0.05	0.00	57.37	2.00	0.00	0.00	0.06	0.00
57.45	2.00	0.00	0.00	0.08	0.00	57.51	1.75	0.00	0.00	0.06	0.00
57.53	1.50	0.00	0.00	0.02	0.00	57.59	1.35	0.00	0.00	0.05	0.00
57.63	1.33	0.00	0.00	0.05	0.00	57.68	1.28	0.00	0.00	0.05	0.00
57.73	1.24	0.00	0.00	0.05	0.00	57.78	1.19	0.00	0.00	0.05	0.00
57.86	1.08	0.00	0.00	0.08	0.00	57.92	2.00	0.00	0.00	0.06	0.00
57.98	2.00	0.00	0.00	0.06	0.00	58.06	2.00	0.00	0.00	0.08	0.00
58.12	2.00	0.00	0.00	0.05	0.00	58.21	2.00	0.00	0.00	0.09	0.00
58.26	2.00	0.00	0.00	0.05	0.00	58.35	2.00	0.00	0.00	0.09	0.00
58.41	2.00	0.00	0.00	0.06	0.00	58.50	2.00	0.00	0.00	0.09	0.00
58.56	2.00	0.00	0.00	0.06	0.00	58.64	2.00	0.00	0.00	0.08	0.00
58.73	2.00	0.00	0.00	0.09	0.00	58.80	2.00	0.00	0.00	0.07	0.00
58.84	2.00	0.00	0.00	0.03	0.00	58.85	2.00	0.00	0.00	0.01	0.00
58.93	2.00	0.00	0.00	0.08	0.00	58.98	2.00	0.00	0.00	0.05	0.00
59.02	2.00	0.00	0.00	0.05	0.00	59.12	2.00	0.00	0.00	0.10	0.00
59.17	2.00	0.00	0.00	0.05	0.00	59.27	2.00	0.00	0.00	0.09	0.00
59.31	2.00	0.00	0.00	0.05	0.00	59.41	2.00	0.00	0.00	0.09	0.00
59.46	2.00	0.00	0.00	0.05	0.00	59.55	2.00	0.00	0.00	0.09	0.00
59.65	2.00	0.00	0.00	0.10	0.00	59.70	2.00	0.00	0.00	0.05	0.00
59.80	2.00	0.00	0.00	0.10	0.00	59.89	2.00	0.00	0.00	0.09	0.00
59.94	2.00	0.00	0.00	0.05	0.00	60.01	2.00	0.00	0.00	0.07	0.00
60.02	2.00	0.00	0.00	0.02	0.00	60.08	2.00	0.00	0.00	0.05	0.00
60.12	2.00	0.00	0.00	0.04	0.00	60.17	2.00	0.00	0.00	0.05	0.00
60.27	2.00	0.00	0.00	0.10	0.00	60.31	2.00	0.00	0.00	0.04	0.00
60.37	2.00	0.00	0.00	0.06	0.00	60.46	2.00	0.00	0.00	0.09	0.00
60.51	2.00	0.00	0.00	0.05	0.00	60.61	2.00	0.00	0.00	0.10	0.00
60.65	2.00	0.00	0.00	0.05	0.00	60.75	2.00	0.00	0.00	0.10	0.00
60.81	2.00	0.00	0.00	0.05	0.00	60.89	2.00	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
60.94	2.00	0.00	0.00	0.05	0.00	61.03	2.00	0.00	0.00	0.09	0.00
61.09	2.00	0.00	0.00	0.06	0.00	61.19	2.00	0.00	0.00	0.09	0.00
61.24	2.00	0.00	0.00	0.06	0.00	61.33	2.00	0.00	0.00	0.08	0.00
61.38	2.00	0.00	0.00	0.05	0.00	61.47	2.00	0.00	0.00	0.10	0.00
61.53	2.00	0.00	0.00	0.06	0.00	61.62	2.00	0.00	0.00	0.09	0.00
61.70	2.00	0.00	0.00	0.09	0.00	61.77	2.00	0.00	0.00	0.06	0.00
61.86	2.00	0.00	0.00	0.09	0.00	61.95	2.00	0.00	0.00	0.10	0.00
61.97	2.00	0.00	0.00	0.02	0.00	62.01	2.00	0.00	0.00	0.04	0.00
62.10	2.00	0.00	0.00	0.09	0.00	62.24	2.00	0.00	0.00	0.14	0.00
62.34	2.00	0.00	0.00	0.10	0.00	62.49	2.00	0.00	0.00	0.14	0.00
62.54	2.00	0.00	0.00	0.05	0.00	62.66	2.00	0.00	0.00	0.12	0.00
62.74	2.00	0.00	0.00	0.08	0.00	62.87	2.00	0.00	0.00	0.13	0.00
62.92	2.00	0.00	0.00	0.05	0.00	63.03	2.00	0.00	0.00	0.11	0.00
63.15	2.00	0.00	0.00	0.12	0.00	63.26	2.00	0.00	0.00	0.11	0.00
63.37	2.00	0.00	0.00	0.11	0.00	63.45	2.00	0.00	0.00	0.08	0.00
63.54	2.00	0.00	0.00	0.10	0.00	63.61	2.00	0.00	0.00	0.07	0.00
63.69	2.00	0.00	0.00	0.08	0.00	63.79	2.00	0.00	0.00	0.09	0.00
63.89	2.00	0.00	0.00	0.10	0.00	63.98	2.00	0.00	0.00	0.09	0.00
64.07	2.00	0.00	0.00	0.09	0.00	64.15	2.00	0.00	0.00	0.08	0.00
64.23	2.00	0.00	0.00	0.08	0.00	64.26	2.00	0.00	0.00	0.03	0.00
64.29	2.00	0.00	0.00	0.02	0.00	64.33	2.00	0.00	0.00	0.05	0.00
64.43	2.00	0.00	0.00	0.10	0.00	64.47	2.00	0.00	0.00	0.04	0.00
64.53	2.00	0.00	0.00	0.05	0.00	64.62	2.00	0.00	0.00	0.10	0.00
64.72	2.00	0.00	0.00	0.09	0.00	64.78	2.00	0.00	0.00	0.06	0.00
64.86	2.00	0.00	0.00	0.09	0.00	64.96	2.00	0.00	0.00	0.10	0.00
65.06	2.00	0.00	0.00	0.09	0.00	65.11	2.00	0.00	0.00	0.05	0.00
65.21	2.00	0.00	0.00	0.10	0.00	65.31	2.00	0.00	0.00	0.10	0.00
65.40	2.00	0.00	0.00	0.09	0.00	65.50	2.00	0.00	0.00	0.10	0.00
65.58	2.00	0.00	0.00	0.09	0.00	65.68	2.00	0.00	0.00	0.10	0.00
65.78	2.00	0.00	0.00	0.10	0.00	65.84	2.00	0.00	0.00	0.07	0.00
65.86	2.00	0.00	0.00	0.01	0.00	65.87	2.00	0.00	0.00	0.01	0.00
65.98	2.00	0.00	0.00	0.11	0.00	66.10	2.00	0.00	0.00	0.12	0.00
66.21	2.00	0.00	0.00	0.11	0.00	66.34	2.00	0.00	0.00	0.13	0.00
66.48	2.00	0.00	0.00	0.14	0.00	66.62	2.00	0.00	0.00	0.14	0.00
66.68	2.00	0.00	0.00	0.06	0.00	66.87	2.00	0.00	0.00	0.19	0.00
66.96	2.00	0.00	0.00	0.09	0.00	67.11	2.00	0.00	0.00	0.15	0.00
67.21	2.00	0.00	0.00	0.10	0.00	67.35	2.00	0.00	0.00	0.14	0.00
67.45	2.00	0.00	0.00	0.10	0.00	67.59	2.00	0.00	0.00	0.14	0.00
67.68	2.00	0.00	0.00	0.09	0.00	67.83	2.00	0.00	0.00	0.15	0.00
67.92	2.00	0.00	0.00	0.10	0.00	68.02	2.00	0.00	0.00	0.09	0.00
68.07	2.00	0.00	0.00	0.05	0.00	68.16	2.00	0.00	0.00	0.09	0.00
68.26	2.00	0.00	0.00	0.10	0.00	68.35	2.00	0.00	0.00	0.09	0.00
68.45	2.00	0.00	0.00	0.10	0.00	68.55	2.00	0.00	0.00	0.10	0.00
68.65	2.00	0.00	0.00	0.10	0.00	68.78	2.00	0.00	0.00	0.13	0.00
68.78	2.00	0.00	0.00	0.01	0.00	68.79	2.00	0.00	0.00	0.01	0.00
68.83	2.00	0.00	0.00	0.04	0.00	68.93	2.00	0.00	0.00	0.09	0.00
68.98	2.00	0.00	0.00	0.05	0.00	69.04	2.00	0.00	0.00	0.06	0.00
69.12	2.00	0.00	0.00	0.08	0.00	69.22	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
69.28	2.00	0.00	0.00	0.07	0.00	69.36	2.00	0.00	0.00	0.08	0.00
69.45	2.00	0.00	0.00	0.09	0.00	69.60	2.00	0.00	0.00	0.14	0.00
69.70	2.00	0.00	0.00	0.10	0.00	69.80	2.00	0.00	0.00	0.09	0.00
69.89	2.00	0.00	0.00	0.10	0.00	69.98	2.00	0.00	0.00	0.09	0.00
70.08	2.00	0.00	0.00	0.10	0.00	70.18	2.00	0.00	0.00	0.10	0.00
70.32	2.00	0.00	0.00	0.14	0.00	70.42	2.00	0.00	0.00	0.10	0.00
70.54	2.00	0.00	0.00	0.12	0.00	70.66	2.00	0.00	0.00	0.12	0.00
70.75	2.00	0.00	0.00	0.09	0.00	70.80	2.00	0.00	0.00	0.05	0.00
70.89	2.00	0.00	0.00	0.09	0.00	70.99	2.00	0.00	0.00	0.10	0.00
71.08	2.00	0.00	0.00	0.09	0.00	71.17	2.00	0.00	0.00	0.09	0.00
71.23	2.00	0.00	0.00	0.05	0.00	71.33	2.00	0.00	0.00	0.10	0.00
71.42	2.00	0.00	0.00	0.09	0.00	71.52	2.00	0.00	0.00	0.10	0.00
71.58	2.00	0.00	0.00	0.06	0.00	71.67	2.00	0.00	0.00	0.08	0.00
71.81	2.00	0.00	0.00	0.14	0.00	71.82	2.00	0.00	0.00	0.01	0.00
71.86	2.00	0.00	0.00	0.04	0.00	71.91	2.00	0.00	0.00	0.05	0.00
71.97	2.00	0.00	0.00	0.06	0.00	72.05	2.00	0.00	0.00	0.08	0.00
72.10	2.00	0.00	0.00	0.05	0.00	72.20	2.00	0.00	0.00	0.10	0.00
72.25	2.00	0.00	0.00	0.05	0.00	72.34	2.00	0.00	0.00	0.10	0.00
72.44	2.00	0.00	0.00	0.10	0.00	72.53	2.00	0.00	0.00	0.09	0.00
72.63	2.00	0.00	0.00	0.10	0.00	72.69	2.00	0.00	0.00	0.06	0.00
72.82	2.00	0.00	0.00	0.13	0.00	72.92	2.00	0.00	0.00	0.09	0.00
73.06	2.00	0.00	0.00	0.14	0.00	73.16	2.00	0.00	0.00	0.10	0.00
73.30	2.00	0.00	0.00	0.14	0.00	73.35	2.00	0.00	0.00	0.05	0.00
73.38	2.00	0.00	0.00	0.03	0.00	73.47	2.00	0.00	0.00	0.09	0.00
73.53	2.00	0.00	0.00	0.06	0.00	73.62	2.00	0.00	0.00	0.09	0.00
73.71	2.00	0.00	0.00	0.09	0.00	73.77	2.00	0.00	0.00	0.06	0.00
73.86	2.00	0.00	0.00	0.09	0.00	73.96	2.00	0.00	0.00	0.09	0.00
74.06	2.00	0.00	0.00	0.10	0.00	74.13	2.00	0.00	0.00	0.07	0.00
74.24	2.00	0.00	0.00	0.11	0.00	74.34	2.00	0.00	0.00	0.10	0.00
74.44	2.00	0.00	0.00	0.10	0.00	74.58	2.00	0.00	0.00	0.14	0.00
74.68	2.00	0.00	0.00	0.10	0.00	74.80	2.00	0.00	0.00	0.13	0.00
74.92	2.00	0.00	0.00	0.12	0.00	75.07	2.00	0.00	0.00	0.14	0.00
75.08	2.00	0.00	0.00	0.01	0.00	75.11	2.00	0.00	0.00	0.03	0.00
75.16	2.00	0.00	0.00	0.05	0.00	75.25	2.00	0.00	0.00	0.09	0.00
75.32	2.00	0.00	0.00	0.07	0.00	75.40	2.00	0.00	0.00	0.08	0.00
75.50	2.00	0.00	0.00	0.10	0.00	75.59	2.00	0.00	0.00	0.09	0.00
75.69	2.00	0.00	0.00	0.10	0.00	75.78	2.00	0.00	0.00	0.09	0.00
75.88	2.00	0.00	0.00	0.09	0.00	75.96	2.00	0.00	0.00	0.09	0.00
76.05	2.00	0.00	0.00	0.08	0.00	76.14	2.00	0.00	0.00	0.09	0.00
76.26	2.00	0.00	0.00	0.12	0.00	76.36	2.00	0.00	0.00	0.10	0.00
76.41	2.00	0.00	0.00	0.05	0.00	76.51	2.00	0.00	0.00	0.10	0.00
76.65	2.00	0.00	0.00	0.14	0.00	76.72	2.00	0.00	0.00	0.07	0.00
76.79	2.00	0.00	0.00	0.07	0.00	76.89	2.00	0.00	0.00	0.10	0.00
76.98	2.00	0.00	0.00	0.09	0.00	77.08	2.00	0.00	0.00	0.10	0.00
77.18	2.00	0.00	0.00	0.10	0.00	77.28	2.00	0.00	0.00	0.10	0.00
77.37	2.00	0.00	0.00	0.10	0.00	77.42	2.00	0.00	0.00	0.04	0.00
77.42	2.00	0.00	0.00	0.01	0.00	77.44	2.00	0.00	0.00	0.01	0.00
77.48	2.00	0.00	0.00	0.04	0.00	77.52	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
77.54	2.00	0.00	0.00	0.02	0.00	77.57	2.00	0.00	0.00	0.03	0.00
77.62	2.00	0.00	0.00	0.05	0.00	77.65	2.00	0.00	0.00	0.04	0.00
77.67	2.00	0.00	0.00	0.01	0.00	77.71	2.00	0.00	0.00	0.04	0.00
77.71	2.00	0.00	0.00	0.01	0.00	77.76	2.00	0.00	0.00	0.05	0.00
77.81	2.00	0.00	0.00	0.05	0.00	77.90	2.00	0.00	0.00	0.09	0.00
77.95	2.00	0.00	0.00	0.05	0.00	78.01	2.00	0.00	0.00	0.06	0.00
78.10	2.00	0.00	0.00	0.09	0.00	78.16	2.00	0.00	0.00	0.06	0.00
78.24	2.00	0.00	0.00	0.08	0.00	78.29	2.00	0.00	0.00	0.05	0.00
78.39	2.00	0.00	0.00	0.10	0.00	78.47	2.00	0.00	0.00	0.08	0.00
78.53	2.00	0.00	0.00	0.06	0.00	78.62	2.00	0.00	0.00	0.09	0.00
78.68	2.00	0.00	0.00	0.05	0.00	78.69	2.00	0.00	0.00	0.01	0.00
78.78	2.00	0.00	0.00	0.09	0.00	78.81	2.00	0.00	0.00	0.04	0.00
78.92	2.00	0.00	0.00	0.11	0.00	79.03	2.00	0.00	0.00	0.11	0.00
79.16	2.00	0.00	0.00	0.13	0.00	79.26	2.00	0.00	0.00	0.10	0.00
79.35	2.00	0.00	0.00	0.09	0.00	79.45	2.00	0.00	0.00	0.10	0.00
79.54	2.00	0.00	0.00	0.09	0.00	79.64	2.00	0.00	0.00	0.10	0.00
79.74	2.00	0.00	0.00	0.10	0.00	79.88	2.00	0.00	0.00	0.14	0.00
79.98	2.00	0.00	0.00	0.10	0.00	80.12	2.00	0.00	0.00	0.14	0.00
80.22	2.00	0.00	0.00	0.09	0.00	80.36	2.00	0.00	0.00	0.14	0.00
80.46	2.00	0.00	0.00	0.10	0.00	80.60	2.00	0.00	0.00	0.14	0.00
80.70	2.00	0.00	0.00	0.10	0.00	80.83	2.00	0.00	0.00	0.13	0.00
80.94	2.00	0.00	0.00	0.11	0.00	81.01	2.00	0.00	0.00	0.07	0.00
81.04	2.00	0.00	0.00	0.03	0.00	81.09	2.00	0.00	0.00	0.06	0.00
81.13	2.00	0.00	0.00	0.04	0.00	81.18	2.00	0.00	0.00	0.05	0.00
81.23	2.00	0.00	0.00	0.05	0.00	81.28	2.00	0.00	0.00	0.05	0.00
81.33	2.00	0.00	0.00	0.05	0.00	81.37	2.00	0.00	0.00	0.05	0.00
81.42	2.00	0.00	0.00	0.04	0.00	81.47	2.00	0.00	0.00	0.05	0.00
81.52	2.00	0.00	0.00	0.05	0.00	81.56	2.00	0.00	0.00	0.05	0.00
81.61	2.00	0.00	0.00	0.04	0.00	81.64	2.00	0.00	0.00	0.04	0.00
81.70	2.00	0.00	0.00	0.06	0.00	81.75	2.00	0.00	0.00	0.05	0.00
81.79	2.00	0.00	0.00	0.04	0.00	81.82	2.00	0.00	0.00	0.03	0.00
81.86	2.00	0.00	0.00	0.04	0.00	81.91	2.00	0.00	0.00	0.05	0.00
81.95	2.00	0.00	0.00	0.04	0.00	82.00	2.00	0.00	0.00	0.05	0.00
82.09	2.00	0.00	0.00	0.09	0.00	82.15	2.00	0.00	0.00	0.06	0.00
82.19	2.00	0.00	0.00	0.04	0.00	82.26	2.00	0.00	0.00	0.07	0.00
82.34	2.00	0.00	0.00	0.08	0.00	82.39	2.00	0.00	0.00	0.05	0.00
82.48	2.00	0.00	0.00	0.10	0.00	82.58	2.00	0.00	0.00	0.09	0.00
82.62	2.00	0.00	0.00	0.04	0.00	82.70	2.00	0.00	0.00	0.08	0.00
82.77	2.00	0.00	0.00	0.07	0.00	82.87	2.00	0.00	0.00	0.10	0.00
82.96	2.00	0.00	0.00	0.09	0.00	83.06	2.00	0.00	0.00	0.10	0.00
83.16	2.00	0.00	0.00	0.10	0.00	83.25	2.00	0.00	0.00	0.09	0.00
83.34	2.00	0.00	0.00	0.09	0.00	83.44	2.00	0.00	0.00	0.10	0.00
83.54	2.00	0.00	0.00	0.10	0.00	83.64	2.00	0.00	0.00	0.09	0.00
83.73	2.00	0.00	0.00	0.10	0.00	83.83	2.00	0.00	0.00	0.09	0.00
83.85	2.00	0.00	0.00	0.02	0.00	83.89	2.00	0.00	0.00	0.04	0.00
83.94	2.00	0.00	0.00	0.05	0.00	84.04	2.00	0.00	0.00	0.10	0.00
84.09	2.00	0.00	0.00	0.05	0.00	84.13	2.00	0.00	0.00	0.04	0.00
84.18	2.00	0.00	0.00	0.05	0.00	84.25	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
84.33	2.00	0.00	0.00	0.08	0.00	84.37	2.00	0.00	0.00	0.05	0.00
84.46	2.00	0.00	0.00	0.08	0.00	84.52	2.00	0.00	0.00	0.06	0.00
84.57	2.00	0.00	0.00	0.05	0.00	84.67	2.00	0.00	0.00	0.10	0.00
84.71	2.00	0.00	0.00	0.04	0.00	84.81	2.00	0.00	0.00	0.10	0.00
84.86	2.00	0.00	0.00	0.05	0.00	84.91	2.00	0.00	0.00	0.06	0.00
85.00	2.00	0.00	0.00	0.09	0.00	85.05	2.00	0.00	0.00	0.05	0.00
85.15	2.00	0.00	0.00	0.10	0.00	85.19	2.00	0.00	0.00	0.05	0.00
85.29	2.00	0.00	0.00	0.10	0.00	85.35	2.00	0.00	0.00	0.06	0.00
85.42	2.00	0.00	0.00	0.07	0.00	85.48	2.00	0.00	0.00	0.06	0.00
85.55	2.00	0.00	0.00	0.06	0.00	85.63	2.00	0.00	0.00	0.08	0.00
85.68	2.00	0.00	0.00	0.05	0.00	85.77	2.00	0.00	0.00	0.09	0.00
85.82	2.00	0.00	0.00	0.05	0.00	85.89	2.00	0.00	0.00	0.07	0.00
85.96	2.00	0.00	0.00	0.08	0.00	86.03	2.00	0.00	0.00	0.07	0.00
86.11	2.00	0.00	0.00	0.07	0.00	86.16	2.00	0.00	0.00	0.06	0.00
86.25	2.00	0.00	0.00	0.09	0.00	86.36	2.00	0.00	0.00	0.11	0.00
86.50	2.00	0.00	0.00	0.14	0.00	86.51	2.00	0.00	0.00	0.01	0.00
86.52	2.00	0.00	0.00	0.01	0.00	86.57	2.00	0.00	0.00	0.05	0.00
86.65	2.00	0.00	0.00	0.09	0.00	86.71	2.00	0.00	0.00	0.06	0.00
86.80	2.00	0.00	0.00	0.09	0.00	86.90	2.00	0.00	0.00	0.09	0.00
86.99	2.00	0.00	0.00	0.09	0.00	87.04	2.00	0.00	0.00	0.05	0.00
87.14	2.00	0.00	0.00	0.09	0.00	87.19	2.00	0.00	0.00	0.06	0.00
87.28	2.00	0.00	0.00	0.09	0.00	87.38	2.00	0.00	0.00	0.09	0.00
87.43	2.00	0.00	0.00	0.06	0.00	87.52	2.00	0.00	0.00	0.09	0.00
87.61	2.00	0.00	0.00	0.09	0.00	87.66	2.00	0.00	0.00	0.05	0.00
87.76	2.00	0.00	0.00	0.10	0.00	87.84	2.00	0.00	0.00	0.08	0.00
87.91	2.00	0.00	0.00	0.07	0.00	88.00	2.00	0.00	0.00	0.09	0.00
88.11	2.00	0.00	0.00	0.11	0.00	88.19	2.00	0.00	0.00	0.08	0.00
88.25	2.00	0.00	0.00	0.06	0.00	88.34	2.00	0.00	0.00	0.09	0.00
88.44	2.00	0.00	0.00	0.10	0.00	88.54	2.00	0.00	0.00	0.11	0.00
88.64	2.00	0.00	0.00	0.10	0.00	88.72	2.00	0.00	0.00	0.09	0.00
88.82	2.00	0.00	0.00	0.10	0.00	88.91	2.00	0.00	0.00	0.09	0.00
89.01	2.00	0.00	0.00	0.10	0.00	89.10	2.00	0.00	0.00	0.09	0.00
89.19	2.00	0.00	0.00	0.09	0.00	89.30	2.00	0.00	0.00	0.11	0.00
89.39	2.00	0.00	0.00	0.09	0.00	89.49	2.00	0.00	0.00	0.10	0.00
89.59	2.00	0.00	0.00	0.09	0.00	89.69	2.00	0.00	0.00	0.10	0.00
89.73	2.00	0.00	0.00	0.05	0.00	89.78	2.00	0.00	0.00	0.04	0.00
89.83	2.00	0.00	0.00	0.06	0.00	89.88	2.00	0.00	0.00	0.05	0.00
89.93	2.00	0.00	0.00	0.05	0.00	90.00	2.00	0.00	0.00	0.07	0.00
90.07	2.00	0.00	0.00	0.08	0.00	90.12	2.00	0.00	0.00	0.05	0.00
90.22	2.00	0.00	0.00	0.09	0.00	90.27	2.00	0.00	0.00	0.05	0.00
90.36	2.00	0.00	0.00	0.09	0.00	90.46	2.00	0.00	0.00	0.10	0.00
90.50	2.00	0.00	0.00	0.04	0.00	90.61	2.00	0.00	0.00	0.10	0.00
90.66	2.00	0.00	0.00	0.05	0.00	90.75	2.00	0.00	0.00	0.09	0.00
90.84	2.00	0.00	0.00	0.09	0.00	90.89	2.00	0.00	0.00	0.05	0.00
90.99	2.00	0.00	0.00	0.10	0.00	91.04	2.00	0.00	0.00	0.05	0.00
91.14	2.00	0.00	0.00	0.09	0.00	91.22	2.00	0.00	0.00	0.09	0.00
91.28	2.00	0.00	0.00	0.06	0.00	91.37	2.00	0.00	0.00	0.09	0.00
91.47	2.00	0.00	0.00	0.10	0.00	91.61	2.00	0.00	0.00	0.14	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
91.71	2.00	0.00	0.00	0.10	0.00	91.81	2.00	0.00	0.00	0.10	0.00
91.87	2.00	0.00	0.00	0.06	0.00	92.00	2.00	0.00	0.00	0.13	0.00
92.10	2.00	0.00	0.00	0.10	0.00	92.20	2.00	0.00	0.00	0.10	0.00
92.33	2.00	0.00	0.00	0.13	0.00	92.38	2.00	0.00	0.00	0.05	0.00
92.43	2.00	0.00	0.00	0.05	0.00	92.48	2.00	0.00	0.00	0.05	0.00
92.56	2.00	0.00	0.00	0.08	0.00	92.63	2.00	0.00	0.00	0.07	0.00
92.67	2.00	0.00	0.00	0.05	0.00	92.72	2.00	0.00	0.00	0.04	0.00
92.77	2.00	0.00	0.00	0.05	0.00	92.86	2.00	0.00	0.00	0.10	0.00
92.92	2.00	0.00	0.00	0.05	0.00	92.97	2.00	0.00	0.00	0.05	0.00
93.05	2.00	0.00	0.00	0.08	0.00	93.10	2.00	0.00	0.00	0.06	0.00
93.16	2.00	0.00	0.00	0.06	0.00	93.25	2.00	0.00	0.00	0.09	0.00
93.35	2.00	0.00	0.00	0.10	0.00	93.40	2.00	0.00	0.00	0.05	0.00
93.49	2.00	0.00	0.00	0.10	0.00	93.56	2.00	0.00	0.00	0.07	0.00
93.64	2.00	0.00	0.00	0.08	0.00	93.73	2.00	0.00	0.00	0.09	0.00
93.83	2.00	0.00	0.00	0.10	0.00	93.88	2.00	0.00	0.00	0.05	0.00
93.97	2.00	0.00	0.00	0.09	0.00	94.07	2.00	0.00	0.00	0.10	0.00
94.17	2.00	0.00	0.00	0.10	0.00	94.26	2.00	0.00	0.00	0.10	0.00
94.36	2.00	0.00	0.00	0.09	0.00	94.45	2.00	0.00	0.00	0.09	0.00
94.55	2.00	0.00	0.00	0.10	0.00	94.64	2.00	0.00	0.00	0.09	0.00
94.72	2.00	0.00	0.00	0.07	0.00	94.74	2.00	0.00	0.00	0.03	0.00
94.77	2.00	0.00	0.00	0.02	0.00	94.85	2.00	0.00	0.00	0.08	0.00
94.90	2.00	0.00	0.00	0.05	0.00	94.95	2.00	0.00	0.00	0.05	0.00
95.01	2.00	0.00	0.00	0.06	0.00	95.09	2.00	0.00	0.00	0.08	0.00
95.14	2.00	0.00	0.00	0.05	0.00	95.23	2.00	0.00	0.00	0.09	0.00
95.29	2.00	0.00	0.00	0.06	0.00	95.38	2.00	0.00	0.00	0.09	0.00
95.43	2.00	0.00	0.00	0.05	0.00	95.52	2.00	0.00	0.00	0.09	0.00
95.57	2.00	0.00	0.00	0.05	0.00	95.67	2.00	0.00	0.00	0.10	0.00
95.77	2.00	0.00	0.00	0.09	0.00	95.86	2.00	0.00	0.00	0.10	0.00
95.95	2.00	0.00	0.00	0.09	0.00	96.03	2.00	0.00	0.00	0.08	0.00
96.11	2.00	0.00	0.00	0.08	0.00	96.20	2.00	0.00	0.00	0.09	0.00
96.30	2.00	0.00	0.00	0.10	0.00	96.39	2.00	0.00	0.00	0.09	0.00
96.50	2.00	0.00	0.00	0.11	0.00	96.59	2.00	0.00	0.00	0.09	0.00
96.69	2.00	0.00	0.00	0.10	0.00	96.78	2.00	0.00	0.00	0.09	0.00
96.87	2.00	0.00	0.00	0.09	0.00	96.98	2.00	0.00	0.00	0.11	0.00
97.02	2.00	0.00	0.00	0.04	0.00	97.06	2.00	0.00	0.00	0.05	0.00
97.12	2.00	0.00	0.00	0.05	0.00	97.16	2.00	0.00	0.00	0.04	0.00
97.21	2.00	0.00	0.00	0.05	0.00	97.27	2.00	0.00	0.00	0.06	0.00
97.33	2.00	0.00	0.00	0.06	0.00	97.40	2.00	0.00	0.00	0.07	0.00
97.45	2.00	0.00	0.00	0.05	0.00	97.50	2.00	0.00	0.00	0.05	0.00
97.58	2.00	0.00	0.00	0.08	0.00	97.65	2.00	0.00	0.00	0.07	0.00
97.69	2.00	0.00	0.00	0.04	0.00	97.74	2.00	0.00	0.00	0.05	0.00
97.81	2.00	0.00	0.00	0.07	0.00	97.88	2.00	0.00	0.00	0.08	0.00
97.93	2.00	0.00	0.00	0.05	0.00	98.03	2.00	0.00	0.00	0.10	0.00
98.15	2.00	0.00	0.00	0.12	0.00	98.21	2.00	0.00	0.00	0.06	0.00
98.32	2.00	0.00	0.00	0.11	0.00	98.42	2.00	0.00	0.00	0.09	0.00
98.47	2.00	0.00	0.00	0.05	0.00	98.57	2.00	0.00	0.00	0.10	0.00
98.70	2.00	0.00	0.00	0.13	0.00	98.78	2.00	0.00	0.00	0.08	0.00
98.85	2.00	0.00	0.00	0.06	0.00	98.86	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
98.92	2.00	0.00	0.00	0.06	0.00	98.98	2.00	0.00	0.00	0.06	0.00
99.03	2.00	0.00	0.00	0.05	0.00	99.11	2.00	0.00	0.00	0.07	0.00
99.18	2.00	0.00	0.00	0.07	0.00	99.23	2.00	0.00	0.00	0.05	0.00
99.32	2.00	0.00	0.00	0.09	0.00	99.37	2.00	0.00	0.00	0.05	0.00
99.45	2.00	0.00	0.00	0.08	0.00	99.56	2.00	0.00	0.00	0.11	0.00
99.64	2.00	0.00	0.00	0.07	0.00	99.71	2.00	0.00	0.00	0.07	0.00
99.75	2.00	0.00	0.00	0.04	0.00	99.90	2.00	0.00	0.00	0.15	0.00
99.95	2.00	0.00	0.00	0.05	0.00	100.04	2.00	0.00	0.00	0.09	0.00
100.14	2.00	0.00	0.00	0.09	0.00	100.14	2.00	0.00	0.00	0.00	0.00
100.15	2.00	0.00	0.00	0.01	0.00	100.19	2.00	0.00	0.00	0.03	0.00
100.21	2.00	0.00	0.00	0.02	0.00	100.24	2.00	0.00	0.00	0.03	0.00
100.28	2.00	0.00	0.00	0.05	0.00	100.31	2.00	0.00	0.00	0.02	0.00
100.33	2.00	0.00	0.00	0.02	0.00	100.38	2.00	0.00	0.00	0.05	0.00
100.39	2.00	0.00	0.00	0.01	0.00	100.43	2.00	0.00	0.00	0.03	0.00
100.48	2.00	0.00	0.00	0.05	0.00	100.53	2.00	0.00	0.00	0.05	0.00
100.57	2.00	0.00	0.00	0.05	0.00	100.60	2.00	0.00	0.00	0.02	0.00

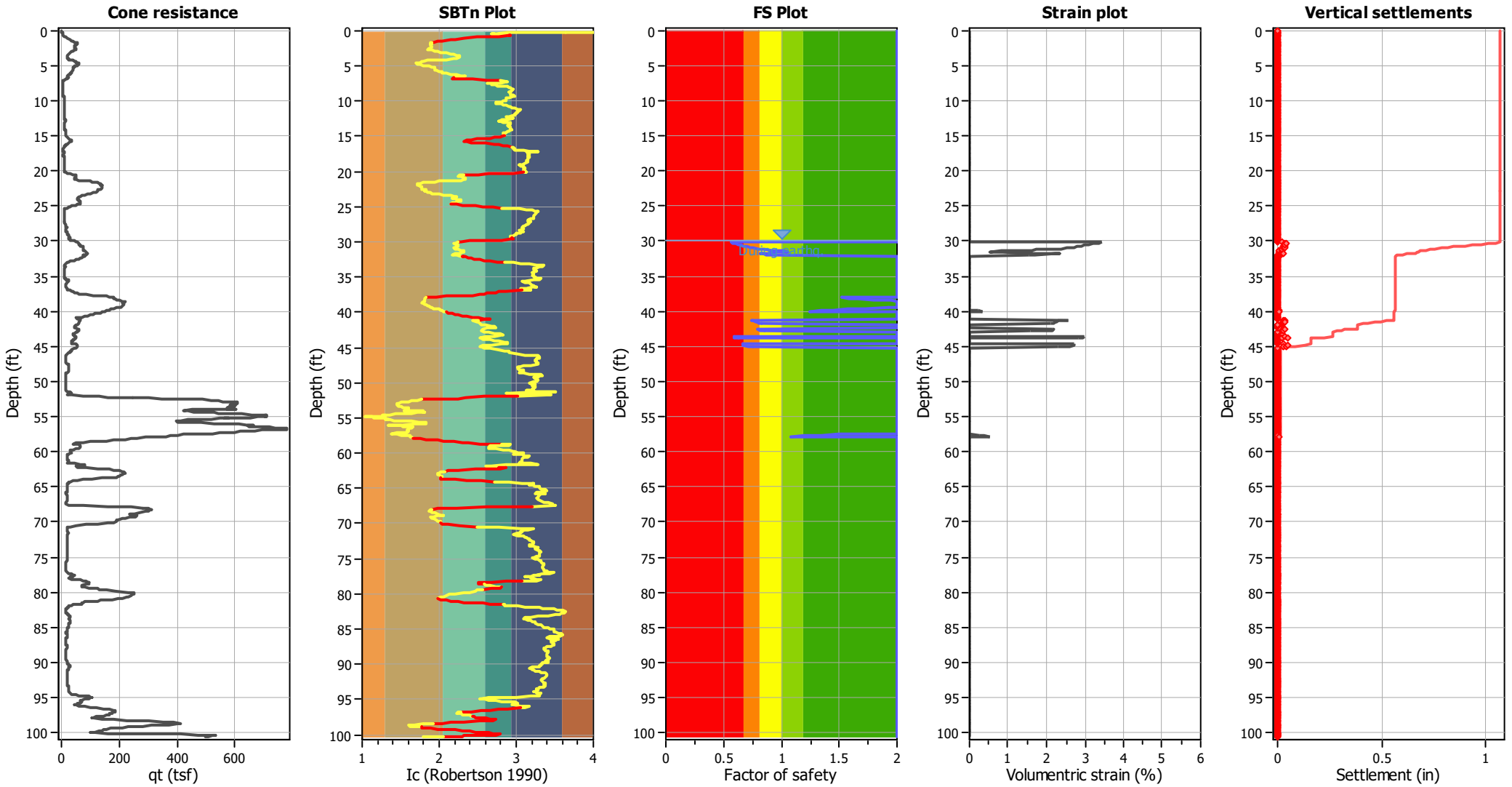
Overall liquefaction potential: 1.15

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.06	59.16	2.00	0.00	1.00	0.00	30.13	60.99	2.00	0.00	1.00	0.00
30.18	62.30	0.57	3.44	1.00	0.02	30.28	64.44	0.58	3.35	1.00	0.04
30.37	67.53	0.60	3.22	1.00	0.04	30.47	71.05	0.63	3.09	1.00	0.04
30.57	73.87	0.65	3.00	1.00	0.04	30.66	76.12	0.67	2.92	1.00	0.03
30.74	78.31	0.69	2.86	1.00	0.03	30.82	80.52	0.71	2.79	1.00	0.03
30.90	82.93	0.73	2.72	1.00	0.03	31.01	85.67	0.76	2.55	1.00	0.03
31.10	89.47	0.80	2.39	1.00	0.02	31.19	93.96	0.86	1.72	1.00	0.02
31.28	98.21	0.92	1.61	1.00	0.02	31.35	101.82	0.97	0.87	1.00	0.01
31.43	104.59	1.02	0.85	1.00	0.01	31.53	107.28	1.06	0.53	1.00	0.01
31.60	101.10	0.96	0.87	1.00	0.01	31.67	95.74	0.88	1.67	1.00	0.02
31.77	91.18	0.82	2.33	1.00	0.03	31.84	93.40	0.84	2.24	1.00	0.02
31.91	95.19	0.87	1.69	1.00	0.01	31.98	97.23	0.89	1.63	1.00	0.01
31.98	99.23	0.92	1.59	1.00	0.00	32.04	100.65	0.94	1.55	1.00	0.01
32.12	102.19	2.00	0.00	1.00	0.00	32.16	105.63	2.00	0.00	1.00	0.00
32.27	108.77	2.00	0.00	1.00	0.00	32.33	111.51	2.00	0.00	1.00	0.00
32.41	112.40	2.00	0.00	1.00	0.00	32.50	111.66	2.00	0.00	1.00	0.00
32.58	110.12	2.00	0.00	1.00	0.00	32.66	108.68	2.00	0.00	1.00	0.00
32.74	107.79	2.00	0.00	1.00	0.00	32.84	107.96	2.00	0.00	1.00	0.00
32.90	107.62	2.00	0.00	1.00	0.00	32.98	104.08	2.00	0.00	1.00	0.00
33.08	101.84	2.00	0.00	1.00	0.00	33.14	99.50	2.00	0.00	1.00	0.00
33.22	96.06	2.00	0.00	1.00	0.00	33.32	91.43	2.00	0.00	1.00	0.00
33.37	85.28	2.00	0.00	1.00	0.00	33.47	81.70	2.00	0.00	1.00	0.00
33.56	79.85	2.00	0.00	1.00	0.00	33.63	80.15	2.00	0.00	1.00	0.00
33.71	78.37	2.00	0.00	1.00	0.00	33.81	72.19	2.00	0.00	1.00	0.00
33.90	65.65	2.00	0.00	1.00	0.00	33.95	60.28	2.00	0.00	1.00	0.00
34.04	59.84	2.00	0.00	1.00	0.00	34.14	59.54	2.00	0.00	1.00	0.00
34.17	59.63	2.00	0.00	1.00	0.00	34.20	59.92	2.00	0.00	1.00	0.00
34.26	60.14	2.00	0.00	1.00	0.00	34.35	59.91	2.00	0.00	1.00	0.00
34.43	59.45	2.00	0.00	1.00	0.00	34.49	58.59	2.00	0.00	1.00	0.00
34.59	57.25	2.00	0.00	1.00	0.00	34.69	55.91	2.00	0.00	1.00	0.00
34.73	54.88	2.00	0.00	1.00	0.00	34.83	54.34	2.00	0.00	1.00	0.00
34.90	54.48	2.00	0.00	1.00	0.00	34.98	55.47	2.00	0.00	1.00	0.00
35.07	58.28	2.00	0.00	1.00	0.00	35.16	64.79	2.00	0.00	1.00	0.00
35.26	76.48	2.00	0.00	1.00	0.00	35.33	89.71	2.00	0.00	1.00	0.00
35.40	101.03	2.00	0.00	1.00	0.00	35.50	106.70	2.00	0.00	1.00	0.00
35.57	109.72	2.00	0.00	1.00	0.00	35.65	112.36	2.00	0.00	1.00	0.00
35.71	115.22	2.00	0.00	1.00	0.00	35.79	116.27	2.00	0.00	1.00	0.00
35.85	113.90	2.00	0.00	1.00	0.00	35.94	109.71	2.00	0.00	1.00	0.00
35.99	103.66	2.00	0.00	1.00	0.00	36.08	95.94	2.00	0.00	1.00	0.00
36.17	88.35	2.00	0.00	1.00	0.00	36.24	82.76	2.00	0.00	1.00	0.00
36.33	81.11	2.00	0.00	1.00	0.00	36.42	82.08	2.00	0.00	1.00	0.00
36.52	77.16	2.00	0.00	1.00	0.00	36.61	74.88	2.00	0.00	1.00	0.00
36.70	76.79	2.00	0.00	1.00	0.00	36.78	88.43	2.00	0.00	1.00	0.00
36.85	99.18	2.00	0.00	1.00	0.00	36.87	103.88	2.00	0.00	1.00	0.00
36.91	105.17	2.00	0.00	1.00	0.00	36.97	104.77	2.00	0.00	1.00	0.00
37.06	105.20	2.00	0.00	1.00	0.00	37.12	107.91	2.00	0.00	1.00	0.00
37.20	112.33	2.00	0.00	1.00	0.00	37.27	114.30	2.00	0.00	1.00	0.00
37.35	112.42	2.00	0.00	1.00	0.00	37.44	108.21	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
37.49	102.76	2.00	0.00	1.00	0.00	37.59	95.81	2.00	0.00	1.00	0.00
37.64	90.11	2.00	0.00	1.00	0.00	37.70	94.79	2.00	0.00	1.00	0.00
37.78	108.37	2.00	0.00	1.00	0.00	37.83	120.19	2.00	0.00	1.00	0.00
37.92	126.68	2.00	0.00	1.00	0.00	37.97	130.53	2.00	0.00	1.00	0.00
38.07	133.13	1.52	0.00	1.00	0.00	38.14	135.64	1.59	0.00	1.00	0.00
38.22	138.68	1.67	0.00	1.00	0.00	38.31	143.23	1.79	0.00	1.00	0.00
38.41	148.66	1.96	0.00	1.00	0.00	38.52	154.32	2.00	0.00	1.00	0.00
38.64	157.41	2.00	0.00	1.00	0.00	38.74	158.10	2.00	0.00	1.00	0.00
38.80	157.57	2.00	0.00	1.00	0.00	38.89	156.57	2.00	0.00	1.00	0.00
38.94	158.84	2.00	0.00	1.00	0.00	39.03	159.69	2.00	0.00	1.00	0.00
39.13	160.46	2.00	0.00	1.00	0.00	39.23	160.12	2.00	0.00	1.00	0.00
39.35	158.27	2.00	0.00	1.00	0.00	39.42	154.08	2.00	0.00	1.00	0.00
39.51	148.22	1.93	0.00	1.00	0.00	39.60	141.37	1.73	0.00	1.00	0.00
39.70	135.85	1.58	0.00	1.00	0.00	39.78	130.75	1.45	0.00	1.00	0.00
39.90	126.28	1.34	0.24	1.00	0.00	39.99	121.65	1.24	0.35	1.00	0.00
40.09	117.75	2.00	0.00	1.00	0.00	40.18	114.33	2.00	0.00	1.00	0.00
40.23	111.30	2.00	0.00	1.00	0.00	40.33	108.90	2.00	0.00	1.00	0.00
40.43	107.17	2.00	0.00	1.00	0.00	40.52	107.68	2.00	0.00	1.00	0.00
40.61	106.53	2.00	0.00	1.00	0.00	40.69	106.96	2.00	0.00	1.00	0.00
40.80	106.21	2.00	0.00	1.00	0.00	40.87	107.20	2.00	0.00	1.00	0.00
40.95	107.50	2.00	0.00	1.00	0.00	40.97	105.79	2.00	0.00	1.00	0.00
41.01	101.77	2.00	0.00	1.00	0.00	41.07	94.92	2.00	0.00	1.00	0.00
41.15	90.47	2.00	0.00	1.00	0.00	41.26	89.74	0.74	2.55	1.00	0.03
41.35	91.40	0.76	2.32	1.00	0.02	41.47	93.27	0.78	2.25	1.00	0.03
41.59	94.19	0.79	2.22	1.00	0.03	41.69	95.29	0.80	2.18	1.00	0.03
41.78	97.63	0.83	2.10	1.00	0.02	41.88	100.94	2.00	0.00	1.00	0.00
41.98	103.21	2.00	0.00	1.00	0.00	42.08	103.54	2.00	0.00	1.00	0.00
42.16	102.01	2.00	0.00	1.00	0.00	42.24	99.69	2.00	0.00	1.00	0.00
42.31	97.23	2.00	0.00	1.00	0.00	42.45	95.61	0.80	2.17	1.00	0.04
42.55	94.91	0.80	2.19	1.00	0.02	42.60	95.14	0.80	2.19	1.00	0.01
42.70	96.60	0.82	2.14	1.00	0.03	42.81	99.43	0.85	1.58	1.00	0.02
42.89	103.15	2.00	0.00	1.00	0.00	42.98	106.61	2.00	0.00	1.00	0.00
43.08	108.99	2.00	0.00	1.00	0.00	43.17	109.35	2.00	0.00	1.00	0.00
43.27	107.03	2.00	0.00	1.00	0.00	43.37	95.48	2.00	0.00	1.00	0.00
43.50	83.44	2.00	0.00	1.00	0.00	43.61	73.95	0.59	2.99	1.00	0.04
43.74	75.29	0.60	2.95	1.00	0.05	43.79	79.06	0.63	2.83	1.00	0.02
43.86	84.59	2.00	0.00	1.00	0.00	43.94	91.16	2.00	0.00	1.00	0.00
44.00	98.08	2.00	0.00	1.00	0.00	44.08	103.37	2.00	0.00	1.00	0.00
44.17	106.26	2.00	0.00	1.00	0.00	44.27	105.00	2.00	0.00	1.00	0.00
44.42	100.72	2.00	0.00	1.00	0.00	44.52	95.03	2.00	0.00	1.00	0.00
44.61	87.72	2.00	0.00	1.00	0.00	44.71	83.46	0.67	2.71	1.00	0.03
44.85	83.87	0.67	2.70	1.00	0.05	44.95	88.11	0.71	2.59	1.00	0.03
45.09	92.06	0.76	2.29	1.00	0.04	45.19	95.00	2.00	0.00	1.00	0.00
45.33	98.48	2.00	0.00	1.00	0.00	45.42	100.02	2.00	0.00	1.00	0.00
45.57	98.64	2.00	0.00	1.00	0.00	45.68	94.66	2.00	0.00	1.00	0.00
45.81	87.72	2.00	0.00	1.00	0.00	45.92	82.93	2.00	0.00	1.00	0.00
46.05	82.51	2.00	0.00	1.00	0.00	46.16	86.12	2.00	0.00	1.00	0.00
46.17	85.57	2.00	0.00	1.00	0.00	46.23	84.09	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
46.29	82.02	2.00	0.00	1.00	0.00	46.34	78.81	2.00	0.00	1.00	0.00
46.42	74.90	2.00	0.00	1.00	0.00	46.48	70.80	2.00	0.00	1.00	0.00
46.52	67.86	2.00	0.00	1.00	0.00	46.60	65.79	2.00	0.00	1.00	0.00
46.67	64.21	2.00	0.00	1.00	0.00	46.74	63.02	2.00	0.00	1.00	0.00
46.82	61.88	2.00	0.00	1.00	0.00	46.88	61.07	2.00	0.00	1.00	0.00
46.96	60.61	2.00	0.00	1.00	0.00	47.06	60.52	2.00	0.00	1.00	0.00
47.15	61.03	2.00	0.00	1.00	0.00	47.24	65.10	2.00	0.00	1.00	0.00
47.35	75.39	2.00	0.00	1.00	0.00	47.49	80.67	2.00	0.00	1.00	0.00
47.58	82.65	2.00	0.00	1.00	0.00	47.73	80.95	2.00	0.00	1.00	0.00
47.83	81.84	2.00	0.00	1.00	0.00	47.87	83.19	2.00	0.00	1.00	0.00
47.89	82.12	2.00	0.00	1.00	0.00	47.94	81.59	2.00	0.00	1.00	0.00
48.02	80.90	2.00	0.00	1.00	0.00	48.07	81.07	2.00	0.00	1.00	0.00
48.12	82.45	2.00	0.00	1.00	0.00	48.18	84.09	2.00	0.00	1.00	0.00
48.26	85.42	2.00	0.00	1.00	0.00	48.31	84.77	2.00	0.00	1.00	0.00
48.38	82.58	2.00	0.00	1.00	0.00	48.46	79.31	2.00	0.00	1.00	0.00
48.52	75.99	2.00	0.00	1.00	0.00	48.60	72.40	2.00	0.00	1.00	0.00
48.68	69.64	2.00	0.00	1.00	0.00	48.74	67.76	2.00	0.00	1.00	0.00
48.82	67.24	2.00	0.00	1.00	0.00	48.89	66.41	2.00	0.00	1.00	0.00
48.99	64.98	2.00	0.00	1.00	0.00	49.05	62.48	2.00	0.00	1.00	0.00
49.12	59.74	2.00	0.00	1.00	0.00	49.18	57.20	2.00	0.00	1.00	0.00
49.27	55.71	2.00	0.00	1.00	0.00	49.32	54.42	2.00	0.00	1.00	0.00
49.42	53.88	2.00	0.00	1.00	0.00	49.48	53.63	2.00	0.00	1.00	0.00
49.56	54.09	2.00	0.00	1.00	0.00	49.66	55.25	2.00	0.00	1.00	0.00
49.76	56.33	2.00	0.00	1.00	0.00	49.85	54.00	2.00	0.00	1.00	0.00
49.99	51.28	2.00	0.00	1.00	0.00	50.09	49.07	2.00	0.00	1.00	0.00
50.21	50.39	2.00	0.00	1.00	0.00	50.24	50.47	2.00	0.00	1.00	0.00
50.29	49.66	2.00	0.00	1.00	0.00	50.38	48.82	2.00	0.00	1.00	0.00
50.47	48.36	2.00	0.00	1.00	0.00	50.52	48.61	2.00	0.00	1.00	0.00
50.62	49.09	2.00	0.00	1.00	0.00	50.66	49.58	2.00	0.00	1.00	0.00
50.76	50.11	2.00	0.00	1.00	0.00	50.83	51.29	2.00	0.00	1.00	0.00
50.91	53.36	2.00	0.00	1.00	0.00	51.00	55.29	2.00	0.00	1.00	0.00
51.06	56.99	2.00	0.00	1.00	0.00	51.15	61.08	2.00	0.00	1.00	0.00
51.24	67.57	2.00	0.00	1.00	0.00	51.31	75.27	2.00	0.00	1.00	0.00
51.39	80.15	2.00	0.00	1.00	0.00	51.48	82.64	2.00	0.00	1.00	0.00
51.58	87.30	2.00	0.00	1.00	0.00	51.68	91.85	2.00	0.00	1.00	0.00
51.77	100.06	2.00	0.00	1.00	0.00	51.90	106.47	2.00	0.00	1.00	0.00
52.01	110.20	2.00	0.00	1.00	0.00	52.11	121.05	2.00	0.00	1.00	0.00
52.26	131.90	2.00	0.00	1.00	0.00	52.30	146.55	2.00	0.00	1.00	0.00
52.33	162.63	2.00	0.00	1.00	0.00	52.35	192.22	2.00	0.00	1.00	0.00
52.40	209.95	2.00	0.00	1.00	0.00	52.45	216.58	2.00	0.00	1.00	0.00
52.50	229.89	2.00	0.00	1.00	0.00	52.55	248.98	2.00	0.00	1.00	0.00
52.60	273.15	2.00	0.00	1.00	0.00	52.65	289.64	2.00	0.00	1.00	0.00
52.71	297.95	2.00	0.00	1.00	0.00	52.77	303.79	2.00	0.00	1.00	0.00
52.82	312.99	2.00	0.00	1.00	0.00	52.88	323.84	2.00	0.00	1.00	0.00
52.93	331.46	2.00	0.00	1.00	0.00	52.98	338.95	2.00	0.00	1.00	0.00
53.03	340.39	2.00	0.00	1.00	0.00	53.08	340.01	2.00	0.00	1.00	0.00
53.12	335.78	2.00	0.00	1.00	0.00	53.17	333.99	2.00	0.00	1.00	0.00
53.23	335.19	2.00	0.00	1.00	0.00	53.28	332.45	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
53.37	327.80	2.00	0.00	1.00	0.00	53.42	325.17	2.00	0.00	1.00	0.00
53.46	326.50	2.00	0.00	1.00	0.00	53.53	333.09	2.00	0.00	1.00	0.00
53.61	331.84	2.00	0.00	1.00	0.00	53.62	323.39	2.00	0.00	1.00	0.00
53.65	318.67	2.00	0.00	1.00	0.00	53.67	317.12	2.00	0.00	1.00	0.00
53.70	323.95	2.00	0.00	1.00	0.00	53.74	323.26	2.00	0.00	1.00	0.00
53.76	323.74	2.00	0.00	1.00	0.00	53.80	322.06	2.00	0.00	1.00	0.00
53.84	320.07	2.00	0.00	1.00	0.00	53.90	320.12	2.00	0.00	1.00	0.00
53.91	315.61	2.00	0.00	1.00	0.00	53.95	317.38	2.00	0.00	1.00	0.00
53.96	320.83	2.00	0.00	1.00	0.00	53.98	332.48	2.00	0.00	1.00	0.00
53.99	333.50	2.00	0.00	1.00	0.00	54.01	327.46	2.00	0.00	1.00	0.00
54.02	320.31	2.00	0.00	1.00	0.00	54.03	305.74	2.00	0.00	1.00	0.00
54.04	276.21	2.00	0.00	1.00	0.00	54.05	260.14	2.00	0.00	1.00	0.00
54.09	254.46	2.00	0.00	1.00	0.00	54.10	254.57	2.00	0.00	1.00	0.00
54.13	254.64	2.00	0.00	1.00	0.00	54.14	254.59	2.00	0.00	1.00	0.00
54.19	255.77	2.00	0.00	1.00	0.00	54.19	258.95	2.00	0.00	1.00	0.00
54.24	259.93	2.00	0.00	1.00	0.00	54.29	249.88	2.00	0.00	1.00	0.00
54.33	261.31	2.00	0.00	1.00	0.00	54.38	272.80	2.00	0.00	1.00	0.00
54.39	282.62	2.00	0.00	1.00	0.00	54.43	291.66	2.00	0.00	1.00	0.00
54.48	299.32	2.00	0.00	1.00	0.00	54.52	306.76	2.00	0.00	1.00	0.00
54.58	316.20	2.00	0.00	1.00	0.00	54.62	323.46	2.00	0.00	1.00	0.00
54.65	333.00	2.00	0.00	1.00	0.00	54.67	343.41	2.00	0.00	1.00	0.00
54.71	362.60	2.00	0.00	1.00	0.00	54.77	374.21	2.00	0.00	1.00	0.00
54.81	387.19	2.00	0.00	1.00	0.00	54.85	387.70	2.00	0.00	1.00	0.00
54.86	390.48	2.00	0.00	1.00	0.00	54.87	387.26	2.00	0.00	1.00	0.00
54.91	387.35	2.00	0.00	1.00	0.00	54.96	389.17	2.00	0.00	1.00	0.00
55.00	386.89	2.00	0.00	1.00	0.00	55.01	382.82	2.00	0.00	1.00	0.00
55.05	373.47	2.00	0.00	1.00	0.00	55.10	357.87	2.00	0.00	1.00	0.00
55.12	331.72	2.00	0.00	1.00	0.00	55.13	313.58	2.00	0.00	1.00	0.00
55.14	309.22	2.00	0.00	1.00	0.00	55.19	316.75	2.00	0.00	1.00	0.00
55.20	316.38	2.00	0.00	1.00	0.00	55.25	308.48	2.00	0.00	1.00	0.00
55.29	299.55	2.00	0.00	1.00	0.00	55.33	284.92	2.00	0.00	1.00	0.00
55.38	263.59	2.00	0.00	1.00	0.00	55.48	240.38	2.00	0.00	1.00	0.00
55.57	227.87	2.00	0.00	1.00	0.00	55.63	237.94	2.00	0.00	1.00	0.00
55.72	244.53	2.00	0.00	1.00	0.00	55.80	260.68	2.00	0.00	1.00	0.00
55.86	259.76	2.00	0.00	1.00	0.00	55.97	288.32	2.00	0.00	1.00	0.00
56.01	306.20	2.00	0.00	1.00	0.00	56.06	186.61	2.00	0.00	1.00	0.00
56.11	194.57	2.00	0.00	1.00	0.00	56.15	203.27	2.00	0.00	1.00	0.00
56.20	209.60	2.00	0.00	1.00	0.00	56.27	210.15	2.00	0.00	1.00	0.00
56.27	210.45	2.00	0.00	1.00	0.00	56.30	203.39	2.00	0.00	1.00	0.00
56.33	205.64	2.00	0.00	1.00	0.00	56.35	205.00	2.00	0.00	1.00	0.00
56.40	211.31	2.00	0.00	1.00	0.00	56.41	211.76	2.00	0.00	1.00	0.00
56.44	215.53	2.00	0.00	1.00	0.00	56.49	219.75	2.00	0.00	1.00	0.00
56.54	226.71	2.00	0.00	1.00	0.00	56.58	232.85	2.00	0.00	1.00	0.00
56.59	236.93	2.00	0.00	1.00	0.00	56.64	239.07	2.00	0.00	1.00	0.00
56.69	241.29	2.00	0.00	1.00	0.00	56.73	245.40	2.00	0.00	1.00	0.00
56.78	245.38	2.00	0.00	1.00	0.00	56.83	239.22	2.00	0.00	1.00	0.00
56.88	230.32	2.00	0.00	1.00	0.00	56.89	223.03	2.00	0.00	1.00	0.00
56.95	217.71	2.00	0.00	1.00	0.00	57.01	209.81	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
57.07	202.70	2.00	0.00	1.00	0.00	57.11	194.25	2.00	0.00	1.00	0.00
57.17	187.56	2.00	0.00	1.00	0.00	57.26	179.66	2.00	0.00	1.00	0.00
57.31	171.06	2.00	0.00	1.00	0.00	57.37	162.50	2.00	0.00	1.00	0.00
57.45	152.96	2.00	0.00	1.00	0.00	57.51	140.63	1.75	0.00	1.00	0.00
57.53	131.27	1.50	0.00	1.00	0.00	57.59	124.87	1.35	0.25	1.00	0.00
57.63	124.05	1.33	0.25	1.00	0.00	57.68	121.66	1.28	0.25	1.00	0.00
57.73	120.01	1.24	0.36	1.00	0.00	57.78	117.62	1.19	0.36	1.00	0.00
57.86	111.55	1.08	0.51	1.00	0.01	57.92	100.97	2.00	0.00	1.00	0.00
57.98	89.82	2.00	0.00	1.00	0.00	58.06	95.51	2.00	0.00	1.00	0.00
58.12	92.39	2.00	0.00	1.00	0.00	58.21	88.73	2.00	0.00	1.00	0.00
58.26	85.71	2.00	0.00	1.00	0.00	58.35	81.38	2.00	0.00	1.00	0.00
58.41	74.91	2.00	0.00	1.00	0.00	58.50	70.73	2.00	0.00	1.00	0.00
58.56	67.27	2.00	0.00	1.00	0.00	58.64	74.61	2.00	0.00	1.00	0.00
58.73	81.15	2.00	0.00	1.00	0.00	58.80	87.16	2.00	0.00	1.00	0.00
58.84	91.44	2.00	0.00	1.00	0.00	58.85	91.06	2.00	0.00	1.00	0.00
58.93	87.49	2.00	0.00	1.00	0.00	58.98	82.49	2.00	0.00	1.00	0.00
59.02	79.02	2.00	0.00	1.00	0.00	59.12	77.74	2.00	0.00	1.00	0.00
59.17	78.34	2.00	0.00	1.00	0.00	59.27	80.06	2.00	0.00	1.00	0.00
59.31	82.31	2.00	0.00	1.00	0.00	59.41	84.40	2.00	0.00	1.00	0.00
59.46	85.91	2.00	0.00	1.00	0.00	59.55	86.53	2.00	0.00	1.00	0.00
59.65	82.12	2.00	0.00	1.00	0.00	59.70	78.48	2.00	0.00	1.00	0.00
59.80	75.77	2.00	0.00	1.00	0.00	59.89	79.29	2.00	0.00	1.00	0.00
59.94	82.68	2.00	0.00	1.00	0.00	60.01	85.21	2.00	0.00	1.00	0.00
60.02	85.70	2.00	0.00	1.00	0.00	60.08	84.70	2.00	0.00	1.00	0.00
60.12	83.40	2.00	0.00	1.00	0.00	60.17	81.32	2.00	0.00	1.00	0.00
60.27	76.99	2.00	0.00	1.00	0.00	60.31	71.83	2.00	0.00	1.00	0.00
60.37	67.16	2.00	0.00	1.00	0.00	60.46	64.16	2.00	0.00	1.00	0.00
60.51	61.05	2.00	0.00	1.00	0.00	60.61	59.48	2.00	0.00	1.00	0.00
60.65	58.49	2.00	0.00	1.00	0.00	60.75	58.52	2.00	0.00	1.00	0.00
60.81	58.52	2.00	0.00	1.00	0.00	60.89	58.14	2.00	0.00	1.00	0.00
60.94	58.37	2.00	0.00	1.00	0.00	61.03	59.27	2.00	0.00	1.00	0.00
61.09	59.56	2.00	0.00	1.00	0.00	61.19	59.09	2.00	0.00	1.00	0.00
61.24	58.48	2.00	0.00	1.00	0.00	61.33	59.55	2.00	0.00	1.00	0.00
61.38	65.92	2.00	0.00	1.00	0.00	61.47	73.50	2.00	0.00	1.00	0.00
61.53	81.14	2.00	0.00	1.00	0.00	61.62	81.97	2.00	0.00	1.00	0.00
61.70	82.73	2.00	0.00	1.00	0.00	61.77	84.93	2.00	0.00	1.00	0.00
61.86	89.66	2.00	0.00	1.00	0.00	61.95	94.89	2.00	0.00	1.00	0.00
61.97	96.91	2.00	0.00	1.00	0.00	62.01	99.66	2.00	0.00	1.00	0.00
62.10	99.23	2.00	0.00	1.00	0.00	62.24	89.92	2.00	0.00	1.00	0.00
62.34	71.54	2.00	0.00	1.00	0.00	62.49	64.77	2.00	0.00	1.00	0.00
62.54	69.68	2.00	0.00	1.00	0.00	62.66	73.33	2.00	0.00	1.00	0.00
62.74	77.94	2.00	0.00	1.00	0.00	62.87	80.99	2.00	0.00	1.00	0.00
62.92	82.65	2.00	0.00	1.00	0.00	63.03	83.41	2.00	0.00	1.00	0.00
63.15	83.38	2.00	0.00	1.00	0.00	63.26	82.35	2.00	0.00	1.00	0.00
63.37	80.92	2.00	0.00	1.00	0.00	63.45	78.49	2.00	0.00	1.00	0.00
63.54	76.31	2.00	0.00	1.00	0.00	63.61	73.61	2.00	0.00	1.00	0.00
63.69	69.47	2.00	0.00	1.00	0.00	63.79	67.77	2.00	0.00	1.00	0.00
63.89	66.74	2.00	0.00	1.00	0.00	63.98	71.48	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
64.07	71.91	2.00	0.00	1.00	0.00	64.15	76.48	2.00	0.00	1.00	0.00
64.23	77.68	2.00	0.00	1.00	0.00	64.26	78.26	2.00	0.00	1.00	0.00
64.29	78.14	2.00	0.00	1.00	0.00	64.33	74.86	2.00	0.00	1.00	0.00
64.43	70.78	2.00	0.00	1.00	0.00	64.47	66.07	2.00	0.00	1.00	0.00
64.53	64.15	2.00	0.00	1.00	0.00	64.62	63.40	2.00	0.00	1.00	0.00
64.72	63.23	2.00	0.00	1.00	0.00	64.78	63.74	2.00	0.00	1.00	0.00
64.86	65.01	2.00	0.00	1.00	0.00	64.96	68.31	2.00	0.00	1.00	0.00
65.06	71.61	2.00	0.00	1.00	0.00	65.11	74.58	2.00	0.00	1.00	0.00
65.21	75.90	2.00	0.00	1.00	0.00	65.31	76.26	2.00	0.00	1.00	0.00
65.40	72.77	2.00	0.00	1.00	0.00	65.50	67.97	2.00	0.00	1.00	0.00
65.58	63.13	2.00	0.00	1.00	0.00	65.68	61.17	2.00	0.00	1.00	0.00
65.78	60.45	2.00	0.00	1.00	0.00	65.84	59.69	2.00	0.00	1.00	0.00
65.86	59.62	2.00	0.00	1.00	0.00	65.87	59.36	2.00	0.00	1.00	0.00
65.98	59.09	2.00	0.00	1.00	0.00	66.10	60.13	2.00	0.00	1.00	0.00
66.21	62.32	2.00	0.00	1.00	0.00	66.34	63.01	2.00	0.00	1.00	0.00
66.48	63.55	2.00	0.00	1.00	0.00	66.62	62.45	2.00	0.00	1.00	0.00
66.68	64.07	2.00	0.00	1.00	0.00	66.87	67.94	2.00	0.00	1.00	0.00
66.96	73.89	2.00	0.00	1.00	0.00	67.11	78.15	2.00	0.00	1.00	0.00
67.21	76.60	2.00	0.00	1.00	0.00	67.35	73.18	2.00	0.00	1.00	0.00
67.45	77.86	2.00	0.00	1.00	0.00	67.59	88.71	2.00	0.00	1.00	0.00
67.68	83.67	2.00	0.00	1.00	0.00	67.83	74.68	2.00	0.00	1.00	0.00
67.92	88.64	2.00	0.00	1.00	0.00	68.02	99.35	2.00	0.00	1.00	0.00
68.07	103.71	2.00	0.00	1.00	0.00	68.16	105.26	2.00	0.00	1.00	0.00
68.26	106.54	2.00	0.00	1.00	0.00	68.35	106.44	2.00	0.00	1.00	0.00
68.45	105.37	2.00	0.00	1.00	0.00	68.55	103.72	2.00	0.00	1.00	0.00
68.65	98.57	2.00	0.00	1.00	0.00	68.78	94.35	2.00	0.00	1.00	0.00
68.78	90.91	2.00	0.00	1.00	0.00	68.79	89.70	2.00	0.00	1.00	0.00
68.83	89.08	2.00	0.00	1.00	0.00	68.93	88.59	2.00	0.00	1.00	0.00
68.98	89.18	2.00	0.00	1.00	0.00	69.04	89.05	2.00	0.00	1.00	0.00
69.12	89.10	2.00	0.00	1.00	0.00	69.22	88.23	2.00	0.00	1.00	0.00
69.28	86.25	2.00	0.00	1.00	0.00	69.36	83.22	2.00	0.00	1.00	0.00
69.45	79.21	2.00	0.00	1.00	0.00	69.60	75.34	2.00	0.00	1.00	0.00
69.70	72.05	2.00	0.00	1.00	0.00	69.80	70.68	2.00	0.00	1.00	0.00
69.89	70.30	2.00	0.00	1.00	0.00	69.98	69.82	2.00	0.00	1.00	0.00
70.08	67.53	2.00	0.00	1.00	0.00	70.18	63.51	2.00	0.00	1.00	0.00
70.32	61.16	2.00	0.00	1.00	0.00	70.42	66.77	2.00	0.00	1.00	0.00
70.54	74.19	2.00	0.00	1.00	0.00	70.66	75.54	2.00	0.00	1.00	0.00
70.75	72.70	2.00	0.00	1.00	0.00	70.80	66.71	2.00	0.00	1.00	0.00
70.89	59.87	2.00	0.00	1.00	0.00	70.99	53.00	2.00	0.00	1.00	0.00
71.08	49.46	2.00	0.00	1.00	0.00	71.17	47.79	2.00	0.00	1.00	0.00
71.23	47.05	2.00	0.00	1.00	0.00	71.33	46.20	2.00	0.00	1.00	0.00
71.42	44.64	2.00	0.00	1.00	0.00	71.52	43.06	2.00	0.00	1.00	0.00
71.58	44.01	2.00	0.00	1.00	0.00	71.67	47.43	2.00	0.00	1.00	0.00
71.81	50.76	2.00	0.00	1.00	0.00	71.82	52.55	2.00	0.00	1.00	0.00
71.86	52.82	2.00	0.00	1.00	0.00	71.91	52.95	2.00	0.00	1.00	0.00
71.97	53.27	2.00	0.00	1.00	0.00	72.05	53.72	2.00	0.00	1.00	0.00
72.10	54.35	2.00	0.00	1.00	0.00	72.20	54.79	2.00	0.00	1.00	0.00
72.25	55.49	2.00	0.00	1.00	0.00	72.34	56.94	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
72.44	58.80	2.00	0.00	1.00	0.00	72.53	60.40	2.00	0.00	1.00	0.00
72.63	61.13	2.00	0.00	1.00	0.00	72.69	61.14	2.00	0.00	1.00	0.00
72.82	60.87	2.00	0.00	1.00	0.00	72.92	60.05	2.00	0.00	1.00	0.00
73.06	59.27	2.00	0.00	1.00	0.00	73.16	59.57	2.00	0.00	1.00	0.00
73.30	60.65	2.00	0.00	1.00	0.00	73.35	61.53	2.00	0.00	1.00	0.00
73.38	61.23	2.00	0.00	1.00	0.00	73.47	60.67	2.00	0.00	1.00	0.00
73.53	60.20	2.00	0.00	1.00	0.00	73.62	59.95	2.00	0.00	1.00	0.00
73.71	60.28	2.00	0.00	1.00	0.00	73.77	61.46	2.00	0.00	1.00	0.00
73.86	63.08	2.00	0.00	1.00	0.00	73.96	64.61	2.00	0.00	1.00	0.00
74.06	65.59	2.00	0.00	1.00	0.00	74.13	66.22	2.00	0.00	1.00	0.00
74.24	66.66	2.00	0.00	1.00	0.00	74.34	67.26	2.00	0.00	1.00	0.00
74.44	67.81	2.00	0.00	1.00	0.00	74.58	67.28	2.00	0.00	1.00	0.00
74.68	62.80	2.00	0.00	1.00	0.00	74.80	58.74	2.00	0.00	1.00	0.00
74.92	56.43	2.00	0.00	1.00	0.00	75.07	58.35	2.00	0.00	1.00	0.00
75.08	59.34	2.00	0.00	1.00	0.00	75.11	59.53	2.00	0.00	1.00	0.00
75.16	60.28	2.00	0.00	1.00	0.00	75.25	61.74	2.00	0.00	1.00	0.00
75.32	63.23	2.00	0.00	1.00	0.00	75.40	63.73	2.00	0.00	1.00	0.00
75.50	62.77	2.00	0.00	1.00	0.00	75.59	60.75	2.00	0.00	1.00	0.00
75.69	58.60	2.00	0.00	1.00	0.00	75.78	56.46	2.00	0.00	1.00	0.00
75.88	54.66	2.00	0.00	1.00	0.00	75.96	52.90	2.00	0.00	1.00	0.00
76.05	51.65	2.00	0.00	1.00	0.00	76.14	51.00	2.00	0.00	1.00	0.00
76.26	51.09	2.00	0.00	1.00	0.00	76.36	51.38	2.00	0.00	1.00	0.00
76.41	51.50	2.00	0.00	1.00	0.00	76.51	51.17	2.00	0.00	1.00	0.00
76.65	51.04	2.00	0.00	1.00	0.00	76.72	51.12	2.00	0.00	1.00	0.00
76.79	51.39	2.00	0.00	1.00	0.00	76.89	53.53	2.00	0.00	1.00	0.00
76.98	61.89	2.00	0.00	1.00	0.00	77.08	69.60	2.00	0.00	1.00	0.00
77.18	77.29	2.00	0.00	1.00	0.00	77.28	84.26	2.00	0.00	1.00	0.00
77.37	93.62	2.00	0.00	1.00	0.00	77.42	100.64	2.00	0.00	1.00	0.00
77.42	104.44	2.00	0.00	1.00	0.00	77.44	107.05	2.00	0.00	1.00	0.00
77.48	110.31	2.00	0.00	1.00	0.00	77.52	113.00	2.00	0.00	1.00	0.00
77.54	114.44	2.00	0.00	1.00	0.00	77.57	115.54	2.00	0.00	1.00	0.00
77.62	115.93	2.00	0.00	1.00	0.00	77.65	115.64	2.00	0.00	1.00	0.00
77.67	113.32	2.00	0.00	1.00	0.00	77.71	111.24	2.00	0.00	1.00	0.00
77.71	107.78	2.00	0.00	1.00	0.00	77.76	104.25	2.00	0.00	1.00	0.00
77.81	98.88	2.00	0.00	1.00	0.00	77.90	94.60	2.00	0.00	1.00	0.00
77.95	92.44	2.00	0.00	1.00	0.00	78.01	91.29	2.00	0.00	1.00	0.00
78.10	89.37	2.00	0.00	1.00	0.00	78.16	84.71	2.00	0.00	1.00	0.00
78.24	79.05	2.00	0.00	1.00	0.00	78.29	73.14	2.00	0.00	1.00	0.00
78.39	69.27	2.00	0.00	1.00	0.00	78.47	68.51	2.00	0.00	1.00	0.00
78.53	71.72	2.00	0.00	1.00	0.00	78.62	77.71	2.00	0.00	1.00	0.00
78.68	84.02	2.00	0.00	1.00	0.00	78.69	89.57	2.00	0.00	1.00	0.00
78.78	95.10	2.00	0.00	1.00	0.00	78.81	102.04	2.00	0.00	1.00	0.00
78.92	107.35	2.00	0.00	1.00	0.00	79.03	107.43	2.00	0.00	1.00	0.00
79.16	99.26	2.00	0.00	1.00	0.00	79.26	88.45	2.00	0.00	1.00	0.00
79.35	83.92	2.00	0.00	1.00	0.00	79.45	85.78	2.00	0.00	1.00	0.00
79.54	89.58	2.00	0.00	1.00	0.00	79.64	91.91	2.00	0.00	1.00	0.00
79.74	93.85	2.00	0.00	1.00	0.00	79.88	94.86	2.00	0.00	1.00	0.00
79.98	95.73	2.00	0.00	1.00	0.00	80.12	95.14	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
80.22	91.22	2.00	0.00	1.00	0.00	80.36	86.07	2.00	0.00	1.00	0.00
80.46	81.11	2.00	0.00	1.00	0.00	80.60	77.21	2.00	0.00	1.00	0.00
80.70	74.37	2.00	0.00	1.00	0.00	80.83	72.04	2.00	0.00	1.00	0.00
80.94	69.62	2.00	0.00	1.00	0.00	81.01	67.91	2.00	0.00	1.00	0.00
81.04	66.50	2.00	0.00	1.00	0.00	81.09	65.97	2.00	0.00	1.00	0.00
81.13	66.04	2.00	0.00	1.00	0.00	81.18	67.98	2.00	0.00	1.00	0.00
81.23	72.13	2.00	0.00	1.00	0.00	81.28	77.64	2.00	0.00	1.00	0.00
81.33	84.19	2.00	0.00	1.00	0.00	81.37	92.48	2.00	0.00	1.00	0.00
81.42	100.46	2.00	0.00	1.00	0.00	81.47	106.15	2.00	0.00	1.00	0.00
81.52	109.13	2.00	0.00	1.00	0.00	81.56	111.09	2.00	0.00	1.00	0.00
81.61	112.75	2.00	0.00	1.00	0.00	81.64	114.41	2.00	0.00	1.00	0.00
81.70	116.91	2.00	0.00	1.00	0.00	81.75	118.94	2.00	0.00	1.00	0.00
81.79	119.14	2.00	0.00	1.00	0.00	81.82	116.62	2.00	0.00	1.00	0.00
81.86	112.49	2.00	0.00	1.00	0.00	81.91	107.66	2.00	0.00	1.00	0.00
81.95	102.27	2.00	0.00	1.00	0.00	82.00	95.81	2.00	0.00	1.00	0.00
82.09	89.46	2.00	0.00	1.00	0.00	82.15	84.64	2.00	0.00	1.00	0.00
82.19	81.03	2.00	0.00	1.00	0.00	82.26	77.56	2.00	0.00	1.00	0.00
82.34	74.17	2.00	0.00	1.00	0.00	82.39	71.81	2.00	0.00	1.00	0.00
82.48	69.97	2.00	0.00	1.00	0.00	82.58	68.21	2.00	0.00	1.00	0.00
82.62	66.60	2.00	0.00	1.00	0.00	82.70	65.56	2.00	0.00	1.00	0.00
82.77	64.46	2.00	0.00	1.00	0.00	82.87	64.01	2.00	0.00	1.00	0.00
82.96	63.38	2.00	0.00	1.00	0.00	83.06	63.34	2.00	0.00	1.00	0.00
83.16	63.10	2.00	0.00	1.00	0.00	83.25	62.94	2.00	0.00	1.00	0.00
83.34	62.57	2.00	0.00	1.00	0.00	83.44	63.55	2.00	0.00	1.00	0.00
83.54	64.89	2.00	0.00	1.00	0.00	83.64	66.49	2.00	0.00	1.00	0.00
83.73	68.29	2.00	0.00	1.00	0.00	83.83	70.46	2.00	0.00	1.00	0.00
83.85	73.38	2.00	0.00	1.00	0.00	83.89	75.93	2.00	0.00	1.00	0.00
83.94	81.26	2.00	0.00	1.00	0.00	84.04	85.92	2.00	0.00	1.00	0.00
84.09	90.10	2.00	0.00	1.00	0.00	84.13	91.94	2.00	0.00	1.00	0.00
84.18	93.61	2.00	0.00	1.00	0.00	84.25	94.85	2.00	0.00	1.00	0.00
84.33	95.60	2.00	0.00	1.00	0.00	84.37	95.90	2.00	0.00	1.00	0.00
84.46	94.98	2.00	0.00	1.00	0.00	84.52	93.43	2.00	0.00	1.00	0.00
84.57	91.27	2.00	0.00	1.00	0.00	84.67	90.00	2.00	0.00	1.00	0.00
84.71	89.72	2.00	0.00	1.00	0.00	84.81	90.86	2.00	0.00	1.00	0.00
84.86	92.62	2.00	0.00	1.00	0.00	84.91	94.03	2.00	0.00	1.00	0.00
85.00	94.63	2.00	0.00	1.00	0.00	85.05	93.94	2.00	0.00	1.00	0.00
85.15	92.30	2.00	0.00	1.00	0.00	85.19	89.13	2.00	0.00	1.00	0.00
85.29	85.98	2.00	0.00	1.00	0.00	85.35	83.14	2.00	0.00	1.00	0.00
85.42	81.54	2.00	0.00	1.00	0.00	85.48	80.45	2.00	0.00	1.00	0.00
85.55	79.50	2.00	0.00	1.00	0.00	85.63	78.76	2.00	0.00	1.00	0.00
85.68	78.25	2.00	0.00	1.00	0.00	85.77	78.03	2.00	0.00	1.00	0.00
85.82	78.34	2.00	0.00	1.00	0.00	85.89	78.79	2.00	0.00	1.00	0.00
85.96	79.01	2.00	0.00	1.00	0.00	86.03	78.44	2.00	0.00	1.00	0.00
86.11	77.40	2.00	0.00	1.00	0.00	86.16	76.21	2.00	0.00	1.00	0.00
86.25	75.81	2.00	0.00	1.00	0.00	86.36	74.32	2.00	0.00	1.00	0.00
86.50	72.85	2.00	0.00	1.00	0.00	86.51	70.91	2.00	0.00	1.00	0.00
86.52	69.58	2.00	0.00	1.00	0.00	86.57	66.80	2.00	0.00	1.00	0.00
86.65	63.50	2.00	0.00	1.00	0.00	86.71	60.73	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
86.80	59.11	2.00	0.00	1.00	0.00	86.90	57.42	2.00	0.00	1.00	0.00
86.99	55.74	2.00	0.00	1.00	0.00	87.04	54.32	2.00	0.00	1.00	0.00
87.14	53.51	2.00	0.00	1.00	0.00	87.19	53.36	2.00	0.00	1.00	0.00
87.28	54.40	2.00	0.00	1.00	0.00	87.38	55.67	2.00	0.00	1.00	0.00
87.43	56.85	2.00	0.00	1.00	0.00	87.52	57.36	2.00	0.00	1.00	0.00
87.61	57.58	2.00	0.00	1.00	0.00	87.66	57.47	2.00	0.00	1.00	0.00
87.76	57.12	2.00	0.00	1.00	0.00	87.84	56.58	2.00	0.00	1.00	0.00
87.91	56.08	2.00	0.00	1.00	0.00	88.00	55.54	2.00	0.00	1.00	0.00
88.11	55.23	2.00	0.00	1.00	0.00	88.19	55.01	2.00	0.00	1.00	0.00
88.25	54.79	2.00	0.00	1.00	0.00	88.34	54.27	2.00	0.00	1.00	0.00
88.44	53.59	2.00	0.00	1.00	0.00	88.54	52.93	2.00	0.00	1.00	0.00
88.64	52.52	2.00	0.00	1.00	0.00	88.72	52.42	2.00	0.00	1.00	0.00
88.82	52.53	2.00	0.00	1.00	0.00	88.91	52.79	2.00	0.00	1.00	0.00
89.01	53.02	2.00	0.00	1.00	0.00	89.10	53.22	2.00	0.00	1.00	0.00
89.19	52.91	2.00	0.00	1.00	0.00	89.30	50.44	2.00	0.00	1.00	0.00
89.39	48.98	2.00	0.00	1.00	0.00	89.49	49.49	2.00	0.00	1.00	0.00
89.59	52.76	2.00	0.00	1.00	0.00	89.69	54.90	2.00	0.00	1.00	0.00
89.73	55.86	2.00	0.00	1.00	0.00	89.78	56.23	2.00	0.00	1.00	0.00
89.83	56.56	2.00	0.00	1.00	0.00	89.88	57.05	2.00	0.00	1.00	0.00
89.93	57.77	2.00	0.00	1.00	0.00	90.00	58.79	2.00	0.00	1.00	0.00
90.07	59.82	2.00	0.00	1.00	0.00	90.12	61.24	2.00	0.00	1.00	0.00
90.22	62.84	2.00	0.00	1.00	0.00	90.27	65.70	2.00	0.00	1.00	0.00
90.36	68.34	2.00	0.00	1.00	0.00	90.46	70.27	2.00	0.00	1.00	0.00
90.50	71.01	2.00	0.00	1.00	0.00	90.61	71.39	2.00	0.00	1.00	0.00
90.66	71.12	2.00	0.00	1.00	0.00	90.75	69.74	2.00	0.00	1.00	0.00
90.84	67.94	2.00	0.00	1.00	0.00	90.89	66.20	2.00	0.00	1.00	0.00
90.99	65.12	2.00	0.00	1.00	0.00	91.04	64.21	2.00	0.00	1.00	0.00
91.14	63.69	2.00	0.00	1.00	0.00	91.22	63.19	2.00	0.00	1.00	0.00
91.28	62.55	2.00	0.00	1.00	0.00	91.37	61.75	2.00	0.00	1.00	0.00
91.47	60.75	2.00	0.00	1.00	0.00	91.61	60.19	2.00	0.00	1.00	0.00
91.71	59.97	2.00	0.00	1.00	0.00	91.81	60.03	2.00	0.00	1.00	0.00
91.87	59.68	2.00	0.00	1.00	0.00	92.00	57.50	2.00	0.00	1.00	0.00
92.10	55.77	2.00	0.00	1.00	0.00	92.20	54.98	2.00	0.00	1.00	0.00
92.33	56.37	2.00	0.00	1.00	0.00	92.38	57.43	2.00	0.00	1.00	0.00
92.43	57.96	2.00	0.00	1.00	0.00	92.48	58.57	2.00	0.00	1.00	0.00
92.56	59.09	2.00	0.00	1.00	0.00	92.63	59.41	2.00	0.00	1.00	0.00
92.67	59.42	2.00	0.00	1.00	0.00	92.72	59.38	2.00	0.00	1.00	0.00
92.77	59.37	2.00	0.00	1.00	0.00	92.86	59.49	2.00	0.00	1.00	0.00
92.92	59.88	2.00	0.00	1.00	0.00	92.97	61.03	2.00	0.00	1.00	0.00
93.05	62.12	2.00	0.00	1.00	0.00	93.10	63.07	2.00	0.00	1.00	0.00
93.16	63.28	2.00	0.00	1.00	0.00	93.25	63.20	2.00	0.00	1.00	0.00
93.35	62.84	2.00	0.00	1.00	0.00	93.40	62.27	2.00	0.00	1.00	0.00
93.49	61.82	2.00	0.00	1.00	0.00	93.56	61.55	2.00	0.00	1.00	0.00
93.64	61.65	2.00	0.00	1.00	0.00	93.73	62.81	2.00	0.00	1.00	0.00
93.83	64.72	2.00	0.00	1.00	0.00	93.88	67.85	2.00	0.00	1.00	0.00
93.97	70.35	2.00	0.00	1.00	0.00	94.07	72.95	2.00	0.00	1.00	0.00
94.17	75.57	2.00	0.00	1.00	0.00	94.26	76.60	2.00	0.00	1.00	0.00
94.36	81.75	2.00	0.00	1.00	0.00	94.45	87.02	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
94.55	91.74	2.00	0.00	1.00	0.00	94.64	89.52	2.00	0.00	1.00	0.00
94.72	85.22	2.00	0.00	1.00	0.00	94.74	79.85	2.00	0.00	1.00	0.00
94.77	76.98	2.00	0.00	1.00	0.00	94.85	74.39	2.00	0.00	1.00	0.00
94.90	75.17	2.00	0.00	1.00	0.00	94.95	77.89	2.00	0.00	1.00	0.00
95.01	85.22	2.00	0.00	1.00	0.00	95.09	94.37	2.00	0.00	1.00	0.00
95.14	107.02	2.00	0.00	1.00	0.00	95.23	117.34	2.00	0.00	1.00	0.00
95.29	126.89	2.00	0.00	1.00	0.00	95.38	131.69	2.00	0.00	1.00	0.00
95.43	133.43	2.00	0.00	1.00	0.00	95.52	132.50	2.00	0.00	1.00	0.00
95.57	128.95	2.00	0.00	1.00	0.00	95.67	123.49	2.00	0.00	1.00	0.00
95.77	118.72	2.00	0.00	1.00	0.00	95.86	118.80	2.00	0.00	1.00	0.00
95.95	116.56	2.00	0.00	1.00	0.00	96.03	118.40	2.00	0.00	1.00	0.00
96.11	118.64	2.00	0.00	1.00	0.00	96.20	124.65	2.00	0.00	1.00	0.00
96.30	125.73	2.00	0.00	1.00	0.00	96.39	124.50	2.00	0.00	1.00	0.00
96.50	120.31	2.00	0.00	1.00	0.00	96.59	106.72	2.00	0.00	1.00	0.00
96.69	91.36	2.00	0.00	1.00	0.00	96.78	77.51	2.00	0.00	1.00	0.00
96.87	72.98	2.00	0.00	1.00	0.00	96.98	71.40	2.00	0.00	1.00	0.00
97.02	71.90	2.00	0.00	1.00	0.00	97.06	73.47	2.00	0.00	1.00	0.00
97.12	76.16	2.00	0.00	1.00	0.00	97.16	79.48	2.00	0.00	1.00	0.00
97.21	83.99	2.00	0.00	1.00	0.00	97.27	89.17	2.00	0.00	1.00	0.00
97.33	93.67	2.00	0.00	1.00	0.00	97.40	96.33	2.00	0.00	1.00	0.00
97.45	97.51	2.00	0.00	1.00	0.00	97.50	100.38	2.00	0.00	1.00	0.00
97.58	104.78	2.00	0.00	1.00	0.00	97.65	110.26	2.00	0.00	1.00	0.00
97.69	113.95	2.00	0.00	1.00	0.00	97.74	115.68	2.00	0.00	1.00	0.00
97.81	116.42	2.00	0.00	1.00	0.00	97.88	116.63	2.00	0.00	1.00	0.00
97.93	111.98	2.00	0.00	1.00	0.00	98.03	97.35	2.00	0.00	1.00	0.00
98.15	83.50	2.00	0.00	1.00	0.00	98.21	78.05	2.00	0.00	1.00	0.00
98.32	80.19	2.00	0.00	1.00	0.00	98.42	85.96	2.00	0.00	1.00	0.00
98.47	79.73	2.00	0.00	1.00	0.00	98.57	88.75	2.00	0.00	1.00	0.00
98.70	94.00	2.00	0.00	1.00	0.00	98.78	92.13	2.00	0.00	1.00	0.00
98.85	84.79	2.00	0.00	1.00	0.00	98.86	76.77	2.00	0.00	1.00	0.00
98.92	73.26	2.00	0.00	1.00	0.00	98.98	72.24	2.00	0.00	1.00	0.00
99.03	70.12	2.00	0.00	1.00	0.00	99.11	63.67	2.00	0.00	1.00	0.00
99.18	74.69	2.00	0.00	1.00	0.00	99.23	73.25	2.00	0.00	1.00	0.00
99.32	76.01	2.00	0.00	1.00	0.00	99.37	83.05	2.00	0.00	1.00	0.00
99.45	90.04	2.00	0.00	1.00	0.00	99.56	96.01	2.00	0.00	1.00	0.00
99.64	101.90	2.00	0.00	1.00	0.00	99.71	108.77	2.00	0.00	1.00	0.00
99.75	113.72	2.00	0.00	1.00	0.00	99.90	118.27	2.00	0.00	1.00	0.00
99.95	126.55	2.00	0.00	1.00	0.00	100.04	127.45	2.00	0.00	1.00	0.00
100.14	116.89	2.00	0.00	1.00	0.00	100.14	106.43	2.00	0.00	1.00	0.00
100.15	105.52	2.00	0.00	1.00	0.00	100.19	111.71	2.00	0.00	1.00	0.00
100.21	119.29	2.00	0.00	1.00	0.00	100.24	108.37	2.00	0.00	1.00	0.00
100.28	106.62	2.00	0.00	1.00	0.00	100.31	-1.00	2.00	0.00	1.00	0.00
100.33	-1.00	2.00	0.00	1.00	0.00	100.38	-1.00	2.00	0.00	1.00	0.00
100.39	-1.00	2.00	0.00	1.00	0.00	100.43	-1.00	2.00	0.00	1.00	0.00
100.48	-1.00	2.00	0.00	1.00	0.00	100.53	-1.00	2.00	0.00	1.00	0.00
100.57	-1.00	2.00	0.00	1.00	0.00	100.60	-1.00	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)

Total estimated settlement: 1.07

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.04	0.10	0.16	54.25	8.56	4.06	18.21	3.82
0.10	0.13	0.21	54.25	11.25	4.06	10.48	2.18
0.11	0.23	0.37	54.25	19.92	4.06	9.43	3.40
0.16	0.54	0.85	54.25	46.18	4.06	6.91	5.55
0.19	1.28	2.04	26.86	54.86	3.64	5.54	10.68
0.24	2.83	4.54	12.41	56.29	3.19	4.85	19.02
0.31	4.93	7.89	7.08	55.92	2.89	0.08	0.64
0.38	6.68	10.70	5.13	54.91	2.74	0.08	0.64
0.43	7.56	12.11	4.55	55.04	2.68	0.08	0.64
0.49	7.32	11.72	4.88	57.26	2.72	0.09	0.65
0.58	6.81	10.90	5.56	60.65	2.78	0.12	0.66
0.63	6.24	9.98	6.53	65.19	2.85	0.17	0.67
0.67	6.05	9.68	7.19	69.56	2.90	0.25	0.68
0.72	6.02	9.62	7.57	72.80	2.92	0.32	0.69
0.72	6.70	10.70	7.32	78.32	2.91	0.51	0.70
0.84	9.28	14.84	5.43	80.63	2.77	0.62	0.71
0.96	15.82	25.35	2.97	75.23	2.50	0.39	0.70
1.06	22.64	36.29	2.02	73.35	2.32	0.34	0.69
1.24	27.97	44.84	1.65	74.08	2.21	0.36	0.69
1.30	31.48	50.47	1.49	75.12	2.14	0.39	0.70
1.48	37.28	59.78	1.34	80.22	2.04	0.59	0.71
1.59	42.14	67.57	1.29	87.16	1.98	0.72	0.72
1.69	47.40	76.02	1.26	95.52	1.93	0.74	0.74
1.69	49.80	79.87	1.25	99.55	1.91	0.75	0.75
1.74	53.24	85.40	1.22	104.46	1.88	0.76	0.76
1.79	53.78	86.26	1.22	105.40	1.88	0.76	0.76
1.84	52.90	84.84	1.23	104.08	1.89	0.76	0.76
1.88	51.25	82.18	1.23	101.34	1.89	0.75	0.75
1.93	49.46	79.31	1.24	98.11	1.90	0.74	0.74
1.99	48.69	78.06	1.23	96.29	1.90	0.74	0.74
2.03	48.08	77.07	1.23	94.90	1.89	0.74	0.74
2.08	47.67	76.42	1.23	93.98	1.89	0.74	0.74
2.13	46.86	75.11	1.23	92.67	1.90	0.73	0.73
2.22	45.85	73.48	1.24	91.09	1.90	0.73	0.73
2.27	44.97	72.07	1.24	89.70	1.91	0.73	0.73
2.33	44.77	71.74	1.24	89.16	1.91	0.73	0.73
2.42	45.44	72.81	1.24	89.96	1.90	0.73	0.73
2.48	46.73	74.86	1.22	91.66	1.88	0.73	0.73
2.56	48.41	77.57	1.21	94.03	1.86	0.74	0.74
2.65	49.43	79.19	1.21	95.47	1.86	0.74	0.74
2.72	48.72	78.04	1.21	94.74	1.87	0.74	0.74
2.80	46.02	73.70	1.23	90.99	1.90	0.73	0.73
2.89	42.44	67.94	1.26	85.67	1.94	0.72	0.72
2.94	39.03	62.46	1.29	80.64	1.98	0.62	0.71
3.04	35.90	57.42	1.32	76.04	2.02	0.42	0.70
3.14	32.32	51.66	1.37	70.91	2.07	0.27	0.69
3.23	29.01	46.34	1.42	65.97	2.10	0.18	0.67
3.31	25.74	41.07	1.50	61.64	2.15	0.13	0.66

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.37	23.04	36.73	1.59	58.33	2.19	0.10	0.65
3.48	20.38	32.44	1.71	55.35	2.23	0.08	0.64
3.57	18.79	29.89	1.76	52.71	2.25	0.06	0.63
3.65	18.02	28.64	1.78	50.93	2.26	0.06	0.63
3.71	18.02	28.64	1.77	50.70	2.26	0.06	0.63
3.82	18.63	29.60	1.77	52.47	2.26	0.06	0.63
3.91	20.18	32.09	1.71	54.73	2.23	0.07	0.64
4.00	22.81	36.30	1.60	58.22	2.20	0.10	0.65
4.10	26.38	42.04	1.41	59.10	2.09	0.11	0.65
4.19	31.21	49.79	1.00	49.79	1.98	0.05	0.62
4.26	37.92	60.57	1.00	60.57	1.86	0.12	0.66
4.35	45.62	72.92	1.00	72.92	1.79	0.32	0.69
4.44	49.80	79.63	1.00	79.63	1.77	0.57	0.71
4.52	51.39	82.17	1.00	82.17	1.76	0.70	0.71
4.53	52.26	83.58	1.00	83.58	1.76	0.72	0.72
4.58	55.03	88.02	1.00	88.02	1.73	0.72	0.72
4.63	57.76	92.41	1.00	92.41	1.71	0.73	0.73
4.68	58.84	94.14	1.00	94.14	1.70	0.74	0.74
4.72	59.28	94.84	1.00	94.84	1.71	0.74	0.74
4.77	59.08	94.51	1.00	94.51	1.72	0.74	0.74
4.82	58.07	92.88	1.00	92.88	1.73	0.73	0.73
4.88	56.21	89.89	1.00	89.89	1.76	0.73	0.73
4.96	53.61	85.71	1.14	97.96	1.79	0.74	0.74
5.01	50.54	80.78	1.18	95.67	1.83	0.74	0.74
5.08	47.44	75.78	1.22	92.32	1.87	0.73	0.73
5.16	44.81	71.55	1.24	88.93	1.91	0.73	0.73
5.21	43.27	69.07	1.26	86.85	1.93	0.72	0.72
5.30	42.68	68.12	1.26	86.01	1.94	0.72	0.72
5.37	42.65	68.06	1.26	85.96	1.94	0.72	0.72
5.45	42.70	68.13	1.26	86.01	1.94	0.72	0.72
5.52	42.44	67.72	1.26	85.64	1.94	0.72	0.72
5.59	41.70	66.52	1.27	84.54	1.95	0.72	0.72
5.65	40.15	64.02	1.28	82.25	1.97	0.70	0.71
5.74	38.46	61.30	1.30	79.83	1.99	0.58	0.71
5.83	37.08	59.07	1.32	77.99	2.02	0.49	0.70
5.89	36.30	57.82	1.33	77.16	2.03	0.46	0.70
5.97	35.66	56.79	1.35	76.43	2.04	0.43	0.70
6.07	34.52	54.94	1.37	75.11	2.06	0.39	0.70
6.12	32.56	51.79	1.41	73.14	2.10	0.33	0.69
6.22	29.76	47.28	1.51	71.19	2.15	0.28	0.69
6.28	26.56	42.13	1.67	70.33	2.22	0.26	0.68
6.36	23.45	37.14	1.90	70.41	2.29	0.26	0.68
6.46	21.29	33.66	2.09	70.43	2.34	0.26	0.68
6.52	20.72	32.73	2.06	67.56	2.33	0.21	0.68
6.60	22.07	34.89	1.79	62.55	2.26	0.14	0.66
6.70	23.55	37.27	1.57	58.59	2.18	0.10	0.65
6.76	23.01	36.39	1.55	56.58	2.17	0.09	0.65
6.84	19.64	30.96	1.81	55.94	2.27	0.08	0.64

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.94	14.91	23.37	2.60	60.83	2.44	0.12	0.66
7.03	10.86	16.85	4.02	67.75	2.63	0.21	0.68
7.13	8.23	12.62	5.71	72.04	2.79	0.30	0.69
7.19	6.62	10.02	6.93	69.39	2.88	0.24	0.68
7.32	5.77	8.65	6.87	59.40	2.88	0.11	0.65
7.42	5.17	7.67	5.87	44.99	2.80	0.04	0.62
7.49	4.93	7.28	4.02	29.29	2.63	0.02	0.62
7.57	4.73	-1.00	1.00	-1.00	-1.00	0.00	0.00
7.66	4.56	-1.00	1.00	-1.00	-1.00	0.00	0.00
7.76	4.44	6.47	4.48	29.00	2.68	0.02	0.62
7.77	4.39	6.39	4.95	31.63	2.72	0.02	0.62
7.78	4.42	6.44	5.05	32.53	2.73	0.02	0.62
7.82	4.44	6.47	5.36	34.69	2.76	0.02	0.62
7.87	4.45	6.49	5.86	38.07	2.80	0.03	0.62
7.92	4.45	6.49	6.45	41.83	2.85	0.03	0.62
7.97	4.49	6.54	6.96	45.53	2.88	0.04	0.62
8.01	4.59	6.70	7.41	49.66	2.91	0.05	0.62
8.06	4.76	6.97	7.58	52.81	2.92	0.06	0.63
8.11	4.93	7.24	7.65	55.42	2.93	0.08	0.64
8.20	5.06	7.45	7.68	57.24	2.93	0.09	0.65
8.26	5.16	7.60	7.84	59.63	2.94	0.11	0.66
8.35	5.23	7.70	7.98	61.50	2.95	0.13	0.66
8.40	5.30	7.81	8.02	62.65	2.95	0.14	0.66
8.49	5.37	7.91	7.96	62.99	2.95	0.14	0.66
8.54	5.51	8.13	7.81	63.54	2.94	0.15	0.67
8.64	5.71	8.45	7.58	64.06	2.93	0.16	0.67
8.69	5.91	8.77	7.37	64.63	2.91	0.16	0.67
8.79	6.18	9.19	7.46	68.57	2.92	0.23	0.68
8.84	6.48	9.68	7.59	73.49	2.93	0.34	0.69
8.93	6.89	10.32	7.50	77.37	2.92	0.47	0.70
9.03	7.13	10.69	7.46	79.83	2.92	0.58	0.71
9.08	7.21	10.83	7.52	81.47	2.92	0.66	0.71
9.11	7.16	10.75	7.78	83.66	2.94	0.72	0.72
9.12	7.13	10.69	7.89	84.32	2.95	0.72	0.72
9.17	7.07	10.60	8.03	85.13	2.95	0.72	0.72
9.22	7.12	10.67	8.09	86.32	2.96	0.72	0.72
9.31	6.92	10.34	8.56	88.56	2.99	0.73	0.73
9.36	7.16	10.72	8.37	89.76	2.98	0.73	0.73
9.40	7.46	11.20	8.04	90.10	2.95	0.73	0.73
9.46	8.14	12.28	7.25	89.07	2.90	0.73	0.73
9.51	8.47	12.82	6.92	88.75	2.88	0.73	0.73
9.55	8.78	13.30	6.70	89.10	2.86	0.73	0.73
9.61	8.98	13.63	6.65	90.65	2.86	0.73	0.73
9.69	9.12	13.84	6.73	93.09	2.87	0.73	0.73
9.74	9.18	13.94	6.87	95.71	2.88	0.74	0.74
9.81	9.39	14.26	6.85	97.70	2.88	0.74	0.74
9.89	9.76	14.85	6.62	98.33	2.86	0.74	0.74
9.94	10.06	15.33	6.42	98.43	2.84	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.03	10.23	15.59	6.28	97.94	2.83	0.74	0.74
10.08	10.23	15.59	5.91	92.18	2.80	0.73	0.73
10.18	10.23	15.58	5.40	84.12	2.76	0.72	0.72
10.23	10.23	15.58	5.05	78.62	2.73	0.52	0.70
10.33	10.23	15.57	5.17	80.55	2.74	0.61	0.71
10.40	10.23	15.56	5.54	86.20	2.77	0.72	0.72
10.47	10.08	15.32	5.91	90.44	2.80	0.73	0.73
10.51	10.06	15.28	6.18	94.42	2.83	0.74	0.74
10.56	10.03	15.23	6.41	97.63	2.84	0.74	0.74
10.61	10.21	15.52	6.51	100.97	2.85	0.75	0.75
10.67	10.16	15.43	6.88	106.14	2.88	0.76	0.76
10.75	10.13	15.37	7.21	110.80	2.90	0.77	0.77
10.80	9.99	15.15	7.50	113.70	2.92	0.77	0.77
10.85	9.89	14.99	7.63	114.35	2.93	0.77	0.77
10.90	9.72	14.71	7.82	115.05	2.94	0.77	0.77
11.00	9.45	14.27	8.13	116.05	2.96	0.78	0.78
11.05	9.05	13.61	8.55	116.32	2.99	0.78	0.78
11.14	8.61	12.90	9.04	116.64	3.01	0.62	0.99
11.21	8.27	12.36	9.53	117.80	3.04	0.62	0.94
11.29	8.24	12.30	9.66	118.79	3.05	0.65	0.93
11.38	8.41	12.56	9.53	119.67	3.04	0.63	0.94
11.46	8.68	12.98	9.18	119.19	3.02	0.64	0.97
11.52	8.88	13.30	8.96	119.26	3.01	0.64	0.98
11.60	8.98	13.46	8.85	119.12	3.00	0.64	0.99
11.67	9.05	13.56	8.79	119.24	3.00	0.64	0.99
11.72	9.12	13.67	8.75	119.52	3.00	0.78	0.78
11.81	9.32	13.98	8.54	119.37	2.99	0.78	0.78
11.86	9.35	14.03	8.52	119.54	2.98	0.78	0.78
11.96	9.42	14.07	8.48	119.37	2.98	0.78	0.78
12.01	9.45	14.06	8.50	119.58	2.98	0.78	0.78
12.10	9.69	13.55	8.25	111.75	2.97	0.77	0.77
12.16	10.07	13.97	7.41	103.51	2.91	0.75	0.75
12.24	10.47	14.38	6.85	98.49	2.88	0.75	0.75
12.32	10.87	14.89	6.86	102.09	2.88	0.75	0.75
12.39	11.18	15.29	7.16	109.53	2.90	0.77	0.77
12.48	10.64	14.47	7.97	115.36	2.95	0.78	0.78
12.50	10.23	14.64	8.30	121.50	2.97	0.79	0.79
12.54	10.74	14.58	8.20	119.55	2.96	0.78	0.78
12.64	12.36	16.65	7.01	116.68	2.89	0.78	0.78
12.68	14.04	18.79	6.01	113.05	2.81	0.77	0.77
12.77	14.72	19.54	5.64	110.30	2.78	0.77	0.77
12.82	14.75	19.48	5.55	108.15	2.78	0.76	0.76
12.89	14.21	18.67	5.71	106.60	2.79	0.76	0.76
12.97	13.37	17.49	6.13	107.25	2.82	0.76	0.76
13.03	12.49	16.30	6.66	108.51	2.86	0.76	0.76
13.12	11.72	15.20	7.22	109.85	2.90	0.77	0.77
13.16	11.21	14.50	7.58	109.96	2.93	0.77	0.77
13.26	10.91	13.99	7.68	107.43	2.93	0.76	0.76

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.34	10.84	13.79	7.45	102.72	2.92	0.75	0.75
13.41	10.74	13.56	7.18	97.27	2.90	0.74	0.74
13.50	10.60	13.27	7.10	94.19	2.89	0.74	0.74
13.60	10.33	12.84	7.26	93.25	2.90	0.74	0.74
13.65	10.13	12.55	7.49	94.05	2.92	0.74	0.74
13.75	10.03	12.35	7.71	95.17	2.93	0.74	0.74
13.80	10.10	12.37	7.57	93.67	2.92	0.74	0.74
13.89	10.23	12.47	7.55	94.18	2.92	0.74	0.74
13.94	10.63	12.95	7.46	96.59	2.92	0.74	0.74
14.03	10.80	13.13	7.91	103.87	2.95	0.76	0.76
14.11	11.23	13.59	7.98	108.45	2.95	0.76	0.76
14.13	11.53	13.97	7.99	111.61	2.95	0.77	0.77
14.18	12.27	14.85	7.55	112.19	2.92	0.77	0.77
14.22	12.83	15.50	7.35	113.98	2.91	0.77	0.77
14.28	13.44	16.19	7.18	116.20	2.90	0.78	0.78
14.37	14.01	16.81	7.06	118.62	2.89	0.78	0.78
14.44	14.79	17.68	6.80	120.24	2.87	0.78	0.78
14.51	15.63	18.60	6.50	120.95	2.85	0.78	0.78
14.60	16.31	19.30	6.30	121.55	2.83	0.79	0.79
14.65	16.58	19.57	6.28	122.89	2.83	0.79	0.79
14.75	16.56	19.44	6.39	124.23	2.84	0.79	0.79
14.85	16.48	19.22	6.50	124.95	2.85	0.79	0.79
14.91	16.44	19.11	6.54	124.89	2.85	0.79	0.79
14.99	17.00	19.64	6.25	122.73	2.83	0.79	0.79
15.09	18.30	21.01	5.69	119.59	2.79	0.78	0.78
15.18	20.29	23.13	4.94	114.33	2.72	0.77	0.77
15.25	22.28	25.25	4.26	107.53	2.66	0.76	0.76
15.33	24.50	27.58	3.60	99.22	2.58	0.75	0.75
15.43	27.51	30.70	2.96	90.92	2.50	0.73	0.73
15.51	31.32	34.70	2.45	84.95	2.41	0.72	0.72
15.59	34.63	38.13	2.14	81.77	2.35	0.68	0.71
15.67	36.18	39.65	2.03	80.65	2.33	0.62	0.71
15.76	35.13	38.36	2.14	81.98	2.35	0.69	0.71
15.86	32.03	34.86	2.45	85.36	2.41	0.72	0.72
15.95	27.64	30.01	3.03	90.95	2.51	0.73	0.73
16.05	23.08	24.94	3.85	95.91	2.61	0.74	0.74
16.14	19.31	20.73	4.79	99.32	2.71	0.75	0.75
16.20	16.85	17.98	5.55	99.84	2.78	0.75	0.75
16.28	15.33	16.24	6.13	99.52	2.82	0.75	0.75
16.34	14.21	14.97	6.52	97.62	2.85	0.74	0.74
16.44	12.93	13.48	7.12	95.96	2.89	0.74	0.74
16.50	11.61	12.00	7.73	92.73	2.93	0.73	0.73
16.58	10.17	10.54	8.19	86.31	2.96	0.72	0.72
16.73	8.75	8.85	8.43	74.57	2.98	0.37	0.69
16.82	7.60	7.51	8.14	61.14	2.96	0.12	0.66
16.92	7.06	6.86	8.35	57.29	2.97	0.09	0.65
17.01	6.56	6.26	10.33	64.67	3.09	0.13	0.45
17.11	6.20	5.84	12.54	73.17	3.19	0.19	0.42

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
17.12	5.73	5.31	14.74	78.30	3.28	0.20	0.38
17.14	6.34	5.97	13.44	80.31	3.23	0.21	0.43
17.19	7.13	6.82	12.15	82.92	3.17	0.24	0.49
17.28	7.94	7.67	11.16	85.58	3.13	0.27	0.55
17.33	8.01	7.71	11.48	88.52	3.14	0.29	0.55
17.43	7.87	7.52	11.93	89.67	3.16	0.30	0.54
17.47	7.74	7.35	12.03	88.37	3.17	0.29	0.52
17.57	7.57	7.12	11.95	85.14	3.16	0.25	0.51
17.65	7.47	6.98	11.70	81.63	3.15	0.23	0.50
17.72	7.40	6.88	11.84	81.46	3.16	0.22	0.49
17.81	7.57	7.02	11.86	83.22	3.16	0.25	0.50
17.86	7.87	7.32	11.98	87.65	3.17	0.27	0.52
17.95	8.31	7.73	11.95	92.32	3.16	0.32	0.55
18.05	8.78	8.18	11.81	96.52	3.16	0.36	0.58
18.10	9.22	8.61	11.67	100.43	3.15	0.38	0.61
18.20	9.66	9.01	11.52	103.80	3.14	0.42	0.64
18.30	9.90	9.20	11.60	106.76	3.15	0.46	0.66
18.39	10.13	9.38	11.50	107.91	3.14	0.46	0.67
18.48	10.27	9.47	11.38	107.71	3.14	0.46	0.68
18.58	10.30	9.44	11.38	107.46	3.14	0.46	0.67
18.66	10.20	9.30	11.49	106.87	3.14	0.45	0.66
18.74	10.07	9.12	11.49	104.74	3.14	0.44	0.65
18.87	9.90	8.88	10.73	95.26	3.11	0.39	0.63
18.97	9.66	8.59	10.09	86.69	3.07	0.22	0.61
19.06	9.56	8.45	9.58	80.90	3.05	0.24	0.60
19.16	9.83	8.66	9.84	85.25	3.06	0.27	0.62
19.25	10.13	8.91	9.93	88.50	3.06	0.31	0.64
19.27	10.23	9.00	10.18	91.69	3.08	0.31	0.64
19.30	10.37	9.12	10.39	94.70	3.09	0.34	0.65
19.34	10.57	9.29	10.57	98.19	3.10	0.38	0.66
19.39	10.84	9.53	10.50	100.00	3.09	0.40	0.68
19.49	10.78	9.41	10.57	99.51	3.10	0.39	0.67
19.55	10.51	9.12	10.70	97.54	3.10	0.37	0.65
19.63	10.17	8.75	10.86	95.04	3.11	0.34	0.63
19.68	9.87	8.43	10.91	92.04	3.11	0.32	0.60
19.74	9.77	8.31	10.69	88.83	3.10	0.29	0.59
19.83	9.73	8.24	10.61	87.40	3.10	0.27	0.59
19.87	9.73	8.22	10.55	86.67	3.10	0.29	0.59
19.94	9.73	8.19	10.80	88.39	3.11	0.27	0.58
20.02	9.80	8.21	11.04	90.64	3.12	0.31	0.59
20.07	10.17	8.54	11.28	96.33	3.13	0.34	0.61
20.17	11.42	9.65	10.38	100.21	3.09	0.41	0.69
20.21	14.18	12.20	8.30	101.25	2.97	0.75	0.75
20.28	18.74	16.43	5.92	97.16	2.80	0.74	0.74
20.36	24.88	22.08	4.11	90.84	2.64	0.73	0.73
20.41	31.73	28.40	3.02	85.89	2.51	0.72	0.72
20.48	38.64	34.74	2.39	83.15	2.40	0.71	0.71
20.55	44.99	40.52	2.02	82.00	2.33	0.69	0.71

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
20.60	49.88	44.99	1.82	81.90	2.27	0.68	0.71
20.70	52.55	47.28	1.74	82.23	2.25	0.70	0.71
20.74	52.68	47.32	1.75	82.97	2.25	0.71	0.71
20.79	51.17	45.83	1.84	84.31	2.28	0.72	0.72
20.89	48.70	43.39	2.03	87.95	2.33	0.72	0.72
20.96	46.86	41.58	2.06	85.66	2.33	0.72	0.72
21.04	45.83	40.52	2.09	84.84	2.34	0.72	0.72
21.13	45.80	40.36	2.05	82.71	2.33	0.71	0.71
21.22	49.22	43.31	1.97	85.52	2.31	0.72	0.72
21.29	52.71	46.38	1.86	86.23	2.28	0.72	0.72
21.35	62.13	54.84	1.58	86.56	2.19	0.72	0.72
21.37	71.37	63.21	1.42	89.97	2.10	0.73	0.73
21.42	83.72	74.37	1.31	97.64	2.01	0.74	0.74
21.47	92.73	82.47	1.27	104.48	1.95	0.76	0.76
21.48	100.66	89.69	1.23	110.65	1.90	0.77	0.77
21.52	107.37	95.73	1.20	115.32	1.85	0.78	0.78
21.57	113.24	100.98	1.17	118.63	1.82	0.78	0.78
21.62	118.81	105.91	1.14	120.85	1.79	0.78	0.78
21.66	124.00	110.52	1.10	122.11	1.76	0.79	0.79
21.71	128.79	114.75	1.07	122.79	1.74	0.79	0.79
21.76	132.64	118.10	1.04	123.42	1.73	0.79	0.79
21.81	135.34	120.38	1.03	124.51	1.72	0.79	0.79
21.85	136.99	121.70	1.04	126.15	1.72	0.79	0.79
21.91	137.80	122.24	1.05	127.87	1.73	0.80	0.80
21.95	138.11	122.32	1.06	129.40	1.73	0.80	0.80
22.00	138.24	122.26	1.07	130.49	1.74	0.80	0.80
22.05	138.18	122.02	1.08	131.33	1.75	0.80	0.80
22.10	138.24	121.90	1.08	132.00	1.75	0.80	0.80
22.15	138.31	121.77	1.09	132.56	1.75	0.80	0.80
22.19	138.68	121.94	1.09	133.12	1.75	0.80	0.80
22.24	139.25	122.24	1.11	135.35	1.76	0.81	0.81
22.29	139.86	122.58	1.11	136.60	1.77	0.81	0.81
22.34	140.20	122.70	1.12	137.16	1.77	0.81	0.81
22.39	140.06	122.45	1.11	135.89	1.77	0.81	0.81
22.43	139.42	121.72	1.11	135.26	1.77	0.81	0.81
22.48	138.34	120.56	1.12	135.08	1.77	0.81	0.81
22.55	136.79	118.95	1.13	134.76	1.78	0.81	0.81
22.62	130.08	112.68	1.17	131.90	1.82	0.80	0.80
22.63	127.95	110.75	1.18	130.57	1.83	0.80	0.80
22.72	125.56	108.31	1.19	128.61	1.83	0.80	0.80
22.77	128.09	110.46	1.17	129.57	1.82	0.80	0.80
22.83	126.13	108.51	1.19	128.59	1.83	0.80	0.80
22.91	124.21	106.52	1.20	127.55	1.85	0.79	0.79
22.96	121.74	104.15	1.21	126.09	1.86	0.79	0.79
23.02	118.20	100.84	1.22	123.45	1.88	0.79	0.79
23.10	113.85	96.74	1.24	119.96	1.90	0.78	0.78
23.16	108.42	91.79	1.26	115.60	1.93	0.78	0.78
23.20	102.21	86.20	1.28	110.62	1.97	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
23.26	95.46	80.15	1.31	105.23	2.01	0.76	0.76
23.35	88.68	74.00	1.36	100.36	2.05	0.75	0.75
23.39	81.66	67.80	1.42	95.97	2.10	0.74	0.74
23.48	74.68	61.55	1.51	93.11	2.15	0.73	0.73
23.54	68.33	55.99	1.61	90.41	2.20	0.73	0.73
23.63	63.44	51.67	1.69	87.24	2.23	0.72	0.72
23.69	60.07	48.84	1.63	79.68	2.21	0.57	0.71
23.78	58.37	47.34	1.59	75.09	2.19	0.39	0.70
23.87	57.71	46.70	1.56	72.76	2.18	0.32	0.69
23.88	57.81	46.69	1.62	75.51	2.20	0.40	0.70
23.93	57.42	46.23	1.69	78.05	2.23	0.50	0.70
24.02	57.22	45.85	1.76	80.73	2.25	0.62	0.71
24.04	56.97	45.57	1.82	82.98	2.27	0.71	0.71
24.05	57.34	45.82	1.85	84.83	2.28	0.72	0.72
24.15	58.27	46.42	1.87	86.71	2.28	0.72	0.72
24.20	60.11	47.86	1.85	88.32	2.28	0.73	0.73
24.30	62.64	49.86	1.75	87.06	2.25	0.72	0.72
24.40	65.07	51.83	1.63	84.41	2.21	0.72	0.72
24.46	66.59	53.10	1.53	81.44	2.16	0.66	0.71
24.54	66.42	52.90	1.50	79.49	2.15	0.56	0.71
24.64	64.09	50.78	1.55	78.59	2.17	0.52	0.70
24.73	59.94	47.12	1.68	79.13	2.22	0.54	0.71
24.78	54.64	42.55	1.92	81.62	2.30	0.67	0.71
24.88	48.57	37.36	2.28	85.25	2.38	0.72	0.72
24.94	41.92	31.81	2.80	89.16	2.47	0.73	0.73
25.02	35.00	26.12	3.52	92.04	2.57	0.73	0.73
25.12	28.43	20.76	4.59	95.35	2.69	0.74	0.74
25.17	22.86	16.30	6.02	98.17	2.81	0.74	0.74
25.27	18.41	12.75	7.69	98.13	2.93	0.74	0.74
25.36	15.13	9.96	9.50	94.69	3.04	0.34	0.71
25.43	12.60	8.11	11.16	90.44	3.13	0.30	0.58
25.50	10.88	6.84	12.76	87.31	3.20	0.27	0.49
25.60	9.77	6.01	14.03	84.31	3.25	0.24	0.43
25.64	9.26	5.64	14.52	81.86	3.27	0.23	0.40
25.67	9.06	5.48	14.58	79.98	3.28	0.22	0.39
25.71	8.86	5.33	14.38	76.65	3.27	0.20	0.38
25.79	8.52	5.07	14.25	72.22	3.26	0.16	0.36
25.93	8.18	4.80	14.17	68.01	3.26	0.14	0.34
26.03	8.02	4.66	13.97	65.11	3.25	0.13	0.33
26.13	8.02	4.64	13.74	63.74	3.24	0.11	0.33
26.24	8.08	4.67	13.54	63.18	3.23	0.12	0.33
26.37	8.18	4.71	13.48	63.49	3.23	0.12	0.34
26.47	8.25	4.73	13.53	64.09	3.23	0.12	0.34
26.60	8.25	4.71	13.24	62.33	3.22	0.12	0.34
26.71	8.38	4.78	12.59	60.15	3.19	0.09	0.34
26.85	8.75	5.00	11.78	58.94	3.16	0.09	0.36
26.95	8.96	5.12	12.24	62.69	3.18	0.11	0.37
27.04	9.60	5.54	12.21	67.66	3.18	0.15	0.40

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
27.09	10.14	5.90	12.33	72.68	3.18	0.17	0.42
27.19	10.95	6.42	11.76	75.49	3.16	0.20	0.46
27.23	11.18	6.56	11.88	78.01	3.16	0.21	0.47
27.33	11.42	6.70	11.98	80.22	3.17	0.22	0.48
27.40	11.76	6.91	11.94	82.48	3.16	0.24	0.49
27.47	12.30	7.25	11.72	84.94	3.15	0.25	0.52
27.57	12.97	7.66	11.34	86.93	3.14	0.28	0.55
27.66	13.85	8.22	10.99	90.36	3.12	0.30	0.59
27.77	14.96	8.93	10.64	94.93	3.10	0.34	0.64
27.86	16.28	9.76	10.29	100.42	3.08	0.40	0.70
27.96	17.39	10.45	10.06	105.14	3.07	0.45	0.75
28.06	17.73	10.63	10.22	108.70	3.08	0.49	0.76
28.15	17.29	10.31	10.64	109.63	3.10	0.50	0.74
28.25	17.04	10.10	10.32	104.18	3.08	0.47	0.72
28.34	16.50	9.71	10.12	98.29	3.07	0.34	0.69
28.44	16.94	9.96	9.46	94.21	3.04	0.34	0.71
28.54	16.11	9.38	10.45	98.03	3.09	0.38	0.67
28.62	17.46	10.22	9.90	101.19	3.06	0.41	0.73
28.71	18.34	10.74	9.72	104.45	3.05	0.45	0.77
28.77	20.26	11.95	8.92	106.63	3.01	0.48	0.85
28.86	20.73	12.21	8.93	109.00	3.01	0.51	0.87
28.91	21.34	12.56	8.78	110.37	3.00	0.52	0.90
28.97	22.04	12.99	8.63	112.06	2.99	0.77	0.77
29.04	22.92	13.50	8.45	114.13	2.98	0.77	0.77
29.10	23.97	14.13	8.26	116.69	2.97	0.78	0.78
29.15	25.15	14.85	8.08	120.01	2.96	0.78	0.78
29.25	26.40	16.30	7.69	125.36	2.93	0.79	0.79
29.34	27.38	16.91	7.60	128.48	2.93	0.80	0.80
29.38	27.75	17.12	7.63	130.55	2.93	0.80	0.80
29.48	27.72	16.25	7.97	129.55	2.95	0.80	0.80
29.55	27.48	16.06	8.07	129.61	2.96	0.80	0.80
29.63	27.41	16.75	7.61	127.50	2.93	0.79	0.79
29.72	28.43	17.61	6.01	105.80	2.81	0.76	0.76
29.82	31.56	20.09	3.98	79.94	2.63	0.58	0.71
29.88	36.83	24.31	2.33	56.65	2.39	0.09	0.65
29.96	45.23	30.47	1.87	56.98	2.29	0.09	0.65
30.06	49.92	33.83	1.75	59.16	2.25	0.11	0.65
30.13	54.67	37.29	1.64	60.99	2.21	0.12	0.66
30.18	56.02	38.21	1.63	62.30	2.21	0.14	0.66
30.28	58.72	40.06	1.61	64.44	2.20	0.16	0.67
30.37	59.53	40.40	1.67	67.53	2.22	0.21	0.68
30.47	60.51	40.85	1.74	71.05	2.25	0.28	0.69
30.57	63.28	42.69	1.73	73.87	2.24	0.35	0.69
30.66	67.26	45.46	1.67	76.12	2.22	0.42	0.70
30.74	71.34	48.33	1.62	78.31	2.20	0.51	0.70
30.82	74.51	50.51	1.59	80.52	2.19	0.61	0.71
30.90	76.30	51.60	1.61	82.93	2.20	0.71	0.71
31.01	76.90	51.74	1.66	85.67	2.22	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
31.10	77.02	51.51	1.74	89.47	2.24	0.73	0.73
31.19	77.06	51.19	1.84	93.96	2.28	0.74	0.74
31.28	77.57	51.24	1.92	98.21	2.30	0.74	0.74
31.35	78.53	51.70	1.97	101.82	2.31	0.75	0.75
31.43	80.52	52.90	1.98	104.59	2.31	0.76	0.76
31.53	83.11	54.53	1.97	107.28	2.31	0.76	0.76
31.60	85.91	56.74	1.78	101.10	2.26	0.75	0.75
31.67	88.07	58.52	1.64	95.74	2.21	0.74	0.74
31.77	89.46	59.74	1.53	91.18	2.16	0.73	0.73
31.84	89.86	59.77	1.56	93.40	2.18	0.74	0.74
31.91	86.18	56.78	1.68	95.19	2.22	0.74	0.74
31.98	79.10	51.41	1.89	97.23	2.29	0.74	0.74
31.98	77.21	49.95	1.99	99.23	2.32	0.75	0.75
32.04	78.73	50.91	1.98	100.65	2.31	0.75	0.75
32.12	82.68	53.56	1.91	102.19	2.30	0.75	0.75
32.16	80.04	51.46	2.05	105.63	2.33	0.76	0.76
32.27	75.66	48.11	2.26	108.77	2.38	0.76	0.76
32.33	70.76	44.53	2.50	111.51	2.42	0.77	0.77
32.41	66.31	41.33	2.72	112.40	2.46	0.77	0.77
32.50	61.79	38.14	2.93	111.66	2.49	0.77	0.77
32.58	56.66	34.61	3.18	110.12	2.53	0.77	0.77
32.66	50.22	30.23	3.59	108.68	2.58	0.76	0.76
32.74	43.30	25.56	4.22	107.79	2.65	0.76	0.76
32.84	36.12	20.76	5.20	107.96	2.75	0.76	0.76
32.90	29.88	16.68	6.45	107.62	2.85	0.76	0.76
32.98	24.92	12.71	8.19	104.08	2.96	0.76	0.76
33.08	20.77	10.40	9.80	101.84	3.06	0.43	0.74
33.14	17.05	8.34	11.93	99.50	3.16	0.40	0.60
33.22	14.12	6.71	14.31	96.06	3.27	0.36	0.48
33.32	12.19	5.64	16.21	91.43	3.34	0.30	0.40
33.37	11.28	5.14	16.60	85.28	3.35	0.27	0.37
33.47	11.05	4.99	16.37	81.70	3.34	0.22	0.36
33.56	11.66	5.30	15.06	79.85	3.30	0.23	0.38
33.63	12.43	5.71	14.04	80.15	3.26	0.23	0.41
33.71	12.67	5.82	13.47	78.37	3.23	0.23	0.42
33.81	11.99	5.44	13.27	72.19	3.22	0.19	0.39
33.90	11.05	4.92	13.35	65.65	3.23	0.11	0.35
33.95	10.31	4.51	13.36	60.28	3.23	0.11	0.32
34.04	10.07	4.37	13.69	59.84	3.24	0.11	0.31
34.14	9.87	4.25	14.01	59.54	3.25	0.10	0.30
34.17	9.81	4.21	14.16	59.63	3.26	0.11	0.30
34.20	10.07	4.35	13.78	59.92	3.24	0.11	0.31
34.26	10.38	4.50	13.36	60.14	3.23	0.11	0.32
34.35	10.61	4.61	12.99	59.91	3.21	0.11	0.33
34.43	10.41	4.49	13.24	59.45	3.22	0.11	0.32
34.49	10.27	4.41	13.28	58.59	3.22	0.10	0.32
34.59	10.17	4.34	13.18	57.25	3.22	0.10	0.31
34.69	10.07	4.28	13.07	55.91	3.21	0.09	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
34.73	9.90	4.18	13.12	54.88	3.22	0.08	0.30
34.83	9.80	4.12	13.19	54.34	3.22	0.08	0.29
34.90	9.74	4.07	13.37	54.48	3.23	0.08	0.29
34.98	9.84	4.12	13.48	55.47	3.23	0.09	0.29
35.07	10.14	4.26	13.68	58.28	3.24	0.10	0.30
35.16	10.58	4.47	14.49	64.79	3.27	0.12	0.32
35.26	11.29	4.82	15.85	76.48	3.32	0.19	0.34
35.33	13.25	5.82	15.42	89.71	3.31	0.31	0.42
35.40	16.76	7.61	13.28	101.03	3.22	0.42	0.54
35.50	20.84	9.67	11.03	106.70	3.12	0.52	0.69
35.57	23.37	10.95	10.02	109.72	3.07	0.54	0.78
35.65	23.77	11.12	10.10	112.36	3.07	0.57	0.79
35.71	22.86	10.64	10.83	115.22	3.11	0.61	0.76
35.79	21.65	9.99	11.64	116.27	3.15	0.61	0.71
35.85	20.37	9.32	12.22	113.90	3.18	0.57	0.67
35.94	19.29	8.75	12.53	109.71	3.19	0.51	0.63
35.99	18.31	8.24	12.58	103.66	3.19	0.46	0.59
36.08	17.16	7.64	12.55	95.94	3.19	0.38	0.55
36.17	15.54	6.80	12.98	88.35	3.21	0.28	0.49
36.24	14.22	6.13	13.50	82.76	3.23	0.26	0.44
36.33	13.58	5.79	14.00	81.11	3.25	0.24	0.41
36.42	13.58	5.77	14.22	82.08	3.26	0.24	0.41
36.52	14.05	5.99	12.88	77.16	3.21	0.28	0.43
36.61	15.40	6.64	11.27	74.88	3.13	0.14	0.47
36.70	17.73	7.78	9.87	76.79	3.06	0.21	0.56
36.78	20.23	8.99	9.83	88.43	3.06	0.34	0.64
36.85	18.24	7.99	12.41	99.18	3.19	0.44	0.57
36.87	20.20	8.95	11.61	103.88	3.15	0.46	0.64
36.91	23.23	10.43	10.08	105.17	3.07	0.51	0.75
36.97	31.40	15.73	6.66	104.77	2.86	0.76	0.76
37.06	35.24	17.97	5.86	105.20	2.80	0.76	0.76
37.12	38.62	19.91	5.42	107.91	2.76	0.76	0.76
37.20	42.40	22.04	5.10	112.33	2.74	0.77	0.77
37.27	47.56	25.06	4.56	114.30	2.69	0.77	0.77
37.35	52.21	27.88	4.03	112.42	2.63	0.77	0.77
37.44	55.22	29.75	3.64	108.21	2.59	0.76	0.76
37.49	58.42	31.83	3.23	102.76	2.53	0.75	0.75
37.59	67.19	37.46	2.56	95.81	2.43	0.74	0.74
37.64	85.65	49.64	1.82	90.11	2.27	0.73	0.73
37.70	111.29	67.10	1.41	94.79	2.10	0.74	0.74
37.78	136.59	84.81	1.28	108.37	1.96	0.76	0.76
37.83	155.69	98.45	1.22	120.19	1.88	0.78	0.78
37.92	167.53	106.83	1.19	126.68	1.83	0.79	0.79
37.97	174.58	111.69	1.17	130.53	1.81	0.80	0.80
38.07	178.80	114.34	1.16	133.13	1.81	0.80	0.80
38.14	181.84	116.07	1.17	135.64	1.81	0.81	0.81
38.22	185.72	118.33	1.17	138.68	1.82	0.81	0.81
38.31	191.72	121.94	1.17	143.23	1.82	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
38.41	201.37	128.37	1.16	148.66	1.80	0.83	0.83
38.52	212.64	135.94	1.14	154.32	1.79	0.83	0.83
38.64	221.04	141.59	1.11	157.41	1.77	0.84	0.84
38.74	217.87	138.67	1.14	158.10	1.79	0.84	0.84
38.80	214.19	135.62	1.16	157.57	1.81	0.84	0.84
38.89	210.42	132.43	1.18	156.57	1.83	0.84	0.84
38.94	213.65	134.37	1.18	158.84	1.83	0.84	0.84
39.03	213.59	133.74	1.19	159.69	1.84	0.84	0.84
39.13	213.25	132.81	1.21	160.46	1.86	0.84	0.84
39.23	211.36	130.76	1.22	160.12	1.88	0.84	0.84
39.35	207.85	127.69	1.24	158.27	1.90	0.84	0.84
39.42	201.04	122.59	1.26	154.08	1.93	0.83	0.83
39.51	192.09	116.15	1.28	148.22	1.96	0.82	0.82
39.60	181.50	108.71	1.30	141.37	1.99	0.82	0.82
39.70	172.83	102.65	1.32	135.85	2.02	0.81	0.81
39.78	164.63	97.07	1.35	130.75	2.04	0.80	0.80
39.90	157.35	92.05	1.37	126.28	2.06	0.79	0.79
39.99	149.05	86.44	1.41	121.65	2.09	0.79	0.79
40.09	141.42	81.31	1.45	117.75	2.12	0.78	0.78
40.18	133.79	76.23	1.50	114.33	2.15	0.77	0.77
40.23	126.04	71.16	1.56	111.30	2.18	0.77	0.77
40.33	118.01	65.88	1.65	108.90	2.22	0.76	0.76
40.43	110.12	60.74	1.76	107.17	2.25	0.76	0.76
40.52	101.85	55.31	1.95	107.68	2.31	0.76	0.76
40.61	92.44	49.44	2.15	106.53	2.36	0.76	0.76
40.69	80.59	42.14	2.54	106.96	2.43	0.76	0.76
40.80	68.65	35.01	3.03	106.21	2.51	0.76	0.76
40.87	59.91	29.84	3.59	107.20	2.58	0.76	0.76
40.95	53.47	26.09	4.12	107.50	2.64	0.76	0.76
40.97	51.37	24.94	4.24	105.79	2.65	0.76	0.76
41.01	54.31	26.70	3.81	101.77	2.61	0.75	0.75
41.07	61.80	31.20	3.04	94.92	2.51	0.74	0.74
41.15	67.40	34.61	2.61	90.47	2.44	0.73	0.73
41.26	67.13	34.39	2.61	89.74	2.44	0.73	0.73
41.35	63.05	31.86	2.87	91.40	2.48	0.73	0.73
41.47	60.28	30.09	3.10	93.27	2.52	0.74	0.74
41.59	59.67	29.62	3.18	94.19	2.53	0.74	0.74
41.69	60.42	29.94	3.18	95.29	2.53	0.74	0.74
41.78	59.17	29.08	3.36	97.63	2.55	0.74	0.74
41.88	54.75	26.41	3.82	100.94	2.61	0.75	0.75
41.98	49.45	23.32	4.43	103.21	2.67	0.75	0.75
42.08	45.13	20.88	4.96	103.54	2.72	0.75	0.75
42.16	44.32	20.43	4.99	102.01	2.73	0.75	0.75
42.24	47.12	21.98	4.53	99.69	2.68	0.75	0.75
42.31	52.25	24.86	3.91	97.23	2.62	0.74	0.74
42.45	56.94	27.44	3.48	95.61	2.57	0.74	0.74
42.55	59.37	28.78	3.30	94.91	2.54	0.74	0.74
42.60	59.78	28.96	3.29	95.14	2.54	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.70	59.34	28.59	3.38	96.60	2.55	0.74	0.74
42.81	57.38	27.33	3.64	99.43	2.59	0.75	0.75
42.89	53.57	25.06	4.12	103.15	2.64	0.75	0.75
42.98	48.27	22.02	4.84	106.61	2.71	0.76	0.76
43.08	43.14	19.16	5.69	108.99	2.79	0.76	0.76
43.17	40.44	17.68	6.18	109.35	2.83	0.76	0.76
43.27	41.05	18.01	5.94	107.03	2.81	0.76	0.76
43.37	43.81	19.71	4.84	95.48	2.71	0.74	0.74
43.50	46.82	21.62	3.86	83.44	2.61	0.71	0.71
43.61	48.54	22.85	3.24	73.95	2.54	0.35	0.69
43.74	49.31	23.16	3.25	75.29	2.54	0.39	0.70
43.79	49.31	22.99	3.44	79.06	2.56	0.54	0.71
43.86	48.47	22.31	3.79	84.59	2.60	0.72	0.72
43.94	47.05	21.30	4.28	91.16	2.66	0.73	0.73
44.00	44.89	19.92	4.92	98.08	2.72	0.74	0.74
44.08	42.33	18.39	5.62	103.37	2.78	0.75	0.75
44.17	38.85	16.48	6.45	106.26	2.85	0.76	0.76
44.27	35.44	14.71	7.14	105.00	2.90	0.76	0.76
44.42	34.16	14.09	7.15	100.72	2.90	0.75	0.75
44.52	37.10	15.69	6.06	95.03	2.82	0.74	0.74
44.61	44.15	19.52	4.49	87.72	2.68	0.72	0.72
44.71	51.91	23.77	3.51	83.46	2.57	0.71	0.71
44.85	56.66	26.27	3.19	83.87	2.53	0.72	0.72
44.95	57.30	26.40	3.34	88.11	2.55	0.72	0.72
45.09	54.98	24.92	3.69	92.06	2.59	0.73	0.73
45.19	50.09	22.17	4.29	95.00	2.66	0.74	0.74
45.33	43.44	18.53	5.31	98.48	2.76	0.75	0.75
45.42	37.17	15.25	6.56	100.02	2.85	0.75	0.75
45.57	34.20	13.74	7.18	98.64	2.90	0.75	0.75
45.68	32.58	12.98	7.29	94.66	2.91	0.74	0.74
45.81	30.45	12.02	7.30	87.72	2.91	0.72	0.72
45.92	26.54	9.26	8.96	82.93	3.01	0.26	0.66
46.05	22.29	7.59	10.87	82.51	3.11	0.33	0.54
46.16	19.32	6.43	13.40	86.12	3.23	0.32	0.46
46.17	17.73	5.82	14.71	85.57	3.28	0.32	0.42
46.23	17.46	5.70	14.75	84.09	3.28	0.30	0.41
46.29	16.85	5.46	15.02	82.02	3.29	0.28	0.39
46.34	16.04	5.15	15.32	78.81	3.31	0.26	0.37
46.42	15.30	4.85	15.44	74.90	3.31	0.22	0.35
46.48	14.90	4.69	15.10	70.80	3.30	0.19	0.34
46.52	14.69	4.61	14.73	67.86	3.28	0.17	0.33
46.60	14.56	4.55	14.47	65.79	3.27	0.16	0.32
46.67	14.49	4.51	14.23	64.21	3.26	0.15	0.32
46.74	14.45	4.49	14.03	63.02	3.25	0.14	0.32
46.82	14.42	4.47	13.84	61.88	3.25	0.14	0.32
46.88	14.19	4.37	13.96	61.07	3.25	0.13	0.31
46.96	14.10	4.33	13.99	60.61	3.25	0.13	0.31
47.06	13.97	4.27	14.16	60.52	3.26	0.13	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
47.15	14.11	4.31	14.15	61.03	3.26	0.13	0.31
47.24	14.43	4.42	14.72	65.10	3.28	0.14	0.32
47.35	16.18	5.07	14.87	75.39	3.29	0.20	0.36
47.49	19.69	6.36	12.67	80.67	3.20	0.35	0.45
47.58	24.11	8.00	10.33	82.65	3.09	0.29	0.57
47.73	26.03	8.69	9.32	80.95	3.03	0.30	0.62
47.83	27.06	9.05	9.05	81.84	3.02	0.33	0.65
47.87	26.18	8.71	9.55	83.19	3.04	0.32	0.62
47.89	26.93	8.98	9.14	82.12	3.02	0.32	0.64
47.94	26.64	8.87	9.20	81.59	3.02	0.31	0.63
48.02	26.81	8.91	9.08	80.90	3.02	0.31	0.64
48.07	26.40	8.75	9.26	81.07	3.03	0.31	0.63
48.12	25.97	8.58	9.61	82.45	3.05	0.31	0.61
48.18	25.43	8.37	10.05	84.09	3.07	0.34	0.60
48.26	25.01	8.20	10.42	85.42	3.09	0.34	0.59
48.31	24.60	8.04	10.54	84.77	3.10	0.34	0.57
48.38	24.56	8.01	10.30	82.58	3.08	0.31	0.57
48.46	24.71	8.05	9.85	79.31	3.06	0.29	0.58
48.52	24.41	7.93	9.58	75.99	3.05	0.26	0.57
48.60	23.16	7.46	9.70	72.40	3.05	0.23	0.53
48.68	20.77	6.57	10.59	69.64	3.10	0.19	0.47
48.74	18.20	5.63	12.04	67.76	3.17	0.18	0.40
48.82	15.94	4.80	14.01	67.24	3.25	0.17	0.34
48.89	14.56	4.29	15.49	66.41	3.31	0.17	0.31
48.99	13.82	4.01	16.21	64.98	3.34	0.16	0.29
49.05	13.65	3.94	15.85	62.48	3.32	0.14	0.28
49.12	13.51	3.89	15.38	59.74	3.31	0.12	0.28
49.18	13.55	3.89	14.70	57.20	3.28	0.11	0.28
49.27	13.75	3.96	14.08	55.71	3.26	0.10	0.28
49.32	13.92	4.01	13.56	54.42	3.24	0.10	0.29
49.42	13.55	3.87	13.92	53.88	3.25	0.09	0.28
49.48	13.11	3.71	14.46	53.63	3.27	0.09	0.26
49.56	13.01	3.66	14.76	54.09	3.28	0.09	0.26
49.66	13.28	3.75	14.73	55.25	3.28	0.10	0.27
49.76	13.68	3.89	14.49	56.33	3.27	0.11	0.28
49.85	14.06	4.01	13.46	54.00	3.23	0.11	0.29
49.99	14.87	4.29	11.96	51.28	3.17	0.06	0.31
50.09	14.43	4.12	11.90	49.07	3.16	0.08	0.29
50.21	13.82	3.89	12.94	50.39	3.21	0.08	0.28
50.24	13.21	3.68	13.72	50.47	3.24	0.08	0.26
50.29	13.59	3.81	13.05	49.66	3.21	0.08	0.27
50.38	13.69	3.83	12.73	48.82	3.20	0.07	0.27
50.47	13.39	3.72	13.00	48.36	3.21	0.07	0.27
50.52	12.98	3.57	13.61	48.61	3.24	0.07	0.26
50.62	13.01	3.58	13.73	49.09	3.24	0.07	0.26
50.66	13.15	3.62	13.70	49.58	3.24	0.08	0.26
50.76	13.28	3.66	13.70	50.11	3.24	0.08	0.26
50.83	14.13	3.95	12.99	51.29	3.21	0.08	0.28

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
50.91	14.30	4.00	13.34	53.36	3.23	0.09	0.29
51.00	15.61	4.45	12.42	55.29	3.19	0.11	0.32
51.06	17.36	5.06	11.27	56.99	3.13	0.11	0.36
51.15	17.67	5.15	11.86	61.08	3.16	0.13	0.37
51.24	16.35	4.68	14.43	67.57	3.27	0.18	0.33
51.31	12.88	3.47	21.69	75.27	3.51	0.23	0.25
51.39	18.55	5.43	14.77	80.15	3.28	0.29	0.39
51.48	32.14	11.43	7.23	82.64	2.90	0.71	0.71
51.58	35.38	12.78	6.83	87.30	2.87	0.72	0.72
51.68	27.82	8.59	10.70	91.85	3.10	0.45	0.61
51.77	17.84	5.13	19.49	100.06	3.45	0.43	0.37
51.90	36.80	11.62	9.16	106.47	3.02	0.53	0.83
52.01	74.42	30.49	3.61	110.20	2.58	0.77	0.77
52.11	128.50	57.50	2.11	121.05	2.34	0.78	0.78
52.26	161.87	74.64	1.77	131.90	2.25	0.80	0.80
52.30	209.17	100.78	1.45	146.55	2.12	0.82	0.82
52.33	248.44	124.60	1.31	162.63	2.00	0.84	0.84
52.35	302.93	158.50	1.21	192.22	1.87	0.88	0.88
52.40	347.53	187.07	1.12	209.95	1.78	0.90	0.90
52.45	381.51	208.63	1.04	216.58	1.72	0.90	0.90
52.50	415.58	229.89	1.00	229.89	1.69	0.92	0.92
52.55	447.33	248.98	1.00	248.98	1.67	0.93	0.93
52.60	486.53	273.15	1.00	273.15	1.63	0.96	0.96
52.65	516.02	289.64	1.00	289.64	1.60	0.97	0.97
52.71	531.14	297.95	1.00	297.95	1.57	0.98	0.98
52.77	541.83	303.79	1.00	303.79	1.53	0.98	0.98
52.82	558.50	312.99	1.00	312.99	1.51	0.99	0.99
52.88	578.13	323.84	1.00	323.84	1.48	1.00	1.00
52.93	592.07	331.46	1.00	331.46	1.46	1.00	1.00
52.98	605.70	338.95	1.00	338.95	1.46	1.01	1.01
53.03	608.64	340.39	1.00	340.39	1.46	1.01	1.01
53.08	608.27	340.01	1.00	340.01	1.46	1.01	1.01
53.12	601.01	335.78	1.00	335.78	1.47	1.00	1.00
53.17	598.22	333.99	1.00	333.99	1.46	1.00	1.00
53.23	600.71	335.19	1.00	335.19	1.45	1.00	1.00
53.28	596.23	332.45	1.00	332.45	1.47	1.00	1.00
53.37	588.50	327.80	1.00	327.80	1.48	1.00	1.00
53.42	584.11	325.17	1.00	325.17	1.50	1.00	1.00
53.46	586.81	326.50	1.00	326.50	1.52	1.00	1.00
53.53	599.03	333.09	1.00	333.09	1.53	1.00	1.00
53.61	597.34	331.84	1.00	331.84	1.56	1.00	1.00
53.62	582.26	323.39	1.00	323.39	1.60	1.00	1.00
53.65	574.05	318.67	1.00	318.67	1.60	0.99	0.99
53.67	571.35	317.12	1.00	317.12	1.61	0.99	0.99
53.70	583.83	323.95	1.00	323.95	1.59	1.00	1.00
53.74	582.83	323.26	1.00	323.26	1.60	1.00	1.00
53.76	583.81	323.74	1.00	323.74	1.60	1.00	1.00
53.80	581.08	322.06	1.00	322.06	1.59	0.99	0.99

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.84	577.81	320.07	1.00	320.07	1.59	0.99	0.99
53.90	578.23	320.12	1.00	320.12	1.58	0.99	0.99
53.91	570.20	315.61	1.00	315.61	1.59	0.99	0.99
53.95	573.64	317.38	1.00	317.38	1.58	0.99	0.99
53.96	579.94	320.83	1.00	320.83	1.58	0.99	0.99
53.98	601.06	332.48	1.00	332.48	1.56	1.00	1.00
53.99	602.95	333.50	1.00	333.50	1.56	1.00	1.00
54.01	592.15	327.46	1.00	327.46	1.57	1.00	1.00
54.02	579.33	320.31	1.00	320.31	1.58	0.99	0.99
54.03	553.15	305.74	1.00	305.74	1.61	0.98	0.98
54.04	504.84	276.21	1.00	276.21	1.67	0.96	0.96
54.05	452.17	241.19	1.08	260.14	1.75	0.94	0.94
54.09	422.63	221.81	1.15	254.46	1.79	0.94	0.94
54.10	421.59	220.94	1.15	254.57	1.80	0.94	0.94
54.13	421.89	221.06	1.15	254.64	1.80	0.94	0.94
54.14	420.96	220.34	1.16	254.59	1.80	0.94	0.94
54.19	422.82	221.19	1.16	255.77	1.80	0.94	0.94
54.19	428.79	224.52	1.15	258.95	1.80	0.94	0.94
54.24	439.22	231.86	1.12	259.93	1.77	0.94	0.94
54.29	456.97	245.94	1.02	249.88	1.71	0.94	0.94
54.33	474.10	261.31	1.00	261.31	1.64	0.95	0.95
54.38	494.95	272.80	1.00	272.80	1.57	0.96	0.96
54.39	512.70	282.62	1.00	282.62	1.53	0.96	0.96
54.43	529.13	291.66	1.00	291.66	1.52	0.97	0.97
54.48	543.10	299.32	1.00	299.32	1.44	0.98	0.98
54.52	556.66	306.76	1.00	306.76	1.36	0.98	0.98
54.58	573.87	316.20	1.00	316.20	1.26	0.99	0.99
54.62	587.13	323.46	1.00	323.46	1.28	1.00	1.00
54.65	604.44	333.00	1.00	333.00	1.29	1.00	1.00
54.67	623.33	343.41	1.00	343.41	1.30	1.01	1.01
54.71	658.15	362.60	1.00	362.60	1.28	1.02	1.02
54.77	679.34	374.21	1.00	374.21	1.20	1.03	1.03
54.81	702.99	387.19	1.00	387.19	1.11	1.04	1.04
54.85	704.07	387.70	1.00	387.70	1.04	1.04	1.04
54.86	709.13	390.48	1.00	390.48	1.06	1.04	1.04
54.87	703.33	387.26	1.00	387.26	1.09	1.04	1.04
54.91	703.66	387.35	1.00	387.35	1.13	1.04	1.04
54.96	707.14	389.17	1.00	389.17	1.16	1.04	1.04
55.00	703.19	386.89	1.00	386.89	1.18	1.04	1.04
55.01	695.84	382.82	1.00	382.82	1.19	1.04	1.04
55.05	679.11	373.47	1.00	373.47	1.21	1.03	1.03
55.10	651.07	357.87	1.00	357.87	1.24	1.02	1.02
55.12	603.77	331.72	1.00	331.72	1.29	1.00	1.00
55.13	570.97	313.58	1.00	313.58	1.33	0.99	0.99
55.14	563.11	309.22	1.00	309.22	1.33	0.98	0.98
55.19	576.91	316.75	1.00	316.75	1.31	0.99	0.99
55.20	576.27	316.38	1.00	316.38	1.31	0.99	0.99
55.25	562.13	308.48	1.00	308.48	1.33	0.98	0.98

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.29	546.07	299.55	1.00	299.55	1.37	0.98	0.98
55.33	519.69	284.92	1.00	284.92	1.42	0.97	0.97
55.38	481.16	263.59	1.00	263.59	1.52	0.95	0.95
55.48	439.32	240.38	1.00	240.38	1.63	0.93	0.93
55.57	411.39	218.55	1.04	227.87	1.73	0.92	0.92
55.63	398.09	206.42	1.15	237.94	1.80	0.92	0.92
55.72	402.04	206.08	1.19	244.53	1.83	0.93	0.93
55.80	431.09	221.88	1.17	260.68	1.82	0.95	0.95
55.86	480.55	259.76	1.00	259.76	1.67	0.94	0.94
55.97	527.85	288.32	1.00	288.32	1.51	0.97	0.97
56.01	560.55	306.20	1.00	306.20	1.34	0.98	0.98
56.06	587.84	186.61	1.00	186.61	1.50	0.87	0.87
56.11	613.11	194.57	1.00	194.57	1.50	0.88	0.88
56.15	640.71	203.27	1.00	203.27	1.51	0.89	0.89
56.20	660.92	209.60	1.00	209.60	1.52	0.90	0.90
56.27	663.16	210.15	1.00	210.15	1.53	0.90	0.90
56.27	664.17	210.45	1.00	210.45	1.56	0.90	0.90
56.30	642.20	203.39	1.00	203.39	1.61	0.89	0.89
56.33	649.54	205.64	1.00	205.64	1.64	0.89	0.89
56.35	647.65	205.00	1.00	205.00	1.66	0.89	0.89
56.40	667.86	211.31	1.00	211.31	1.64	0.90	0.90
56.41	669.34	211.76	1.00	211.76	1.64	0.90	0.90
56.44	681.53	215.53	1.00	215.53	1.63	0.90	0.90
56.49	695.19	219.75	1.00	219.75	1.62	0.91	0.91
56.54	717.49	226.71	1.00	226.71	1.61	0.91	0.91
56.58	737.23	232.85	1.00	232.85	1.61	0.92	0.92
56.59	750.18	236.93	1.00	236.93	1.61	0.92	0.92
56.64	757.34	239.07	1.00	239.07	1.60	0.93	0.93
56.69	764.80	241.29	1.00	241.29	1.60	0.93	0.93
56.73	778.16	245.40	1.00	245.40	1.59	0.93	0.93
56.78	778.56	245.38	1.00	245.38	1.58	0.93	0.93
56.83	759.53	239.22	1.00	239.22	1.58	0.93	0.93
56.88	731.80	230.32	1.00	230.32	1.58	0.92	0.92
56.89	708.89	223.03	1.00	223.03	1.60	0.91	0.91
56.95	692.53	217.71	1.00	217.71	1.59	0.91	0.91
57.01	668.00	209.81	1.00	209.81	1.59	0.90	0.90
57.07	645.94	202.70	1.00	202.70	1.58	0.89	0.89
57.11	619.45	194.25	1.00	194.25	1.52	0.88	0.88
57.17	598.63	187.56	1.00	187.56	1.46	0.87	0.87
57.26	574.07	179.66	1.00	179.66	1.37	0.86	0.86
57.31	547.05	171.06	1.00	171.06	1.43	0.85	0.85
57.37	520.16	162.50	1.00	162.50	1.45	0.84	0.84
57.45	490.27	152.96	1.00	152.96	1.51	0.83	0.83
57.51	451.30	140.63	1.00	140.63	1.55	0.81	0.81
57.53	421.54	131.27	1.00	131.27	1.59	0.80	0.80
57.59	401.40	124.87	1.00	124.87	1.62	0.79	0.79
57.63	398.96	124.05	1.00	124.05	1.62	0.79	0.79
57.68	391.51	121.66	1.00	121.66	1.63	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
57.73	386.48	120.01	1.00	120.01	1.64	0.78	0.78
57.78	379.02	117.62	1.00	117.62	1.65	0.78	0.78
57.86	359.96	111.55	1.00	111.55	1.66	0.77	0.77
57.92	326.32	100.97	1.00	100.97	1.71	0.75	0.75
57.98	290.83	89.82	1.00	89.82	1.76	0.73	0.73
58.06	263.33	81.16	1.18	95.51	1.82	0.74	0.74
58.12	242.92	74.75	1.24	92.39	1.90	0.73	0.73
58.21	222.41	68.28	1.30	88.73	1.99	0.73	0.73
58.26	204.43	62.64	1.37	85.71	2.06	0.72	0.72
58.35	180.37	55.10	1.48	81.38	2.14	0.65	0.71
58.41	154.93	47.15	1.59	74.91	2.19	0.38	0.70
58.50	122.84	37.13	1.90	70.73	2.29	0.27	0.69
58.56	98.18	29.45	2.28	67.27	2.38	0.20	0.68
58.64	77.90	23.14	3.23	74.61	2.53	0.37	0.69
58.73	63.67	18.70	4.34	81.15	2.66	0.64	0.71
58.80	51.12	14.80	5.89	87.16	2.80	0.72	0.72
58.84	42.24	12.04	7.59	91.44	2.93	0.73	0.73
58.85	43.79	12.52	7.27	91.06	2.90	0.73	0.73
58.93	50.50	14.59	6.00	87.49	2.81	0.72	0.72
58.98	58.12	16.94	4.87	82.49	2.72	0.71	0.71
59.02	61.77	18.06	4.38	79.02	2.67	0.54	0.70
59.12	63.39	18.54	4.19	77.74	2.65	0.48	0.70
59.17	65.41	19.15	4.09	78.34	2.64	0.51	0.70
59.27	67.33	19.73	4.06	80.06	2.63	0.59	0.71
59.31	67.64	19.81	4.15	82.31	2.64	0.71	0.71
59.41	64.84	18.93	4.46	84.40	2.68	0.72	0.72
59.46	57.99	16.81	5.11	85.91	2.74	0.72	0.72
59.55	48.77	13.96	6.20	86.53	2.83	0.72	0.72
59.65	39.66	11.14	7.37	82.12	2.91	0.70	0.71
59.70	34.25	9.47	8.28	78.48	2.97	0.51	0.70
59.80	32.07	8.80	8.61	75.77	2.99	0.41	0.70
59.89	32.04	8.78	9.03	79.29	3.01	0.30	0.63
59.94	31.04	8.47	9.76	82.68	3.06	0.33	0.60
60.01	30.35	8.25	10.33	85.21	3.09	0.36	0.59
60.02	32.64	8.95	9.57	85.70	3.04	0.36	0.64
60.08	35.54	9.83	8.61	84.70	2.99	0.72	0.72
60.12	36.56	10.14	8.23	83.40	2.97	0.71	0.71
60.17	32.87	9.01	9.03	81.32	3.01	0.34	0.64
60.27	28.56	7.68	10.03	76.99	3.07	0.27	0.55
60.31	24.81	6.53	11.00	71.83	3.12	0.21	0.47
60.37	22.21	5.73	11.72	67.16	3.15	0.19	0.41
60.46	20.93	5.33	12.03	64.16	3.17	0.15	0.38
60.51	20.76	5.28	11.57	61.05	3.15	0.14	0.38
60.61	21.43	5.48	10.86	59.48	3.11	0.13	0.39
60.65	21.84	5.60	10.44	58.49	3.09	0.13	0.40
60.75	22.18	5.70	10.27	58.52	3.08	0.13	0.41
60.81	22.25	5.72	10.24	58.52	3.08	0.13	0.41
60.89	22.21	5.70	10.20	58.14	3.08	0.13	0.41

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
60.94	22.45	5.77	10.12	58.37	3.07	0.12	0.41
61.03	22.62	5.81	10.19	59.27	3.08	0.13	0.42
61.09	22.65	5.82	10.23	59.56	3.08	0.14	0.42
61.19	22.38	5.74	10.30	59.09	3.08	0.13	0.41
61.24	22.96	5.91	9.90	58.48	3.06	0.12	0.42
61.33	24.51	6.37	9.35	59.55	3.03	0.14	0.46
61.38	24.20	6.28	10.50	65.92	3.09	0.15	0.45
61.47	23.16	5.95	12.35	73.50	3.18	0.24	0.43
61.53	21.88	5.56	14.59	81.14	3.28	0.29	0.40
61.62	27.61	7.29	11.24	81.97	3.13	0.33	0.52
61.70	44.48	12.39	6.68	82.73	2.86	0.71	0.71
61.77	66.81	19.14	4.44	84.93	2.67	0.72	0.72
61.86	81.96	23.70	3.78	89.66	2.60	0.73	0.73
61.95	81.02	23.39	4.06	94.89	2.63	0.74	0.74
61.97	72.62	20.85	4.65	96.91	2.69	0.74	0.74
62.01	62.36	17.75	5.62	99.66	2.78	0.75	0.75
62.10	52.17	14.66	6.77	99.23	2.87	0.75	0.75
62.24	55.41	15.61	5.76	89.92	2.79	0.73	0.73
62.34	87.70	25.31	2.83	71.54	2.48	0.29	0.69
62.49	127.58	37.26	1.74	64.77	2.25	0.17	0.67
62.54	164.52	48.34	1.44	69.68	2.11	0.25	0.68
62.66	181.39	53.35	1.37	73.33	2.07	0.34	0.69
62.74	199.68	58.78	1.33	77.94	2.02	0.49	0.70
62.87	211.65	62.29	1.30	80.99	1.99	0.63	0.71
62.92	217.18	63.92	1.29	82.65	1.98	0.71	0.71
63.03	219.18	64.44	1.29	83.41	1.98	0.71	0.71
63.15	218.06	64.03	1.30	83.38	1.99	0.71	0.71
63.26	213.11	62.49	1.32	82.35	2.01	0.71	0.71
63.37	206.70	60.51	1.34	80.92	2.03	0.63	0.71
63.45	200.15	58.51	1.34	78.49	2.04	0.51	0.70
63.54	197.59	57.70	1.32	76.31	2.02	0.43	0.70
63.61	190.30	55.49	1.33	73.61	2.02	0.34	0.69
63.69	172.04	50.02	1.39	69.47	2.08	0.24	0.68
63.79	141.71	40.98	1.65	67.77	2.22	0.21	0.68
63.89	106.15	30.39	2.20	66.74	2.36	0.19	0.67
63.98	75.22	21.20	3.37	71.48	2.55	0.29	0.69
64.07	53.15	14.65	4.91	71.91	2.72	0.30	0.69
64.15	39.12	10.48	7.30	76.48	2.91	0.44	0.70
64.23	29.98	7.77	10.00	77.68	3.07	0.27	0.56
64.26	25.15	6.34	12.34	78.26	3.18	0.27	0.45
64.29	23.57	5.87	13.31	78.14	3.22	0.26	0.42
64.33	23.37	5.81	12.89	74.86	3.21	0.26	0.41
64.43	22.99	5.69	12.43	70.78	3.19	0.19	0.41
64.47	22.29	5.48	12.05	66.07	3.17	0.17	0.39
64.53	21.82	5.34	12.01	64.15	3.17	0.16	0.38
64.62	20.60	4.98	12.74	63.40	3.20	0.15	0.36
64.72	19.12	4.53	13.95	63.23	3.25	0.15	0.32
64.78	18.00	4.20	15.17	63.74	3.30	0.15	0.30

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
64.86	18.21	4.26	15.26	65.01	3.30	0.16	0.30
64.96	18.78	4.42	15.44	68.31	3.31	0.18	0.32
65.06	19.22	4.55	15.74	71.61	3.32	0.21	0.32
65.11	19.22	4.55	16.41	74.58	3.34	0.23	0.32
65.21	18.85	4.43	17.13	75.90	3.37	0.24	0.32
65.31	18.45	4.31	17.70	76.26	3.39	0.24	0.31
65.40	18.28	4.25	17.10	72.77	3.37	0.23	0.30
65.50	18.58	4.34	15.67	67.97	3.32	0.16	0.31
65.58	19.02	4.46	14.15	63.13	3.26	0.14	0.32
65.68	19.05	4.47	13.69	61.17	3.24	0.14	0.32
65.78	17.67	4.06	14.89	60.45	3.29	0.13	0.29
65.84	16.40	3.69	16.19	59.69	3.34	0.13	0.26
65.86	15.56	3.44	17.33	59.62	3.38	0.12	0.25
65.87	16.51	3.72	15.97	59.36	3.33	0.12	0.27
65.98	17.26	3.93	15.03	59.09	3.29	0.12	0.28
66.10	17.84	4.09	14.69	60.13	3.28	0.12	0.29
66.21	18.21	4.20	14.85	62.32	3.29	0.14	0.30
66.34	18.48	4.27	14.76	63.01	3.28	0.16	0.31
66.48	19.00	4.42	14.39	63.55	3.27	0.13	0.32
66.62	18.46	4.25	14.69	62.45	3.28	0.15	0.30
66.68	18.67	4.31	14.87	64.07	3.29	0.14	0.31
66.87	18.92	4.37	15.53	67.94	3.31	0.16	0.31
66.96	19.16	4.44	16.65	73.89	3.35	0.23	0.32
67.11	18.25	4.17	18.76	78.15	3.42	0.27	0.30
67.21	16.83	3.75	20.42	76.60	3.47	0.26	0.27
67.35	16.22	3.57	20.50	73.18	3.48	0.19	0.26
67.45	16.16	3.55	21.95	77.86	3.52	0.19	0.25
67.59	27.42	6.79	13.06	88.71	3.21	0.37	0.49
67.68	77.39	21.19	3.95	83.67	2.62	0.72	0.72
67.83	159.77	44.89	1.66	74.68	2.22	0.38	0.69
67.92	241.25	68.29	1.30	88.64	1.99	0.73	0.73
68.02	283.19	80.28	1.24	99.35	1.90	0.75	0.75
68.07	299.01	84.78	1.22	103.71	1.88	0.75	0.75
68.16	305.70	86.62	1.22	105.26	1.87	0.76	0.76
68.26	310.93	88.04	1.21	106.54	1.86	0.76	0.76
68.35	307.75	87.05	1.22	106.44	1.88	0.76	0.76
68.45	299.96	84.74	1.24	105.37	1.91	0.76	0.76
68.55	291.49	82.23	1.26	103.72	1.94	0.75	0.75
68.65	271.72	76.50	1.29	98.57	1.98	0.75	0.75
68.78	253.59	71.23	1.32	94.35	2.02	0.74	0.74
68.78	238.18	66.83	1.36	90.91	2.05	0.73	0.73
68.79	234.24	65.70	1.37	89.70	2.06	0.73	0.73
68.83	237.70	66.66	1.34	89.08	2.03	0.73	0.73
68.93	243.69	68.30	1.30	88.59	1.99	0.73	0.73
68.98	253.54	71.08	1.25	89.18	1.93	0.73	0.73
69.04	257.79	72.25	1.23	89.05	1.89	0.73	0.73
69.12	259.28	72.61	1.23	89.10	1.89	0.73	0.73
69.22	255.36	71.43	1.24	88.23	1.90	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
69.28	247.73	69.22	1.25	86.25	1.91	0.72	0.72
69.36	237.41	66.24	1.26	83.22	1.93	0.71	0.71
69.45	223.58	62.26	1.27	79.21	1.95	0.55	0.71
69.60	210.12	58.37	1.29	75.34	1.98	0.40	0.70
69.70	198.18	54.94	1.31	72.05	2.01	0.30	0.69
69.80	193.42	53.54	1.32	70.68	2.01	0.27	0.69
69.89	192.07	53.12	1.32	70.30	2.02	0.26	0.68
69.98	190.15	52.53	1.33	69.82	2.02	0.25	0.68
70.08	181.88	50.15	1.35	67.53	2.04	0.21	0.68
70.18	159.82	43.89	1.45	63.51	2.12	0.15	0.67
70.32	124.32	33.85	1.81	61.16	2.27	0.12	0.66
70.42	84.31	22.56	2.96	66.77	2.50	0.20	0.68
70.54	51.82	13.41	5.53	74.19	2.77	0.36	0.69
70.66	31.85	7.79	9.69	75.54	3.05	0.25	0.56
70.75	23.52	5.45	13.34	72.70	3.23	0.21	0.39
70.80	21.80	4.97	13.43	66.71	3.23	0.18	0.35
70.89	22.64	5.20	11.52	59.87	3.14	0.12	0.37
70.99	22.34	5.11	10.38	53.00	3.09	0.09	0.36
71.08	21.63	4.90	10.09	49.46	3.07	0.07	0.35
71.17	21.43	4.84	9.87	47.79	3.06	0.07	0.35
71.23	20.92	4.70	10.01	47.05	3.07	0.07	0.34
71.33	21.09	4.74	9.74	46.20	3.05	0.06	0.34
71.42	21.73	4.92	9.08	44.64	3.02	0.06	0.35
71.52	22.81	5.22	8.26	43.06	2.97	0.03	0.62
71.58	23.21	5.33	8.27	44.01	2.97	0.04	0.62
71.67	22.88	5.23	9.07	47.43	3.02	0.07	0.37
71.81	22.47	5.11	9.94	50.76	3.06	0.09	0.36
71.82	22.24	5.04	10.42	52.55	3.09	0.09	0.36
71.86	21.97	4.96	10.64	52.82	3.10	0.09	0.35
71.91	21.83	4.92	10.75	52.95	3.11	0.09	0.35
71.97	21.60	4.86	10.97	53.27	3.12	0.09	0.35
72.05	21.36	4.79	11.22	53.72	3.13	0.10	0.34
72.10	21.13	4.72	11.52	54.35	3.14	0.10	0.34
72.20	20.99	4.68	11.71	54.79	3.15	0.10	0.33
72.25	20.99	4.67	11.87	55.49	3.16	0.10	0.33
72.34	21.09	4.70	12.12	56.94	3.17	0.11	0.34
72.44	21.09	4.69	12.53	58.80	3.19	0.12	0.34
72.53	20.89	4.63	13.04	60.40	3.21	0.13	0.33
72.63	20.79	4.60	13.29	61.13	3.22	0.14	0.33
72.69	20.48	4.51	13.55	61.14	3.23	0.14	0.32
72.82	20.69	4.56	13.34	60.87	3.23	0.13	0.33
72.92	21.13	4.68	12.83	60.05	3.20	0.13	0.33
73.06	22.11	4.95	11.98	59.27	3.17	0.12	0.35
73.16	22.34	5.01	11.90	59.57	3.16	0.12	0.36
73.30	20.86	4.59	13.21	60.65	3.22	0.14	0.33
73.35	19.88	4.32	14.25	61.53	3.26	0.14	0.31
73.38	19.20	4.13	14.83	61.23	3.29	0.13	0.30
73.47	20.02	4.35	13.95	60.67	3.25	0.13	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
73.53	20.08	4.37	13.79	60.20	3.24	0.13	0.31
73.62	20.18	4.39	13.66	59.95	3.24	0.13	0.31
73.71	19.95	4.32	13.95	60.28	3.25	0.13	0.31
73.77	19.61	4.23	14.55	61.46	3.28	0.13	0.30
73.86	19.34	4.15	15.21	63.08	3.30	0.15	0.30
73.96	19.38	4.15	15.56	64.61	3.31	0.15	0.30
74.06	19.58	4.20	15.60	65.59	3.32	0.16	0.30
74.13	20.02	4.32	15.32	66.22	3.31	0.16	0.31
74.24	20.36	4.41	15.12	66.66	3.30	0.17	0.31
74.34	20.56	4.46	15.08	67.26	3.30	0.17	0.32
74.44	20.42	4.42	15.35	67.81	3.31	0.18	0.32
74.58	20.37	4.40	15.30	67.28	3.30	0.18	0.31
74.68	20.30	4.38	14.35	62.80	3.27	0.16	0.31
74.80	20.47	4.42	13.30	58.74	3.22	0.09	0.32
74.92	20.26	4.35	12.97	56.43	3.21	0.11	0.31
75.07	20.06	4.29	13.60	58.35	3.24	0.12	0.31
75.08	19.75	4.21	14.10	59.34	3.26	0.12	0.30
75.11	19.62	4.17	14.28	59.53	3.26	0.12	0.30
75.16	19.55	4.15	14.53	60.28	3.27	0.13	0.30
75.25	19.31	4.08	15.14	61.74	3.30	0.13	0.29
75.32	19.14	4.03	15.69	63.23	3.32	0.15	0.29
75.40	18.98	3.98	16.00	63.73	3.33	0.15	0.28
75.50	18.81	3.93	15.96	62.77	3.33	0.14	0.28
75.59	18.30	3.79	16.02	60.75	3.33	0.13	0.27
75.69	17.56	3.59	16.34	58.60	3.34	0.11	0.26
75.78	16.85	3.39	16.66	56.46	3.35	0.11	0.24
75.88	16.41	3.27	16.73	54.66	3.36	0.10	0.23
75.96	16.11	3.18	16.62	52.90	3.35	0.09	0.23
76.05	16.04	3.16	16.34	51.65	3.34	0.08	0.23
76.14	15.97	3.14	16.25	51.00	3.34	0.08	0.22
76.26	16.07	3.16	16.16	51.09	3.34	0.08	0.23
76.36	16.07	3.16	16.26	51.38	3.34	0.08	0.23
76.41	16.07	3.16	16.31	51.50	3.34	0.08	0.23
76.51	15.84	3.09	16.56	51.17	3.35	0.08	0.22
76.65	15.50	2.99	17.04	51.04	3.37	0.08	0.21
76.72	15.26	2.93	17.45	51.12	3.38	0.08	0.21
76.79	15.16	2.90	17.72	51.39	3.39	0.08	0.21
76.89	15.23	2.91	18.36	53.53	3.41	0.08	0.21
76.98	15.47	2.98	20.80	61.89	3.48	0.11	0.21
77.08	18.00	3.65	19.05	69.60	3.43	0.21	0.26
77.18	22.18	4.77	16.19	77.29	3.34	0.23	0.34
77.28	26.73	5.99	14.06	84.26	3.26	0.29	0.43
77.37	27.88	6.30	14.87	93.62	3.29	0.40	0.45
77.42	28.76	6.53	15.41	100.64	3.31	0.49	0.47
77.42	30.22	6.92	15.09	104.44	3.30	0.50	0.49
77.44	34.00	7.94	13.49	107.05	3.23	0.53	0.57
77.48	37.40	8.85	12.47	110.31	3.19	0.60	0.63
77.52	40.61	9.70	11.65	113.00	3.15	0.64	0.69

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
77.54	42.94	10.33	11.08	114.44	3.12	0.66	0.74
77.57	43.37	10.44	11.07	115.54	3.12	0.68	0.75
77.62	42.26	10.14	11.44	115.93	3.14	0.69	0.72
77.65	40.10	9.55	12.10	115.64	3.17	0.66	0.68
77.67	38.72	9.18	12.34	113.32	3.18	0.65	0.66
77.71	37.91	8.96	12.41	111.24	3.19	0.59	0.64
77.71	37.03	8.73	12.35	107.78	3.18	0.58	0.62
77.76	34.77	8.12	12.85	104.25	3.20	0.52	0.58
77.81	31.76	7.31	13.53	98.88	3.23	0.45	0.52
77.90	29.03	6.57	14.40	94.60	3.27	0.39	0.47
77.95	27.32	6.11	15.14	92.44	3.30	0.37	0.44
78.01	26.34	5.84	15.63	91.29	3.32	0.38	0.42
78.10	27.59	6.17	14.49	89.37	3.27	0.35	0.44
78.16	36.29	8.49	9.98	84.71	3.07	0.33	0.61
78.24	48.94	11.86	6.66	79.05	2.86	0.54	0.70
78.29	64.83	16.10	4.54	73.14	2.68	0.33	0.69
78.39	77.42	19.44	3.56	69.27	2.58	0.24	0.68
78.47	87.30	22.06	3.11	68.51	2.52	0.23	0.68
78.53	92.74	23.49	3.05	71.72	2.51	0.29	0.69
78.62	94.25	23.88	3.25	77.71	2.54	0.48	0.70
78.68	91.22	23.06	3.64	84.02	2.59	0.72	0.72
78.69	92.97	23.52	3.81	89.57	2.61	0.73	0.73
78.78	93.95	23.76	4.00	95.10	2.63	0.74	0.74
78.81	94.86	24.00	4.25	102.04	2.65	0.75	0.75
78.92	85.28	21.43	5.01	107.35	2.73	0.76	0.76
79.03	72.83	18.11	5.93	107.43	2.81	0.76	0.76
79.16	68.41	16.91	5.87	99.26	2.80	0.75	0.75
79.26	78.39	19.54	4.53	88.45	2.68	0.73	0.73
79.35	97.35	24.54	3.42	83.92	2.56	0.72	0.72
79.45	114.43	29.03	2.95	85.78	2.50	0.72	0.72
79.54	124.25	31.60	2.84	89.58	2.48	0.73	0.73
79.64	131.23	33.41	2.75	91.91	2.47	0.73	0.73
79.74	153.43	39.23	2.39	93.85	2.40	0.74	0.74
79.88	186.93	48.00	1.98	94.86	2.31	0.74	0.74
79.98	228.94	59.00	1.62	95.73	2.20	0.74	0.74
80.12	248.77	64.13	1.48	95.14	2.14	0.74	0.74
80.22	253.19	65.23	1.40	91.22	2.09	0.73	0.73
80.36	244.79	62.94	1.37	86.07	2.06	0.72	0.72
80.46	238.82	61.33	1.32	81.11	2.02	0.64	0.71
80.60	231.84	59.42	1.30	77.21	1.99	0.46	0.70
80.70	223.91	57.30	1.30	74.37	1.99	0.37	0.69
80.83	213.12	54.42	1.32	72.04	2.02	0.30	0.69
80.94	194.49	49.51	1.41	69.62	2.09	0.25	0.68
81.01	177.96	45.17	1.50	67.91	2.15	0.21	0.68
81.04	164.23	41.58	1.60	66.50	2.19	0.19	0.67
81.09	158.43	40.05	1.65	65.97	2.21	0.18	0.67
81.13	149.59	37.74	1.75	66.04	2.25	0.18	0.67
81.18	136.87	34.41	1.98	67.98	2.31	0.22	0.68

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
81.23	123.31	30.87	2.34	72.13	2.39	0.30	0.69
81.28	109.41	27.24	2.85	77.64	2.48	0.48	0.70
81.33	98.17	24.30	3.46	84.19	2.57	0.72	0.72
81.37	88.49	21.78	4.25	92.48	2.65	0.73	0.73
81.42	81.24	19.88	5.05	100.46	2.73	0.75	0.75
81.47	75.77	18.46	5.75	106.15	2.79	0.76	0.76
81.52	71.99	17.47	6.25	109.13	2.83	0.76	0.76
81.56	70.98	17.20	6.46	111.09	2.85	0.77	0.77
81.61	70.58	17.08	6.60	112.75	2.86	0.77	0.77
81.64	68.79	16.62	6.89	114.41	2.88	0.77	0.77
81.70	62.18	14.89	7.85	116.91	2.94	0.78	0.78
81.75	54.38	12.87	9.25	118.94	3.03	0.76	0.92
81.79	46.89	10.92	10.91	119.14	3.11	0.73	0.78
81.82	41.90	9.62	12.12	116.62	3.17	0.68	0.69
81.86	37.62	8.51	13.21	112.49	3.22	0.61	0.61
81.91	34.01	7.57	14.21	107.66	3.26	0.54	0.54
81.95	30.63	6.70	15.27	102.27	3.30	0.48	0.48
82.00	27.33	5.84	16.41	95.81	3.34	0.41	0.42
82.09	24.26	5.04	17.74	89.46	3.39	0.33	0.36
82.15	21.66	4.37	19.38	84.64	3.44	0.29	0.31
82.19	19.83	3.89	20.80	81.03	3.48	0.27	0.28
82.26	18.38	3.52	22.06	77.56	3.52	0.23	0.25
82.34	17.00	3.16	23.49	74.17	3.56	0.21	0.23
82.39	15.65	2.81	25.58	71.81	3.61	0.20	0.20
82.48	14.77	2.58	27.14	69.97	3.64	0.18	0.18
82.58	14.64	2.54	26.84	68.21	3.64	0.17	0.18
82.62	14.74	2.57	25.95	66.60	3.62	0.16	0.18
82.70	14.88	2.60	25.23	65.56	3.60	0.15	0.19
82.77	14.81	2.58	24.98	64.46	3.59	0.15	0.18
82.87	15.08	2.65	24.19	64.01	3.57	0.14	0.19
82.96	16.23	2.94	21.57	63.38	3.51	0.14	0.21
83.06	18.22	3.45	18.38	63.34	3.41	0.14	0.25
83.16	21.39	4.26	14.82	63.10	3.29	0.14	0.30
83.25	24.46	5.04	12.49	62.94	3.19	0.15	0.36
83.34	27.20	5.74	10.91	62.57	3.11	0.15	0.41
83.44	28.34	6.03	10.55	63.55	3.10	0.15	0.43
83.54	28.75	6.12	10.60	64.89	3.10	0.17	0.44
83.64	28.61	6.08	10.93	66.49	3.12	0.17	0.43
83.73	27.70	5.84	11.68	68.29	3.15	0.18	0.42
83.83	27.26	5.73	12.30	70.46	3.18	0.20	0.41
83.85	26.83	5.62	13.07	73.38	3.21	0.21	0.40
83.89	27.47	5.78	13.14	75.93	3.22	0.24	0.41
83.94	28.11	5.94	13.69	81.26	3.24	0.26	0.42
84.04	29.26	6.23	13.80	85.92	3.25	0.34	0.44
84.09	30.40	6.51	13.83	90.10	3.25	0.36	0.47
84.13	31.28	6.74	13.65	91.94	3.24	0.37	0.48
84.18	31.68	6.83	13.70	93.61	3.24	0.40	0.49
84.25	31.52	6.79	13.97	94.85	3.25	0.41	0.48

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
84.33	30.64	6.56	14.57	95.60	3.28	0.41	0.47
84.37	29.46	6.26	15.33	95.90	3.31	0.41	0.45
84.46	28.35	5.97	15.91	94.98	3.33	0.41	0.43
84.52	27.50	5.75	16.25	93.43	3.34	0.38	0.41
84.57	26.90	5.59	16.32	91.27	3.34	0.36	0.40
84.67	26.52	5.49	16.38	90.00	3.34	0.34	0.39
84.71	26.15	5.40	16.62	89.72	3.35	0.34	0.39
84.81	25.58	5.25	17.32	90.86	3.38	0.35	0.37
84.86	24.84	5.06	18.32	92.62	3.41	0.37	0.36
84.91	24.06	4.86	19.36	94.03	3.44	0.38	0.35
85.00	23.42	4.69	20.18	94.63	3.47	0.39	0.33
85.05	22.81	4.53	20.72	93.94	3.48	0.39	0.32
85.15	22.34	4.41	20.94	92.30	3.49	0.36	0.31
85.19	21.80	4.27	20.88	89.13	3.49	0.34	0.30
85.29	21.33	4.15	20.74	85.98	3.48	0.30	0.30
85.35	20.72	3.99	20.84	83.14	3.49	0.28	0.28
85.42	20.08	3.82	21.32	81.54	3.50	0.27	0.27
85.48	19.40	3.65	22.03	80.45	3.52	0.26	0.26
85.55	18.77	3.49	22.80	79.50	3.54	0.25	0.25
85.63	18.19	3.34	23.58	78.76	3.56	0.25	0.24
85.68	17.62	3.19	24.50	78.25	3.58	0.24	0.23
85.77	17.18	3.08	25.34	78.03	3.60	0.24	0.22
85.82	17.04	3.04	25.74	78.34	3.61	0.24	0.22
85.89	17.42	3.13	25.13	78.79	3.60	0.25	0.22
85.96	18.33	3.36	23.51	79.01	3.56	0.25	0.24
86.03	19.71	3.71	21.16	78.44	3.49	0.25	0.26
86.11	21.06	4.04	19.14	77.40	3.44	0.24	0.29
86.16	22.11	4.30	17.71	76.21	3.39	0.23	0.31
86.25	21.67	4.19	18.09	75.81	3.40	0.22	0.30
86.36	19.98	3.76	19.76	74.32	3.45	0.23	0.27
86.50	18.16	3.30	22.08	72.85	3.52	0.19	0.24
86.51	17.25	3.07	23.09	70.91	3.55	0.19	0.22
86.52	17.32	3.09	22.53	69.58	3.53	0.19	0.22
86.57	17.35	3.10	21.58	66.80	3.51	0.17	0.22
86.65	17.39	3.10	20.48	63.50	3.48	0.13	0.22
86.71	17.35	3.09	19.65	60.73	3.45	0.13	0.22
86.80	17.08	3.02	19.57	59.11	3.45	0.12	0.22
86.90	16.48	2.87	20.04	57.42	3.46	0.11	0.20
86.99	15.77	2.69	20.75	55.74	3.48	0.10	0.19
87.04	15.26	2.56	21.24	54.32	3.50	0.09	0.18
87.14	15.16	2.53	21.16	53.51	3.49	0.09	0.18
87.19	15.36	2.58	20.70	53.36	3.48	0.09	0.18
87.28	15.87	2.70	20.13	54.40	3.46	0.09	0.19
87.38	16.51	2.86	19.47	55.67	3.45	0.10	0.20
87.43	17.18	3.03	18.79	56.85	3.42	0.11	0.22
87.52	17.76	3.17	18.12	57.36	3.40	0.11	0.23
87.61	18.23	3.28	17.55	57.58	3.38	0.11	0.23
87.66	18.53	3.35	17.13	57.47	3.37	0.11	0.24

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
87.76	18.57	3.36	17.00	57.12	3.37	0.11	0.24
87.84	18.43	3.32	17.02	56.58	3.37	0.10	0.24
87.91	18.13	3.25	17.27	56.08	3.37	0.10	0.23
88.00	17.79	3.16	17.58	55.54	3.39	0.10	0.23
88.11	17.46	3.07	17.98	55.23	3.40	0.10	0.22
88.19	17.22	3.01	18.27	55.01	3.41	0.10	0.22
88.25	17.08	2.98	18.42	54.79	3.41	0.10	0.21
88.34	17.02	2.96	18.36	54.27	3.41	0.09	0.21
88.44	16.98	2.94	18.20	53.59	3.41	0.09	0.21
88.54	16.98	2.94	17.99	52.93	3.40	0.09	0.21
88.64	16.95	2.93	17.92	52.52	3.40	0.08	0.21
88.72	16.88	2.91	18.00	52.42	3.40	0.08	0.21
88.82	16.82	2.89	18.16	52.53	3.40	0.08	0.21
88.91	16.72	2.87	18.42	52.79	3.41	0.08	0.20
89.01	16.62	2.84	18.68	53.02	3.42	0.09	0.20
89.10	16.49	2.80	18.99	53.22	3.43	0.09	0.20
89.19	16.32	2.76	19.19	52.91	3.44	0.09	0.20
89.30	16.21	2.73	18.48	50.44	3.41	0.08	0.19
89.39	16.31	2.75	17.80	48.98	3.39	0.05	0.20
89.49	16.62	2.82	17.53	49.49	3.38	0.07	0.20
89.59	16.90	2.89	18.25	52.76	3.41	0.09	0.21
89.69	17.04	2.92	18.79	54.90	3.42	0.10	0.21
89.73	17.68	3.08	18.14	55.86	3.40	0.10	0.22
89.78	18.48	3.27	17.18	56.23	3.37	0.10	0.23
89.83	19.36	3.49	16.22	56.56	3.34	0.10	0.25
89.88	19.63	3.55	16.06	57.05	3.33	0.11	0.25
89.93	19.86	3.61	16.01	57.77	3.33	0.11	0.26
90.00	20.24	3.70	15.90	58.79	3.33	0.11	0.26
90.07	20.88	3.85	15.53	59.82	3.31	0.12	0.28
90.12	21.62	4.03	15.19	61.24	3.30	0.13	0.29
90.22	22.26	4.19	15.01	62.84	3.29	0.14	0.30
90.27	23.04	4.37	15.02	65.70	3.29	0.15	0.31
90.36	24.99	4.85	14.09	68.34	3.26	0.18	0.35
90.46	27.46	5.45	12.89	70.27	3.21	0.20	0.39
90.50	29.28	5.89	12.05	71.01	3.17	0.20	0.42
90.61	29.48	5.94	12.02	71.39	3.17	0.20	0.42
90.66	28.70	5.75	12.38	71.12	3.18	0.20	0.41
90.75	27.62	5.48	12.73	69.74	3.20	0.19	0.39
90.84	26.17	5.12	13.28	67.94	3.22	0.17	0.37
90.89	24.72	4.76	13.90	66.20	3.25	0.16	0.34
90.99	23.48	4.45	14.63	65.12	3.28	0.15	0.32
91.04	22.50	4.21	15.24	64.21	3.30	0.15	0.30
91.14	21.59	3.99	15.98	63.69	3.33	0.14	0.28
91.22	20.75	3.78	16.73	63.19	3.36	0.14	0.27
91.28	19.83	3.55	17.61	62.55	3.39	0.14	0.25
91.37	19.26	3.41	18.11	61.75	3.40	0.13	0.24
91.47	18.99	3.34	18.18	60.75	3.40	0.13	0.24
91.61	19.26	3.40	17.69	60.19	3.39	0.12	0.24

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
91.71	19.40	3.43	17.48	59.97	3.38	0.12	0.25
91.81	19.50	3.45	17.39	60.03	3.38	0.12	0.25
91.87	19.36	3.42	17.46	59.68	3.38	0.12	0.24
92.00	19.38	3.42	16.82	57.50	3.36	0.12	0.24
92.10	19.41	3.42	16.30	55.77	3.34	0.09	0.24
92.20	19.62	3.47	15.85	54.98	3.32	0.09	0.25
92.33	19.76	3.50	16.12	56.37	3.33	0.10	0.25
92.38	19.89	3.53	16.27	57.43	3.34	0.11	0.25
92.43	20.03	3.56	16.28	57.96	3.34	0.11	0.25
92.48	19.98	3.55	16.52	58.57	3.35	0.11	0.25
92.56	19.88	3.52	16.79	59.09	3.36	0.12	0.25
92.63	19.64	3.46	17.17	59.41	3.37	0.12	0.25
92.67	19.57	3.44	17.27	59.42	3.37	0.12	0.25
92.72	19.54	3.43	17.30	59.38	3.38	0.12	0.25
92.77	19.64	3.46	17.18	59.37	3.37	0.12	0.25
92.86	19.84	3.50	16.99	59.49	3.37	0.12	0.25
92.92	20.08	3.56	16.84	59.88	3.36	0.12	0.25
92.97	20.21	3.59	17.01	61.03	3.37	0.12	0.26
93.05	20.35	3.62	17.17	62.12	3.37	0.14	0.26
93.10	20.62	3.68	17.13	63.07	3.37	0.14	0.26
93.16	21.10	3.79	16.68	63.28	3.35	0.14	0.27
93.25	21.70	3.94	16.06	63.20	3.33	0.14	0.28
93.35	22.78	4.19	14.99	62.84	3.29	0.14	0.30
93.40	23.19	4.29	14.52	62.27	3.27	0.14	0.31
93.49	23.25	4.30	14.38	61.82	3.27	0.13	0.31
93.56	22.71	4.17	14.77	61.55	3.28	0.13	0.30
93.64	22.88	4.21	14.66	61.65	3.28	0.13	0.30
93.73	23.63	4.38	14.34	62.81	3.27	0.13	0.31
93.83	24.91	4.69	13.81	64.72	3.25	0.15	0.33
93.88	26.43	5.05	13.44	67.85	3.23	0.17	0.36
93.97	27.01	5.18	13.58	70.35	3.24	0.20	0.37
94.07	26.43	5.04	14.48	72.95	3.27	0.20	0.36
94.17	25.76	4.87	15.51	75.57	3.31	0.22	0.35
94.26	26.70	5.09	15.04	76.60	3.29	0.25	0.36
94.36	27.88	5.37	15.22	81.75	3.30	0.23	0.38
94.45	29.47	5.75	15.14	87.02	3.30	0.34	0.41
94.55	35.88	7.27	12.61	91.74	3.19	0.39	0.52
94.64	48.46	10.27	8.71	89.52	3.00	0.73	0.73
94.72	59.93	13.01	6.55	85.22	2.85	0.72	0.72
94.74	73.87	16.33	4.89	79.85	2.72	0.58	0.71
94.77	84.50	18.86	4.08	76.98	2.64	0.45	0.70
94.85	97.35	21.92	3.39	74.39	2.56	0.37	0.69
94.90	102.75	23.20	3.24	75.17	2.54	0.39	0.70
94.95	105.32	23.80	3.27	77.89	2.54	0.49	0.70
95.01	104.68	23.63	3.61	85.22	2.58	0.72	0.72
95.09	100.83	22.70	4.16	94.37	2.64	0.74	0.74
95.14	94.49	21.18	5.05	107.02	2.73	0.76	0.76
95.23	86.42	19.25	6.10	117.34	2.82	0.78	0.78

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
95.29	78.06	17.25	7.36	126.89	2.91	0.79	0.79
95.38	71.11	15.59	8.45	131.69	2.98	0.80	0.80
95.43	67.53	14.73	9.06	133.43	3.02	0.97	1.05
95.52	67.83	14.79	8.96	132.50	3.01	0.95	1.06
95.57	70.23	15.35	8.40	128.95	2.98	0.80	0.80
95.67	71.24	15.58	7.93	123.49	2.95	0.79	0.79
95.77	66.52	14.45	8.22	118.72	2.97	0.78	0.78
95.86	56.97	12.17	9.76	118.80	3.06	0.69	0.87
95.95	52.94	11.21	10.40	116.56	3.09	0.74	0.80
96.03	46.73	9.74	12.16	118.40	3.17	0.62	0.70
96.11	51.55	10.87	10.92	118.64	3.12	0.68	0.78
96.20	59.20	12.66	9.84	124.65	3.06	0.80	0.90
96.30	80.15	17.59	7.15	125.73	2.90	0.79	0.79
96.39	101.37	22.58	5.51	124.50	2.77	0.79	0.79
96.50	122.96	27.64	4.35	120.31	2.67	0.78	0.78
96.59	144.96	32.80	3.25	106.72	2.54	0.76	0.76
96.69	164.86	37.45	2.44	91.36	2.41	0.73	0.73
96.78	180.18	41.02	1.89	77.51	2.29	0.47	0.70
96.87	185.95	42.35	1.72	72.98	2.24	0.33	0.69
96.98	185.28	42.15	1.69	71.40	2.23	0.29	0.69
97.02	177.79	40.38	1.78	71.90	2.26	0.30	0.69
97.06	176.40	40.04	1.83	73.47	2.27	0.34	0.69
97.12	175.60	39.84	1.91	76.16	2.30	0.42	0.70
97.16	176.98	40.15	1.98	79.48	2.31	0.56	0.71
97.21	173.67	39.35	2.13	83.99	2.35	0.72	0.72
97.27	170.50	38.59	2.31	89.17	2.39	0.73	0.73
97.33	168.21	38.04	2.46	93.67	2.42	0.74	0.74
97.40	165.98	37.49	2.57	96.33	2.44	0.74	0.74
97.45	163.92	37.00	2.64	97.51	2.45	0.74	0.74
97.50	161.39	36.39	2.76	100.38	2.47	0.75	0.75
97.58	155.82	35.06	2.99	104.78	2.50	0.76	0.76
97.65	146.95	32.97	3.34	110.26	2.55	0.77	0.77
97.69	134.43	30.04	3.79	113.95	2.60	0.77	0.77
97.74	121.75	27.07	4.27	115.68	2.66	0.78	0.78
97.81	110.51	24.44	4.76	116.42	2.71	0.78	0.78
97.88	103.09	22.69	5.14	116.63	2.74	0.78	0.78
97.93	108.66	23.98	4.67	111.98	2.70	0.77	0.77
98.03	138.72	30.95	3.15	97.35	2.52	0.74	0.74
98.15	182.62	41.12	2.03	83.50	2.33	0.71	0.71
98.21	228.43	51.75	1.51	78.05	2.15	0.50	0.70
98.32	264.20	60.00	1.34	80.19	2.03	0.59	0.71
98.42	301.85	68.69	1.25	85.96	1.92	0.72	0.72
98.47	349.59	79.73	1.00	79.73	1.79	0.57	0.71
98.57	388.76	88.75	1.00	88.75	1.69	0.73	0.73
98.70	411.84	94.00	1.00	94.00	1.61	0.74	0.74
98.78	404.01	92.13	1.00	92.13	1.62	0.73	0.73
98.85	372.43	84.79	1.00	84.79	1.67	0.72	0.72
98.86	337.78	76.77	1.00	76.77	1.74	0.45	0.70

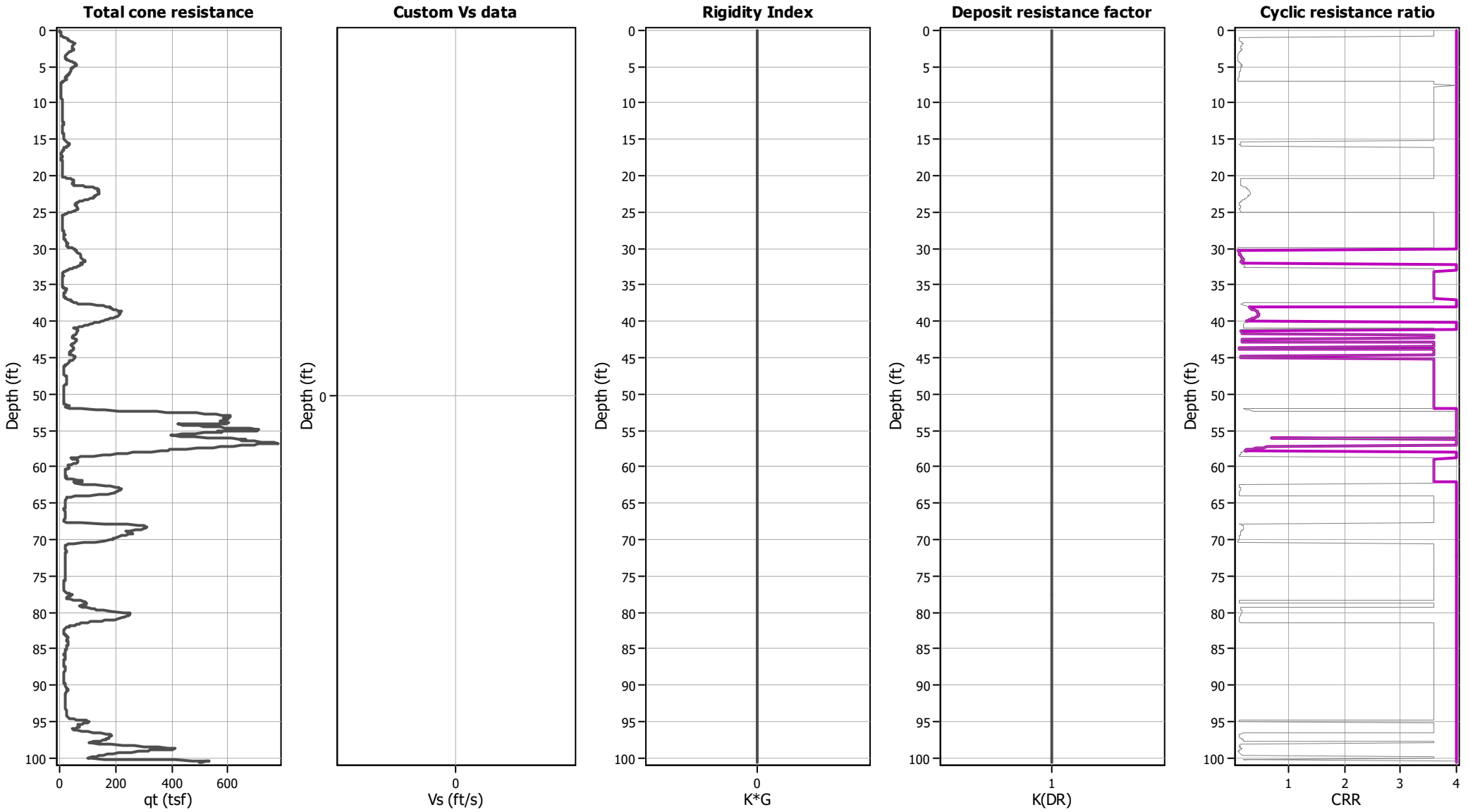
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
98.92	322.73	73.26	1.00	73.26	1.77	0.33	0.69
98.98	318.48	72.24	1.00	72.24	1.78	0.31	0.69
99.03	309.41	70.12	1.00	70.12	1.81	0.26	0.68
99.11	281.64	63.67	1.00	63.67	1.90	0.15	0.67
99.18	255.32	57.57	1.30	74.69	1.99	0.38	0.69
99.23	231.33	52.01	1.41	73.25	2.09	0.33	0.69
99.32	209.84	47.02	1.62	76.01	2.20	0.42	0.70
99.37	189.39	42.29	1.96	83.05	2.31	0.71	0.71
99.45	170.57	37.93	2.37	90.04	2.40	0.73	0.73
99.56	157.24	34.83	2.76	96.01	2.47	0.74	0.74
99.64	147.39	32.55	3.13	101.90	2.52	0.75	0.75
99.71	140.04	30.84	3.53	108.77	2.57	0.76	0.76
99.75	128.26	28.12	4.04	113.72	2.63	0.77	0.77
99.90	116.32	25.35	4.67	118.27	2.70	0.78	0.78
99.95	101.78	22.01	5.75	126.55	2.79	0.79	0.79
100.04	116.32	25.32	5.03	127.45	2.73	0.79	0.79
100.14	159.30	35.14	3.33	116.89	2.55	0.78	0.78
100.14	204.99	45.59	2.33	106.43	2.39	0.76	0.76
100.15	235.79	52.64	2.00	105.52	2.32	0.76	0.76
100.19	258.80	57.89	1.93	111.71	2.30	0.77	0.77
100.21	298.07	66.86	1.78	119.29	2.26	0.78	0.78
100.24	351.88	79.16	1.37	108.37	2.06	0.76	0.76
100.28	410.56	92.54	1.15	106.62	1.80	0.76	0.76
100.31	470.98	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.33	508.57	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.38	524.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.39	526.55	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.43	531.78	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.48	522.24	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.53	509.38	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.57	496.12	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.60	497.27	-1.00	1.00	-1.00	-1.00	0.00	0.00

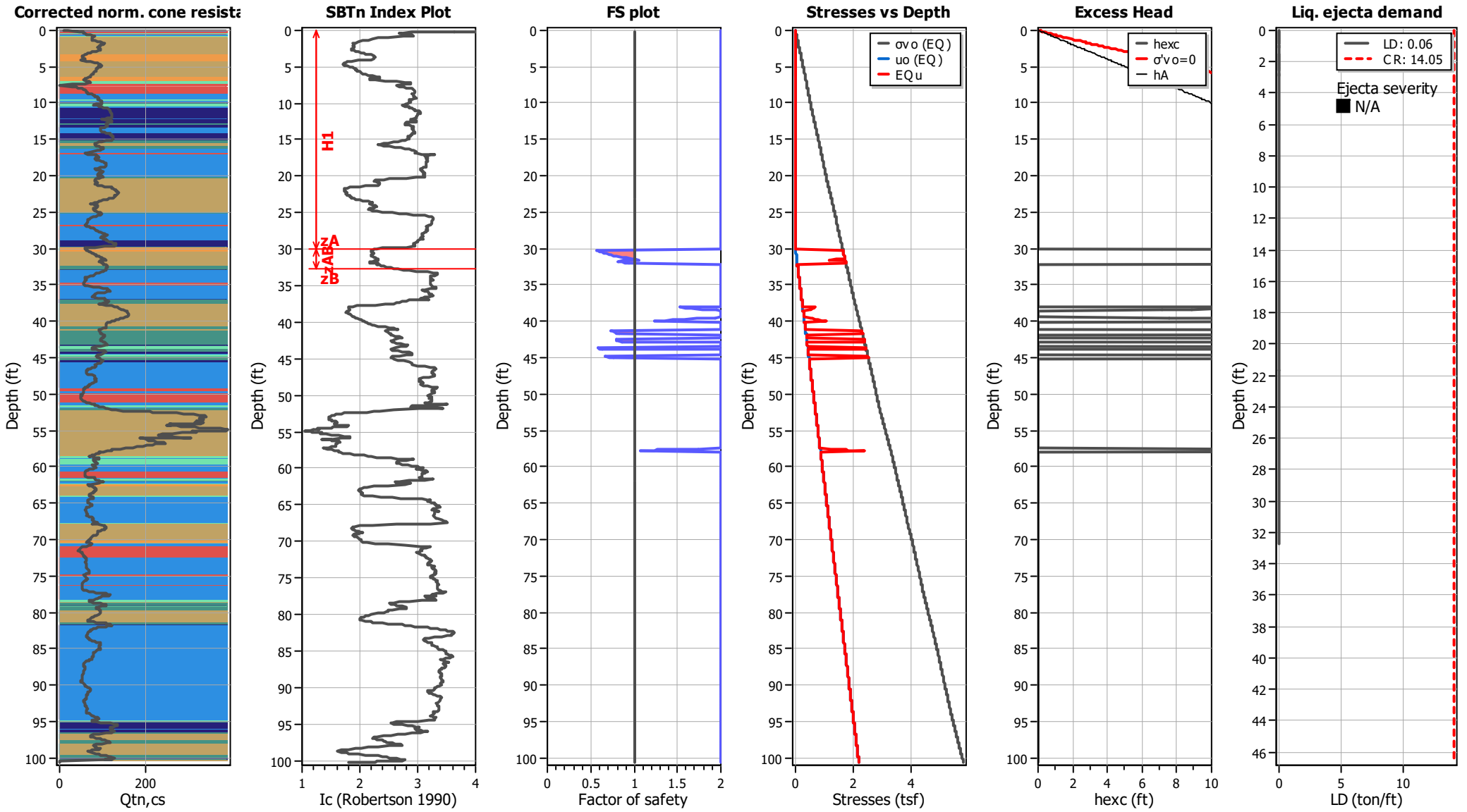
Abbreviations

q_t:	Total cone resistance
K_c:	Cone resistance correction factor due to fines
$Q_{tn,cs}$:	Adjusted and corrected cone resistance due to fines
I_c:	Soil behavior type index
$S_{u(liq)}/\sigma'_v$:	Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$:	Calculated peak undrained strength ratio

Aging Calculation Estimation

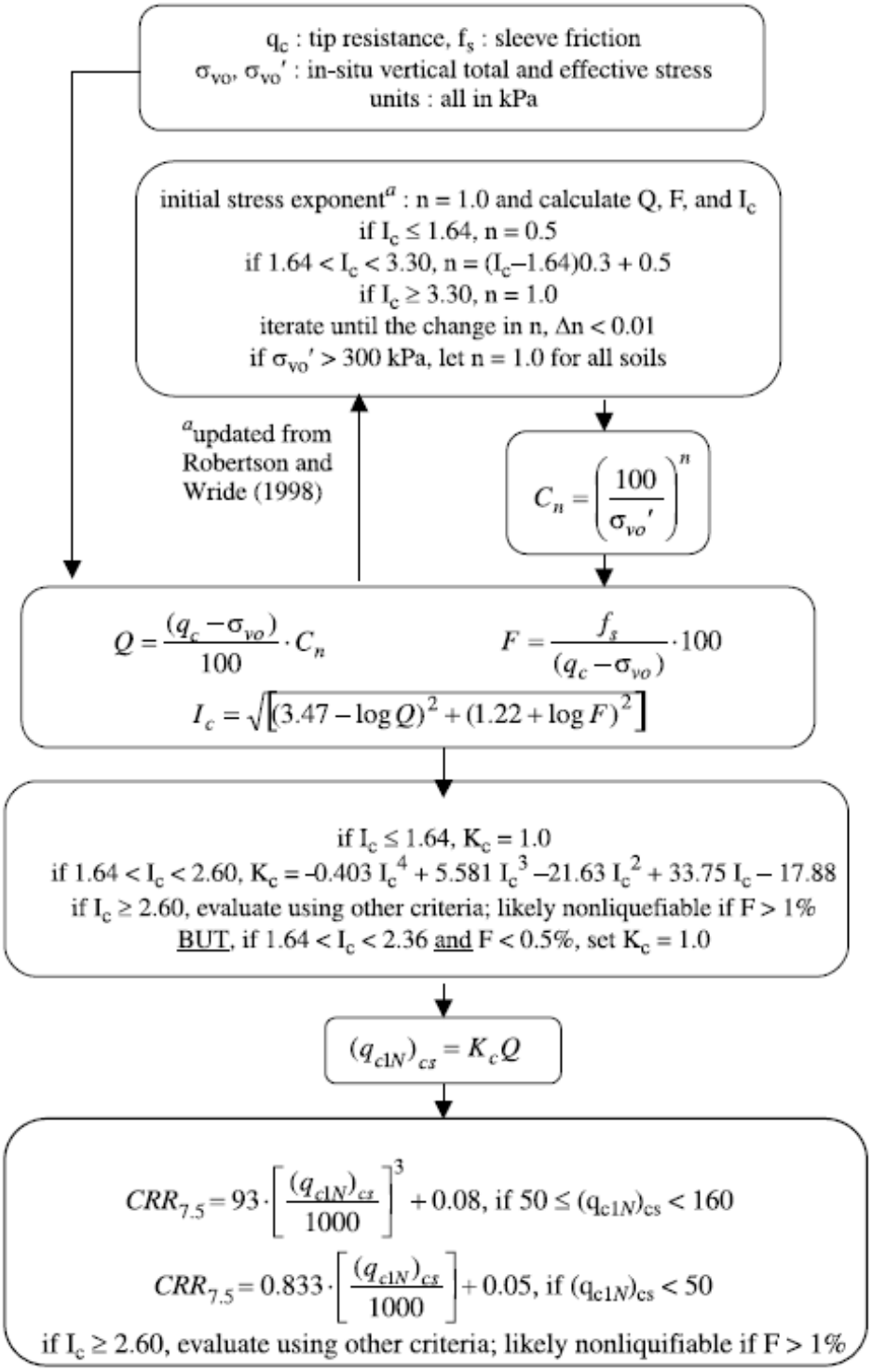


Ejecta Severity Estimation



Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

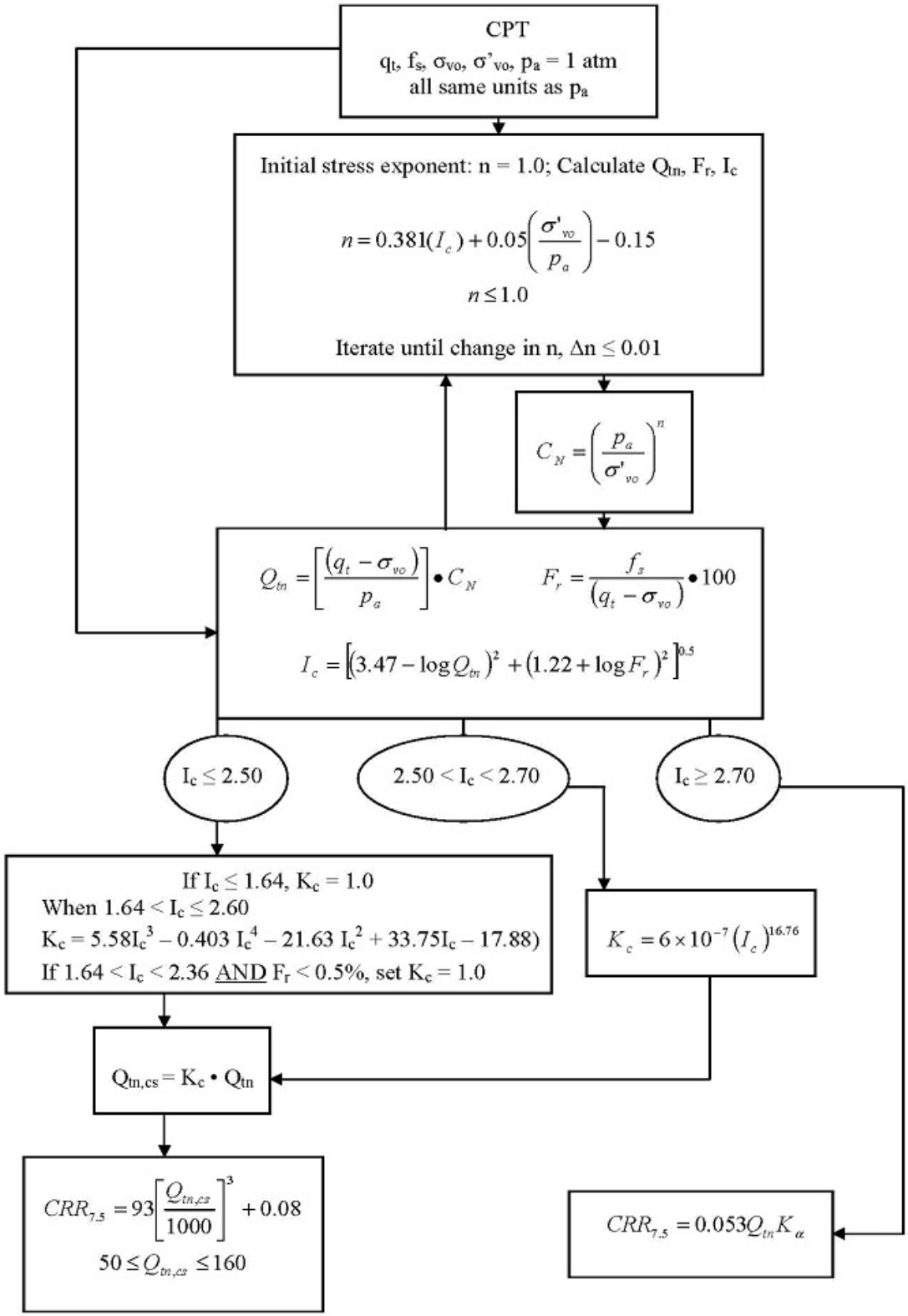
Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

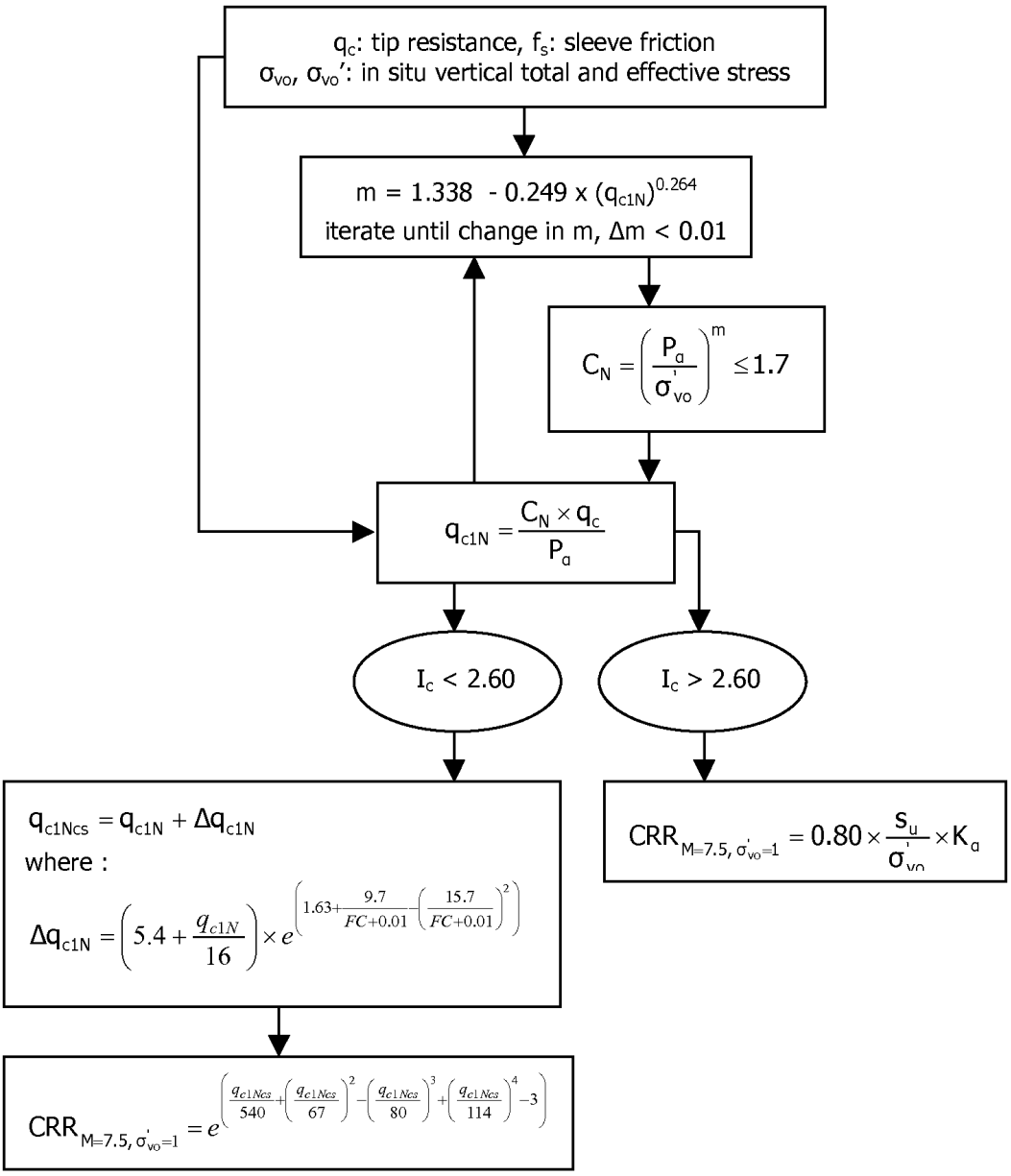
Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:

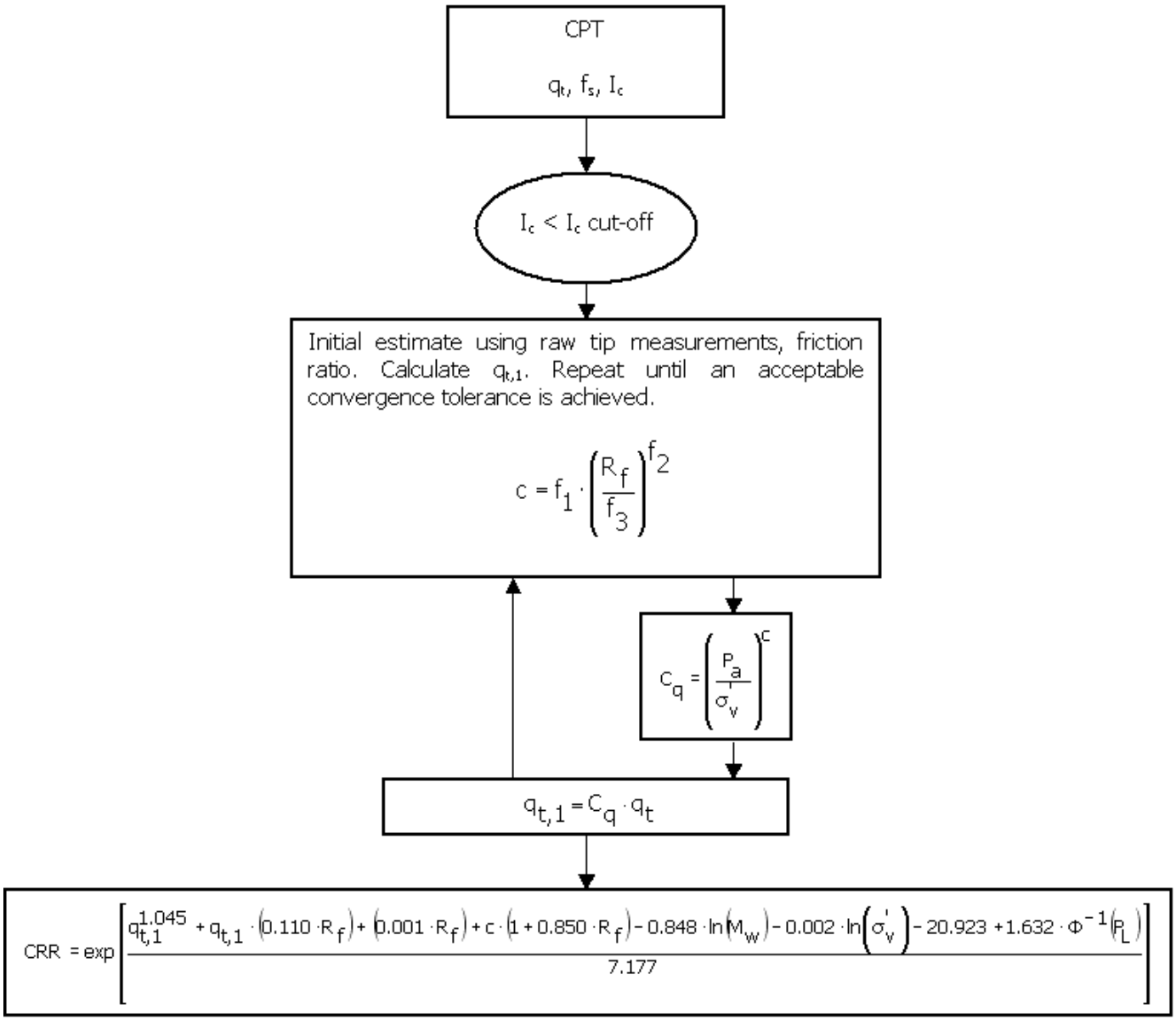


[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)

$$FS_{liq} = \frac{CRR_{M=7.5,\sigma'_v=1atm}}{CSR_{M=7.5,\sigma'_v=1atm}}$$

$$CSR_{M=7.5,\sigma'_v=1atm} = 0.65 \frac{\sigma_v}{\sigma'_v} \frac{a_{max}}{g} r_d \frac{1}{MSF} \frac{1}{K_\sigma}$$

$$r_d = \exp\left[\alpha(z) + \beta(z) \cdot M\right]$$

$$\alpha(z) = -1.012 - 1.126 \sin\left(\frac{z}{11.73} + 5.133\right)$$

$$\beta(z) = 0.106 + 0.118 \sin\left(\frac{z}{11.28} + 5.142\right)$$

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_v}{P_a}\right) \le 1.1$$

$$C_\sigma = \frac{1}{37.3 - 8.27\left(q_{c1Ncs}\right)^{0.264}} \le 0.3$$

$$MSF = 1 + \left(MSF_{max} - 1\right)\left(8.64 \exp\left(\frac{-M}{4}\right) - 1.325\right)$$

$$MSF_{max} = 1.09 + \left(\frac{q_{C1Ncs}}{180}\right)^3 \le 2.2$$

σ'_v *and* σ_v *at start of earthquake shaking*

$$CRR_{M=7.5,\sigma'_v=1atm} = \exp\left(\frac{q_{c1Ncs}}{113} + \left(\frac{q_{c1Ncs}}{1000}\right)^2 - \left(\frac{q_{c1Ncs}}{140}\right)^3 + \left(\frac{q_{c1Ncs}}{137}\right)^4 - 2.80\right)$$

$$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$$

$$\Delta q_{c1N} = \left(11.9 + \frac{q_{c1N}}{14.6}\right) \exp\left(1.63 - \frac{9.7}{FC+2} - \left(\frac{15.7}{FC+2}\right)^2\right)$$

$$q_{c1N} = C_{Ne} \frac{q_c}{P_a}$$

$$C_{Ne} = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 1.338 - 0.249\left(q_{c1Ncs}\right)^{0.264} \quad with \quad 0.264 \le m \le 0.782$$

$$FC = 80\left(I_C + C_{FC}\right) - 137 \quad with \quad 0\% \le FC \le 100\%$$

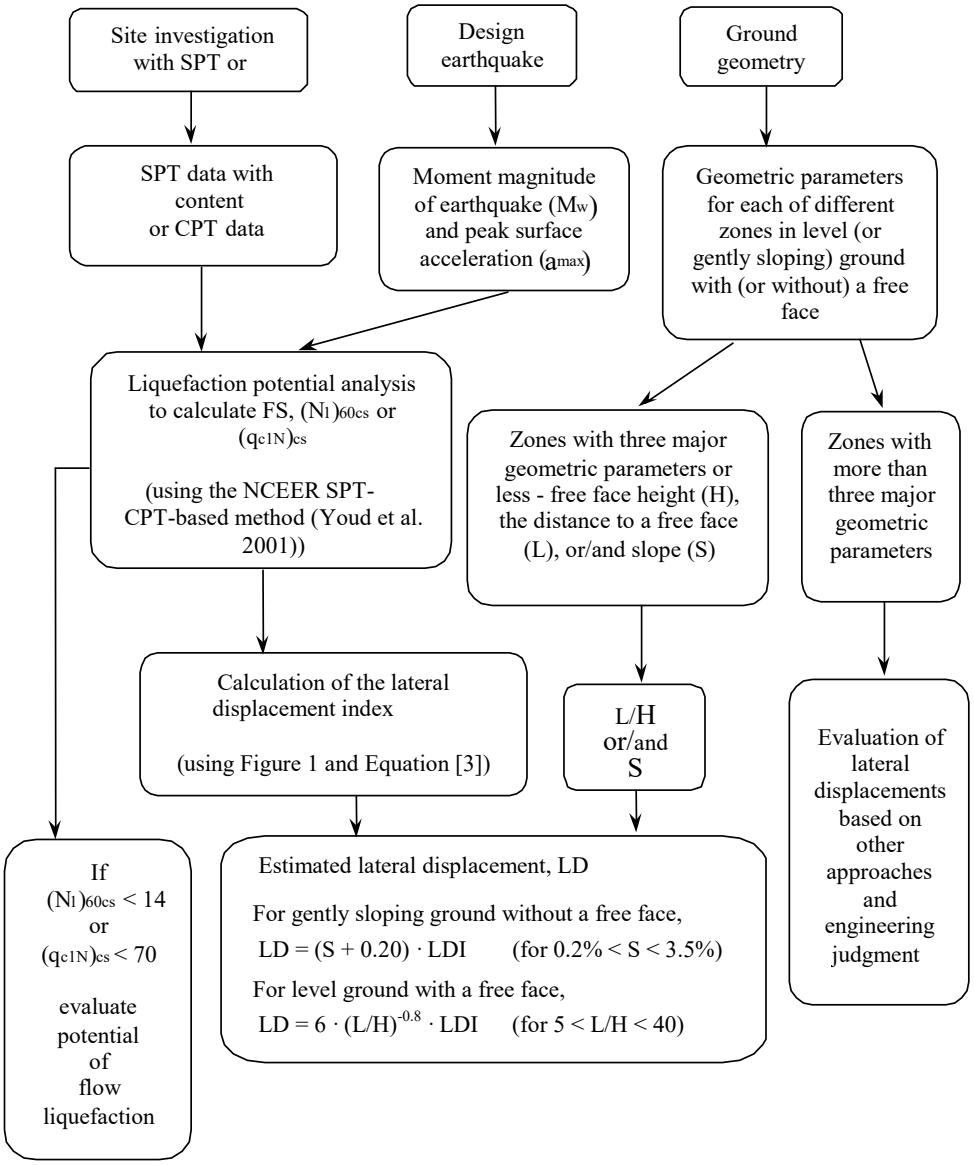
$$I_c = \left[\left(3.47 - \log\left(Q\right)\right)^2 + \left(1.22 + \log\left(F\right)\right)^2\right]^{0.5}$$

$$Q = \left(\frac{q_c - \sigma_{vc}}{P_a}\right)\left(\frac{P_a}{\sigma'_{vc}}\right)^n \; with \; 0.5 \le n \le 1.0 \; per \; Robertson \; \& \; Wride \; (1998)$$

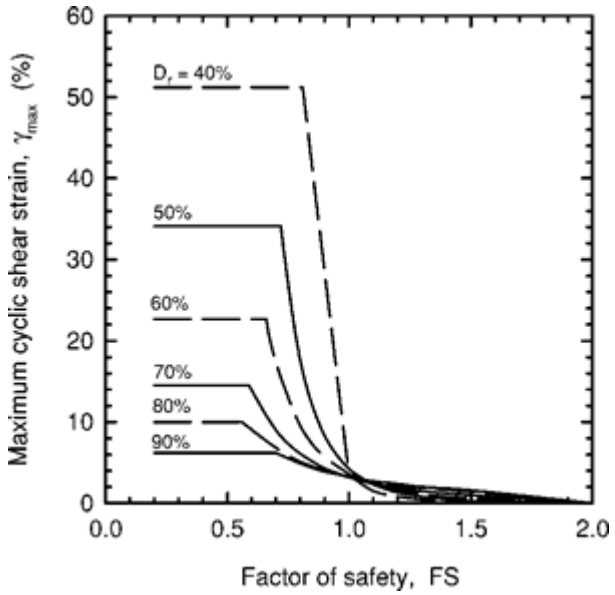
$$F = \left(\frac{f_s}{q_c - \sigma_{vc}}\right) \cdot 100\%$$

σ'_v *at time of CPT sounding*

Procedure for the evaluation of liquefaction-induced lateral spreading displacements



[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



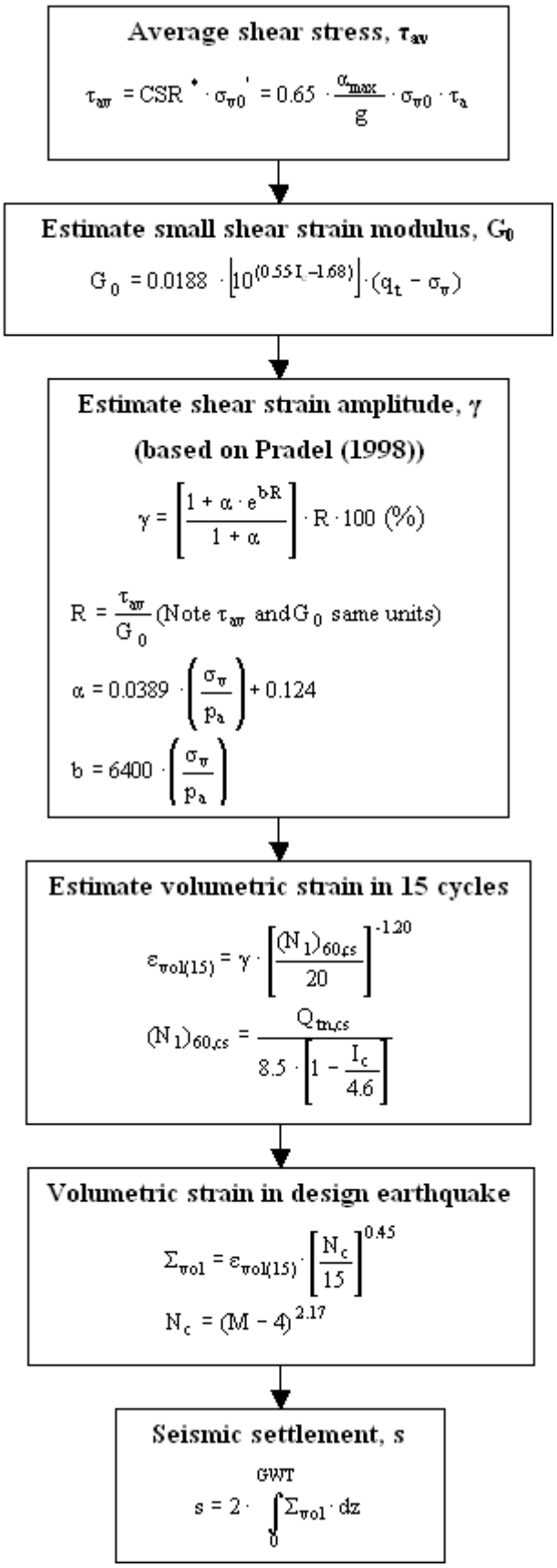
[1] Figure 1

$$LDI = \int_0^{z_{max}} \gamma_{max} dz$$

[1] Equation [3]

[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

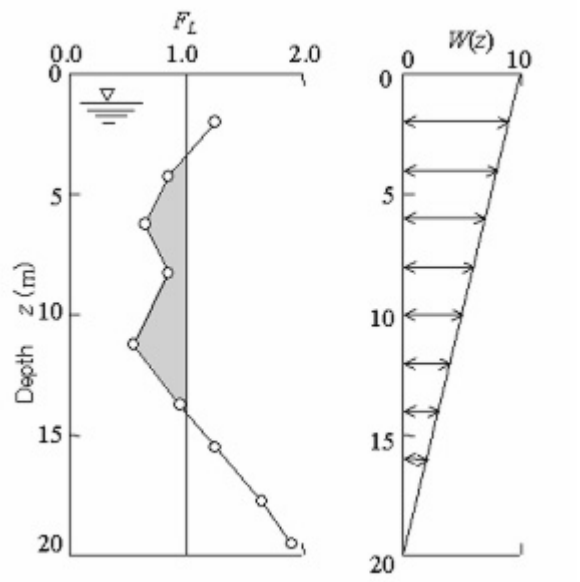
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\mathbf{LPI} = \int_0^{20} (10 - 0{,}5z) \times F_L \times dz$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) + 4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B + 0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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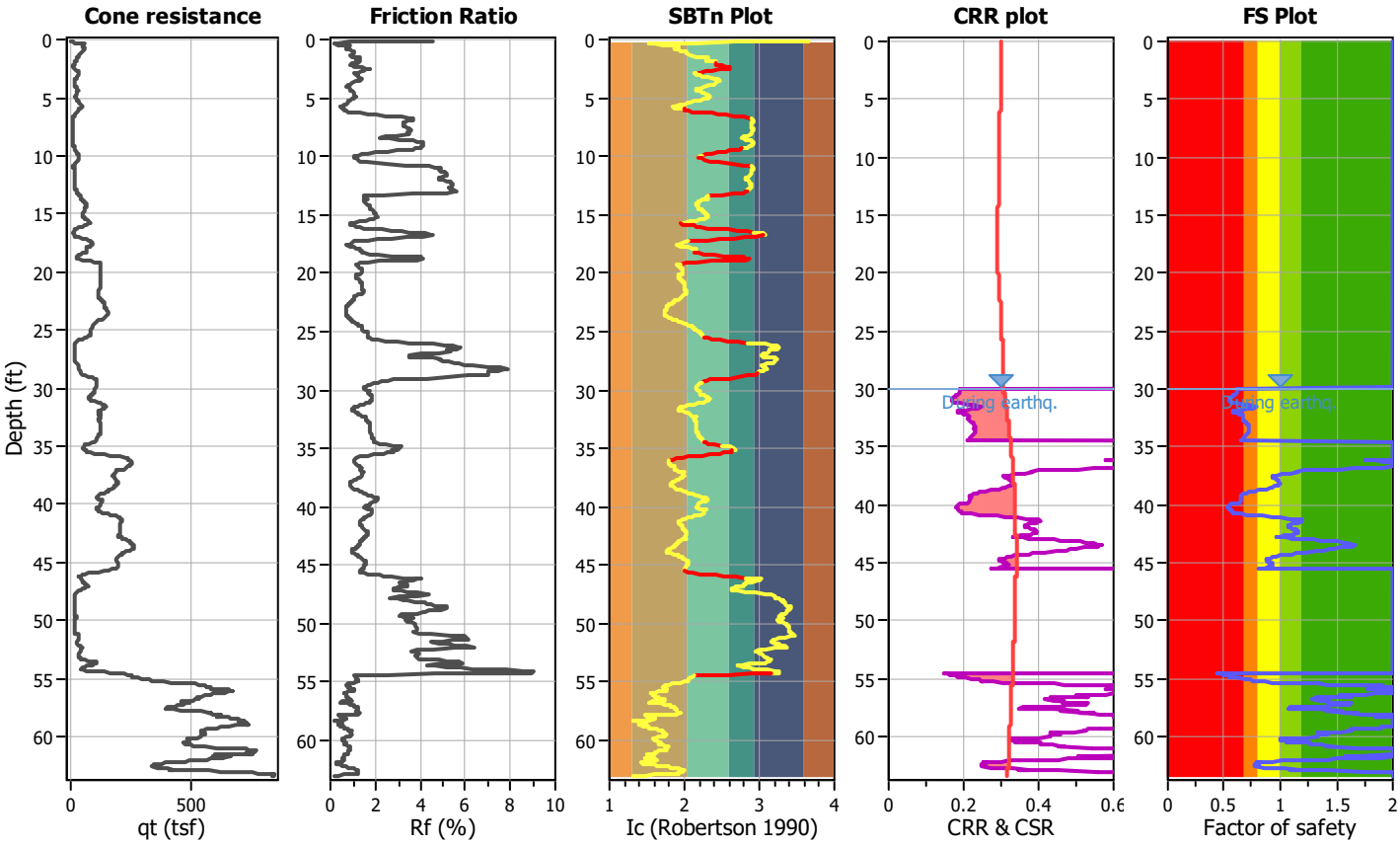
LIQUEFACTION ANALYSIS REPORT

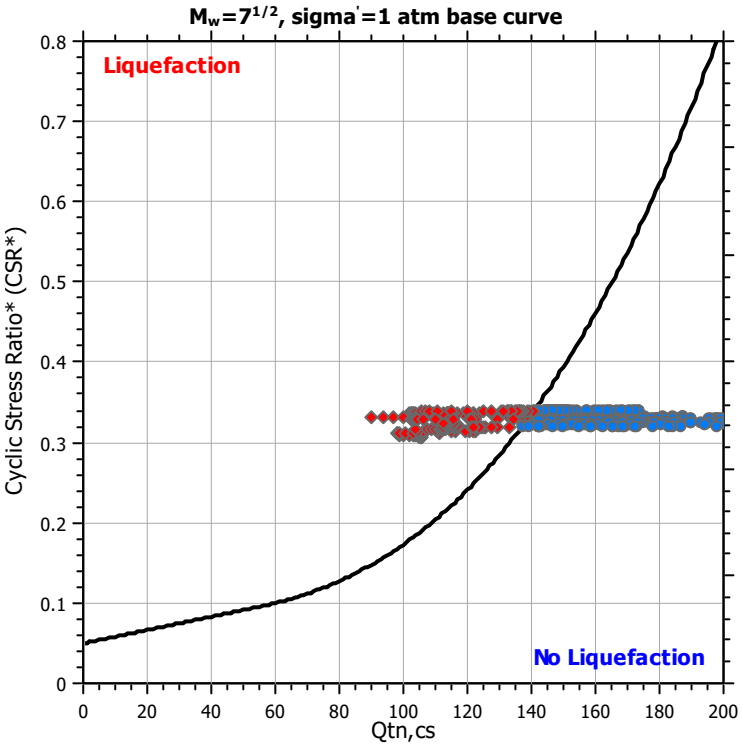
Project title : W1857-88-01 **Location : 331 The City Drive S**

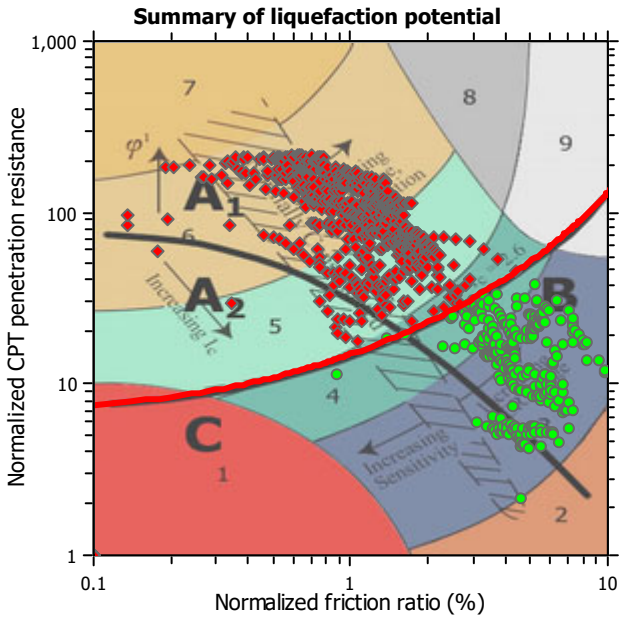
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.65	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

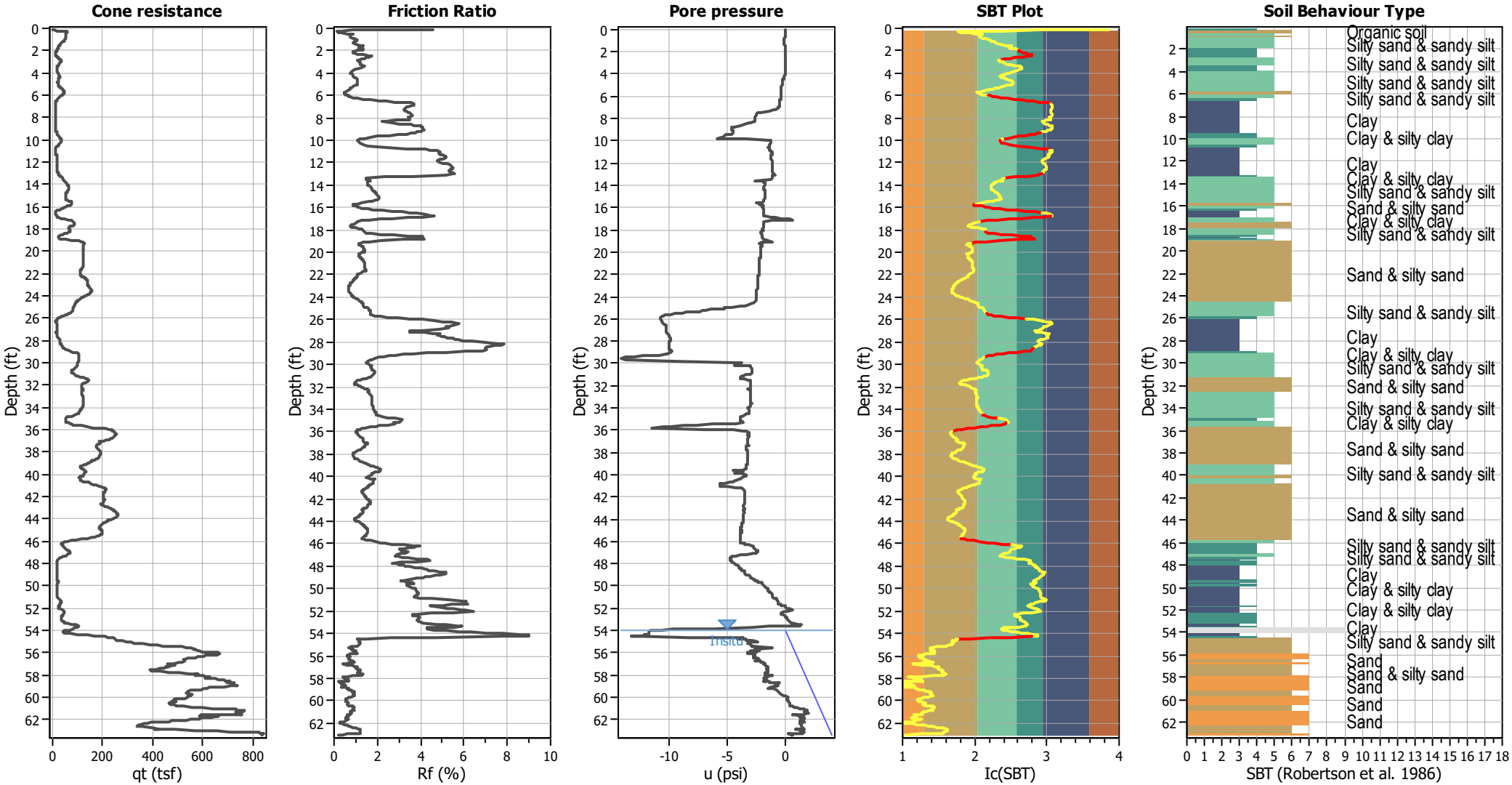






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



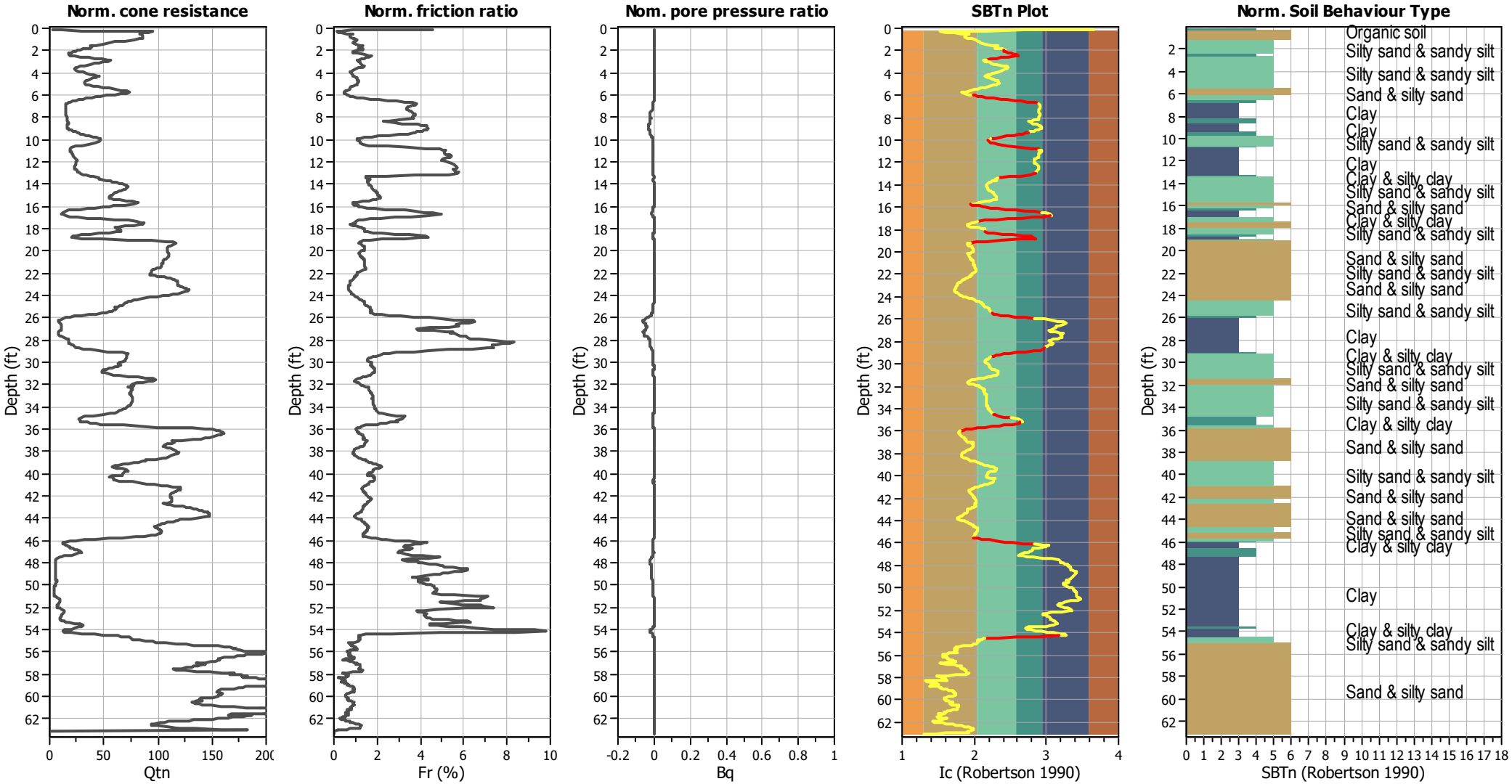
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



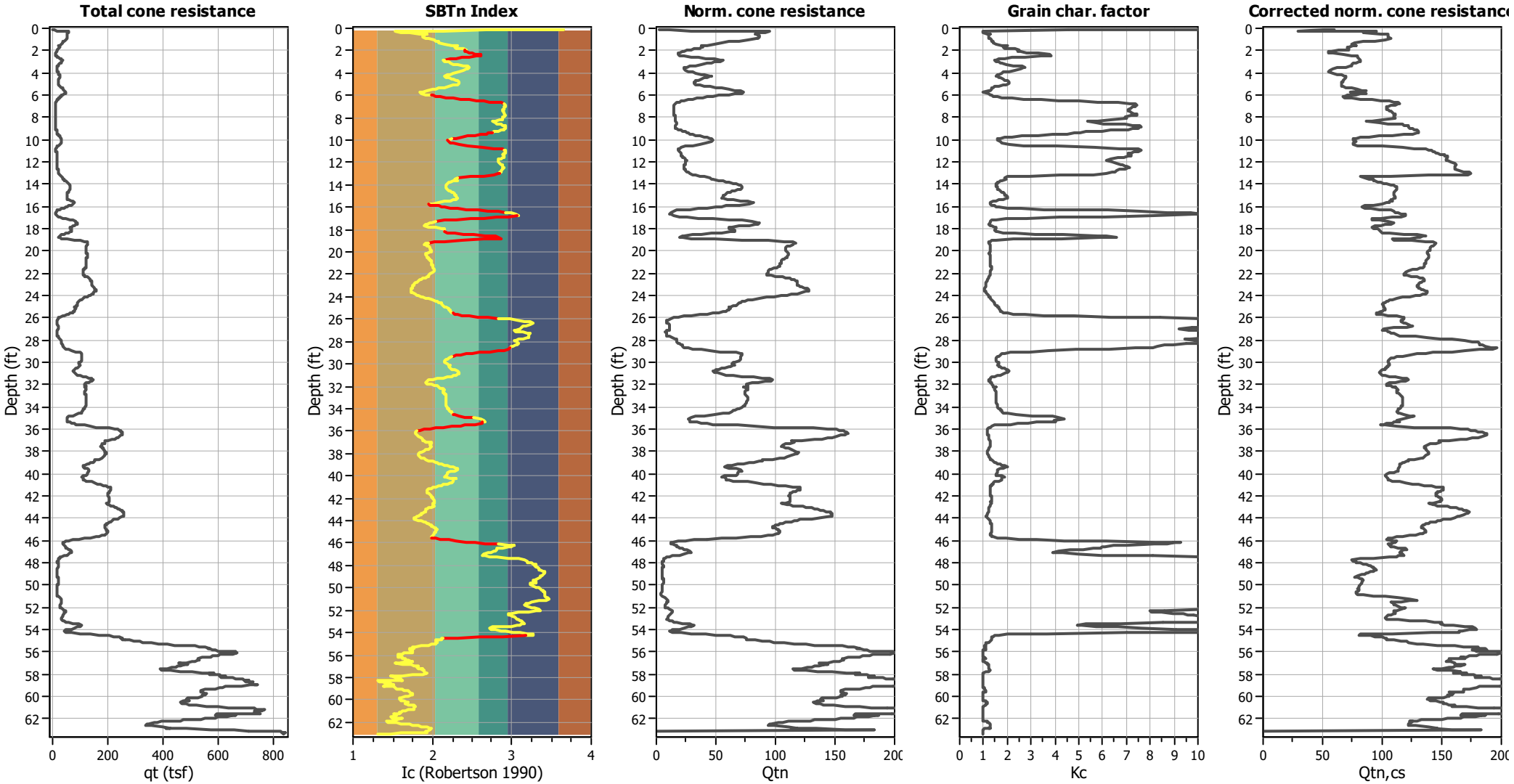
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

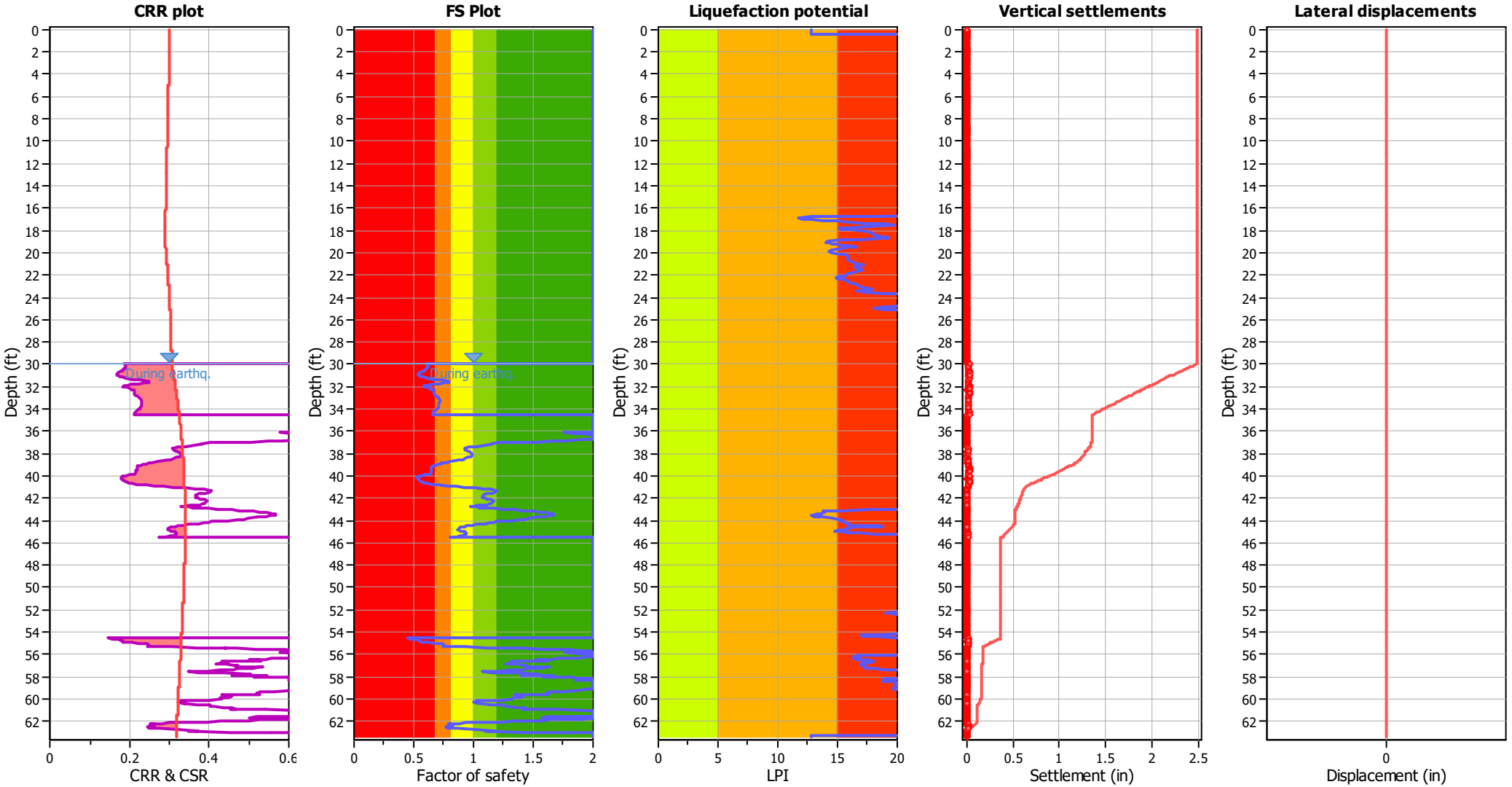
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

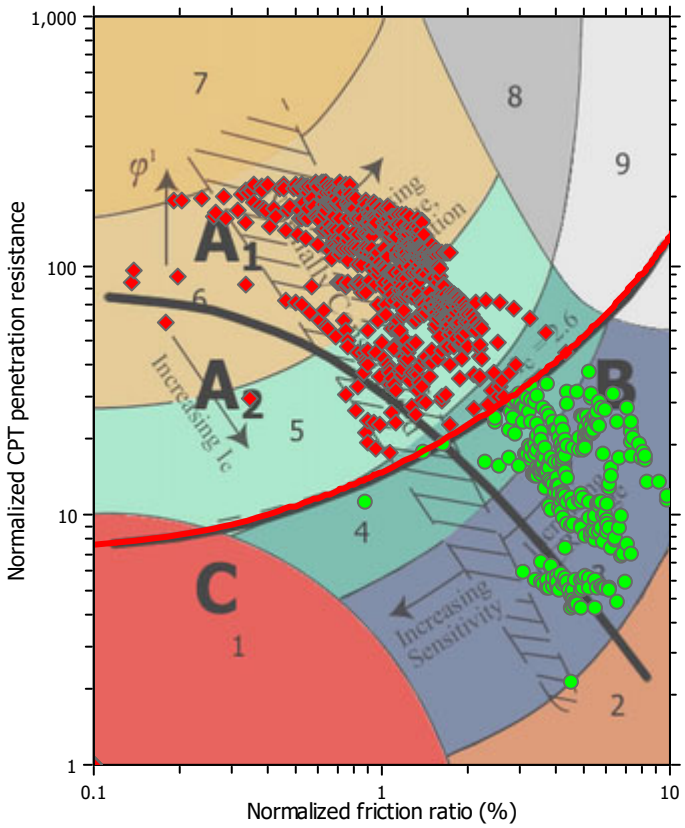
F.S. color scheme

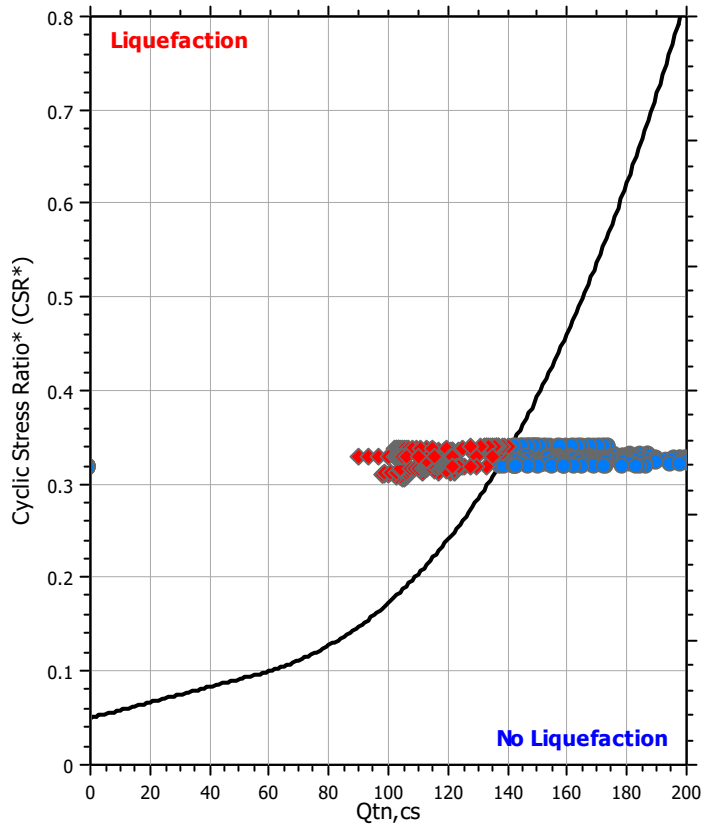
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

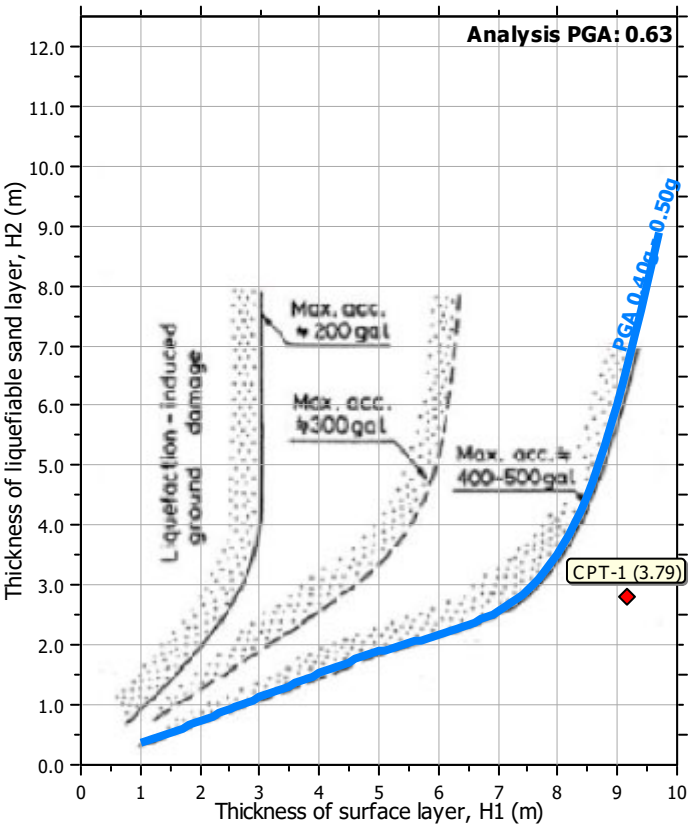
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



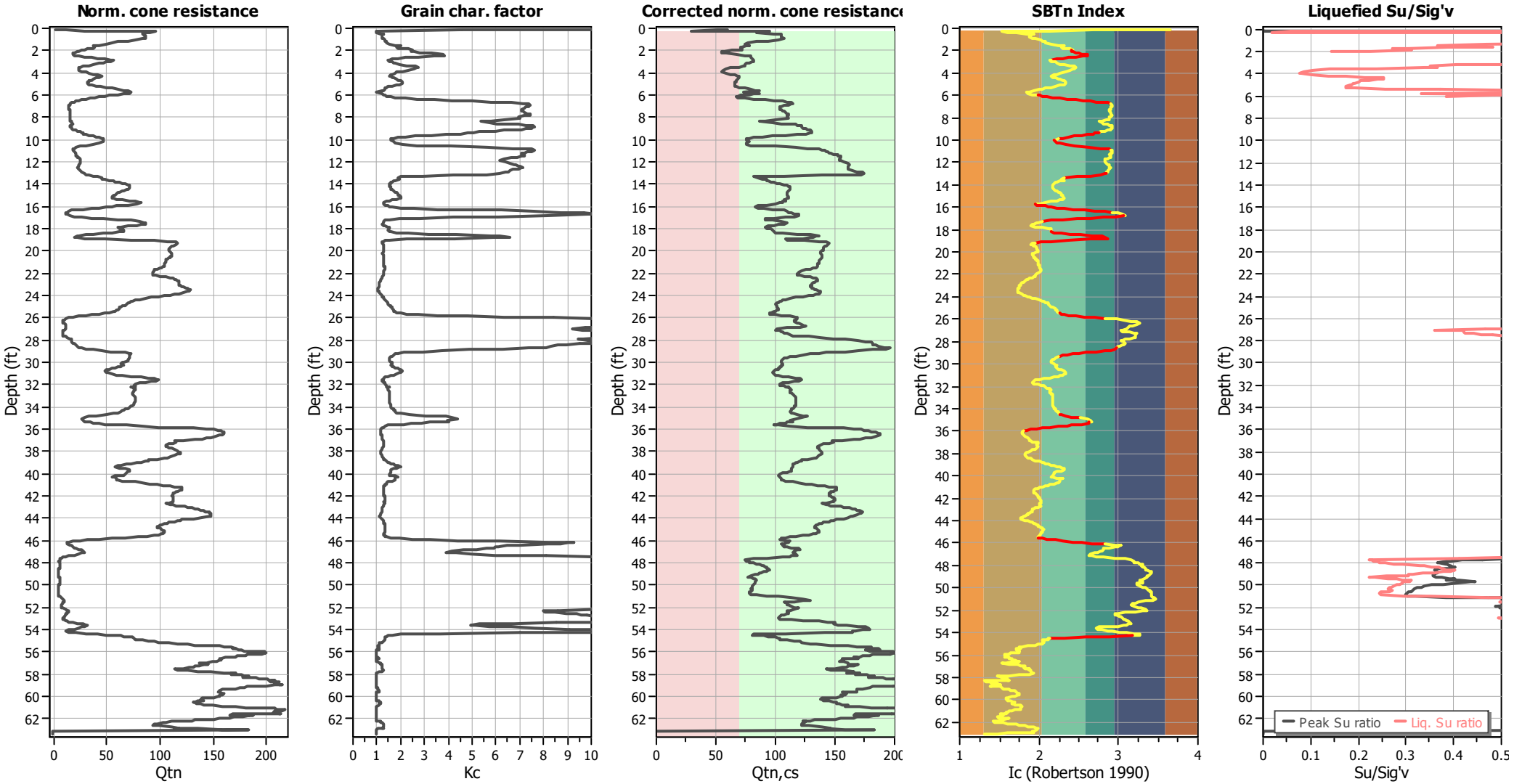




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

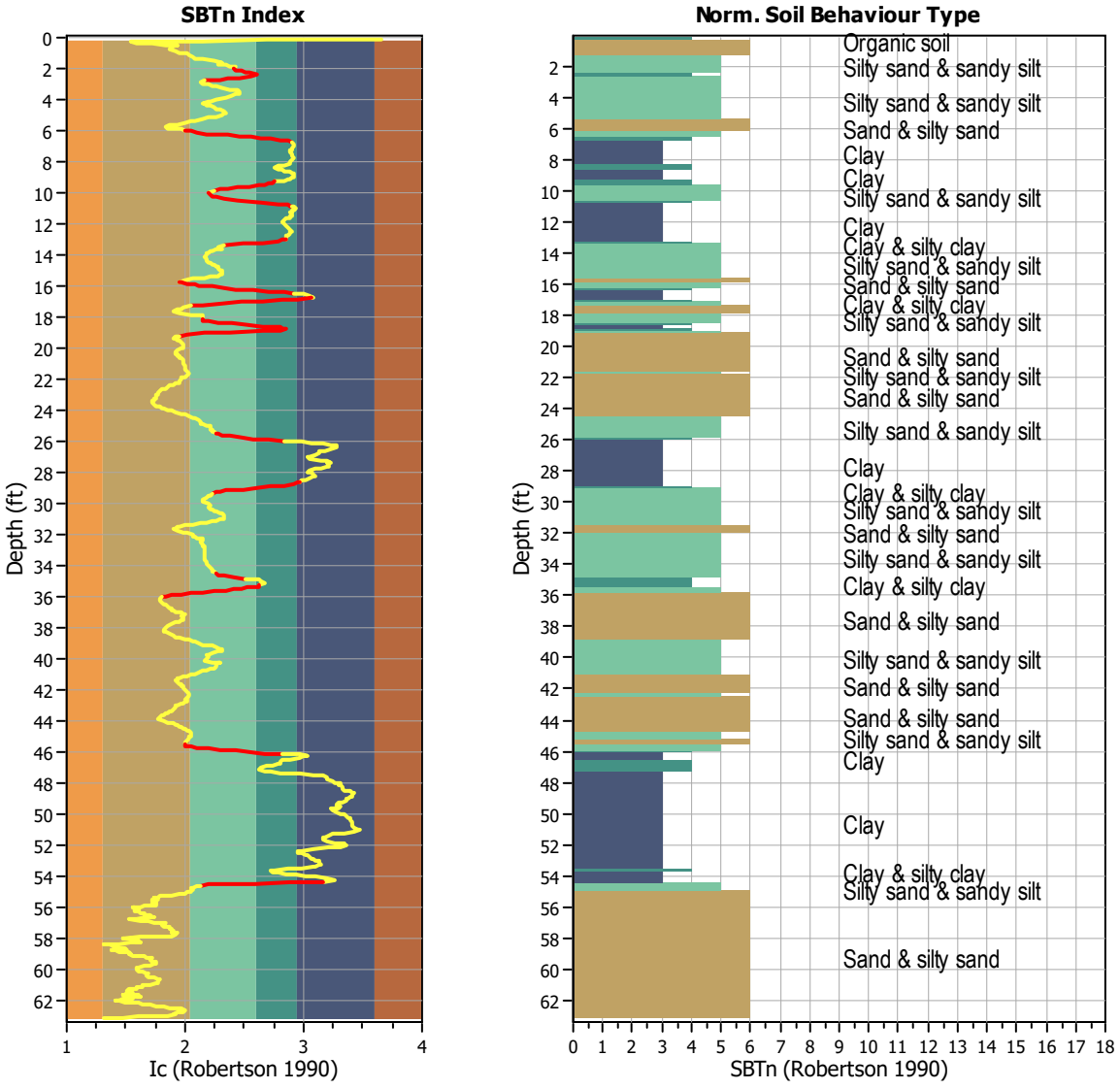
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between 1.80 < I_c < 3.0) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1063
I_c maximum check value:	3.00	Total points excluded:	146
I_c change ratio value:	0.0250	Exclusion percentage:	13.73%
Minimum number of points in layer:	4	Number of layers detected:	16

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	6	Start depth: 2.05 (ft)	5	Silty sand & sandy silt
		End depth: 2.34 (ft)	4	Clay & silty clay
Transition layer 2	8	Start depth: 2.44 (ft)	4	Clay & silty clay
		End depth: 2.89 (ft)	5	Silty sand & sandy silt
Transition layer 3	14	Start depth: 6.02 (ft)	6	Sand & silty sand
		End depth: 6.83 (ft)	3	Clay
Transition layer 4	10	Start depth: 9.38 (ft)	4	Clay & silty clay
		End depth: 9.97 (ft)	5	Silty sand & sandy silt
Transition layer 5	10	Start depth: 10.20 (ft)	5	Silty sand & sandy silt
		End depth: 10.89 (ft)	3	Clay
Transition layer 6	6	Start depth: 13.04 (ft)	3	Clay
		End depth: 13.47 (ft)	5	Silty sand & sandy silt
Transition layer 7	13	Start depth: 15.79 (ft)	6	Sand & silty sand
		End depth: 16.54 (ft)	3	Clay
Transition layer 8	8	Start depth: 16.86 (ft)	3	Clay
		End depth: 17.34 (ft)	6	Sand & silty sand
Transition layer 9	9	Start depth: 18.22 (ft)	5	Silty sand & sandy silt
		End depth: 18.76 (ft)	3	Clay
Transition layer 10	8	Start depth: 18.76 (ft)	3	Clay
		End depth: 19.24 (ft)	6	Sand & silty sand
Transition layer 11	8	Start depth: 25.52 (ft)	5	Silty sand & sandy silt
		End depth: 26.02 (ft)	3	Clay
Transition layer 12	12	Start depth: 28.67 (ft)	3	Clay
		End depth: 29.43 (ft)	5	Silty sand & sandy silt
Transition layer 13	5	Start depth: 34.55 (ft)	5	Silty sand & sandy silt
		End depth: 34.90 (ft)	4	Clay & silty clay
Transition layer 14	13	Start depth: 35.33 (ft)	4	Clay & silty clay
		End depth: 36.06 (ft)	6	Sand & silty sand
Transition layer 15	10	Start depth: 45.56 (ft)	6	Sand & silty sand
		End depth: 46.15 (ft)	3	Clay
Transition layer 16	6	Start depth: 54.34 (ft)	3	Clay
		End depth: 54.53 (ft)	5	Silty sand & sandy silt

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.01	0.00	0.01	0.00	N/A	120.90
2	0.04	0.00	0.03	0.00	N/A	120.90
3	0.09	0.00	0.06	0.00	N/A	120.90
4	0.11	0.00	0.06	0.00	N/A	120.90
5	0.14	0.00	0.06	0.00	N/A	120.90
6	0.14	0.00	0.06	0.00	100.00	90.58
7	0.18	4.04	0.06	0.00	39.81	94.62
8	0.23	16.88	0.06	0.00	5.00	97.10
9	0.24	33.66	0.06	0.00	5.00	99.09
10	0.28	59.84	0.07	0.00	4.02	100.70
11	0.33	65.70	0.08	0.00	3.32	101.83
12	0.38	52.26	0.09	0.00	4.29	104.01
13	0.42	51.86	0.16	0.00	5.00	107.23
14	0.47	52.21	0.28	0.00	8.85	111.04
15	0.51	51.45	0.45	0.00	10.39	113.09
16	0.52	52.16	0.45	0.00	11.07	113.95
17	0.57	52.66	0.42	0.00	10.65	113.68
18	0.61	53.17	0.40	0.00	10.18	113.34
19	0.67	53.88	0.39	0.00	9.91	113.08
20	0.73	53.37	0.38	0.00	9.72	112.99
21	0.81	54.28	0.39	-0.10	9.70	112.87
22	0.86	53.22	0.37	-0.10	10.78	114.14
23	0.98	53.07	0.60	-0.10	11.85	114.82
24	1.05	50.14	0.53	-0.10	13.47	114.97
25	1.15	41.44	0.44	-0.10	14.02	113.60
26	1.24	39.42	0.37	-0.10	14.97	111.74
27	1.34	32.75	0.28	-0.10	15.41	110.26
28	1.43	31.24	0.27	0.00	17.53	109.89
29	1.53	27.90	0.36	0.00	20.70	109.99
30	1.58	21.43	0.33	0.00	23.01	110.04
31	1.62	24.36	0.30	0.00	23.24	109.31
32	1.67	24.66	0.28	0.00	21.78	108.90
33	1.75	24.06	0.27	0.00	21.84	108.54
34	1.77	22.95	0.27	0.00	22.45	108.33
35	1.81	22.24	0.27	0.00	23.98	108.08
36	1.86	19.31	0.26	0.00	25.81	107.68
37	1.91	17.59	0.25	0.00	27.51	107.00
38	1.95	16.98	0.22	0.00	27.58	105.88
39	2.00	16.38	0.17	0.00	26.85	104.31
40	2.05	15.26	0.13	0.00	26.79	102.37
41	2.11	13.04	0.11	0.00	27.77	100.94
42	2.20	12.23	0.11	0.00	29.43	100.17
43	2.24	11.73	0.11	0.00	30.90	100.15
44	2.29	11.22	0.11	0.00	32.65	100.53
45	2.34	10.82	0.13	0.00	35.39	102.57
46	2.44	11.93	0.22	0.00	35.96	104.47
47	2.48	13.75	0.24	0.00	33.48	106.65
48	2.58	17.99	0.29	0.00	29.16	108.19

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	2.63	22.34	0.33	0.00	25.09	109.71
50	2.71	26.89	0.36	0.00	22.48	110.79
51	2.78	29.01	0.39	0.00	19.70	111.55
52	2.82	35.08	0.39	0.00	17.69	111.93
53	2.89	37.10	0.38	0.00	16.81	111.84
54	2.96	32.65	0.36	0.00	17.52	111.71
55	3.03	31.13	0.39	0.00	19.08	111.39
56	3.11	28.91	0.36	0.00	20.03	110.91
57	3.19	26.89	0.31	0.00	21.15	109.99
58	3.25	23.55	0.29	0.00	22.96	109.06
59	3.35	20.12	0.28	0.00	25.68	108.30
60	3.41	17.79	0.26	0.00	28.08	107.14
61	3.50	15.47	0.20	0.00	29.06	105.47
62	3.59	14.46	0.15	0.00	28.55	103.57
63	3.69	14.56	0.13	0.00	27.72	102.55
64	3.79	14.76	0.14	0.00	26.19	102.21
65	3.88	16.27	0.13	0.00	24.04	102.29
66	3.97	18.60	0.13	0.00	21.42	103.22
67	4.07	22.54	0.17	0.00	20.94	104.68
68	4.14	21.33	0.21	-0.08	19.71	106.20
69	4.17	26.59	0.22	-0.08	18.89	107.22
70	4.26	28.61	0.25	-0.08	17.51	107.99
71	4.32	29.21	0.26	-0.09	17.59	108.49
72	4.37	28.30	0.27	-0.09	18.27	108.68
73	4.42	26.79	0.27	-0.10	19.47	108.64
74	4.51	24.77	0.27	-0.19	20.53	108.32
75	4.61	23.65	0.25	-0.19	21.42	107.89
76	4.65	22.64	0.24	-0.19	22.24	107.37
77	4.74	20.82	0.23	-0.19	23.28	106.98
78	4.80	19.81	0.22	-0.19	23.69	106.69
79	4.89	20.82	0.22	-0.19	24.07	106.54
80	4.95	19.51	0.22	-0.19	23.69	106.58
81	5.04	20.82	0.22	-0.19	23.00	106.70
82	5.13	22.84	0.22	-0.29	21.27	106.93
83	5.18	24.77	0.22	-0.29	19.16	107.22
84	5.28	28.20	0.23	-0.29	17.18	107.58
85	5.32	31.24	0.23	-0.29	15.37	108.17
86	5.42	34.97	0.25	-0.29	14.24	109.03
87	5.51	37.81	0.29	-0.29	13.16	109.85
88	5.60	41.65	0.30	-0.29	11.39	109.42
89	5.66	44.38	0.19	-0.29	9.82	108.84
90	5.76	46.70	0.21	-0.29	5.00	108.20
91	5.85	46.50	0.23	-0.29	9.42	108.60
92	5.92	41.55	0.23	-0.29	10.81	108.56
93	5.95	35.28	0.23	-0.33	11.91	108.38
94	5.97	37.81	0.23	-0.33	12.79	108.24
95	6.02	35.38	0.23	-0.33	13.11	108.15
96	6.06	32.95	0.23	-0.38	14.35	107.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	6.16	29.92	0.22	-0.38	15.93	107.69
98	6.21	27.09	0.23	-0.38	18.25	107.74
99	6.26	23.96	0.26	-0.38	21.09	108.07
100	6.31	21.83	0.28	-0.48	24.86	108.67
101	6.40	19.10	0.33	-0.48	28.84	109.09
102	6.44	16.78	0.34	-0.48	33.47	109.42
103	6.52	14.86	0.37	-0.48	37.59	109.55
104	6.57	13.75	0.38	-0.48	41.98	109.58
105	6.64	11.83	0.39	-0.48	45.80	109.43
106	6.69	10.92	0.39	-0.48	49.59	109.18
107	6.78	10.21	0.38	-0.48	51.74	108.94
108	6.83	9.91	0.38	-0.48	52.73	108.51
109	6.92	9.60	0.34	-0.48	53.03	108.02
110	6.97	9.30	0.32	-0.57	52.79	107.48
111	7.03	9.30	0.31	-0.57	52.62	107.19
112	7.12	9.30	0.30	-0.57	52.17	107.05
113	7.22	9.40	0.30	-0.86	51.84	107.03
114	7.27	9.50	0.31	-0.95	51.49	107.14
115	7.36	9.70	0.31	-1.34	51.37	107.36
116	7.43	9.81	0.33	-2.10	51.48	107.59
117	7.50	9.81	0.33	-2.39	51.81	107.80
118	7.59	9.81	0.34	-2.48	52.08	107.91
119	7.64	9.81	0.34	-2.48	52.59	107.98
120	7.75	9.60	0.35	-2.48	53.06	108.03
121	7.79	9.60	0.35	-2.48	52.94	108.11
122	7.89	10.01	0.35	-2.58	51.93	108.20
123	7.99	10.41	0.35	-2.58	51.00	108.32
124	8.04	10.41	0.36	-2.58	50.93	108.47
125	8.13	10.31	0.37	-2.58	51.23	108.53
126	8.23	10.31	0.36	-2.67	48.25	107.10
127	8.32	10.31	0.16	-2.96	45.66	105.82
128	8.37	10.31	0.23	-3.15	43.57	105.27
129	8.46	11.12	0.30	-3.44	45.48	107.20
130	8.56	11.83	0.36	-3.53	46.89	108.35
131	8.59	11.12	0.37	-3.93	48.24	108.98
132	8.61	11.12	0.39	-3.93	49.87	109.23
133	8.67	11.02	0.41	-3.93	51.01	109.48
134	8.71	10.71	0.41	-4.39	52.13	109.59
135	8.72	10.51	0.42	-4.49	53.07	109.66
136	8.78	10.51	0.43	-4.58	53.51	109.72
137	8.80	10.51	0.43	-4.58	53.62	109.76
138	8.86	10.51	0.43	-4.58	53.65	109.77
139	8.90	10.51	0.43	-4.58	53.45	109.87
140	8.95	10.82	0.44	-4.58	53.21	110.02
141	8.96	10.92	0.45	-4.58	52.79	110.21
142	9.00	11.12	0.45	-4.58	52.52	110.39
143	9.05	11.32	0.47	-4.49	52.13	110.62
144	9.09	11.62	0.48	-4.49	51.55	110.83

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	9.10	11.93	0.48	-4.49	50.65	111.10
146	9.14	12.53	0.51	-4.49	49.64	111.46
147	9.20	13.14	0.53	-4.49	48.16	111.91
148	9.24	14.15	0.55	-4.49	46.46	112.37
149	9.29	15.16	0.57	-4.49	44.67	112.78
150	9.31	15.97	0.59	-4.49	43.27	113.20
151	9.38	16.78	0.62	-4.58	42.21	113.51
152	9.41	17.29	0.63	-4.77	40.91	113.67
153	9.47	18.09	0.60	-5.15	39.32	113.64
154	9.53	18.90	0.58	-5.25	36.22	113.38
155	9.62	21.23	0.52	-5.34	32.67	113.07
156	9.67	23.35	0.49	-5.54	28.33	112.63
157	9.77	26.79	0.43	-5.92	25.15	112.27
158	9.81	28.81	0.41	-3.34	22.18	111.77
159	9.90	31.03	0.36	-1.43	20.30	111.35
160	9.97	32.25	0.34	-1.24	18.94	111.09
161	10.06	33.56	0.35	-1.24	18.88	111.19
162	10.20	32.14	0.37	-1.24	19.84	111.65
163	10.30	30.73	0.42	-1.34	21.09	110.81
164	10.44	25.07	0.26	-1.34	23.79	110.16
165	10.54	20.82	0.33	-1.43	28.52	109.42
166	10.63	16.27	0.39	-1.40	37.17	110.42
167	10.74	12.64	0.49	-1.40	45.02	111.01
168	10.78	12.64	0.51	-1.37	49.84	111.50
169	10.83	12.64	0.53	-1.37	50.94	111.75
170	10.88	12.23	0.55	-1.34	52.01	111.93
171	10.89	12.13	0.55	-1.24	53.26	112.19
172	10.97	12.13	0.60	-1.24	53.74	112.49
173	11.02	12.53	0.61	-1.15	53.76	112.83
174	11.07	12.84	0.63	-1.15	53.28	113.04
175	11.11	13.04	0.63	-1.15	52.89	113.23
176	11.16	13.34	0.65	-1.05	52.38	113.46
177	11.21	13.85	0.67	-1.15	51.91	113.73
178	11.26	14.15	0.69	-1.15	51.53	114.03
179	11.30	14.46	0.72	-1.24	51.55	114.31
180	11.36	14.56	0.74	-1.24	51.71	114.56
181	11.40	14.66	0.76	-1.24	51.84	114.75
182	11.45	14.86	0.77	-1.24	51.87	114.90
183	11.50	14.96	0.78	-1.24	51.65	115.06
184	11.55	15.36	0.79	-1.24	51.39	115.24
185	11.60	15.67	0.81	-1.24	50.61	115.51
186	11.66	16.58	0.84	-1.24	49.52	115.80
187	11.74	17.49	0.86	-1.15	48.09	116.04
188	11.84	18.19	0.85	-1.15	47.34	116.23
189	11.93	18.30	0.88	-1.15	47.43	116.42
190	12.04	18.09	0.91	-1.15	48.38	116.63
191	12.13	17.79	0.93	-1.15	49.30	116.79
192	12.22	17.79	0.95	-1.15	50.08	116.85

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	12.27	17.49	0.95	-1.15	50.46	116.81
194	12.37	17.29	0.93	-1.15	51.02	116.74
195	12.41	17.08	0.93	-1.15	51.24	116.69
196	12.51	17.18	0.94	-1.15	51.67	116.70
197	12.56	16.98	0.94	-1.15	51.47	116.76
198	12.65	17.59	0.95	-1.05	50.92	116.90
199	12.71	18.40	0.97	-1.05	49.81	117.22
200	12.79	19.41	1.02	-1.05	49.34	117.71
201	12.89	19.91	1.11	-0.95	48.93	118.28
202	12.96	21.03	1.17	-0.95	48.62	118.87
203	13.04	22.04	1.25	-0.86	47.37	119.33
204	13.13	23.65	1.26	-1.05	44.91	119.65
205	13.23	26.69	1.23	-1.05	37.79	118.14
206	13.30	30.12	0.44	-1.05	30.22	116.19
207	13.37	34.27	0.48	-1.15	23.39	113.77
208	13.47	38.11	0.56	-1.24	22.02	114.92
209	13.57	42.66	0.63	-2.58	22.72	115.65
210	13.61	35.68	0.65	-1.72	23.01	116.05
211	13.62	39.32	0.66	-1.72	22.69	116.34
212	13.68	45.99	0.69	-1.72	21.00	116.83
213	13.73	47.71	0.72	-1.91	19.82	117.32
214	13.77	49.83	0.75	-1.72	19.40	117.84
215	13.87	52.77	0.82	-1.72	18.89	118.41
216	13.93	56.20	0.87	-1.72	18.50	119.05
217	14.00	58.43	0.92	-1.72	18.11	119.60
218	14.06	61.05	0.98	-1.72	17.96	120.09
219	14.12	62.47	1.02	-1.81	17.96	120.53
220	14.21	63.18	1.08	-1.81	18.11	120.86
221	14.25	63.58	1.10	-1.81	18.27	121.08
222	14.35	63.68	1.12	-1.81	18.46	121.16
223	14.45	62.87	1.11	-1.72	18.76	121.14
224	14.50	61.36	1.11	-1.72	19.22	121.02
225	14.59	59.03	1.09	-1.72	19.83	120.88
226	14.64	57.21	1.08	-1.72	20.46	120.71
227	14.74	55.39	1.07	-1.72	21.03	120.57
228	14.80	54.28	1.06	-1.72	21.53	120.45
229	14.88	53.07	1.06	-1.72	21.95	120.36
230	14.97	52.26	1.05	-1.72	22.36	120.29
231	15.05	51.45	1.05	-1.72	22.79	120.27
232	15.13	50.64	1.07	-1.72	23.16	120.29
233	15.21	50.54	1.07	-1.72	23.18	120.30
234	15.28	51.76	1.05	-1.81	22.62	120.34
235	15.36	54.48	1.06	-1.91	21.45	120.45
236	15.41	59.13	1.06	-1.91	19.60	120.68
237	15.50	67.12	1.06	-2.00	17.73	120.96
238	15.55	72.98	1.07	-2.48	14.99	120.29
239	15.65	78.34	0.69	-2.00	12.97	119.36
240	15.71	79.55	0.68	-2.29	11.49	118.07

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	15.79	76.72	0.66	-2.00	11.94	117.74
242	15.89	69.04	0.63	-1.81	13.58	117.28
243	15.90	56.20	0.63	-1.93	15.06	116.86
244	15.94	58.12	0.62	-1.93	16.49	116.54
245	16.00	54.38	0.60	-1.93	17.46	116.33
246	16.06	47.31	0.61	-1.81	19.74	116.08
247	16.14	41.44	0.62	-1.81	23.40	115.82
248	16.19	33.56	0.63	-1.81	27.82	115.40
249	16.26	27.39	0.61	-1.81	33.97	114.66
250	16.33	20.42	0.58	-1.81	40.60	113.74
251	16.38	16.88	0.54	-1.81	47.75	112.60
252	16.47	13.95	0.48	-1.81	53.58	111.81
253	16.54	12.53	0.50	-1.81	58.20	111.16
254	16.62	11.52	0.48	-1.81	61.95	111.19
255	16.70	11.42	0.52	-1.81	63.86	111.41
256	16.76	11.73	0.55	-1.72	62.72	112.21
257	16.86	13.75	0.62	-1.24	55.66	113.21
258	16.90	19.21	0.65	-0.86	46.99	114.45
259	16.98	25.07	0.71	-0.29	37.95	115.60
260	17.05	33.26	0.75	0.38	29.58	116.88
261	17.14	47.91	0.80	0.67	22.70	117.88
262	17.20	61.46	0.80	-1.15	17.44	118.65
263	17.29	75.11	0.79	-1.91	14.33	119.10
264	17.34	82.59	0.81	-1.91	12.57	119.56
265	17.44	88.35	0.86	-1.91	12.10	120.15
266	17.50	89.76	0.95	-1.91	11.17	119.56
267	17.58	88.65	0.59	-1.91	10.61	118.74
268	17.64	86.12	0.61	-1.91	10.36	117.68
269	17.75	80.36	0.68	-1.91	11.68	118.09
270	17.82	75.11	0.73	-1.91	14.12	118.45
271	17.89	60.85	0.79	-1.94	16.11	118.58
272	17.89	62.17	0.79	-1.94	17.43	118.74
273	17.96	65.10	0.82	-1.94	17.29	119.02
274	18.02	65.00	0.86	-1.91	17.38	119.46
275	18.07	66.01	0.93	-2.00	17.40	119.89
276	18.17	69.65	0.96	-2.00	17.19	120.21
277	18.22	70.76	0.96	-2.10	17.38	120.34
278	18.30	65.91	0.98	-2.10	18.63	120.33
279	18.36	59.03	1.01	-2.10	21.57	120.25
280	18.42	48.22	1.05	-2.00	25.82	120.15
281	18.50	40.43	1.10	-2.00	31.86	119.89
282	18.56	31.34	1.11	-2.00	38.47	119.44
283	18.62	25.47	1.08	-2.00	45.73	118.51
284	18.69	20.42	0.95	-2.00	47.28	117.84
285	18.76	26.08	0.90	-2.00	49.35	117.26
286	18.84	20.22	0.92	-1.91	46.20	117.56
287	18.89	26.69	0.98	-1.81	38.13	118.84
288	18.98	48.82	1.15	-1.53	25.23	120.89

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	19.05	83.09	1.28	-1.15	17.63	122.71
290	19.12	103.41	1.40	-2.00	13.45	123.88
291	19.18	118.98	1.44	-2.19	11.63	124.47
292	19.24	125.34	1.44	-2.00	10.70	124.75
293	19.32	127.97	1.47	-2.10	10.50	124.90
294	19.38	127.06	1.50	-2.00	10.78	125.14
295	19.46	124.64	1.59	-2.00	11.28	125.37
296	19.54	122.82	1.64	-2.10	11.83	125.56
297	19.62	120.49	1.66	-2.10	12.18	125.64
298	19.70	119.78	1.66	-2.10	12.37	125.65
299	19.80	119.78	1.65	-2.10	12.42	125.63
300	19.85	119.78	1.65	-2.10	12.39	125.59
301	19.94	119.78	1.64	-2.10	12.46	125.66
302	20.03	120.39	1.70	-2.10	11.91	125.24
303	20.13	122.11	1.36	-2.10	11.37	124.85
304	20.19	123.12	1.38	-2.10	10.74	124.42
305	20.29	124.84	1.43	-2.10	10.87	124.64
306	20.39	124.28	1.47	-2.15	11.01	124.81
307	20.43	124.49	1.48	-2.15	11.19	124.93
308	20.47	123.73	1.51	-2.15	11.32	125.04
309	20.52	124.13	1.54	-2.19	11.55	125.23
310	20.61	124.13	1.61	-2.19	11.79	125.44
311	20.66	123.73	1.64	-2.19	12.08	125.60
312	20.71	122.01	1.65	-2.19	12.32	125.65
313	20.77	121.00	1.66	-2.19	12.55	125.68
314	20.85	120.09	1.67	-2.19	12.67	125.69
315	20.91	120.59	1.67	-2.19	12.69	125.72
316	21.00	121.30	1.67	-2.19	12.68	125.74
317	21.05	121.20	1.68	-2.19	12.72	125.75
318	21.11	120.39	1.68	-2.19	12.82	125.76
319	21.19	119.99	1.69	-2.19	12.93	125.79
320	21.24	120.19	1.70	-2.19	12.99	125.84
321	21.34	120.59	1.71	-2.19	13.03	125.87
322	21.39	120.49	1.71	-2.19	13.11	125.88
323	21.48	118.98	1.71	-2.19	13.31	125.83
324	21.53	116.65	1.70	-2.19	13.57	125.71
325	21.64	113.62	1.66	-2.19	13.84	125.53
326	21.72	111.39	1.62	-2.19	13.51	124.89
327	21.81	110.48	1.31	-2.19	12.90	124.15
328	21.89	110.59	1.24	-2.29	12.18	123.40
329	21.97	110.59	1.21	-2.29	11.93	123.16
330	22.05	110.99	1.19	-2.29	11.80	123.03
331	22.12	110.94	1.17	-2.34	11.72	122.95
332	22.13	110.94	1.17	-2.34	11.70	122.93
333	22.18	110.89	1.18	-2.34	11.57	122.96
334	22.22	114.22	1.18	-2.39	11.23	123.02
335	22.28	118.47	1.17	-2.39	10.74	123.13
336	22.33	122.82	1.19	-2.39	10.28	123.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	22.38	126.46	1.20	-2.39	9.90	123.41
338	22.41	129.89	1.21	-2.39	9.50	123.49
339	22.51	133.73	1.20	-2.39	9.14	123.51
340	22.56	135.96	1.18	-2.39	8.79	123.46
341	22.61	137.98	1.16	-2.39	8.51	123.37
342	22.65	139.19	1.14	-2.39	8.23	123.24
343	22.71	140.61	1.11	-2.39	8.00	123.09
344	22.76	141.21	1.08	-2.39	7.75	122.87
345	22.85	141.72	1.03	-2.39	7.57	122.67
346	22.89	141.82	1.02	-2.39	7.41	122.48
347	22.99	141.92	1.00	-2.39	7.34	122.38
348	23.04	141.92	0.99	-2.39	7.26	122.31
349	23.12	142.83	0.99	-2.39	7.17	122.30
350	23.18	145.06	0.99	-2.39	7.02	122.35
351	23.24	147.58	1.00	-2.39	6.88	122.47
352	23.33	150.11	1.02	-2.39	6.74	122.61
353	23.38	153.24	1.03	-2.48	6.65	122.79
354	23.47	155.06	1.05	-2.48	6.58	122.94
355	23.52	156.58	1.07	-2.48	6.66	123.16
356	23.61	156.07	1.12	-2.48	6.86	123.36
357	23.68	153.95	1.15	-2.48	7.23	123.57
358	23.76	150.31	1.19	-2.48	7.68	123.69
359	23.83	145.46	1.20	-2.48	8.20	123.74
360	23.90	140.61	1.21	-2.48	8.71	123.73
361	23.97	136.36	1.22	-2.48	9.28	123.71
362	24.05	131.21	1.23	-2.48	9.97	123.67
363	24.10	123.63	1.24	-2.48	10.81	123.59
364	24.19	116.75	1.24	-2.48	11.87	123.44
365	24.27	108.16	1.24	-2.48	12.89	123.28
366	24.34	103.31	1.24	-2.48	13.89	123.13
367	24.43	98.56	1.23	-2.58	14.65	123.04
368	24.48	96.03	1.24	-2.58	15.39	123.04
369	24.57	93.50	1.28	-2.77	16.07	123.15
370	24.62	91.89	1.32	-2.86	16.33	122.96
371	24.72	90.17	1.17	-3.15	16.56	122.82
372	24.81	89.06	1.23	-3.53	16.74	122.68
373	24.86	88.15	1.26	-3.91	17.34	122.92
374	24.95	86.83	1.31	-4.58	18.26	123.01
375	25.01	80.77	1.32	-5.22	19.01	123.05
376	25.02	81.12	1.32	-5.22	19.54	123.03
377	25.05	81.47	1.33	-5.22	19.39	123.10
378	25.11	83.09	1.34	-6.01	19.35	123.16
379	25.15	82.69	1.35	-6.39	19.38	123.22
380	25.21	82.08	1.36	-6.87	19.61	123.23
381	25.25	81.27	1.36	-7.16	19.86	123.21
382	25.30	80.16	1.35	-7.45	20.12	123.10
383	25.40	78.24	1.31	-8.49	20.43	122.88
384	25.45	76.01	1.27	-8.88	20.89	122.49

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	25.52	71.57	1.20	-9.54	21.58	121.99
386	25.60	66.92	1.12	-9.93	23.10	121.43
387	25.66	58.73	1.10	-10.40	25.37	120.85
388	25.74	51.45	1.05	-10.50	29.28	120.35
389	25.80	42.15	1.06	-10.69	34.11	119.74
390	25.88	34.67	1.01	-10.79	40.89	119.02
391	25.94	26.89	0.97	-10.79	48.17	118.23
392	26.02	22.64	0.95	-10.79	56.96	117.39
393	26.09	19.00	0.88	-10.79	63.54	116.56
394	26.17	16.38	0.82	-10.69	70.12	115.68
395	26.23	14.15	0.78	-10.69	75.56	115.05
396	26.29	13.44	0.77	-10.69	79.02	114.78
397	26.37	13.55	0.78	-10.50	78.84	114.95
398	26.46	14.66	0.82	-10.50	75.43	115.54
399	26.55	17.08	0.90	-10.40	71.32	116.21
400	26.60	18.40	0.93	-10.31	68.23	116.84
401	26.70	19.10	0.98	-10.31	67.29	117.29
402	26.78	19.31	1.04	-10.31	67.28	117.57
403	26.87	19.31	1.03	-10.31	65.46	116.94
404	26.94	19.31	0.72	-10.31	62.21	115.56
405	27.03	19.00	0.56	-10.31	60.24	114.24
406	27.13	17.99	0.66	-10.31	61.72	113.90
407	27.18	16.98	0.66	-10.31	68.38	114.01
408	27.27	13.14	0.67	-10.20	73.05	113.89
409	27.32	14.15	0.68	-10.20	75.75	113.91
410	27.37	15.16	0.70	-10.20	73.86	114.24
411	27.41	15.16	0.73	-10.12	73.36	114.52
412	27.46	15.16	0.75	-10.12	74.03	114.74
413	27.51	15.16	0.76	-10.02	74.31	115.06
414	27.61	15.67	0.82	-10.02	73.92	115.57
415	27.66	16.68	0.89	-9.93	72.75	116.57
416	27.73	18.50	1.06	-9.93	69.00	118.04
417	27.80	23.15	1.28	-9.93	64.92	119.84
418	27.88	27.09	1.57	-9.93	61.75	121.59
419	27.96	29.72	1.88	-9.93	61.15	122.86
420	28.04	29.82	2.03	-10.02	62.65	123.82
421	28.12	29.21	2.29	-10.02	64.46	124.33
422	28.18	29.31	2.33	-10.02	64.94	124.77
423	28.27	31.24	2.40	-10.02	63.60	125.01
424	28.32	32.85	2.43	-10.02	61.44	125.31
425	28.42	34.87	2.48	-10.02	59.28	125.61
426	28.47	37.40	2.56	-10.02	57.63	126.07
427	28.61	39.22	2.75	-10.02	56.63	126.53
428	28.67	40.43	2.86	-10.02	55.75	127.05
429	28.75	43.16	3.02	-10.02	52.70	127.47
430	28.81	47.71	3.06	-9.93	47.96	127.92
431	28.90	58.12	3.04	-9.83	41.37	128.35
432	29.00	72.07	3.02	-9.93	35.34	128.76

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	29.05	82.28	3.02	-10.02	30.50	129.11
434	29.10	94.11	3.00	-10.21	27.19	129.31
435	29.15	101.79	2.92	-10.31	24.40	129.24
436	29.24	107.76	2.68	-10.98	22.48	128.87
437	29.29	108.56	2.46	-12.31	21.04	128.21
438	29.37	106.54	2.19	-13.08	20.19	127.50
439	29.43	105.43	2.02	-13.84	19.39	126.74
440	29.53	104.93	1.82	-14.22	18.65	126.11
441	29.62	104.93	1.70	-13.79	18.12	125.67
442	29.68	104.93	1.71	-13.74	17.48	125.18
443	29.80	104.93	1.48	-9.45	17.32	124.98
444	29.91	103.81	1.57	-4.29	17.30	124.83
445	30.00	102.90	1.62	-3.72	18.66	124.98
446	30.07	90.77	1.65	-4.39	19.24	125.07
447	30.15	98.76	1.66	-4.39	19.60	125.10
448	30.21	99.47	1.66	-4.39	19.01	125.18
449	30.26	99.06	1.66	-2.96	19.09	125.17
450	30.31	97.75	1.66	-2.96	19.36	125.12
451	30.38	95.83	1.65	-2.96	19.77	125.02
452	30.45	93.10	1.62	-2.86	20.38	124.87
453	30.50	89.06	1.61	-2.86	21.16	124.68
454	30.55	85.31	1.58	-2.86	22.05	124.38
455	30.64	80.56	1.51	-2.86	22.84	124.05
456	30.70	77.83	1.46	-2.86	23.38	123.62
457	30.79	75.51	1.39	-2.86	23.69	123.34
458	30.84	74.90	1.38	-2.86	23.72	123.20
459	30.93	76.12	1.39	-2.96	23.33	123.30
460	30.98	79.96	1.42	-3.05	22.53	123.52
461	31.05	84.51	1.45	-3.34	21.39	123.92
462	31.13	91.68	1.54	-3.63	20.20	124.38
463	31.17	98.66	1.60	-3.72	18.55	124.91
464	31.27	111.19	1.64	-3.91	16.70	125.32
465	31.32	123.12	1.65	-3.82	14.63	125.57
466	31.41	135.55	1.59	-3.44	13.02	125.62
467	31.46	141.82	1.54	-3.25	11.83	125.51
468	31.52	145.46	1.49	-3.05	11.07	125.22
469	31.61	145.97	1.37	-3.05	10.64	124.85
470	31.66	143.74	1.32	-3.05	10.61	124.43
471	31.75	136.87	1.28	-3.05	11.17	124.24
472	31.80	129.59	1.32	-3.05	12.39	124.35
473	31.90	121.10	1.46	-2.96	13.62	124.39
474	31.94	115.44	1.39	-2.96	14.62	124.45
475	32.04	114.12	1.42	-2.96	14.97	124.60
476	32.09	118.67	1.55	-2.96	15.15	125.24
477	32.20	124.84	1.74	-3.02	15.99	125.83
478	32.24	112.71	1.82	-3.02	16.70	126.23
479	32.28	115.74	1.85	-3.07	17.46	126.32
480	32.29	115.74	1.86	-3.07	17.17	126.42

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	32.30	118.77	1.87	-3.25	16.87	126.53
482	32.40	122.41	1.90	-3.05	16.70	126.62
483	32.45	120.49	1.91	-3.05	16.81	126.69
484	32.55	118.67	1.92	-3.05	17.10	126.69
485	32.59	118.37	1.92	-3.05	17.33	126.73
486	32.69	118.07	1.95	-3.05	17.51	126.82
487	32.76	118.07	1.99	-2.96	17.74	126.96
488	32.84	118.27	2.04	-2.96	17.92	127.13
489	32.90	118.98	2.08	-2.96	18.01	127.28
490	32.98	119.89	2.11	-2.96	17.99	127.39
491	33.06	121.10	2.12	-3.05	17.91	127.48
492	33.12	122.21	2.13	-3.05	17.81	127.55
493	33.22	123.12	2.15	-3.05	17.76	127.60
494	33.31	123.32	2.16	-3.05	17.76	127.64
495	33.37	123.32	2.16	-2.96	17.77	127.65
496	33.46	123.32	2.16	-2.96	17.80	127.65
497	33.55	123.32	2.17	-2.86	17.87	127.68
498	33.65	123.02	2.18	-2.96	17.99	127.72
499	33.70	122.72	2.20	-2.96	18.14	127.75
500	33.79	122.11	2.21	-2.96	18.29	127.77
501	33.89	121.40	2.21	-3.05	18.48	127.74
502	33.99	119.89	2.19	-3.25	18.70	127.68
503	34.04	118.17	2.18	-3.25	18.98	127.58
504	34.13	115.44	2.15	-3.15	19.34	127.46
505	34.23	113.01	2.13	-3.15	19.82	127.32
506	34.32	109.78	2.11	-3.15	20.27	127.22
507	34.37	108.16	2.10	-3.15	20.65	127.13
508	34.47	106.85	2.09	-3.15	21.01	127.08
509	34.55	104.93	2.10	-3.34	21.77	127.01
510	34.63	98.76	2.11	-3.53	23.58	126.91
511	34.73	86.43	2.14	-3.72	26.59	126.63
512	34.80	74.09	2.10	-3.91	31.19	126.00
513	34.90	57.92	1.93	-3.91	36.19	125.07
514	35.00	49.53	1.74	-3.91	37.59	123.92
515	35.12	57.47	1.42	-3.91	38.98	122.90
516	35.20	44.27	1.40	-3.72	36.68	122.71
517	35.33	57.01	1.55	-3.63	36.87	123.05
518	35.41	59.84	1.61	-4.20	32.11	123.80
519	35.44	73.57	1.62	-6.27	29.94	124.11
520	35.48	72.58	1.63	-6.27	26.74	124.41
521	35.57	84.61	1.62	-7.64	24.34	124.63
522	35.62	95.42	1.62	-8.78	20.42	125.05
523	35.67	116.45	1.64	-9.93	17.13	125.56
524	35.71	134.74	1.71	-10.60	14.14	126.40
525	35.82	161.84	1.91	-11.55	12.01	127.28
526	35.86	183.57	2.03	-11.17	10.22	128.24
527	35.93	210.36	2.20	-6.97	8.94	129.00
528	36.01	229.56	2.33	-4.49	8.16	129.62

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	36.06	236.44	2.41	-3.63	7.85	130.06
530	36.12	240.88	2.52	-3.34	7.80	130.37
531	36.18	244.83	2.59	-3.15	7.84	130.72
532	36.25	249.58	2.73	-3.15	7.88	131.01
533	36.30	251.80	2.80	-3.15	8.05	131.37
534	36.39	253.32	2.97	-3.25	8.23	131.64
535	36.44	253.52	3.03	-3.15	8.49	131.92
536	36.53	252.51	3.13	-3.25	8.77	132.08
537	36.59	248.57	3.20	-3.15	9.37	132.44
538	36.68	244.22	3.54	-3.25	9.70	132.41
539	36.75	237.75	3.16	-3.25	9.93	132.25
540	36.83	233.20	3.05	-3.25	9.92	131.78
541	36.90	225.32	3.02	-3.25	10.25	131.57
542	36.97	217.43	2.99	-3.25	10.78	131.42
543	37.02	208.94	2.97	-3.25	11.95	131.17
544	37.04	178.92	2.94	-3.25	12.56	130.99
545	37.08	193.37	2.89	-3.25	12.85	130.76
546	37.17	193.68	2.77	-3.25	12.27	130.55
547	37.27	188.42	2.66	-3.25	12.36	130.20
548	37.37	179.93	2.56	-3.15	12.63	129.85
549	37.42	175.89	2.48	-3.34	12.60	129.41
550	37.51	175.94	2.26	-3.34	12.21	128.93
551	37.58	175.99	2.11	-3.34	11.53	128.42
552	37.66	179.12	2.01	-3.34	10.87	128.00
553	37.76	182.05	1.88	-3.34	10.12	127.61
554	37.85	186.70	1.77	-3.25	9.43	127.24
555	37.93	189.63	1.70	-3.25	8.90	127.02
556	38.04	192.67	1.69	-3.25	8.61	126.94
557	38.13	194.59	1.69	-3.25	8.49	126.94
558	38.18	194.49	1.69	-3.25	8.53	126.96
559	38.28	191.76	1.70	-3.25	8.89	127.11
560	38.37	187.61	1.81	-3.25	9.47	127.34
561	38.47	182.96	1.89	-3.25	10.26	127.74
562	38.57	180.23	2.05	-3.25	10.93	128.06
563	38.62	178.11	2.10	-3.25	11.67	128.38
564	38.72	172.15	2.20	-3.25	12.92	128.49
565	38.78	152.33	2.27	-3.26	13.99	128.58
566	38.81	156.28	2.28	-3.25	14.73	128.61
567	38.86	157.49	2.30	-3.25	14.82	128.67
568	38.91	151.93	2.32	-3.25	15.34	128.70
569	38.95	146.77	2.36	-3.25	16.32	128.70
570	39.05	139.19	2.39	-3.25	17.39	128.67
571	39.09	132.82	2.40	-3.34	18.62	128.58
572	39.14	125.24	2.40	-3.34	19.92	128.44
573	39.24	117.26	2.39	-3.34	21.20	128.25
574	39.29	112.20	2.35	-3.34	22.35	128.02
575	39.39	107.15	2.30	-3.34	23.14	127.89
576	39.43	106.24	2.34	-3.34	23.05	127.94

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	39.53	114.22	2.38	-3.53	21.86	128.13
578	39.57	124.74	2.36	-3.63	20.02	128.31
579	39.68	133.73	2.34	-4.49	18.81	128.39
580	39.73	133.63	2.33	-3.67	18.53	128.37
581	39.81	128.68	2.32	-4.39	18.86	128.23
582	39.89	125.85	2.25	-3.72	18.82	127.76
583	39.96	124.74	1.96	-3.44	18.19	127.14
584	40.06	125.34	1.81	-3.34	17.66	126.63
585	40.15	123.63	1.86	-3.34	17.93	126.54
586	40.20	119.28	1.91	-3.44	19.75	126.53
587	40.24	100.48	1.93	-3.71	21.16	126.50
588	40.26	106.09	1.93	-3.71	22.23	126.44
589	40.27	106.09	1.94	-3.71	21.47	126.59
590	40.37	111.70	1.99	-3.91	21.22	126.73
591	40.42	111.70	2.01	-4.01	21.04	126.91
592	40.52	111.70	2.06	-4.20	21.09	127.05
593	40.56	113.92	2.09	-4.39	20.77	127.30
594	40.66	120.39	2.17	-4.49	19.70	127.64
595	40.70	132.62	2.24	-4.77	18.40	128.08
596	40.75	141.82	2.32	-5.25	17.09	128.59
597	40.85	153.55	2.47	-5.63	16.06	129.13
598	40.91	165.07	2.59	-5.63	15.13	129.61
599	40.96	173.76	2.65	-5.63	14.17	129.97
600	41.04	185.49	2.68	-5.63	13.29	130.19
601	41.09	193.78	2.70	-4.96	12.46	130.39
602	41.18	202.77	2.73	-4.20	11.82	130.54
603	41.23	209.35	2.74	-3.72	11.36	130.66
604	41.29	211.97	2.74	-3.63	11.10	130.71
605	41.38	213.59	2.74	-3.63	11.02	130.73
606	41.42	212.88	2.74	-3.53	11.10	130.74
607	41.52	209.95	2.77	-3.53	11.32	130.76
608	41.57	207.42	2.79	-3.53	11.64	130.80
609	41.62	204.59	2.83	-3.44	11.95	130.86
610	41.71	202.88	2.87	-3.44	12.22	130.92
611	41.76	202.07	2.89	-3.44	12.42	131.01
612	41.84	201.66	2.94	-3.44	12.59	131.09
613	41.91	201.36	2.97	-3.44	12.74	131.20
614	41.95	201.76	3.03	-3.53	12.88	131.32
615	42.01	202.27	3.09	-3.53	13.08	131.54
616	42.10	203.68	3.24	-3.53	13.30	131.80
617	42.15	204.90	3.34	-3.53	13.56	132.12
618	42.24	206.51	3.49	-3.53	13.76	132.35
619	42.28	206.82	3.55	-3.53	13.82	132.43
620	42.39	206.21	3.45	-3.53	13.78	132.37
621	42.43	205.91	3.41	-3.53	13.60	132.21
622	42.50	206.26	3.33	-3.53	13.33	131.99
623	42.58	206.31	3.14	-3.53	12.97	131.71
624	42.65	206.41	3.03	-3.53	13.30	131.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	42.70	184.28	2.97	-3.61	13.40	131.14
626	42.73	197.11	2.95	-3.61	13.48	131.01
627	42.77	199.94	2.91	-3.61	12.77	131.00
628	42.82	203.68	2.86	-3.62	12.36	130.97
629	42.87	208.03	2.85	-3.62	11.87	131.00
630	42.91	215.81	2.87	-3.63	11.40	131.10
631	42.97	222.69	2.90	-3.53	11.00	131.25
632	43.02	226.93	2.94	-3.44	10.78	131.43
633	43.06	230.98	3.03	-3.53	10.72	131.66
634	43.11	233.71	3.13	-3.53	10.67	131.89
635	43.17	238.46	3.19	-3.63	10.57	132.05
636	43.21	241.79	3.19	-3.63	10.32	132.13
637	43.29	246.54	3.17	-3.63	10.05	132.16
638	43.34	250.39	3.16	-3.63	9.74	132.17
639	43.39	254.83	3.15	-3.53	9.49	132.17
640	43.45	257.26	3.12	-3.53	9.24	132.11
641	43.51	258.67	3.05	-3.63	8.93	131.89
642	43.59	258.98	2.87	-3.63	8.66	131.64
643	43.64	258.27	2.81	-3.63	8.23	131.24
644	43.70	260.49	2.58	-3.63	7.80	130.79
645	43.78	259.28	2.37	-3.63	7.50	130.39
646	43.88	255.44	2.40	-3.63	7.60	130.26
647	43.94	250.99	2.49	-3.63	8.46	130.43
648	44.04	228.05	2.65	-3.66	9.36	130.60
649	44.07	225.92	2.69	-3.63	10.23	130.73
650	44.12	223.80	2.73	-3.66	10.49	130.79
651	44.16	221.17	2.75	-3.63	10.73	130.81
652	44.21	218.64	2.74	-3.63	11.01	130.81
653	44.26	214.50	2.77	-3.63	11.32	130.81
654	44.31	210.96	2.79	-3.63	11.70	130.81
655	44.35	207.12	2.80	-3.72	12.07	130.81
656	44.40	202.98	2.81	-3.72	12.44	130.79
657	44.45	199.84	2.82	-3.72	12.75	130.78
658	44.50	197.82	2.82	-3.72	12.98	130.76
659	44.54	196.00	2.82	-3.72	13.20	130.75
660	44.60	193.78	2.85	-3.72	13.50	130.78
661	44.64	190.75	2.88	-3.72	13.86	130.82
662	44.69	188.52	2.92	-3.72	14.21	130.87
663	44.74	186.60	2.94	-3.82	14.38	130.92
664	44.79	188.37	2.96	-3.82	14.49	130.94
665	44.83	186.70	2.95	-3.82	14.44	130.96
666	44.88	188.22	2.95	-3.82	14.34	130.97
667	44.93	191.76	2.96	-3.82	14.12	131.02
668	44.98	193.78	2.97	-3.72	13.90	131.07
669	45.03	195.70	2.97	-3.82	13.77	131.11
670	45.08	196.61	2.98	-3.72	13.68	131.13
671	45.16	197.32	2.98	-3.82	13.57	131.13
672	45.19	198.83	2.96	-3.72	13.41	131.06

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	45.27	198.73	2.88	-3.82	13.22	130.92
674	45.32	197.92	2.81	-3.82	13.07	130.71
675	45.37	196.20	2.73	-3.82	12.89	130.37
676	45.45	192.77	2.52	-3.82	12.75	129.96
677	45.51	188.52	2.41	-3.82	12.79	129.49
678	45.56	180.54	2.32	-3.82	13.16	129.13
679	45.61	172.65	2.26	-3.82	14.11	128.81
680	45.69	156.48	2.24	-3.82	15.78	128.59
681	45.75	140.00	2.30	-3.82	18.95	128.52
682	45.81	115.94	2.49	-3.91	22.57	127.65
683	45.89	90.17	1.83	-3.91	27.28	126.48
684	45.94	73.89	1.73	-3.91	32.45	124.69
685	46.04	56.20	1.58	-3.91	38.98	123.71
686	46.08	47.71	1.52	-3.91	47.47	122.68
687	46.15	36.09	1.45	-3.82	56.21	122.08
688	46.17	36.19	1.44	-3.53	60.34	121.69
689	46.18	36.19	1.43	-3.53	60.04	121.61
690	46.23	36.29	1.40	-3.53	59.44	121.53
691	46.27	37.10	1.38	-3.44	58.23	121.42
692	46.32	38.31	1.34	-3.15	56.14	121.33
693	46.41	40.64	1.30	-2.86	51.16	121.34
694	46.47	43.06	1.32	-2.77	48.66	121.54
695	46.52	45.89	1.37	-2.77	47.10	121.93
696	46.56	47.51	1.45	-2.77	46.43	122.56
697	46.65	49.43	1.62	-2.67	46.28	123.25
698	46.71	51.45	1.75	-2.58	46.04	123.95
699	46.76	53.78	1.86	-2.48	44.89	124.54
700	46.85	58.12	1.95	-2.39	42.94	124.99
701	46.90	62.77	1.97	-2.39	40.08	125.34
702	46.99	69.04	1.98	-2.48	37.61	125.55
703	47.04	71.97	1.98	-2.48	36.35	125.63
704	47.10	70.15	1.97	-2.77	36.71	125.56
705	47.16	66.51	1.95	-3.34	38.66	125.31
706	47.23	59.84	1.90	-3.82	41.64	124.83
707	47.30	52.66	1.77	-4.20	46.53	124.02
708	47.38	42.05	1.62	-4.58	55.83	123.02
709	47.43	33.76	1.52	-4.58	63.91	121.70
710	47.52	27.09	1.27	-4.77	70.43	120.03
711	47.59	23.86	0.95	-4.77	72.90	117.35
712	47.66	21.03	0.52	-4.77	72.89	114.76
713	47.77	19.51	0.53	-4.68	73.13	112.86
714	47.82	18.80	0.54	-4.58	76.41	112.94
715	47.91	18.19	0.56	-4.58	78.15	113.07
716	47.93	18.35	0.57	-4.36	81.01	113.17
717	47.97	16.68	0.58	-4.36	81.15	113.36
718	48.02	18.50	0.60	-4.36	81.66	113.65
719	48.07	18.60	0.64	-4.23	80.69	114.13
720	48.12	18.60	0.68	-4.10	82.08	114.75

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	48.19	18.80	0.77	-4.01	83.29	115.28
722	48.23	18.90	0.79	-4.01	83.94	115.75
723	48.31	19.21	0.82	-4.01	83.94	116.02
724	48.35	19.51	0.84	-3.91	83.94	116.26
725	48.40	19.51	0.86	-3.91	84.74	116.39
726	48.45	18.90	0.88	-3.91	86.54	116.45
727	48.50	18.19	0.88	-3.82	89.36	116.43
728	48.55	17.29	0.89	-3.72	90.62	116.47
729	48.59	18.09	0.90	-3.72	91.76	116.60
730	48.67	17.69	0.94	-3.53	91.23	116.72
731	48.73	17.99	0.92	-3.53	91.27	116.67
732	48.78	17.99	0.89	-3.53	89.99	116.42
733	48.83	18.09	0.84	-3.53	88.84	116.04
734	48.91	17.99	0.79	-3.44	87.70	115.60
735	48.98	17.89	0.74	-3.34	86.94	115.19
736	49.03	17.79	0.72	-3.15	86.65	114.95
737	49.12	17.69	0.72	-3.05	85.60	114.48
738	49.17	17.69	0.61	-2.96	83.33	113.76
739	49.27	17.99	0.53	-2.96	80.70	113.14
740	49.31	18.50	0.56	-2.86	79.11	113.26
741	49.38	19.31	0.62	-2.77	78.69	113.92
742	49.45	19.91	0.66	-2.67	78.67	114.51
743	49.51	20.01	0.70	-2.67	81.86	114.78
744	49.54	17.18	0.72	-2.34	81.23	115.10
745	49.59	21.23	0.74	-2.34	79.36	115.30
746	49.64	22.24	0.73	-2.34	75.47	115.37
747	49.73	21.23	0.70	-2.00	76.06	115.20
748	49.83	20.22	0.70	-2.00	78.94	114.89
749	49.92	18.70	0.68	-1.91	82.21	114.64
750	49.98	17.79	0.67	-1.81	85.18	114.35
751	50.07	17.18	0.66	-1.72	86.78	114.13
752	50.16	17.08	0.64	-1.62	87.78	113.97
753	50.24	16.78	0.64	-1.53	88.72	113.83
754	50.32	16.27	0.63	-1.43	89.58	113.75
755	50.41	16.38	0.63	-1.43	90.32	113.77
756	50.50	16.38	0.65	-1.34	90.32	113.80
757	50.56	16.38	0.64	-1.34	90.32	113.63
758	50.66	16.07	0.59	-1.24	90.38	113.36
759	50.74	15.87	0.59	-1.15	90.68	113.17
760	50.84	15.87	0.60	-1.15	92.49	113.65
761	50.93	15.87	0.71	-1.05	95.02	114.60
762	50.98	16.17	0.85	-1.05	96.87	116.37
763	51.08	18.30	1.14	-0.95	92.70	118.68
764	51.17	24.36	1.53	-0.76	84.52	120.98
765	51.24	30.73	1.80	-0.76	77.19	122.97
766	51.34	35.28	2.14	-0.57	74.02	124.16
767	51.41	34.97	2.26	-0.57	71.12	123.46
768	51.51	32.25	1.21	-0.57	70.63	122.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	51.58	31.24	1.48	-0.57	69.74	121.04
770	51.68	30.12	1.47	-0.38	72.97	121.32
771	51.79	28.51	1.42	-0.38	77.64	121.01
772	51.82	23.55	1.42	0.00	80.70	120.81
773	51.85	25.57	1.43	0.00	84.43	120.74
774	51.91	24.06	1.47	0.10	84.06	121.14
775	52.00	25.37	1.63	0.19	85.77	121.55
776	52.05	25.17	1.70	0.48	82.19	122.20
777	52.10	30.63	1.77	0.67	73.91	122.79
778	52.19	39.52	1.77	0.67	64.23	123.22
779	52.28	45.29	1.67	0.19	57.68	123.38
780	52.34	47.31	1.65	-0.10	55.15	123.36
781	52.42	46.50	1.68	-0.38	55.52	123.38
782	52.48	44.48	1.70	-0.29	57.37	123.35
783	52.57	42.05	1.69	-0.29	59.26	123.14
784	52.62	40.43	1.61	-0.19	60.78	122.72
785	52.69	38.31	1.49	0.00	61.59	122.10
786	52.77	36.79	1.37	0.10	62.55	121.57
787	52.87	35.58	1.36	0.19	63.92	121.31
788	52.91	34.27	1.39	0.19	65.28	120.93
789	53.01	32.35	1.22	0.19	67.19	120.67
790	53.10	31.03	1.28	0.29	68.16	120.77
791	53.16	33.16	1.47	0.38	69.53	122.45
792	53.25	37.91	2.14	0.48	67.34	124.27
793	53.29	44.98	2.40	0.57	65.53	126.29
794	53.38	49.94	3.03	0.67	63.67	127.54
795	53.42	51.76	3.26	1.15	57.59	128.96
796	53.47	76.22	3.60	1.34	50.04	130.26
797	53.52	95.93	4.09	1.43	43.49	131.46
798	53.58	106.44	4.29	1.24	41.58	132.45
799	53.66	106.44	4.88	-1.34	42.62	133.05
800	53.75	98.56	5.19	-2.86	45.49	133.37
801	53.81	91.08	5.18	-6.30	49.54	133.18
802	53.87	77.43	5.01	-9.74	53.77	132.67
803	53.95	68.54	4.74	-10.69	59.61	131.92
804	54.01	56.20	4.47	-11.74	65.69	131.12
805	54.06	47.81	4.22	-11.84	72.92	129.99
806	54.15	39.02	3.56	-11.84	77.78	129.07
807	54.20	39.02	3.50	-11.84	78.61	128.77
808	54.29	44.27	3.87	-11.84	70.76	129.29
809	54.34	59.94	3.77	-11.84	51.11	129.21
810	54.43	104.52	2.08	-12.22	34.79	128.49
811	54.45	137.17	1.94	-11.93	23.26	127.27
812	54.48	170.33	1.92	-12.60	19.04	127.74
813	54.52	191.25	2.08	-13.36	17.01	128.18
814	54.53	195.50	2.08	-13.08	16.36	128.98
815	54.58	210.36	2.46	-12.79	16.17	129.67
816	54.62	218.44	2.63	-8.30	15.74	130.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	54.65	230.47	2.63	-4.01	14.88	130.73
818	54.70	251.70	2.72	-3.63	14.37	131.15
819	54.76	252.00	2.98	-4.09	14.25	131.53
820	54.77	249.83	2.99	-3.42	14.61	131.77
821	54.82	247.96	3.02	-3.42	14.54	131.82
822	54.87	256.85	3.02	-3.42	14.47	131.87
823	54.88	254.53	3.03	-2.96	14.29	131.89
824	54.91	255.64	3.02	-3.09	14.24	131.96
825	54.96	261.81	3.08	-2.96	13.92	132.10
826	54.97	272.93	3.13	-2.77	13.35	132.49
827	55.03	295.47	3.37	-2.39	12.75	133.09
828	55.09	316.39	3.69	-2.96	11.80	133.38
829	55.15	333.88	3.31	-3.25	10.23	132.43
830	55.20	333.38	2.00	-3.05	9.28	131.93
831	55.25	347.93	3.01	-3.05	7.69	130.99
832	55.30	393.32	2.16	-3.05	7.43	132.16
833	55.34	419.40	3.03	-2.96	6.93	132.95
834	55.39	439.92	3.71	-2.77	7.32	134.46
835	55.40	460.94	4.01	-2.86	7.35	135.39
836	55.44	486.11	4.30	-2.67	7.07	135.83
837	55.44	501.48	4.26	-2.67	6.42	136.02
838	55.49	546.16	4.10	-2.64	6.52	136.38
839	55.54	505.72	4.89	-1.24	6.65	137.08
840	55.59	548.48	5.43	-1.05	7.22	137.28
841	55.63	550.81	5.64	-2.46	7.14	137.28
842	55.64	554.04	5.65	-2.46	7.12	137.28
843	55.68	555.66	5.52	-2.67	6.77	137.28
844	55.69	591.24	5.48	-2.60	6.62	137.28
845	55.69	564.35	5.44	-2.60	6.75	137.28
846	55.71	543.02	5.64	-2.53	7.10	137.28
847	55.76	577.59	6.17	-2.53	7.22	137.28
848	55.78	581.33	6.12	-2.39	7.02	137.28
849	55.81	581.74	5.86	-2.19	6.58	137.28
850	55.85	580.73	4.95	-2.67	5.96	137.28
851	55.86	590.13	4.53	-2.96	5.19	136.82
852	55.91	594.27	4.00	-2.96	4.62	136.29
853	55.92	611.66	3.93	-2.58	4.30	135.90
854	55.96	600.94	3.86	-2.48	3.98	135.87
855	55.97	644.61	3.85	-2.96	3.85	136.11
856	56.00	656.84	4.22	-3.15	3.75	136.51
857	56.01	661.80	4.40	-3.25	4.03	137.12
858	56.03	661.85	4.90	-3.25	4.27	137.28
859	56.05	661.85	5.01	-3.05	4.38	137.28
860	56.10	661.90	4.73	-2.86	4.31	137.28
861	56.12	671.50	4.82	-2.77	4.05	137.28
862	56.16	670.79	4.37	-2.67	3.91	137.12
863	56.17	660.89	4.28	-2.77	3.94	136.81
864	56.20	632.79	4.35	-2.77	4.25	136.76

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	56.22	611.76	4.41	-2.77	4.54	136.69
866	56.24	608.02	4.27	-2.67	4.60	136.52
867	56.30	605.70	4.12	-2.77	4.63	136.39
868	56.31	594.48	4.22	-2.67	4.86	136.51
869	56.34	587.00	4.54	-2.67	5.22	136.76
870	56.39	577.29	4.62	-2.67	5.42	136.81
871	56.45	572.94	4.38	-2.77	5.52	136.73
872	56.48	566.78	4.44	-2.58	5.63	136.67
873	56.49	556.57	4.57	-2.48	6.11	137.00
874	56.53	543.12	5.08	-2.39	6.65	137.27
875	56.58	526.85	5.09	-2.29	7.00	137.27
876	56.63	517.25	4.68	-2.39	5.57	135.21
877	56.68	530.19	1.47	-2.67	4.07	132.85
878	56.73	530.69	1.99	-2.19	3.28	131.52
879	56.78	533.22	3.31	-2.10	4.70	133.92
880	56.83	515.12	4.11	-2.10	5.98	135.53
881	56.89	505.72	4.38	-1.81	6.76	136.05
882	56.95	489.35	4.29	-1.72	7.57	136.39
883	56.99	460.13	4.89	-1.77	8.27	136.67
884	57.01	461.35	5.04	-1.81	8.73	136.83
885	57.04	461.35	4.71	-1.77	8.64	136.75
886	57.09	462.56	4.73	-1.77	8.37	136.69
887	57.11	480.76	4.85	-1.72	8.26	136.91
888	57.13	489.04	5.06	-1.72	8.28	137.28
889	57.18	496.12	5.48	-1.72	8.57	137.28
890	57.19	481.26	5.56	-1.72	9.17	137.28
891	57.21	456.09	5.75	-1.53	9.62	137.28
892	57.24	456.14	5.61	-1.53	9.80	137.28
893	57.28	456.19	5.36	-1.53	9.62	137.28
894	57.32	457.91	5.35	-1.53	9.68	137.28
895	57.35	438.71	5.32	-1.62	9.84	137.28
896	57.38	439.61	5.31	-1.43	10.12	137.28
897	57.43	428.50	5.24	-1.43	10.11	137.06
898	57.48	423.44	4.91	-1.62	10.27	136.57
899	57.52	392.11	4.48	-1.53	10.16	135.74
900	57.57	380.28	3.84	-1.53	10.70	135.89
901	57.62	396.35	5.29	-1.53	11.26	136.75
902	57.68	413.43	6.11	-1.53	10.99	137.28
903	57.76	472.77	5.74	-1.43	9.99	137.28
904	57.81	500.57	5.68	-1.72	7.13	136.51
905	57.86	543.23	2.17	-1.72	4.79	134.57
906	57.89	587.00	2.33	-1.72	2.67	131.65
907	57.91	587.40	2.22	-1.72	2.56	131.81
908	57.92	576.28	2.27	-1.72	2.86	132.23
909	57.95	567.79	2.76	-1.72	3.35	132.94
910	57.99	563.14	3.00	-1.72	3.71	133.65
911	58.01	581.13	3.08	-1.72	3.92	134.30
912	58.05	591.95	3.53	-1.72	3.96	134.78

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	58.05	600.54	3.58	-1.05	4.23	135.48
914	58.10	604.18	4.04	-1.43	4.36	135.85
915	58.13	609.64	4.08	-1.53	4.44	136.17
916	58.15	619.75	4.05	-1.53	4.30	136.16
917	58.17	626.22	3.98	-1.53	4.19	136.18
918	58.20	629.45	4.07	-1.53	4.24	136.22
919	58.21	614.69	4.13	-1.72	4.37	136.30
920	58.21	614.14	4.14	-1.72	4.48	136.33
921	58.23	614.14	4.16	-1.72	4.50	136.34
922	58.24	613.58	4.15	-1.81	4.62	136.36
923	58.25	596.70	4.21	-1.81	3.41	134.35
924	58.29	617.42	1.15	-1.72	2.07	131.70
925	58.31	627.93	1.23	-1.72	0.59	127.71
926	58.33	636.43	1.41	-1.72	0.81	129.01
927	58.38	652.70	1.86	-1.62	1.14	130.50
928	58.39	665.03	2.22	-1.70	1.43	131.67
929	58.43	667.96	2.33	-1.62	1.54	132.23
930	58.43	678.68	2.34	-1.70	1.38	132.20
931	58.48	701.62	2.15	-1.62	1.49	132.66
932	58.53	683.83	2.76	-1.62	1.70	133.35
933	58.56	697.78	3.03	-1.81	2.25	134.65
934	58.58	707.59	3.68	-1.91	2.48	135.33
935	58.59	707.99	3.65	-1.73	2.66	135.86
936	58.63	717.19	3.78	-1.54	2.76	135.95
937	58.63	696.42	3.83	-1.37	2.82	136.12
938	58.63	714.06	3.90	-1.37	2.92	135.93
939	58.68	675.65	3.56	-1.03	2.66	135.58
940	58.69	710.92	3.27	-1.03	2.12	134.51
941	58.72	719.11	2.44	-1.03	1.55	133.64
942	58.73	723.56	2.46	-0.91	1.34	133.28
943	58.74	726.19	2.85	-0.48	1.62	134.13
944	58.77	736.20	3.38	-0.85	2.06	135.06
945	58.81	718.51	3.65	-0.85	2.44	135.72
946	58.82	713.35	3.81	-0.85	2.73	136.05
947	58.83	710.01	3.91	-0.86	2.96	136.52
948	58.87	724.07	4.41	-0.86	3.17	137.07
949	58.91	732.96	4.71	-0.86	3.32	137.28
950	58.92	738.02	4.73	-0.76	3.35	137.28
951	58.93	742.66	4.76	-0.67	3.28	137.28
952	58.96	740.95	4.59	-0.57	3.26	137.28
953	59.01	733.57	4.60	-0.57	3.68	137.28
954	59.06	674.43	5.18	-1.24	4.25	137.28
955	59.08	653.91	5.10	-1.24	4.86	137.28
956	59.11	637.54	4.96	-1.24	5.19	137.28
957	59.15	625.41	5.36	-1.24	5.74	137.28
958	59.21	618.74	6.10	-1.43	6.20	137.28
959	59.26	610.75	5.85	-0.95	6.43	137.28
960	59.30	588.81	5.33	-0.67	6.35	137.28

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	59.35	577.39	5.07	-0.67	6.33	137.28
962	59.40	573.45	5.09	-0.67	6.60	137.28
963	59.42	537.46	5.10	-0.62	6.81	137.28
964	59.47	542.01	4.94	-0.62	7.03	137.28
965	59.51	538.58	4.99	-0.62	7.10	137.28
966	59.56	537.67	5.28	-0.48	7.14	137.28
967	59.61	537.67	4.95	-0.48	6.86	137.10
968	59.67	536.76	4.21	-0.48	6.15	136.33
969	59.71	551.52	3.80	-0.29	5.22	135.39
970	59.80	572.94	3.30	-0.29	4.51	134.34
971	59.85	543.02	2.68	-0.10	4.17	133.65
972	59.90	541.41	2.94	0.00	4.17	133.27
973	60.00	542.21	2.91	0.29	4.27	133.47
974	60.04	545.35	2.91	0.19	4.40	133.64
975	60.10	537.57	3.16	0.19	4.95	133.98
976	60.15	496.63	3.43	0.19	5.55	134.23
977	60.19	490.76	3.36	0.19	6.05	134.17
978	60.23	474.79	3.20	0.19	5.92	133.82
979	60.28	484.90	2.99	0.29	5.71	133.46
980	60.33	488.14	2.90	0.29	5.51	133.41
981	60.38	493.90	3.10	0.29	5.65	133.73
982	60.42	493.85	3.38	0.29	5.89	134.17
983	60.44	493.80	3.46	0.29	6.33	134.53
984	60.47	473.88	3.65	0.38	6.98	134.97
985	60.52	460.13	4.12	0.48	7.63	135.40
986	60.56	462.56	4.23	0.38	8.01	135.74
987	60.57	465.39	4.25	0.38	7.98	135.80
988	60.61	467.11	4.21	0.38	7.76	135.74
989	60.66	479.34	4.08	0.38	7.57	135.77
990	60.71	485.41	4.24	0.38	7.40	135.90
991	60.76	495.21	4.35	0.48	7.47	136.31
992	60.81	505.12	4.72	0.67	7.48	136.65
993	60.86	513.91	4.79	0.76	7.09	136.81
994	60.91	550.10	4.48	0.95	6.19	136.86
995	60.95	615.30	4.50	1.05	5.45	137.13
996	61.00	639.05	4.99	1.24	5.05	137.28
997	61.02	658.56	5.11	1.72	5.00	137.28
998	61.05	675.54	5.33	1.72	4.74	137.28
999	61.08	721.13	5.51	1.62	4.50	137.28
1000	61.09	733.97	5.54	1.62	4.27	137.28
1001	61.13	740.34	5.59	1.81	4.24	137.28
1002	61.14	739.43	5.66	1.91	4.28	137.28
1003	61.16	738.52	5.76	1.91	4.32	137.28
1004	61.20	746.30	5.81	1.91	4.05	137.28
1005	61.23	767.73	5.15	1.91	3.75	137.28
1006	61.24	772.28	5.21	1.81	3.14	137.28
1007	61.29	760.66	3.90	1.81	2.97	137.28
1008	61.30	743.57	4.26	1.72	3.09	137.25

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	61.33	728.41	5.05	1.81	3.50	137.28
1010	61.38	731.65	4.85	2.00	3.57	137.28
1011	61.43	732.56	4.32	1.81	3.24	137.17
1012	61.48	728.92	3.98	1.81	2.87	136.68
1013	61.53	753.18	3.97	1.62	2.61	136.51
1014	61.56	770.56	3.96	1.72	2.53	136.46
1015	61.58	740.54	3.88	1.72	2.82	136.29
1016	61.59	669.61	3.85	1.46	3.07	136.12
1017	61.62	696.97	3.82	0.67	4.53	135.66
1018	61.63	435.47	3.76	0.86	4.59	135.59
1019	61.67	653.41	3.77	1.34	4.68	135.51
1020	61.71	676.15	3.74	1.43	3.52	135.82
1021	61.76	658.36	3.79	1.34	3.57	135.69
1022	61.81	631.98	3.61	1.34	3.48	134.89
1023	61.86	611.66	2.70	1.53	3.19	133.76
1024	61.87	601.35	2.42	1.62	2.51	131.84
1025	61.91	589.42	1.65	1.72	2.08	130.34
1026	61.95	575.78	1.49	1.72	1.72	128.91
1027	61.96	568.80	1.46	1.62	1.77	128.59
1028	62.00	555.56	1.48	1.53	2.11	128.99
1029	62.04	536.66	1.77	1.43	2.73	129.80
1030	62.06	513.20	2.07	1.34	3.63	130.78
1031	62.10	482.98	2.34	1.34	4.36	131.39
1032	62.14	478.73	2.39	1.34	4.98	131.79
1033	62.20	464.78	2.54	1.34	5.42	131.98
1034	62.22	445.68	2.60	1.62	6.21	132.17
1035	62.27	407.07	2.72	1.43	7.02	132.25
1036	62.29	393.62	2.77	1.34	7.80	132.39
1037	62.34	388.36	2.89	1.43	8.52	132.51
1038	62.39	358.75	2.98	1.24	9.48	132.97
1039	62.43	352.68	3.46	1.43	11.11	133.79
1040	62.49	331.86	4.17	1.43	12.15	134.44
1041	62.57	335.80	4.05	1.43	12.81	134.86
1042	62.68	341.56	4.21	1.43	12.34	135.49
1043	62.75	394.13	5.02	1.53	11.19	136.33
1044	62.87	459.02	5.12	1.62	10.57	136.91
1045	62.88	425.46	5.04	1.53	11.01	136.62
1046	62.89	343.08	4.64	0.86	9.46	135.64
1047	62.93	504.41	3.12	1.53	6.80	134.88
1048	62.98	608.73	3.27	1.24	4.56	134.66
1049	63.02	602.56	3.75	1.53	2.42	132.17
1050	63.07	649.36	0.00	1.53	0.48	127.73
1051	63.12	723.66	0.00	1.62	N/A	87.36
1052	63.14	759.24	0.00	1.62	N/A	87.36
1053	63.17	774.10	0.00	1.72	N/A	87.36
1054	63.17	810.49	0.00	1.53	N/A	87.36
1055	63.20	813.42	0.00	1.53	N/A	87.36
1056	63.21	853.96	0.00	1.53	N/A	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1057	63.23	825.05	0.00	1.43	N/A	87.36
1058	63.26	849.66	0.00	0.99	N/A	87.36
1059	63.28	829.50	0.00	0.99	N/A	87.36
1060	63.31	845.37	0.00	0.29	N/A	87.36
1061	63.32	839.40	0.00	0.48	N/A	87.36
1062	63.36	833.34	0.00	0.57	N/A	87.36
1063	63.40	838.59	0.00	0.67	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.01	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
2	0.04	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
3	0.09	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
4	0.11	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
5	0.14	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
6	0.14	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
7	0.18	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
8	0.23	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
9	0.24	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
10	0.28	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
11	0.33	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
12	0.38	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
13	0.42	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
14	0.47	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
15	0.51	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
16	0.52	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
17	0.57	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
18	0.61	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
19	0.67	0.04	0.00	0.04	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
20	0.73	0.04	0.00	0.04	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
21	0.81	0.04	0.00	0.04	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
22	0.86	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
23	0.98	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
24	1.05	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
25	1.15	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
26	1.24	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
27	1.34	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
28	1.43	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
29	1.53	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
30	1.58	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
31	1.62	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
32	1.67	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
33	1.75	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
34	1.77	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
35	1.81	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
36	1.86	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
37	1.91	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
38	1.95	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
39	2.00	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
40	2.05	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
41	2.11	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
42	2.20	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
43	2.24	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
44	2.29	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
45	2.34	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
46	2.44	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
47	2.48	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
48	2.58	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	2.63	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
50	2.71	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
51	2.78	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
52	2.82	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
53	2.89	0.16	0.00	0.16	1.00	0.408	1.36	0.300	1.00	1.00	2.000	Yes
54	2.96	0.16	0.00	0.16	1.00	0.407	1.36	0.300	1.00	1.00	2.000	No
55	3.03	0.17	0.00	0.17	0.99	0.407	1.36	0.300	1.00	1.00	2.000	No
56	3.11	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
57	3.19	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
58	3.25	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
59	3.35	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
60	3.41	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
61	3.50	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
62	3.59	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
63	3.69	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
64	3.79	0.21	0.00	0.21	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
65	3.88	0.21	0.00	0.21	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
66	3.97	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
67	4.07	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
68	4.14	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
69	4.17	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
70	4.26	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
71	4.32	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
72	4.37	0.24	0.00	0.24	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
73	4.42	0.24	0.00	0.24	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
74	4.51	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
75	4.61	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
76	4.65	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
77	4.74	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
78	4.80	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
79	4.89	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
80	4.95	0.27	0.00	0.27	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
81	5.04	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
82	5.13	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
83	5.18	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
84	5.28	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
85	5.32	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
86	5.42	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
87	5.51	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
88	5.60	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
89	5.66	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
90	5.76	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
91	5.85	0.32	0.00	0.32	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
92	5.92	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
93	5.95	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
94	5.97	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
95	6.02	0.33	0.00	0.33	0.99	0.405	1.36	0.297	1.00	1.00	2.000	Yes
96	6.06	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	6.16	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
98	6.21	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
99	6.26	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
100	6.31	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
101	6.40	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
102	6.44	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
103	6.52	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
104	6.57	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
105	6.64	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
106	6.69	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
107	6.78	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
108	6.83	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
109	6.92	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
110	6.97	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
111	7.03	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
112	7.12	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
113	7.22	0.39	0.00	0.39	0.99	0.403	1.36	0.297	1.00	1.00	2.000	No
114	7.27	0.39	0.00	0.39	0.99	0.403	1.36	0.297	1.00	1.00	2.000	No
115	7.36	0.40	0.00	0.40	0.98	0.403	1.36	0.297	1.00	1.00	2.000	No
116	7.43	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
117	7.50	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
118	7.59	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
119	7.64	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
120	7.75	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
121	7.79	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
122	7.89	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
123	7.99	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
124	8.04	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
125	8.13	0.44	0.00	0.44	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
126	8.23	0.44	0.00	0.44	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
127	8.32	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
128	8.37	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
129	8.46	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
130	8.56	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
131	8.59	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
132	8.61	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
133	8.67	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
134	8.71	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
135	8.72	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
136	8.78	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
137	8.80	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
138	8.86	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
139	8.90	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
140	8.95	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
141	8.96	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
142	9.00	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
143	9.05	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
144	9.09	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	9.10	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
146	9.14	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
147	9.20	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
148	9.24	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
149	9.29	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
150	9.31	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
151	9.38	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
152	9.41	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
153	9.47	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
154	9.53	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
155	9.62	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
156	9.67	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
157	9.77	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
158	9.81	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
159	9.90	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
160	9.97	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
161	10.06	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
162	10.20	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
163	10.30	0.56	0.00	0.56	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
164	10.44	0.57	0.00	0.57	0.98	0.401	1.36	0.295	1.00	1.00	2.000	Yes
165	10.54	0.57	0.00	0.57	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
166	10.63	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
167	10.74	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
168	10.78	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
169	10.83	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
170	10.88	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
171	10.89	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	Yes
172	10.97	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
173	11.02	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
174	11.07	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
175	11.11	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
176	11.16	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
177	11.21	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
178	11.26	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
179	11.30	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
180	11.36	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
181	11.40	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
182	11.45	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
183	11.50	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
184	11.55	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
185	11.60	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
186	11.66	0.64	0.00	0.64	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
187	11.74	0.64	0.00	0.64	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
188	11.84	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
189	11.93	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
190	12.04	0.66	0.00	0.66	0.97	0.399	1.36	0.294	1.00	1.00	2.000	No
191	12.13	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
192	12.22	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	12.27	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
194	12.37	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
195	12.41	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
196	12.51	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
197	12.56	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
198	12.65	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
199	12.71	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
200	12.79	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
201	12.89	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
202	12.96	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
203	13.04	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
204	13.13	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
205	13.23	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
206	13.30	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
207	13.37	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
208	13.47	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	Yes
209	13.57	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
210	13.61	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
211	13.62	0.75	0.00	0.75	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
212	13.68	0.75	0.00	0.75	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
213	13.73	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
214	13.77	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
215	13.87	0.77	0.00	0.77	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
216	13.93	0.77	0.00	0.77	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
217	14.00	0.77	0.00	0.77	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
218	14.06	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
219	14.12	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
220	14.21	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
221	14.25	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
222	14.35	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
223	14.45	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
224	14.50	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
225	14.59	0.81	0.00	0.81	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
226	14.64	0.81	0.00	0.81	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
227	14.74	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
228	14.80	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
229	14.88	0.83	0.00	0.83	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
230	14.97	0.83	0.00	0.83	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
231	15.05	0.84	0.00	0.84	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
232	15.13	0.84	0.00	0.84	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
233	15.21	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
234	15.28	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
235	15.36	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
236	15.41	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
237	15.50	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
238	15.55	0.87	0.00	0.87	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
239	15.65	0.87	0.00	0.87	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
240	15.71	0.88	0.00	0.88	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	15.79	0.88	0.00	0.88	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
242	15.89	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
243	15.90	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
244	15.94	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
245	16.00	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
246	16.06	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
247	16.14	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
248	16.19	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
249	16.26	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
250	16.33	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
251	16.38	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
252	16.47	0.92	0.00	0.92	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
253	16.54	0.92	0.00	0.92	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
254	16.62	0.93	0.00	0.93	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
255	16.70	0.93	0.00	0.93	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
256	16.76	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
257	16.86	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
258	16.90	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
259	16.98	0.95	0.00	0.95	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
260	17.05	0.95	0.00	0.95	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
261	17.14	0.96	0.00	0.96	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
262	17.20	0.96	0.00	0.96	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
263	17.29	0.97	0.00	0.97	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
264	17.34	0.97	0.00	0.97	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
265	17.44	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
266	17.50	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
267	17.58	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
268	17.64	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
269	17.75	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
270	17.82	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
271	17.89	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
272	17.89	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
273	17.96	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
274	18.02	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
275	18.07	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
276	18.17	1.02	0.00	1.02	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
277	18.22	1.02	0.00	1.02	0.96	0.394	1.36	0.289	1.00	1.00	2.000	Yes
278	18.30	1.03	0.00	1.03	0.96	0.394	1.36	0.289	1.00	1.00	2.000	Yes
279	18.36	1.03	0.00	1.03	0.96	0.394	1.36	0.289	1.00	1.00	2.000	Yes
280	18.42	1.03	0.00	1.03	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
281	18.50	1.04	0.00	1.04	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
282	18.56	1.04	0.00	1.04	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
283	18.62	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
284	18.69	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
285	18.76	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
286	18.84	1.06	0.00	1.06	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
287	18.89	1.06	0.00	1.06	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
288	18.98	1.07	0.00	1.07	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	19.05	1.07	0.00	1.07	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
290	19.12	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
291	19.18	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
292	19.24	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
293	19.32	1.09	0.00	1.09	0.96	0.393	1.36	0.289	0.99	1.00	2.000	No
294	19.38	1.09	0.00	1.09	0.96	0.392	1.36	0.289	0.99	1.00	2.000	No
295	19.46	1.10	0.00	1.10	0.96	0.392	1.36	0.289	0.99	1.00	2.000	No
296	19.54	1.10	0.00	1.10	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
297	19.62	1.11	0.00	1.11	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
298	19.70	1.11	0.00	1.11	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
299	19.80	1.12	0.00	1.12	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
300	19.85	1.12	0.00	1.12	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
301	19.94	1.13	0.00	1.13	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
302	20.03	1.13	0.00	1.13	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
303	20.13	1.14	0.00	1.14	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
304	20.19	1.14	0.00	1.14	0.96	0.392	1.36	0.288	0.98	1.00	2.000	No
305	20.29	1.15	0.00	1.15	0.96	0.392	1.36	0.288	0.98	1.00	2.000	No
306	20.39	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
307	20.43	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
308	20.47	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
309	20.52	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
310	20.61	1.17	0.00	1.17	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
311	20.66	1.17	0.00	1.17	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
312	20.71	1.18	0.00	1.18	0.96	0.391	1.36	0.288	0.98	1.00	2.000	No
313	20.77	1.18	0.00	1.18	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
314	20.85	1.18	0.00	1.18	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
315	20.91	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
316	21.00	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
317	21.05	1.20	0.00	1.20	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
318	21.11	1.20	0.00	1.20	0.95	0.391	1.36	0.287	0.97	1.00	2.000	No
319	21.19	1.21	0.00	1.21	0.95	0.391	1.36	0.287	0.97	1.00	2.000	No
320	21.24	1.21	0.00	1.21	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
321	21.34	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
322	21.39	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
323	21.48	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
324	21.53	1.23	0.00	1.23	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
325	21.64	1.23	0.00	1.23	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
326	21.72	1.24	0.00	1.24	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
327	21.81	1.24	0.00	1.24	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
328	21.89	1.25	0.00	1.25	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
329	21.97	1.25	0.00	1.25	0.95	0.390	1.36	0.286	0.97	1.00	2.000	No
330	22.05	1.26	0.00	1.26	0.95	0.390	1.36	0.286	0.97	1.00	2.000	No
331	22.12	1.26	0.00	1.26	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
332	22.13	1.26	0.00	1.26	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
333	22.18	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
334	22.22	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
335	22.28	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
336	22.33	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	22.38	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
338	22.41	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
339	22.51	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
340	22.56	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
341	22.61	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
342	22.65	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
343	22.71	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
344	22.76	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
345	22.85	1.31	0.00	1.31	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
346	22.89	1.31	0.00	1.31	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
347	22.99	1.32	0.00	1.32	0.95	0.388	1.36	0.286	0.96	1.00	2.000	No
348	23.04	1.32	0.00	1.32	0.95	0.388	1.36	0.286	0.96	1.00	2.000	No
349	23.12	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
350	23.18	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
351	23.24	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
352	23.33	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
353	23.38	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
354	23.47	1.35	0.00	1.35	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
355	23.52	1.35	0.00	1.35	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
356	23.61	1.36	0.00	1.36	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
357	23.68	1.36	0.00	1.36	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
358	23.76	1.36	0.00	1.36	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
359	23.83	1.37	0.00	1.37	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
360	23.90	1.37	0.00	1.37	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
361	23.97	1.38	0.00	1.38	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
362	24.05	1.38	0.00	1.38	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
363	24.10	1.39	0.00	1.39	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
364	24.19	1.39	0.00	1.39	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
365	24.27	1.40	0.00	1.40	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
366	24.34	1.40	0.00	1.40	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
367	24.43	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
368	24.48	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
369	24.57	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
370	24.62	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
371	24.72	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
372	24.81	1.43	0.00	1.43	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
373	24.86	1.43	0.00	1.43	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
374	24.95	1.44	0.00	1.44	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
375	25.01	1.44	0.00	1.44	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
376	25.02	1.44	0.00	1.44	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
377	25.05	1.44	0.00	1.44	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
378	25.11	1.45	0.00	1.45	0.94	0.386	1.36	0.283	0.94	1.00	2.000	No
379	25.15	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
380	25.21	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
381	25.25	1.46	0.00	1.46	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
382	25.30	1.46	0.00	1.46	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
383	25.40	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
384	25.45	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	25.52	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
386	25.60	1.48	0.00	1.48	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
387	25.66	1.48	0.00	1.48	0.94	0.385	1.36	0.283	0.93	1.00	2.000	Yes
388	25.74	1.49	0.00	1.49	0.94	0.385	1.36	0.283	0.93	1.00	2.000	Yes
389	25.80	1.49	0.00	1.49	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
390	25.88	1.49	0.00	1.49	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
391	25.94	1.50	0.00	1.50	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
392	26.02	1.50	0.00	1.50	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
393	26.09	1.51	0.00	1.51	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
394	26.17	1.51	0.00	1.51	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
395	26.23	1.52	0.00	1.52	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
396	26.29	1.52	0.00	1.52	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
397	26.37	1.52	0.00	1.52	0.94	0.384	1.36	0.282	0.93	1.00	2.000	No
398	26.46	1.53	0.00	1.53	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
399	26.55	1.53	0.00	1.53	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
400	26.60	1.54	0.00	1.54	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
401	26.70	1.54	0.00	1.54	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
402	26.78	1.55	0.00	1.55	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
403	26.87	1.55	0.00	1.55	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
404	26.94	1.56	0.00	1.56	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
405	27.03	1.56	0.00	1.56	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
406	27.13	1.57	0.00	1.57	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
407	27.18	1.57	0.00	1.57	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
408	27.27	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
409	27.32	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
410	27.37	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
411	27.41	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
412	27.46	1.59	0.00	1.59	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
413	27.51	1.59	0.00	1.59	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
414	27.61	1.59	0.00	1.59	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
415	27.66	1.60	0.00	1.60	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
416	27.73	1.60	0.00	1.60	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
417	27.80	1.61	0.00	1.61	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
418	27.88	1.61	0.00	1.61	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
419	27.96	1.62	0.00	1.62	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
420	28.04	1.62	0.00	1.62	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
421	28.12	1.63	0.00	1.63	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
422	28.18	1.63	0.00	1.63	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
423	28.27	1.64	0.00	1.64	0.93	0.380	1.36	0.280	0.92	1.00	2.000	No
424	28.32	1.64	0.00	1.64	0.93	0.380	1.36	0.280	0.92	1.00	2.000	No
425	28.42	1.64	0.00	1.64	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
426	28.47	1.65	0.00	1.65	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
427	28.61	1.66	0.00	1.66	0.93	0.380	1.36	0.279	0.91	1.00	2.000	No
428	28.67	1.66	0.00	1.66	0.93	0.380	1.36	0.279	0.91	1.00	2.000	Yes
429	28.75	1.67	0.00	1.67	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes
430	28.81	1.67	0.00	1.67	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes
431	28.90	1.68	0.00	1.68	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes
432	29.00	1.68	0.00	1.68	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	29.05	1.68	0.00	1.68	0.93	0.379	1.36	0.279	0.91	1.00	2.000	Yes
434	29.10	1.69	0.00	1.69	0.93	0.379	1.36	0.278	0.91	1.00	2.000	Yes
435	29.15	1.69	0.00	1.69	0.92	0.379	1.36	0.278	0.91	1.00	2.000	Yes
436	29.24	1.70	0.00	1.70	0.92	0.379	1.36	0.278	0.91	1.00	2.000	Yes
437	29.29	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
438	29.37	1.71	0.00	1.71	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
439	29.43	1.71	0.00	1.71	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
440	29.53	1.72	0.00	1.72	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
441	29.62	1.72	0.00	1.72	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
442	29.68	1.72	0.00	1.72	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
443	29.80	1.73	0.00	1.73	0.92	0.377	1.36	0.277	0.91	1.00	2.000	No
444	29.91	1.74	0.00	1.74	0.92	0.377	1.36	0.277	0.91	1.00	2.000	No
445	30.00	1.74	0.00	1.74	0.92	0.377	1.36	0.277	0.90	1.00	0.306	No
446	30.07	1.75	0.00	1.75	0.92	0.377	1.36	0.277	0.90	1.00	0.307	No
447	30.15	1.75	0.00	1.75	0.92	0.378	1.36	0.278	0.90	1.00	0.307	No
448	30.21	1.76	0.01	1.75	0.92	0.378	1.36	0.278	0.90	1.00	0.307	No
449	30.26	1.76	0.01	1.75	0.92	0.378	1.36	0.278	0.90	1.00	0.308	No
450	30.31	1.76	0.01	1.75	0.92	0.378	1.36	0.278	0.90	1.00	0.308	No
451	30.38	1.77	0.01	1.76	0.92	0.379	1.36	0.278	0.90	1.00	0.308	No
452	30.45	1.77	0.01	1.76	0.92	0.379	1.36	0.279	0.90	1.00	0.308	No
453	30.50	1.78	0.02	1.76	0.92	0.379	1.36	0.279	0.90	1.00	0.309	No
454	30.55	1.78	0.02	1.76	0.92	0.379	1.36	0.279	0.90	1.00	0.309	No
455	30.64	1.78	0.02	1.76	0.92	0.380	1.36	0.279	0.90	1.00	0.309	No
456	30.70	1.79	0.02	1.77	0.92	0.380	1.36	0.279	0.90	1.00	0.310	No
457	30.79	1.79	0.02	1.77	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
458	30.84	1.80	0.03	1.77	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
459	30.93	1.80	0.03	1.77	0.92	0.381	1.36	0.280	0.90	1.00	0.311	No
460	30.98	1.81	0.03	1.78	0.92	0.381	1.36	0.280	0.90	1.00	0.311	No
461	31.05	1.81	0.03	1.78	0.92	0.382	1.36	0.281	0.90	1.00	0.311	No
462	31.13	1.81	0.04	1.78	0.91	0.382	1.36	0.281	0.90	1.00	0.312	No
463	31.17	1.82	0.04	1.78	0.91	0.382	1.36	0.281	0.90	1.00	0.312	No
464	31.27	1.82	0.04	1.78	0.91	0.383	1.36	0.281	0.90	1.00	0.312	No
465	31.32	1.83	0.04	1.79	0.91	0.383	1.36	0.281	0.90	1.00	0.312	No
466	31.41	1.83	0.04	1.79	0.91	0.383	1.36	0.282	0.90	1.00	0.313	No
467	31.46	1.84	0.05	1.79	0.91	0.383	1.36	0.282	0.90	1.00	0.313	No
468	31.52	1.84	0.05	1.79	0.91	0.384	1.36	0.282	0.90	1.00	0.313	No
469	31.61	1.84	0.05	1.79	0.91	0.384	1.36	0.282	0.90	1.00	0.314	No
470	31.66	1.85	0.05	1.80	0.91	0.384	1.36	0.282	0.90	1.00	0.314	No
471	31.75	1.85	0.05	1.80	0.91	0.384	1.36	0.283	0.90	1.00	0.314	No
472	31.80	1.86	0.06	1.80	0.91	0.385	1.36	0.283	0.90	1.00	0.315	No
473	31.90	1.86	0.06	1.80	0.91	0.385	1.36	0.283	0.90	1.00	0.315	No
474	31.94	1.87	0.06	1.81	0.91	0.385	1.36	0.283	0.90	1.00	0.315	No
475	32.04	1.87	0.06	1.81	0.91	0.386	1.36	0.283	0.90	1.00	0.316	No
476	32.09	1.87	0.07	1.81	0.91	0.386	1.36	0.284	0.90	1.00	0.316	No
477	32.20	1.88	0.07	1.81	0.91	0.386	1.36	0.284	0.90	1.00	0.316	No
478	32.24	1.88	0.07	1.81	0.91	0.386	1.36	0.284	0.90	1.00	0.316	No
479	32.28	1.89	0.07	1.82	0.91	0.386	1.36	0.284	0.90	1.00	0.317	No
480	32.29	1.89	0.07	1.82	0.91	0.386	1.36	0.284	0.90	1.00	0.317	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	32.30	1.89	0.07	1.82	0.91	0.387	1.36	0.284	0.90	1.00	0.317	No
482	32.40	1.89	0.07	1.82	0.91	0.387	1.36	0.284	0.90	1.00	0.317	No
483	32.45	1.90	0.08	1.82	0.91	0.387	1.36	0.285	0.90	1.00	0.317	No
484	32.55	1.90	0.08	1.82	0.91	0.387	1.36	0.285	0.90	1.00	0.318	No
485	32.59	1.91	0.08	1.83	0.91	0.388	1.36	0.285	0.90	1.00	0.318	No
486	32.69	1.91	0.08	1.83	0.91	0.388	1.36	0.285	0.90	1.00	0.318	No
487	32.76	1.92	0.09	1.83	0.91	0.388	1.36	0.285	0.90	1.00	0.318	No
488	32.84	1.92	0.09	1.83	0.90	0.388	1.36	0.286	0.90	1.00	0.319	No
489	32.90	1.93	0.09	1.84	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
490	32.98	1.93	0.09	1.84	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
491	33.06	1.94	0.10	1.84	0.90	0.389	1.36	0.286	0.90	1.00	0.320	No
492	33.12	1.94	0.10	1.84	0.90	0.389	1.36	0.286	0.89	1.00	0.320	No
493	33.22	1.95	0.10	1.85	0.90	0.390	1.36	0.286	0.89	1.00	0.320	No
494	33.31	1.95	0.10	1.85	0.90	0.390	1.36	0.287	0.89	1.00	0.321	No
495	33.37	1.96	0.10	1.85	0.90	0.390	1.36	0.287	0.89	1.00	0.321	No
496	33.46	1.96	0.11	1.85	0.90	0.390	1.36	0.287	0.89	1.00	0.321	No
497	33.55	1.97	0.11	1.86	0.90	0.391	1.36	0.287	0.89	1.00	0.321	No
498	33.65	1.97	0.11	1.86	0.90	0.391	1.36	0.287	0.89	1.00	0.322	No
499	33.70	1.98	0.12	1.86	0.90	0.391	1.36	0.288	0.89	1.00	0.322	No
500	33.79	1.98	0.12	1.86	0.90	0.391	1.36	0.288	0.89	1.00	0.322	No
501	33.89	1.99	0.12	1.87	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
502	33.99	2.00	0.12	1.87	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
503	34.04	2.00	0.13	1.87	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
504	34.13	2.00	0.13	1.88	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
505	34.23	2.01	0.13	1.88	0.90	0.393	1.36	0.289	0.89	1.00	0.324	No
506	34.32	2.02	0.13	1.88	0.90	0.393	1.36	0.289	0.89	1.00	0.324	No
507	34.37	2.02	0.14	1.88	0.89	0.393	1.36	0.289	0.89	1.00	0.324	No
508	34.47	2.03	0.14	1.89	0.89	0.393	1.36	0.289	0.89	1.00	0.325	No
509	34.55	2.03	0.14	1.89	0.89	0.393	1.36	0.289	0.89	1.00	2.000	Yes
510	34.63	2.04	0.14	1.89	0.89	0.394	1.36	0.289	0.89	1.00	2.000	Yes
511	34.73	2.04	0.15	1.90	0.89	0.394	1.36	0.290	0.89	1.00	2.000	Yes
512	34.80	2.05	0.15	1.90	0.89	0.394	1.36	0.290	0.89	1.00	2.000	Yes
513	34.90	2.05	0.15	1.90	0.89	0.394	1.36	0.290	0.89	1.00	2.000	Yes
514	35.00	2.06	0.16	1.90	0.89	0.395	1.36	0.290	0.89	1.00	0.326	No
515	35.12	2.07	0.16	1.91	0.89	0.395	1.36	0.290	0.89	1.00	0.327	No
516	35.20	2.07	0.16	1.91	0.89	0.395	1.36	0.290	0.89	1.00	0.327	No
517	35.33	2.08	0.17	1.91	0.89	0.395	1.36	0.291	0.89	1.00	2.000	Yes
518	35.41	2.08	0.17	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
519	35.44	2.09	0.17	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
520	35.48	2.09	0.17	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
521	35.57	2.10	0.17	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
522	35.62	2.10	0.18	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
523	35.67	2.10	0.18	1.92	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
524	35.71	2.10	0.18	1.93	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
525	35.82	2.11	0.18	1.93	0.88	0.396	1.36	0.291	0.89	1.00	2.000	Yes
526	35.86	2.11	0.18	1.93	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
527	35.93	2.12	0.19	1.93	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
528	36.01	2.12	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	36.06	2.13	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
530	36.12	2.13	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	0.329	No
531	36.18	2.13	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	0.330	No
532	36.25	2.14	0.19	1.94	0.88	0.397	1.36	0.292	0.89	1.00	0.330	No
533	36.30	2.14	0.20	1.95	0.88	0.397	1.36	0.292	0.89	1.00	0.330	No
534	36.39	2.15	0.20	1.95	0.88	0.397	1.36	0.292	0.89	1.00	0.330	No
535	36.44	2.15	0.20	1.95	0.88	0.398	1.36	0.292	0.88	1.00	0.330	No
536	36.53	2.16	0.20	1.95	0.88	0.398	1.36	0.292	0.88	1.00	0.331	No
537	36.59	2.16	0.21	1.96	0.88	0.398	1.36	0.292	0.88	1.00	0.331	No
538	36.68	2.17	0.21	1.96	0.88	0.398	1.36	0.293	0.88	1.00	0.331	No
539	36.75	2.17	0.21	1.96	0.88	0.398	1.36	0.293	0.88	1.00	0.331	No
540	36.83	2.18	0.21	1.96	0.88	0.398	1.36	0.293	0.88	1.00	0.331	No
541	36.90	2.18	0.22	1.97	0.88	0.398	1.36	0.293	0.88	1.00	0.331	No
542	36.97	2.19	0.22	1.97	0.88	0.398	1.36	0.293	0.88	1.00	0.332	No
543	37.02	2.19	0.22	1.97	0.88	0.398	1.36	0.293	0.88	1.00	0.332	No
544	37.04	2.19	0.22	1.97	0.88	0.399	1.36	0.293	0.88	1.00	0.332	No
545	37.08	2.19	0.22	1.97	0.88	0.399	1.36	0.293	0.88	1.00	0.332	No
546	37.17	2.20	0.22	1.98	0.87	0.399	1.36	0.293	0.88	1.00	0.332	No
547	37.27	2.21	0.23	1.98	0.87	0.399	1.36	0.293	0.88	1.00	0.332	No
548	37.37	2.21	0.23	1.98	0.87	0.399	1.36	0.293	0.88	1.00	0.333	No
549	37.42	2.22	0.23	1.98	0.87	0.399	1.36	0.293	0.88	1.00	0.333	No
550	37.51	2.22	0.23	1.99	0.87	0.399	1.36	0.293	0.88	1.00	0.333	No
551	37.58	2.23	0.24	1.99	0.87	0.399	1.36	0.294	0.88	1.00	0.333	No
552	37.66	2.23	0.24	1.99	0.87	0.399	1.36	0.294	0.88	1.00	0.333	No
553	37.76	2.24	0.24	1.99	0.87	0.399	1.36	0.294	0.88	1.00	0.333	No
554	37.85	2.24	0.24	2.00	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
555	37.93	2.25	0.25	2.00	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
556	38.04	2.26	0.25	2.00	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
557	38.13	2.26	0.25	2.01	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
558	38.18	2.26	0.26	2.01	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
559	38.28	2.27	0.26	2.01	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
560	38.37	2.28	0.26	2.01	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
561	38.47	2.28	0.26	2.02	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
562	38.57	2.29	0.27	2.02	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
563	38.62	2.29	0.27	2.02	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
564	38.72	2.30	0.27	2.03	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
565	38.78	2.30	0.27	2.03	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
566	38.81	2.30	0.27	2.03	0.86	0.400	1.36	0.294	0.88	1.00	0.335	No
567	38.86	2.31	0.28	2.03	0.86	0.401	1.36	0.294	0.88	1.00	0.335	No
568	38.91	2.31	0.28	2.03	0.86	0.401	1.36	0.294	0.88	1.00	0.336	No
569	38.95	2.31	0.28	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
570	39.05	2.32	0.28	2.04	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
571	39.09	2.32	0.28	2.04	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
572	39.14	2.33	0.29	2.04	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
573	39.24	2.33	0.29	2.04	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
574	39.29	2.33	0.29	2.05	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
575	39.39	2.34	0.29	2.05	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
576	39.43	2.34	0.29	2.05	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	39.53	2.35	0.30	2.05	0.86	0.401	1.36	0.295	0.88	1.00	0.337	No
578	39.57	2.35	0.30	2.05	0.85	0.401	1.36	0.295	0.88	1.00	0.337	No
579	39.68	2.36	0.30	2.06	0.85	0.401	1.36	0.295	0.88	1.00	0.337	No
580	39.73	2.36	0.30	2.06	0.85	0.401	1.36	0.295	0.88	1.00	0.337	No
581	39.81	2.37	0.31	2.06	0.85	0.401	1.36	0.295	0.88	1.00	0.337	No
582	39.89	2.37	0.31	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
583	39.96	2.38	0.31	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
584	40.06	2.38	0.31	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
585	40.15	2.39	0.32	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
586	40.20	2.39	0.32	2.07	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
587	40.24	2.40	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
588	40.26	2.40	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.337	No
589	40.27	2.40	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
590	40.37	2.40	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
591	40.42	2.41	0.32	2.08	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
592	40.52	2.41	0.33	2.09	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
593	40.56	2.42	0.33	2.09	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
594	40.66	2.42	0.33	2.09	0.85	0.401	1.36	0.295	0.87	1.00	0.338	No
595	40.70	2.43	0.33	2.09	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
596	40.75	2.43	0.34	2.09	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
597	40.85	2.43	0.34	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
598	40.91	2.44	0.34	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
599	40.96	2.44	0.34	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
600	41.04	2.45	0.34	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
601	41.09	2.45	0.35	2.10	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
602	41.18	2.46	0.35	2.11	0.84	0.401	1.36	0.295	0.87	1.00	0.338	No
603	41.23	2.46	0.35	2.11	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
604	41.29	2.46	0.35	2.11	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
605	41.38	2.47	0.36	2.11	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
606	41.42	2.47	0.36	2.12	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
607	41.52	2.48	0.36	2.12	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
608	41.57	2.48	0.36	2.12	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
609	41.62	2.49	0.36	2.12	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
610	41.71	2.49	0.37	2.13	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
611	41.76	2.49	0.37	2.13	0.84	0.401	1.36	0.295	0.87	1.00	0.339	No
612	41.84	2.50	0.37	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
613	41.91	2.50	0.37	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
614	41.95	2.51	0.37	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
615	42.01	2.51	0.37	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
616	42.10	2.52	0.38	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
617	42.15	2.52	0.38	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
618	42.24	2.53	0.38	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
619	42.28	2.53	0.38	2.15	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
620	42.39	2.54	0.39	2.15	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
621	42.43	2.54	0.39	2.15	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
622	42.50	2.54	0.39	2.15	0.83	0.401	1.36	0.294	0.87	1.00	0.339	No
623	42.58	2.55	0.39	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.339	No
624	42.65	2.55	0.39	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.340	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	42.70	2.56	0.40	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.340	No
626	42.73	2.56	0.40	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.340	No
627	42.77	2.56	0.40	2.16	0.83	0.400	1.36	0.294	0.87	1.00	0.340	No
628	42.82	2.56	0.40	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
629	42.87	2.57	0.40	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
630	42.91	2.57	0.40	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
631	42.97	2.57	0.40	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
632	43.02	2.58	0.41	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
633	43.06	2.58	0.41	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
634	43.11	2.58	0.41	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
635	43.17	2.59	0.41	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
636	43.21	2.59	0.41	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
637	43.29	2.59	0.41	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
638	43.34	2.60	0.42	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
639	43.39	2.60	0.42	2.18	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
640	43.45	2.61	0.42	2.19	0.82	0.400	1.36	0.294	0.86	1.00	0.340	No
641	43.51	2.61	0.42	2.19	0.82	0.400	1.36	0.294	0.86	1.00	0.340	No
642	43.59	2.61	0.42	2.19	0.82	0.400	1.36	0.294	0.86	1.00	0.340	No
643	43.64	2.62	0.43	2.19	0.82	0.400	1.36	0.294	0.86	1.00	0.340	No
644	43.70	2.62	0.43	2.19	0.82	0.399	1.36	0.294	0.86	1.00	0.340	No
645	43.78	2.63	0.43	2.20	0.82	0.399	1.36	0.294	0.86	1.00	0.340	No
646	43.88	2.63	0.43	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
647	43.94	2.64	0.43	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
648	44.04	2.64	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
649	44.07	2.65	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
650	44.12	2.65	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
651	44.16	2.65	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
652	44.21	2.65	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
653	44.26	2.66	0.44	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
654	44.31	2.66	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
655	44.35	2.66	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
656	44.40	2.67	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
657	44.45	2.67	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
658	44.50	2.67	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
659	44.54	2.68	0.45	2.22	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
660	44.60	2.68	0.46	2.22	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
661	44.64	2.68	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
662	44.69	2.69	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
663	44.74	2.69	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
664	44.79	2.69	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
665	44.83	2.70	0.46	2.23	0.81	0.398	1.36	0.293	0.86	1.00	0.340	No
666	44.88	2.70	0.46	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
667	44.93	2.70	0.47	2.24	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
668	44.98	2.71	0.47	2.24	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
669	45.03	2.71	0.47	2.24	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
670	45.08	2.71	0.47	2.24	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No
671	45.16	2.72	0.47	2.24	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No
672	45.19	2.72	0.47	2.25	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	45.27	2.72	0.48	2.25	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
674	45.32	2.73	0.48	2.25	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
675	45.37	2.73	0.48	2.25	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
676	45.45	2.74	0.48	2.25	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
677	45.51	2.74	0.48	2.26	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
678	45.56	2.74	0.49	2.26	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
679	45.61	2.75	0.49	2.26	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
680	45.69	2.75	0.49	2.26	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
681	45.75	2.76	0.49	2.26	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
682	45.81	2.76	0.49	2.27	0.80	0.397	1.36	0.292	0.86	1.00	2.000	Yes
683	45.89	2.76	0.50	2.27	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
684	45.94	2.77	0.50	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
685	46.04	2.77	0.50	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
686	46.08	2.78	0.50	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
687	46.15	2.78	0.50	2.28	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
688	46.17	2.78	0.50	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
689	46.18	2.78	0.50	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
690	46.23	2.79	0.51	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
691	46.27	2.79	0.51	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
692	46.32	2.79	0.51	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
693	46.41	2.80	0.51	2.28	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
694	46.47	2.80	0.51	2.29	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
695	46.52	2.80	0.52	2.29	0.79	0.396	1.36	0.291	0.86	1.00	0.339	No
696	46.56	2.81	0.52	2.29	0.79	0.395	1.36	0.291	0.86	1.00	0.339	No
697	46.65	2.81	0.52	2.29	0.79	0.395	1.36	0.291	0.86	1.00	0.339	No
698	46.71	2.81	0.52	2.29	0.79	0.395	1.36	0.291	0.86	1.00	0.339	No
699	46.76	2.82	0.52	2.29	0.79	0.395	1.36	0.291	0.86	1.00	0.339	No
700	46.85	2.82	0.53	2.30	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
701	46.90	2.83	0.53	2.30	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
702	46.99	2.83	0.53	2.30	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
703	47.04	2.84	0.53	2.30	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
704	47.10	2.84	0.53	2.31	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
705	47.16	2.84	0.54	2.31	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
706	47.23	2.85	0.54	2.31	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
707	47.30	2.85	0.54	2.31	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
708	47.38	2.86	0.54	2.31	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
709	47.43	2.86	0.54	2.32	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
710	47.52	2.86	0.55	2.32	0.78	0.394	1.36	0.289	0.85	1.00	0.339	No
711	47.59	2.87	0.55	2.32	0.78	0.394	1.36	0.289	0.85	1.00	0.339	No
712	47.66	2.87	0.55	2.32	0.78	0.394	1.36	0.289	0.85	1.00	0.339	No
713	47.77	2.88	0.55	2.32	0.78	0.393	1.36	0.289	0.85	1.00	0.338	No
714	47.82	2.88	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
715	47.91	2.89	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
716	47.93	2.89	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
717	47.97	2.89	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
718	48.02	2.89	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
719	48.07	2.90	0.56	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
720	48.12	2.90	0.57	2.33	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	48.19	2.90	0.57	2.34	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
722	48.23	2.91	0.57	2.34	0.77	0.392	1.36	0.289	0.85	1.00	0.338	No
723	48.31	2.91	0.57	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
724	48.35	2.91	0.57	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
725	48.40	2.92	0.57	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
726	48.45	2.92	0.58	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
727	48.50	2.92	0.58	2.34	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
728	48.55	2.92	0.58	2.35	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
729	48.59	2.93	0.58	2.35	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
730	48.67	2.93	0.58	2.35	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
731	48.73	2.93	0.58	2.35	0.77	0.392	1.36	0.288	0.85	1.00	0.338	No
732	48.78	2.94	0.59	2.35	0.77	0.391	1.36	0.288	0.85	1.00	0.338	No
733	48.83	2.94	0.59	2.35	0.76	0.391	1.36	0.288	0.85	1.00	0.338	No
734	48.91	2.94	0.59	2.35	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No
735	48.98	2.95	0.59	2.36	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
736	49.03	2.95	0.59	2.36	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
737	49.12	2.96	0.60	2.36	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
738	49.17	2.96	0.60	2.36	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
739	49.27	2.97	0.60	2.36	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
740	49.31	2.97	0.60	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
741	49.38	2.97	0.60	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
742	49.45	2.98	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
743	49.51	2.98	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
744	49.54	2.98	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
745	49.59	2.98	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
746	49.64	2.99	0.61	2.37	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
747	49.73	2.99	0.62	2.38	0.76	0.389	1.36	0.286	0.85	1.00	0.337	No
748	49.83	3.00	0.62	2.38	0.75	0.389	1.36	0.286	0.85	1.00	0.337	No
749	49.92	3.00	0.62	2.38	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
750	49.98	3.01	0.62	2.38	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
751	50.07	3.01	0.63	2.39	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
752	50.16	3.02	0.63	2.39	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
753	50.24	3.02	0.63	2.39	0.75	0.388	1.36	0.286	0.85	1.00	0.336	No
754	50.32	3.03	0.63	2.39	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
755	50.41	3.03	0.64	2.39	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
756	50.50	3.04	0.64	2.40	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
757	50.56	3.04	0.64	2.40	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
758	50.66	3.04	0.64	2.40	0.75	0.388	1.36	0.285	0.85	1.00	0.336	No
759	50.74	3.05	0.65	2.40	0.75	0.387	1.36	0.285	0.85	1.00	0.336	No
760	50.84	3.05	0.65	2.40	0.74	0.387	1.36	0.285	0.85	1.00	0.335	No
761	50.93	3.06	0.65	2.41	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
762	50.98	3.06	0.65	2.41	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
763	51.08	3.07	0.66	2.41	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
764	51.17	3.07	0.66	2.41	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
765	51.24	3.08	0.66	2.42	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
766	51.34	3.09	0.67	2.42	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
767	51.41	3.09	0.67	2.42	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
768	51.51	3.10	0.67	2.42	0.74	0.386	1.36	0.283	0.85	1.00	0.335	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	51.58	3.10	0.67	2.43	0.74	0.385	1.36	0.283	0.85	1.00	0.335	No
770	51.68	3.11	0.68	2.43	0.74	0.385	1.36	0.283	0.85	1.00	0.334	No
771	51.79	3.11	0.68	2.43	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
772	51.82	3.11	0.68	2.43	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
773	51.85	3.12	0.68	2.43	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
774	51.91	3.12	0.68	2.44	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
775	52.00	3.13	0.69	2.44	0.73	0.384	1.36	0.283	0.85	1.00	0.334	No
776	52.05	3.13	0.69	2.44	0.73	0.384	1.36	0.283	0.85	1.00	0.334	No
777	52.10	3.13	0.69	2.44	0.73	0.384	1.36	0.282	0.85	1.00	0.334	No
778	52.19	3.14	0.69	2.44	0.73	0.384	1.36	0.282	0.85	1.00	0.334	No
779	52.28	3.14	0.70	2.45	0.73	0.384	1.36	0.282	0.85	1.00	0.334	No
780	52.34	3.15	0.70	2.45	0.73	0.384	1.36	0.282	0.85	1.00	0.334	No
781	52.42	3.15	0.70	2.45	0.73	0.383	1.36	0.282	0.85	1.00	0.333	No
782	52.48	3.15	0.70	2.45	0.73	0.383	1.36	0.282	0.85	1.00	0.333	No
783	52.57	3.16	0.70	2.46	0.73	0.383	1.36	0.282	0.84	1.00	0.333	No
784	52.62	3.16	0.71	2.46	0.73	0.383	1.36	0.281	0.84	1.00	0.333	No
785	52.69	3.17	0.71	2.46	0.73	0.383	1.36	0.281	0.84	1.00	0.333	No
786	52.77	3.17	0.71	2.46	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
787	52.87	3.18	0.71	2.46	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
788	52.91	3.18	0.71	2.47	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
789	53.01	3.19	0.72	2.47	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
790	53.10	3.19	0.72	2.47	0.72	0.382	1.36	0.281	0.84	1.00	0.333	No
791	53.16	3.20	0.72	2.47	0.72	0.382	1.36	0.281	0.84	1.00	0.332	No
792	53.25	3.20	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
793	53.29	3.20	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
794	53.38	3.21	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
795	53.42	3.21	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
796	53.47	3.22	0.73	2.48	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
797	53.52	3.22	0.73	2.49	0.72	0.381	1.36	0.280	0.84	1.00	0.332	No
798	53.58	3.22	0.74	2.49	0.72	0.380	1.36	0.280	0.84	1.00	0.332	No
799	53.66	3.23	0.74	2.49	0.72	0.380	1.36	0.280	0.84	1.00	0.332	No
800	53.75	3.23	0.74	2.49	0.72	0.380	1.36	0.279	0.84	1.00	0.332	No
801	53.81	3.24	0.74	2.50	0.71	0.380	1.36	0.279	0.84	1.00	0.332	No
802	53.87	3.24	0.74	2.50	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
803	53.95	3.25	0.75	2.50	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
804	54.01	3.25	0.75	2.50	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
805	54.06	3.26	0.75	2.50	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
806	54.15	3.26	0.75	2.51	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
807	54.20	3.26	0.76	2.51	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
808	54.29	3.27	0.76	2.51	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
809	54.34	3.27	0.76	2.51	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
810	54.43	3.28	0.76	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
811	54.45	3.28	0.76	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
812	54.48	3.28	0.76	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
813	54.52	3.28	0.76	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
814	54.53	3.29	0.77	2.52	0.71	0.378	1.36	0.278	0.84	1.00	2.000	Yes
815	54.58	3.29	0.77	2.52	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
816	54.62	3.29	0.77	2.52	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	54.65	3.29	0.77	2.52	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
818	54.70	3.30	0.77	2.53	0.71	0.377	1.36	0.277	0.84	1.00	0.330	No
819	54.76	3.30	0.77	2.53	0.71	0.377	1.36	0.277	0.84	1.00	0.330	No
820	54.77	3.30	0.77	2.53	0.71	0.377	1.36	0.277	0.84	1.00	0.330	No
821	54.82	3.30	0.77	2.53	0.71	0.377	1.36	0.277	0.84	1.00	0.330	No
822	54.87	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
823	54.88	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
824	54.91	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
825	54.96	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
826	54.97	3.31	0.78	2.53	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
827	55.03	3.32	0.78	2.54	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
828	55.09	3.32	0.78	2.54	0.70	0.376	1.36	0.277	0.84	1.00	0.330	No
829	55.15	3.33	0.78	2.54	0.70	0.376	1.36	0.277	0.84	1.00	0.330	No
830	55.20	3.33	0.79	2.54	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
831	55.25	3.33	0.79	2.54	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
832	55.30	3.34	0.79	2.55	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
833	55.34	3.34	0.79	2.55	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
834	55.39	3.34	0.79	2.55	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
835	55.40	3.34	0.79	2.55	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
836	55.44	3.34	0.79	2.55	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
837	55.44	3.35	0.79	2.55	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
838	55.49	3.35	0.80	2.55	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
839	55.54	3.35	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
840	55.59	3.36	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
841	55.63	3.36	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
842	55.64	3.36	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
843	55.68	3.36	0.80	2.56	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
844	55.69	3.36	0.80	2.56	0.70	0.375	1.36	0.275	0.84	1.00	0.329	No
845	55.69	3.36	0.80	2.56	0.70	0.375	1.36	0.275	0.84	1.00	0.329	No
846	55.71	3.36	0.80	2.56	0.70	0.375	1.36	0.275	0.84	1.00	0.329	No
847	55.76	3.37	0.80	2.56	0.70	0.374	1.36	0.275	0.84	1.00	0.329	No
848	55.78	3.37	0.80	2.56	0.70	0.374	1.36	0.275	0.84	1.00	0.329	No
849	55.81	3.37	0.81	2.57	0.70	0.374	1.36	0.275	0.84	1.00	0.329	No
850	55.85	3.37	0.81	2.57	0.70	0.374	1.36	0.275	0.84	1.00	0.328	No
851	55.86	3.37	0.81	2.57	0.70	0.374	1.36	0.275	0.84	1.00	0.328	No
852	55.91	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
853	55.92	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
854	55.96	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
855	55.97	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
856	56.00	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
857	56.01	3.38	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
858	56.03	3.39	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
859	56.05	3.39	0.81	2.57	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
860	56.10	3.39	0.81	2.58	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
861	56.12	3.39	0.81	2.58	0.69	0.373	1.36	0.275	0.84	1.00	0.328	No
862	56.16	3.39	0.82	2.58	0.69	0.373	1.36	0.275	0.84	1.00	0.328	No
863	56.17	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
864	56.20	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	56.22	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
866	56.24	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
867	56.30	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
868	56.31	3.40	0.82	2.58	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
869	56.34	3.41	0.82	2.59	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
870	56.39	3.41	0.82	2.59	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
871	56.45	3.41	0.83	2.59	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
872	56.48	3.42	0.83	2.59	0.69	0.372	1.36	0.274	0.84	1.00	0.328	No
873	56.49	3.42	0.83	2.59	0.69	0.372	1.36	0.274	0.84	1.00	0.328	No
874	56.53	3.42	0.83	2.59	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
875	56.58	3.42	0.83	2.59	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
876	56.63	3.43	0.83	2.60	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
877	56.68	3.43	0.83	2.60	0.69	0.372	1.36	0.273	0.84	1.00	0.327	No
878	56.73	3.43	0.83	2.60	0.69	0.372	1.36	0.273	0.84	1.00	0.327	No
879	56.78	3.44	0.84	2.60	0.69	0.372	1.36	0.273	0.84	1.00	0.327	No
880	56.83	3.44	0.84	2.60	0.69	0.372	1.36	0.273	0.84	1.00	0.327	No
881	56.89	3.44	0.84	2.61	0.69	0.371	1.36	0.273	0.84	1.00	0.327	No
882	56.95	3.45	0.84	2.61	0.69	0.371	1.36	0.273	0.83	1.00	0.327	No
883	56.99	3.45	0.84	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
884	57.01	3.45	0.84	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
885	57.04	3.45	0.84	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
886	57.09	3.46	0.85	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
887	57.11	3.46	0.85	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
888	57.13	3.46	0.85	2.61	0.68	0.371	1.36	0.273	0.83	1.00	0.327	No
889	57.18	3.46	0.85	2.62	0.68	0.371	1.36	0.272	0.83	1.00	0.326	No
890	57.19	3.46	0.85	2.62	0.68	0.371	1.36	0.272	0.83	1.00	0.326	No
891	57.21	3.47	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
892	57.24	3.47	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
893	57.28	3.47	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
894	57.32	3.47	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
895	57.35	3.48	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
896	57.38	3.48	0.85	2.62	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
897	57.43	3.48	0.86	2.63	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
898	57.48	3.48	0.86	2.63	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
899	57.52	3.49	0.86	2.63	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
900	57.57	3.49	0.86	2.63	0.68	0.369	1.36	0.272	0.83	1.00	0.326	No
901	57.62	3.49	0.86	2.63	0.68	0.369	1.36	0.272	0.83	1.00	0.326	No
902	57.68	3.50	0.86	2.63	0.68	0.369	1.36	0.271	0.83	1.00	0.326	No
903	57.76	3.50	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.326	No
904	57.81	3.51	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.326	No
905	57.86	3.51	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
906	57.89	3.51	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
907	57.91	3.51	0.87	2.64	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
908	57.92	3.51	0.87	2.64	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
909	57.95	3.52	0.87	2.64	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
910	57.99	3.52	0.87	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
911	58.01	3.52	0.87	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
912	58.05	3.52	0.88	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	58.05	3.52	0.88	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
914	58.10	3.53	0.88	2.65	0.68	0.368	1.36	0.271	0.83	1.00	0.325	No
915	58.13	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
916	58.15	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
917	58.17	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
918	58.20	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
919	58.21	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
920	58.21	3.53	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
921	58.23	3.54	0.88	2.65	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
922	58.24	3.54	0.88	2.66	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
923	58.25	3.54	0.88	2.66	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
924	58.29	3.54	0.88	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
925	58.31	3.54	0.88	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
926	58.33	3.54	0.88	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
927	58.38	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
928	58.39	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
929	58.43	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
930	58.43	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.325	No
931	58.48	3.55	0.89	2.66	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
932	58.53	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
933	58.56	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
934	58.58	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
935	58.59	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
936	58.63	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
937	58.63	3.56	0.89	2.67	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
938	58.63	3.56	0.89	2.67	0.67	0.367	1.36	0.269	0.83	1.00	0.324	No
939	58.68	3.57	0.89	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
940	58.69	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
941	58.72	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
942	58.73	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
943	58.74	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
944	58.77	3.57	0.90	2.67	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
945	58.81	3.57	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
946	58.82	3.57	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
947	58.83	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
948	58.87	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
949	58.91	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
950	58.92	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
951	58.93	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
952	58.96	3.58	0.90	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
953	59.01	3.59	0.91	2.68	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
954	59.06	3.59	0.91	2.68	0.67	0.365	1.36	0.269	0.83	1.00	0.324	No
955	59.08	3.59	0.91	2.69	0.67	0.365	1.36	0.269	0.83	1.00	0.324	No
956	59.11	3.59	0.91	2.69	0.67	0.365	1.36	0.269	0.83	1.00	0.324	No
957	59.15	3.60	0.91	2.69	0.67	0.365	1.36	0.268	0.83	1.00	0.323	No
958	59.21	3.60	0.91	2.69	0.67	0.365	1.36	0.268	0.83	1.00	0.323	No
959	59.26	3.60	0.91	2.69	0.67	0.365	1.36	0.268	0.83	1.00	0.323	No
960	59.30	3.61	0.91	2.69	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	59.35	3.61	0.92	2.70	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
962	59.40	3.61	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
963	59.42	3.62	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
964	59.47	3.62	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
965	59.51	3.62	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
966	59.56	3.63	0.92	2.70	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
967	59.61	3.63	0.92	2.71	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
968	59.67	3.63	0.93	2.71	0.66	0.364	1.36	0.267	0.83	1.00	0.323	No
969	59.71	3.64	0.93	2.71	0.66	0.364	1.36	0.267	0.83	1.00	0.323	No
970	59.80	3.64	0.93	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.323	No
971	59.85	3.65	0.93	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
972	59.90	3.65	0.93	2.72	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
973	60.00	3.65	0.94	2.72	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
974	60.04	3.66	0.94	2.72	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
975	60.10	3.66	0.94	2.72	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
976	60.15	3.67	0.94	2.72	0.66	0.362	1.36	0.267	0.83	1.00	0.322	No
977	60.19	3.67	0.94	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
978	60.23	3.67	0.94	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
979	60.28	3.67	0.94	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
980	60.33	3.68	0.95	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
981	60.38	3.68	0.95	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
982	60.42	3.68	0.95	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
983	60.44	3.68	0.95	2.73	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
984	60.47	3.69	0.95	2.74	0.66	0.362	1.36	0.266	0.83	1.00	0.322	No
985	60.52	3.69	0.95	2.74	0.66	0.362	1.36	0.266	0.83	1.00	0.321	No
986	60.56	3.69	0.95	2.74	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
987	60.57	3.69	0.95	2.74	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
988	60.61	3.70	0.96	2.74	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
989	60.66	3.70	0.96	2.74	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
990	60.71	3.70	0.96	2.74	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
991	60.76	3.71	0.96	2.75	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
992	60.81	3.71	0.96	2.75	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
993	60.86	3.71	0.96	2.75	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
994	60.91	3.72	0.96	2.75	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
995	60.95	3.72	0.97	2.75	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
996	61.00	3.72	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
997	61.02	3.72	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
998	61.05	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
999	61.08	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1000	61.09	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1001	61.13	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1002	61.14	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1003	61.16	3.73	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.321	No
1004	61.20	3.74	0.97	2.76	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
1005	61.23	3.74	0.97	2.76	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
1006	61.24	3.74	0.97	2.76	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
1007	61.29	3.74	0.98	2.77	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
1008	61.30	3.74	0.98	2.77	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	61.33	3.75	0.98	2.77	0.65	0.359	1.36	0.264	0.83	1.00	0.320	No
1010	61.38	3.75	0.98	2.77	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1011	61.43	3.75	0.98	2.77	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1012	61.48	3.76	0.98	2.77	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1013	61.53	3.76	0.98	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1014	61.56	3.76	0.98	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1015	61.58	3.76	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1016	61.59	3.76	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1017	61.62	3.76	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1018	61.63	3.77	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1019	61.67	3.77	0.99	2.78	0.65	0.359	1.36	0.264	0.82	1.00	0.320	No
1020	61.71	3.77	0.99	2.78	0.65	0.358	1.36	0.264	0.82	1.00	0.320	No
1021	61.76	3.77	0.99	2.78	0.65	0.358	1.36	0.263	0.82	1.00	0.320	No
1022	61.81	3.78	0.99	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.320	No
1023	61.86	3.78	0.99	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.320	No
1024	61.87	3.78	0.99	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.320	No
1025	61.91	3.78	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1026	61.95	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1027	61.96	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1028	62.00	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1029	62.04	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1030	62.06	3.79	1.00	2.79	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1031	62.10	3.80	1.00	2.80	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
1032	62.14	3.80	1.00	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1033	62.20	3.80	1.00	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1034	62.22	3.80	1.01	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1035	62.27	3.81	1.01	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1036	62.29	3.81	1.01	2.80	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
1037	62.34	3.81	1.01	2.80	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
1038	62.39	3.82	1.01	2.81	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
1039	62.43	3.82	1.01	2.81	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
1040	62.49	3.82	1.01	2.81	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
1041	62.57	3.83	1.02	2.81	0.64	0.356	1.36	0.262	0.82	1.00	0.319	No
1042	62.68	3.84	1.02	2.82	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
1043	62.75	3.84	1.02	2.82	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
1044	62.87	3.85	1.03	2.82	0.64	0.356	1.36	0.261	0.82	1.00	0.318	No
1045	62.88	3.85	1.03	2.82	0.64	0.356	1.36	0.261	0.82	1.00	0.318	No
1046	62.89	3.85	1.03	2.82	0.64	0.356	1.36	0.261	0.82	1.00	0.318	No
1047	62.93	3.85	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1048	62.98	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1049	63.02	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1050	63.07	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1051	63.12	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1052	63.14	3.86	1.03	2.83	0.64	0.355	1.36	0.261	0.82	1.00	0.318	No
1053	63.17	3.87	1.03	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1054	63.17	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1055	63.20	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1056	63.21	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1057	63.23	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1058	63.26	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1059	63.28	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1060	63.31	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1061	63.32	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1062	63.36	3.87	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
1063	63.40	3.88	1.04	2.83	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.01	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
2	0.04	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
3	0.09	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
4	0.11	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
5	0.14	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
6	0.14	1.35	3.66	4.59	1.00	2.15	27.82	59.81	4.000	No	Yes	2.00
7	0.18	6.97	2.69	0.89	0.81	11.19	4.58	51.24	4.000	No	Yes	2.00
8	0.23	18.19	2.14	0.35	0.65	29.21	1.00	29.21	4.000	No	No	2.00
9	0.24	36.79	1.76	0.18	0.54	59.09	1.00	59.09	4.000	No	No	2.00
10	0.28	53.07	1.58	0.14	0.50	85.23	1.00	85.23	4.000	No	No	2.00
11	0.33	59.27	1.53	0.14	0.50	95.19	1.00	95.19	4.000	No	No	2.00
12	0.38	56.61	1.60	0.20	0.50	90.91	1.00	90.91	4.000	No	No	2.00
13	0.42	52.11	1.72	0.34	0.52	83.69	1.00	83.69	4.000	No	No	2.00
14	0.47	51.84	1.83	0.58	0.56	83.25	1.19	98.77	4.000	No	No	2.00
15	0.51	51.94	1.90	0.76	0.58	83.40	1.24	103.16	4.000	No	No	2.00
16	0.52	52.09	1.93	0.85	0.59	83.64	1.26	104.99	4.000	No	No	2.00
17	0.57	52.66	1.91	0.81	0.58	84.56	1.24	105.20	4.000	No	No	2.00
18	0.61	53.24	1.89	0.76	0.58	85.48	1.23	105.23	4.000	No	No	2.00
19	0.67	53.47	1.88	0.73	0.57	85.85	1.22	105.00	4.000	No	No	2.00
20	0.73	53.84	1.87	0.71	0.57	86.44	1.22	105.23	4.000	No	No	2.00
21	0.81	53.62	1.87	0.71	0.57	86.08	1.22	104.72	4.000	No	No	2.00
22	0.86	53.52	1.92	0.84	0.58	85.91	1.25	107.16	4.000	No	No	2.00
23	0.98	52.14	1.96	0.96	0.60	83.69	1.28	106.78	4.000	No	No	2.00
24	1.05	48.22	2.02	1.08	0.61	77.37	1.32	102.42	4.000	No	No	2.00
25	1.15	43.67	2.04	1.03	0.62	70.05	1.34	94.07	4.000	No	No	2.00
26	1.24	37.87	2.07	0.96	0.63	60.73	1.38	83.84	4.000	No	No	2.00
27	1.34	34.47	2.09	0.89	0.63	55.26	1.40	77.37	4.000	No	No	2.00
28	1.43	30.63	2.16	0.99	0.65	49.08	1.51	74.33	4.000	No	No	2.00
29	1.53	26.86	2.25	1.20	0.68	43.01	1.75	75.37	4.000	No	No	2.00
30	1.58	24.56	2.31	1.36	0.70	39.32	1.98	77.68	4.000	No	No	2.00
31	1.62	23.48	2.32	1.31	0.70	37.59	2.00	75.15	4.000	No	No	2.00
32	1.67	24.36	2.28	1.18	0.69	38.99	1.85	72.19	4.000	No	No	2.00
33	1.75	23.89	2.28	1.15	0.69	38.23	1.86	70.99	4.000	No	No	2.00
34	1.77	23.08	2.30	1.17	0.70	36.93	1.92	70.79	4.000	No	No	2.00
35	1.81	21.50	2.34	1.25	0.71	34.38	2.08	71.55	4.000	No	No	2.00
36	1.86	19.71	2.39	1.32	0.72	31.51	2.30	72.37	4.000	No	No	2.00
37	1.91	17.96	2.43	1.37	0.74	28.69	2.52	72.24	4.000	No	No	2.00
38	1.95	16.98	2.43	1.26	0.74	27.11	2.53	68.54	4.000	No	No	2.00
39	2.00	16.21	2.41	1.09	0.73	25.86	2.43	62.85	4.000	No	No	2.00
40	2.05	14.89	2.41	0.93	0.73	23.75	2.42	57.52	4.000	Yes	No	2.00
41	2.11	13.51	2.43	0.88	0.74	21.52	2.55	54.95	4.000	Yes	No	2.00
42	2.20	12.33	2.47	0.89	0.75	19.62	2.79	54.76	4.000	Yes	No	2.00
43	2.24	11.73	2.50	0.95	0.76	18.64	3.01	56.15	4.000	Yes	No	2.00
44	2.29	11.26	2.54	1.06	0.77	17.88	3.29	58.85	4.000	Yes	No	2.00
45	2.34	11.32	2.60	1.39	0.79	17.99	3.76	67.59	4.000	Yes	Yes	2.00
46	2.44	12.17	2.61	1.64	0.79	19.33	3.86	74.63	4.000	Yes	Yes	2.00
47	2.48	14.56	2.56	1.73	0.78	23.17	3.43	79.44	4.000	Yes	No	2.00
48	2.58	18.03	2.47	1.60	0.75	28.74	2.75	79.05	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	2.63	22.41	2.37	1.48	0.72	35.77	2.21	79.01	4.000	Yes	No	2.00
50	2.71	26.08	2.30	1.39	0.70	41.66	1.92	80.03	4.000	Yes	No	2.00
51	2.78	30.33	2.22	1.27	0.67	48.48	1.67	80.89	4.000	Yes	No	2.00
52	2.82	33.73	2.16	1.16	0.66	53.95	1.52	82.21	4.000	Yes	No	2.00
53	2.89	34.94	2.13	1.09	0.65	55.89	1.47	82.24	4.000	Yes	No	2.00
54	2.96	33.63	2.16	1.13	0.65	53.77	1.51	81.39	4.000	No	No	2.00
55	3.03	30.90	2.20	1.21	0.67	49.37	1.62	80.00	4.000	No	No	2.00
56	3.11	28.98	2.23	1.23	0.68	46.28	1.70	78.46	4.000	No	No	2.00
57	3.19	26.45	2.26	1.23	0.69	42.22	1.79	75.65	4.000	No	No	2.00
58	3.25	23.52	2.31	1.27	0.70	37.50	1.97	73.87	4.000	No	No	2.00
59	3.35	20.49	2.38	1.38	0.72	32.62	2.28	74.42	4.000	No	No	2.00
60	3.41	17.79	2.44	1.42	0.74	28.29	2.60	73.49	4.000	No	No	2.00
61	3.50	15.91	2.46	1.31	0.75	25.25	2.74	69.10	4.000	No	No	2.00
62	3.59	14.83	2.45	1.11	0.74	23.51	2.66	62.63	4.000	No	No	2.00
63	3.69	14.59	2.43	0.99	0.74	23.12	2.55	58.90	4.000	No	No	2.00
64	3.79	15.20	2.39	0.89	0.73	24.09	2.35	56.48	4.000	No	No	2.00
65	3.88	16.54	2.34	0.81	0.71	26.24	2.09	54.78	4.000	No	No	2.00
66	3.97	19.14	2.27	0.75	0.69	30.40	1.82	55.25	4.000	No	No	2.00
67	4.07	20.82	2.26	0.82	0.68	33.10	1.77	58.69	4.000	No	No	2.00
68	4.14	23.49	2.22	0.86	0.67	37.37	1.67	62.38	4.000	No	No	2.00
69	4.17	25.51	2.20	0.89	0.67	40.62	1.61	65.25	4.000	No	No	2.00
70	4.26	28.14	2.15	0.86	0.65	44.83	1.51	67.83	4.000	No	No	2.00
71	4.32	28.71	2.16	0.90	0.66	45.74	1.52	69.43	4.000	No	No	2.00
72	4.37	28.10	2.18	0.95	0.66	44.77	1.56	69.94	4.000	No	No	2.00
73	4.42	26.62	2.21	1.02	0.67	42.38	1.65	69.93	4.000	No	No	2.00
74	4.51	25.07	2.24	1.05	0.68	39.88	1.74	69.30	4.000	No	No	2.00
75	4.61	23.68	2.27	1.07	0.69	37.65	1.82	68.42	4.000	No	No	2.00
76	4.65	22.37	2.29	1.08	0.70	35.53	1.90	67.38	4.000	No	No	2.00
77	4.74	21.09	2.32	1.11	0.70	33.47	2.00	67.06	4.000	No	No	2.00
78	4.80	20.48	2.33	1.11	0.71	32.49	2.05	66.55	4.000	No	No	2.00
79	4.89	20.04	2.34	1.12	0.71	31.78	2.09	66.46	4.000	No	No	2.00
80	4.95	20.38	2.33	1.10	0.71	32.32	2.05	66.20	4.000	No	No	2.00
81	5.04	21.05	2.31	1.07	0.70	33.39	1.97	65.92	4.000	No	No	2.00
82	5.13	22.81	2.27	0.99	0.69	36.20	1.80	65.26	4.000	No	No	2.00
83	5.18	25.27	2.20	0.90	0.67	40.14	1.63	65.28	4.000	No	No	2.00
84	5.28	28.07	2.14	0.82	0.65	44.63	1.49	66.64	4.000	No	No	2.00
85	5.32	31.47	2.09	0.76	0.63	50.09	1.40	70.04	4.000	No	No	2.00
86	5.42	34.67	2.05	0.75	0.62	55.23	1.35	74.62	4.000	No	No	2.00
87	5.51	38.14	2.01	0.74	0.61	60.80	1.31	79.86	4.000	No	No	2.00
88	5.60	41.28	1.94	0.63	0.59	65.83	1.26	83.18	4.000	No	No	2.00
89	5.66	44.24	1.88	0.53	0.57	70.58	1.22	86.14	4.000	No	No	2.00
90	5.76	45.86	1.83	0.46	0.56	73.17	1.00	73.17	4.000	No	No	2.00
91	5.85	44.91	1.86	0.50	0.57	71.65	1.21	86.53	4.000	No	No	2.00
92	5.92	41.11	1.92	0.56	0.58	65.53	1.25	81.79	4.000	No	No	2.00
93	5.95	38.21	1.96	0.61	0.60	60.87	1.28	77.76	4.000	No	No	2.00
94	5.97	36.15	1.99	0.64	0.61	57.56	1.30	74.97	4.000	No	No	2.00
95	6.02	35.37	2.01	0.65	0.61	56.31	1.31	73.90	4.000	Yes	No	2.00
96	6.06	32.74	2.05	0.70	0.62	52.08	1.36	70.59	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	6.16	29.98	2.10	0.76	0.64	47.63	1.42	67.87	4.000	Yes	No	2.00
98	6.21	26.98	2.18	0.88	0.66	42.82	1.56	66.83	4.000	Yes	No	2.00
99	6.26	24.29	2.26	1.07	0.69	38.48	1.79	68.74	4.000	Yes	No	2.00
100	6.31	21.62	2.36	1.35	0.72	34.19	2.18	74.63	4.000	Yes	No	2.00
101	6.40	19.23	2.46	1.68	0.75	30.34	2.70	82.06	4.000	Yes	No	2.00
102	6.44	16.91	2.56	2.09	0.78	26.60	3.43	91.18	4.000	Yes	No	2.00
103	6.52	15.12	2.64	2.48	0.80	23.73	4.16	98.65	4.000	Yes	Yes	2.00
104	6.57	13.47	2.73	2.91	0.83	21.08	5.01	105.63	4.000	Yes	Yes	2.00
105	6.64	12.16	2.80	3.29	0.85	18.96	5.81	110.19	4.000	Yes	Yes	2.00
106	6.69	10.98	2.86	3.65	0.87	17.06	6.65	113.46	4.000	Yes	Yes	2.00
107	6.78	10.34	2.90	3.84	0.88	16.02	7.15	114.49	4.000	Yes	Yes	2.00
108	6.83	9.90	2.91	3.84	0.88	15.31	7.38	112.96	4.000	Yes	Yes	2.00
109	6.92	9.60	2.92	3.75	0.88	14.82	7.45	110.37	4.000	No	Yes	2.00
110	6.97	9.39	2.91	3.59	0.88	14.48	7.39	107.07	4.000	No	Yes	2.00
111	7.03	9.29	2.91	3.50	0.88	14.32	7.35	105.27	4.000	No	Yes	2.00
112	7.12	9.32	2.90	3.42	0.88	14.36	7.25	104.07	4.000	No	Yes	2.00
113	7.22	9.39	2.90	3.38	0.88	14.46	7.17	103.64	4.000	No	Yes	2.00
114	7.27	9.52	2.89	3.37	0.88	14.66	7.09	103.89	4.000	No	Yes	2.00
115	7.36	9.65	2.89	3.41	0.87	14.86	7.06	104.93	4.000	No	Yes	2.00
116	7.43	9.75	2.89	3.48	0.88	15.01	7.08	106.34	4.000	No	Yes	2.00
117	7.50	9.78	2.90	3.56	0.88	15.06	7.16	107.82	4.000	No	Yes	2.00
118	7.59	9.77	2.90	3.61	0.88	15.04	7.22	108.69	4.000	No	Yes	2.00
119	7.64	9.70	2.91	3.69	0.88	14.93	7.34	109.64	4.000	No	Yes	2.00
120	7.75	9.63	2.92	3.75	0.88	14.81	7.46	110.40	4.000	No	Yes	2.00
121	7.79	9.70	2.92	3.76	0.88	14.91	7.43	110.74	4.000	No	Yes	2.00
122	7.89	9.97	2.90	3.67	0.88	15.33	7.19	110.22	4.000	No	Yes	2.00
123	7.99	10.24	2.88	3.59	0.87	15.76	6.97	109.89	4.000	No	Yes	2.00
124	8.04	10.34	2.88	3.62	0.87	15.91	6.96	110.71	4.000	No	Yes	2.00
125	8.13	10.31	2.89	3.67	0.87	15.85	7.03	111.39	4.000	No	Yes	2.00
126	8.23	10.27	2.84	3.03	0.86	15.79	6.35	100.23	4.000	No	Yes	2.00
127	8.32	10.27	2.79	2.55	0.85	15.77	5.78	91.18	4.000	No	Yes	2.00
128	8.37	10.53	2.76	2.28	0.84	16.20	5.34	86.47	4.000	No	Yes	2.00
129	8.46	11.04	2.79	2.79	0.85	17.00	5.74	97.61	4.000	No	Yes	2.00
130	8.56	11.30	2.82	3.16	0.85	17.42	6.05	105.35	4.000	No	Yes	2.00
131	8.59	11.30	2.84	3.44	0.86	17.41	6.35	110.51	4.000	No	Yes	2.00
132	8.61	11.03	2.87	3.69	0.87	16.97	6.71	113.97	4.000	No	Yes	2.00
133	8.67	10.89	2.88	3.88	0.87	16.75	6.98	116.82	4.000	No	Yes	2.00
134	8.71	10.69	2.90	4.05	0.88	16.41	7.24	118.78	4.000	No	Yes	2.00
135	8.72	10.51	2.92	4.18	0.88	16.13	7.46	120.30	4.000	No	Yes	2.00
136	8.78	10.44	2.92	4.25	0.89	16.02	7.56	121.13	4.000	No	Yes	2.00
137	8.80	10.44	2.93	4.28	0.89	16.02	7.59	121.54	4.000	No	Yes	2.00
138	8.86	10.44	2.93	4.29	0.89	16.01	7.60	121.62	4.000	No	Yes	2.00
139	8.90	10.55	2.92	4.29	0.88	16.17	7.55	122.08	4.000	No	Yes	2.00
140	8.95	10.68	2.92	4.30	0.88	16.39	7.49	122.77	4.000	No	Yes	2.00
141	8.96	10.89	2.91	4.30	0.88	16.71	7.39	123.54	4.000	No	Yes	2.00
142	9.00	11.05	2.91	4.31	0.88	16.98	7.33	124.43	4.000	No	Yes	2.00
143	9.05	11.29	2.90	4.33	0.88	17.35	7.24	125.55	4.000	No	Yes	2.00
144	9.09	11.56	2.89	4.31	0.88	17.78	7.10	126.26	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	9.10	11.96	2.88	4.27	0.87	18.43	6.89	127.03	4.000	No	Yes	2.00
146	9.14	12.47	2.86	4.24	0.87	19.24	6.66	128.15	4.000	No	Yes	2.00
147	9.20	13.21	2.84	4.16	0.86	20.42	6.33	129.23	4.000	No	Yes	2.00
148	9.24	14.09	2.81	4.06	0.85	21.83	5.95	129.98	4.000	No	Yes	2.00
149	9.29	15.03	2.78	3.93	0.84	23.34	5.57	129.97	4.000	No	Yes	2.00
150	9.31	15.90	2.75	3.85	0.83	24.74	5.28	130.54	4.000	No	Yes	2.00
151	9.38	16.61	2.73	3.79	0.83	25.88	5.06	130.87	4.000	Yes	Yes	2.00
152	9.41	17.32	2.71	3.66	0.82	27.00	4.80	129.53	4.000	Yes	Yes	2.00
153	9.47	18.02	2.68	3.45	0.81	28.13	4.48	126.15	4.000	Yes	Yes	2.00
154	9.53	19.33	2.62	3.03	0.79	30.23	3.91	118.10	4.000	Yes	Yes	2.00
155	9.62	21.08	2.54	2.58	0.77	33.03	3.29	108.83	4.000	Yes	No	2.00
156	9.67	23.71	2.45	2.07	0.74	36.88	2.63	97.08	4.000	Yes	No	2.00
157	9.77	26.25	2.37	1.72	0.72	39.96	2.22	88.55	4.000	Yes	No	2.00
158	9.81	28.83	2.29	1.42	0.70	43.12	1.89	81.52	4.000	Yes	No	2.00
159	9.90	30.67	2.24	1.23	0.68	45.16	1.72	77.57	4.000	Yes	No	2.00
160	9.97	32.26	2.20	1.11	0.67	46.92	1.61	75.55	4.000	Yes	No	2.00
161	10.06	32.63	2.20	1.11	0.67	47.13	1.61	75.67	4.000	No	No	2.00
162	10.20	32.13	2.22	1.20	0.68	46.19	1.68	77.59	4.000	Yes	No	2.00
163	10.30	29.29	2.26	1.22	0.69	42.06	1.79	75.15	4.000	Yes	No	2.00
164	10.44	25.52	2.33	1.34	0.71	36.67	2.06	75.52	4.000	Yes	No	2.00
165	10.54	20.70	2.45	1.61	0.74	30.03	2.66	79.87	4.000	Yes	No	2.00
166	10.63	16.56	2.64	2.51	0.80	24.49	4.08	99.92	4.000	Yes	Yes	2.00
167	10.74	13.83	2.78	3.48	0.84	20.66	5.64	116.62	4.000	Yes	Yes	2.00
168	10.78	12.62	2.86	4.22	0.87	18.99	6.71	127.39	4.000	Yes	Yes	2.00
169	10.83	12.48	2.88	4.44	0.87	18.76	6.96	130.59	4.000	Yes	Yes	2.00
170	10.88	12.31	2.90	4.63	0.88	18.47	7.21	133.16	4.000	Yes	Yes	2.00
171	10.89	12.15	2.92	4.89	0.88	18.24	7.50	136.86	4.000	Yes	Yes	2.00
172	10.97	12.25	2.93	5.04	0.89	18.30	7.62	139.36	4.000	No	Yes	2.00
173	11.02	12.48	2.93	5.14	0.89	18.59	7.62	141.70	4.000	No	Yes	2.00
174	11.07	12.79	2.92	5.12	0.88	18.96	7.51	142.37	4.000	No	Yes	2.00
175	11.11	13.06	2.91	5.11	0.88	19.28	7.42	143.00	4.000	No	Yes	2.00
176	11.16	13.39	2.91	5.09	0.88	19.70	7.30	143.71	4.000	No	Yes	2.00
177	11.21	13.76	2.90	5.09	0.88	20.15	7.19	144.81	4.000	No	Yes	2.00
178	11.26	14.14	2.89	5.11	0.88	20.62	7.10	146.37	4.000	No	Yes	2.00
179	11.30	14.37	2.89	5.20	0.88	20.90	7.10	148.42	4.000	No	Yes	2.00
180	11.36	14.54	2.90	5.29	0.88	21.07	7.14	150.43	4.000	No	Yes	2.00
181	11.40	14.68	2.90	5.36	0.88	21.19	7.17	151.92	4.000	No	Yes	2.00
182	11.45	14.81	2.90	5.40	0.88	21.32	7.18	152.97	4.000	No	Yes	2.00
183	11.50	15.04	2.89	5.41	0.88	21.57	7.12	153.64	4.000	No	Yes	2.00
184	11.55	15.31	2.89	5.41	0.88	21.86	7.06	154.44	4.000	No	Yes	2.00
185	11.60	15.85	2.88	5.35	0.87	22.53	6.88	155.07	4.000	No	Yes	2.00
186	11.66	16.56	2.86	5.25	0.87	23.39	6.63	155.14	4.000	No	Yes	2.00
187	11.74	17.40	2.84	5.06	0.86	24.38	6.31	153.92	4.000	No	Yes	2.00
188	11.84	17.98	2.82	4.98	0.86	24.97	6.15	153.46	4.000	No	Yes	2.00
189	11.93	18.18	2.82	5.03	0.86	25.08	6.17	154.65	4.000	No	Yes	2.00
190	12.04	18.04	2.84	5.23	0.86	24.73	6.38	157.76	4.000	No	Yes	2.00
191	12.13	17.87	2.86	5.42	0.87	24.37	6.58	160.42	4.000	No	Yes	2.00
192	12.22	17.67	2.87	5.55	0.87	23.94	6.76	161.87	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	12.27	17.51	2.88	5.59	0.87	23.64	6.85	161.93	4.000	No	Yes	2.00
194	12.37	17.27	2.88	5.64	0.87	23.16	6.98	161.58	4.000	No	Yes	2.00
195	12.41	17.17	2.89	5.65	0.87	22.94	7.03	161.26	4.000	No	Yes	2.00
196	12.51	17.06	2.89	5.71	0.88	22.65	7.13	161.48	4.000	No	Yes	2.00
197	12.56	17.23	2.89	5.68	0.88	22.78	7.08	161.37	4.000	No	Yes	2.00
198	12.65	17.64	2.88	5.61	0.87	23.15	6.96	161.03	4.000	No	Yes	2.00
199	12.71	18.45	2.86	5.51	0.87	24.09	6.70	161.44	4.000	No	Yes	2.00
200	12.79	19.23	2.86	5.57	0.87	24.96	6.59	164.56	4.000	No	Yes	2.00
201	12.89	20.10	2.85	5.67	0.86	25.92	6.50	168.54	4.000	No	Yes	2.00
202	12.96	20.98	2.84	5.80	0.86	26.96	6.43	173.33	4.000	No	Yes	2.00
203	13.04	22.23	2.82	5.70	0.86	28.37	6.15	174.57	4.000	Yes	Yes	2.00
204	13.13	24.11	2.78	5.33	0.84	30.49	5.62	171.40	4.000	Yes	Yes	2.00
205	13.23	26.80	2.65	3.76	0.80	33.27	4.19	139.58	4.000	Yes	Yes	2.00
206	13.30	30.34	2.49	2.43	0.76	36.95	2.91	107.47	4.000	Yes	No	2.00
207	13.37	34.15	2.32	1.49	0.70	40.77	2.02	82.17	4.000	Yes	No	2.00
208	13.47	38.32	2.29	1.49	0.69	45.44	1.87	85.15	4.000	Yes	No	2.00
209	13.57	38.79	2.31	1.62	0.70	45.84	1.94	89.15	4.000	No	No	2.00
210	13.61	39.19	2.31	1.69	0.70	46.27	1.98	91.39	4.000	No	No	2.00
211	13.62	40.31	2.30	1.69	0.70	47.52	1.94	92.31	4.000	No	No	2.00
212	13.68	44.31	2.26	1.59	0.69	51.92	1.78	92.36	4.000	No	No	2.00
213	13.73	47.82	2.22	1.53	0.68	55.76	1.68	93.57	4.000	No	No	2.00
214	13.77	50.08	2.21	1.55	0.67	58.23	1.65	95.79	4.000	No	No	2.00
215	13.87	52.91	2.20	1.55	0.67	61.16	1.61	98.26	4.000	No	No	2.00
216	13.93	55.78	2.19	1.58	0.66	64.26	1.58	101.41	4.000	No	No	2.00
217	14.00	58.54	2.17	1.60	0.66	67.15	1.55	104.21	4.000	No	No	2.00
218	14.06	60.62	2.17	1.63	0.66	69.33	1.54	106.89	4.000	No	No	2.00
219	14.12	62.21	2.17	1.67	0.66	70.95	1.54	109.37	4.000	No	No	2.00
220	14.21	63.05	2.17	1.71	0.66	71.63	1.55	111.13	4.000	No	No	2.00
221	14.25	63.45	2.18	1.75	0.66	71.96	1.56	112.44	4.000	No	No	2.00
222	14.35	63.35	2.18	1.78	0.66	71.51	1.58	112.67	4.000	No	No	2.00
223	14.45	62.61	2.19	1.80	0.67	70.37	1.60	112.38	4.000	No	No	2.00
224	14.50	61.06	2.21	1.83	0.67	68.50	1.63	111.75	4.000	No	No	2.00
225	14.59	59.18	2.22	1.87	0.68	66.15	1.68	111.04	4.000	No	No	2.00
226	14.64	57.19	2.24	1.92	0.68	63.82	1.73	110.49	4.000	No	No	2.00
227	14.74	55.60	2.26	1.95	0.69	61.79	1.78	110.08	4.000	No	No	2.00
228	14.80	54.22	2.27	1.99	0.69	60.12	1.83	109.86	4.000	No	No	2.00
229	14.88	53.18	2.28	2.02	0.69	58.73	1.87	109.70	4.000	No	No	2.00
230	14.97	52.24	2.30	2.05	0.70	57.45	1.91	109.62	4.000	No	No	2.00
231	15.05	51.43	2.31	2.08	0.70	56.38	1.95	110.04	4.000	No	No	2.00
232	15.13	50.85	2.32	2.12	0.70	55.53	1.99	110.56	4.000	No	No	2.00
233	15.21	50.95	2.32	2.12	0.70	55.42	1.99	110.46	4.000	No	No	2.00
234	15.28	52.23	2.30	2.06	0.70	56.58	1.93	109.48	4.000	No	No	2.00
235	15.36	55.10	2.27	1.95	0.69	59.37	1.82	108.07	4.000	No	No	2.00
236	15.41	60.22	2.22	1.78	0.67	64.61	1.66	107.30	4.000	No	No	2.00
237	15.50	66.38	2.16	1.62	0.66	70.74	1.53	108.00	4.000	No	No	2.00
238	15.55	72.78	2.07	1.31	0.63	77.07	1.38	106.45	4.000	No	No	2.00
239	15.65	76.92	2.00	1.07	0.61	80.83	1.31	105.71	4.000	No	No	2.00
240	15.71	78.17	1.94	0.88	0.59	81.68	1.27	103.43	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	15.79	75.07	1.96	0.89	0.60	78.22	1.28	99.99	4.000	Yes	No	2.00
242	15.89	67.29	2.02	0.97	0.61	69.97	1.33	92.88	4.000	Yes	No	2.00
243	15.90	61.09	2.07	1.04	0.63	63.58	1.38	88.03	4.000	Yes	No	2.00
244	15.94	56.21	2.12	1.11	0.64	58.47	1.45	84.99	4.000	Yes	No	2.00
245	16.00	53.24	2.15	1.16	0.65	55.28	1.51	83.45	4.000	Yes	No	2.00
246	16.06	47.68	2.22	1.30	0.67	49.45	1.67	82.65	4.000	Yes	No	2.00
247	16.14	40.74	2.32	1.56	0.71	42.17	2.02	85.02	4.000	Yes	No	2.00
248	16.19	34.10	2.43	1.87	0.74	35.24	2.56	90.26	4.000	Yes	No	2.00
249	16.26	27.10	2.57	2.32	0.78	27.88	3.51	97.89	4.000	Yes	No	2.00
250	16.33	21.54	2.70	2.80	0.82	22.01	4.74	104.24	4.000	Yes	Yes	2.00
251	16.38	17.06	2.83	3.31	0.86	17.28	6.24	107.80	4.000	Yes	Yes	2.00
252	16.47	14.43	2.93	3.75	0.89	14.45	7.58	109.50	4.000	Yes	Yes	2.00
253	16.54	12.64	3.00	4.14	1.00	12.69	8.71	110.54	4.000	Yes	Yes	2.00
254	16.62	11.80	3.05	4.58	1.00	11.71	9.67	113.31	4.000	No	Yes	2.00
255	16.70	11.53	3.08	4.88	1.00	11.36	10.18	115.66	4.000	No	Yes	2.00
256	16.76	12.28	3.06	4.98	1.00	12.12	9.88	119.66	4.000	No	Yes	2.00
257	16.86	14.88	2.96	4.36	1.00	14.80	8.08	119.59	4.000	Yes	Yes	2.00
258	16.90	19.33	2.82	3.59	0.85	19.15	6.07	116.24	4.000	Yes	Yes	2.00
259	16.98	25.84	2.65	2.82	0.80	25.69	4.22	108.51	4.000	Yes	Yes	2.00
260	17.05	35.42	2.48	2.18	0.75	35.23	2.81	99.11	4.000	Yes	No	2.00
261	17.14	47.54	2.30	1.68	0.70	47.19	1.94	91.71	4.000	Yes	No	2.00
262	17.20	61.48	2.15	1.32	0.65	60.90	1.51	91.88	4.000	Yes	No	2.00
263	17.29	73.03	2.05	1.11	0.62	72.03	1.35	97.56	4.000	Yes	No	2.00
264	17.34	81.99	1.99	1.01	0.60	80.70	1.30	104.58	4.000	Yes	No	2.00
265	17.44	86.87	1.97	1.01	0.60	85.21	1.28	109.31	4.000	No	No	2.00
266	17.50	88.89	1.93	0.91	0.59	86.96	1.26	109.36	4.000	No	No	2.00
267	17.58	88.15	1.91	0.82	0.58	85.91	1.24	106.78	4.000	No	No	2.00
268	17.64	85.02	1.90	0.75	0.58	82.63	1.24	102.13	4.000	No	No	2.00
269	17.75	80.50	1.95	0.85	0.59	77.97	1.27	99.12	4.000	No	No	2.00
270	17.82	72.08	2.04	1.03	0.62	69.66	1.35	93.80	4.000	No	No	2.00
271	17.89	66.02	2.11	1.19	0.64	63.60	1.43	91.18	4.000	No	No	2.00
272	17.89	62.68	2.15	1.30	0.65	60.37	1.51	91.04	4.000	No	No	2.00
273	17.96	64.06	2.15	1.31	0.65	61.55	1.50	92.30	4.000	No	No	2.00
274	18.02	65.34	2.15	1.35	0.65	62.67	1.51	94.33	4.000	No	No	2.00
275	18.07	66.86	2.15	1.39	0.65	64.01	1.51	96.43	4.000	No	No	2.00
276	18.17	68.78	2.14	1.40	0.65	65.62	1.49	98.02	4.000	No	No	2.00
277	18.22	68.74	2.15	1.43	0.65	65.47	1.51	98.54	4.000	Yes	No	2.00
278	18.30	65.20	2.19	1.53	0.66	61.85	1.59	98.20	4.000	Yes	No	2.00
279	18.36	57.69	2.27	1.79	0.69	54.52	1.83	99.83	4.000	Yes	No	2.00
280	18.42	49.20	2.39	2.19	0.72	46.28	2.30	106.36	4.000	Yes	No	2.00
281	18.50	39.97	2.53	2.80	0.77	37.31	3.16	118.00	4.000	Yes	No	2.00
282	18.56	32.38	2.66	3.50	0.81	29.97	4.32	129.55	4.000	Yes	Yes	2.00
283	18.62	25.71	2.80	4.24	0.85	23.53	5.80	136.40	4.000	Yes	Yes	2.00
284	18.69	23.96	2.82	4.26	0.85	21.78	6.13	133.60	4.000	Yes	Yes	2.00
285	18.76	22.21	2.86	4.37	0.87	20.05	6.60	132.24	4.000	Yes	Yes	2.00
286	18.84	24.30	2.80	4.02	0.85	21.95	5.90	129.41	4.000	Yes	Yes	2.00
287	18.89	31.88	2.66	3.30	0.80	29.04	4.26	123.66	4.000	Yes	Yes	2.00
288	18.98	52.85	2.37	2.20	0.72	48.61	2.23	108.20	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	19.05	78.42	2.16	1.65	0.66	72.48	1.52	110.23	4.000	Yes	No	2.00
290	19.12	101.80	2.02	1.36	0.61	94.21	1.32	124.65	4.000	Yes	No	2.00
291	19.18	115.88	1.95	1.24	0.59	107.18	1.27	136.09	4.000	Yes	No	2.00
292	19.24	124.07	1.91	1.18	0.58	114.61	1.25	142.72	4.000	Yes	No	2.00
293	19.32	126.76	1.90	1.17	0.58	116.83	1.24	144.84	4.000	No	No	2.00
294	19.38	126.53	1.92	1.21	0.58	116.38	1.25	145.16	4.000	No	No	2.00
295	19.46	124.81	1.94	1.27	0.59	114.42	1.26	144.25	4.000	No	No	2.00
296	19.54	122.62	1.96	1.34	0.60	112.08	1.28	142.92	4.000	No	No	2.00
297	19.62	121.00	1.97	1.38	0.60	110.26	1.28	141.68	4.000	No	No	2.00
298	19.70	119.99	1.98	1.40	0.60	109.01	1.29	140.65	4.000	No	No	2.00
299	19.80	119.75	1.98	1.39	0.60	108.41	1.29	140.01	4.000	No	No	2.00
300	19.85	119.75	1.98	1.39	0.60	108.23	1.29	139.71	4.000	No	No	2.00
301	19.94	119.95	1.98	1.40	0.60	108.07	1.29	139.71	4.000	No	No	2.00
302	20.03	120.73	1.96	1.31	0.60	108.50	1.28	138.61	4.000	No	No	2.00
303	20.13	121.84	1.94	1.23	0.59	109.19	1.26	137.92	4.000	No	No	2.00
304	20.19	123.33	1.91	1.14	0.58	110.40	1.25	137.60	4.000	No	No	2.00
305	20.29	124.05	1.92	1.16	0.58	110.67	1.25	138.32	4.000	No	No	2.00
306	20.39	124.51	1.93	1.18	0.59	110.70	1.25	138.76	4.000	No	No	2.00
307	20.43	124.14	1.93	1.21	0.59	110.23	1.26	138.70	4.000	No	No	2.00
308	20.47	124.09	1.94	1.23	0.59	109.99	1.26	138.78	4.000	No	No	2.00
309	20.52	123.97	1.95	1.26	0.59	109.69	1.27	139.06	4.000	No	No	2.00
310	20.61	123.97	1.96	1.30	0.59	109.33	1.27	139.29	4.000	No	No	2.00
311	20.66	123.26	1.97	1.34	0.60	108.48	1.28	139.08	4.000	No	No	2.00
312	20.71	122.22	1.98	1.36	0.60	107.35	1.29	138.34	4.000	No	No	2.00
313	20.77	121.00	1.99	1.39	0.60	106.04	1.30	137.35	4.000	No	No	2.00
314	20.85	120.53	1.99	1.40	0.60	105.33	1.30	136.79	4.000	No	No	2.00
315	20.91	120.63	1.99	1.40	0.61	105.23	1.30	136.74	4.000	No	No	2.00
316	21.00	121.00	1.99	1.40	0.61	105.23	1.30	136.71	4.000	No	No	2.00
317	21.05	120.93	1.99	1.40	0.61	105.01	1.30	136.53	4.000	No	No	2.00
318	21.11	120.50	2.00	1.41	0.61	104.40	1.30	136.06	4.000	No	No	2.00
319	21.19	120.16	2.00	1.42	0.61	103.82	1.31	135.66	4.000	No	No	2.00
320	21.24	120.23	2.00	1.43	0.61	103.70	1.31	135.67	4.000	No	No	2.00
321	21.34	120.39	2.00	1.43	0.61	103.52	1.31	135.57	4.000	No	No	2.00
322	21.39	119.99	2.01	1.44	0.61	103.00	1.31	135.16	4.000	No	No	2.00
323	21.48	118.68	2.01	1.45	0.61	101.52	1.32	133.84	4.000	No	No	2.00
324	21.53	116.39	2.02	1.47	0.61	99.34	1.33	131.86	4.000	No	No	2.00
325	21.64	113.86	2.03	1.47	0.62	96.79	1.34	129.36	4.000	No	No	2.00
326	21.72	111.80	2.02	1.38	0.61	94.83	1.33	125.65	4.000	No	No	2.00
327	21.81	110.79	2.00	1.27	0.61	93.80	1.31	122.48	4.000	No	No	2.00
328	21.89	110.52	1.97	1.15	0.60	93.48	1.28	120.09	4.000	No	No	2.00
329	21.97	110.69	1.96	1.11	0.60	93.44	1.28	119.40	4.000	No	No	2.00
330	22.05	110.81	1.96	1.09	0.60	93.32	1.27	118.94	4.000	No	No	2.00
331	22.12	110.92	1.95	1.07	0.59	93.25	1.27	118.64	4.000	No	No	2.00
332	22.13	110.89	1.95	1.07	0.59	93.20	1.27	118.54	4.000	No	No	2.00
333	22.18	111.98	1.95	1.06	0.59	94.01	1.27	119.22	4.000	No	No	2.00
334	22.22	114.49	1.93	1.04	0.59	96.10	1.26	121.02	4.000	No	No	2.00
335	22.28	118.47	1.91	1.01	0.58	99.41	1.25	123.90	4.000	No	No	2.00
336	22.33	122.55	1.90	0.98	0.58	102.85	1.23	126.89	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	22.38	126.36	1.88	0.96	0.57	106.02	1.22	129.64	4.000	No	No	2.00
338	22.41	129.99	1.86	0.93	0.57	109.11	1.21	132.05	4.000	No	No	2.00
339	22.51	133.16	1.85	0.91	0.56	111.59	1.20	133.67	4.000	No	No	2.00
340	22.56	135.86	1.83	0.88	0.56	113.83	1.18	134.77	4.000	No	No	2.00
341	22.61	137.68	1.82	0.85	0.55	115.29	1.17	135.13	4.000	No	No	2.00
342	22.65	139.23	1.81	0.82	0.55	116.56	1.16	135.07	4.000	No	No	2.00
343	22.71	140.30	1.79	0.80	0.55	117.38	1.15	134.57	4.000	No	No	2.00
344	22.76	141.15	1.78	0.77	0.54	118.01	1.13	133.54	4.000	No	No	2.00
345	22.85	141.55	1.77	0.74	0.54	118.16	1.12	132.33	4.000	No	No	2.00
346	22.89	141.79	1.77	0.72	0.54	118.28	1.11	131.19	4.000	No	No	2.00
347	22.99	141.85	1.76	0.71	0.54	118.07	1.10	130.38	4.000	No	No	2.00
348	23.04	142.19	1.76	0.71	0.54	118.24	1.10	129.89	4.000	No	No	2.00
349	23.12	143.24	1.75	0.70	0.53	118.92	1.09	129.72	4.000	No	No	2.00
350	23.18	145.12	1.75	0.69	0.53	120.36	1.08	129.86	4.000	No	No	2.00
351	23.24	147.55	1.74	0.69	0.53	122.28	1.07	130.48	4.000	No	No	2.00
352	23.33	150.28	1.73	0.68	0.53	124.35	1.05	131.06	4.000	No	No	2.00
353	23.38	152.77	1.73	0.68	0.53	126.31	1.04	131.98	4.000	No	No	2.00
354	23.47	154.92	1.72	0.68	0.53	127.86	1.04	132.70	4.000	No	No	2.00
355	23.52	155.87	1.73	0.70	0.53	128.46	1.05	134.34	4.000	No	No	2.00
356	23.61	155.50	1.74	0.72	0.53	127.76	1.06	136.02	4.000	No	No	2.00
357	23.68	153.41	1.76	0.76	0.54	125.65	1.10	137.67	4.000	No	No	2.00
358	23.76	149.87	1.78	0.79	0.54	122.29	1.13	137.84	4.000	No	No	2.00
359	23.83	145.42	1.80	0.83	0.55	118.19	1.16	136.72	4.000	No	No	2.00
360	23.90	140.77	1.83	0.87	0.56	113.95	1.18	134.56	4.000	No	No	2.00
361	23.97	136.02	1.85	0.91	0.56	109.66	1.20	131.87	4.000	No	No	2.00
362	24.05	130.36	1.88	0.95	0.57	104.58	1.22	128.11	4.000	No	No	2.00
363	24.10	123.83	1.92	1.01	0.58	98.86	1.25	123.41	4.000	No	No	2.00
364	24.19	116.14	1.96	1.08	0.60	92.13	1.28	117.58	4.000	No	No	2.00
365	24.27	109.37	2.00	1.15	0.61	86.22	1.31	112.54	4.000	No	No	2.00
366	24.34	103.31	2.03	1.21	0.62	80.98	1.34	108.37	4.000	No	No	2.00
367	24.43	99.26	2.06	1.26	0.63	77.39	1.37	105.81	4.000	No	No	2.00
368	24.48	95.99	2.09	1.32	0.63	74.54	1.40	104.29	4.000	No	No	2.00
369	24.57	93.77	2.11	1.39	0.64	72.46	1.43	103.72	4.000	No	No	2.00
370	24.62	91.81	2.12	1.39	0.64	70.77	1.45	102.28	4.000	No	No	2.00
371	24.72	90.33	2.12	1.39	0.65	69.37	1.46	101.12	4.000	No	No	2.00
372	24.81	89.08	2.13	1.39	0.65	68.17	1.47	100.03	4.000	No	No	2.00
373	24.86	87.96	2.15	1.46	0.65	67.09	1.50	100.81	4.000	No	No	2.00
374	24.95	85.18	2.18	1.55	0.66	64.60	1.56	100.88	4.000	No	No	2.00
375	25.01	82.83	2.20	1.62	0.67	62.55	1.62	101.05	4.000	No	No	2.00
376	25.02	81.04	2.22	1.66	0.67	61.07	1.66	101.09	4.000	No	No	2.00
377	25.05	81.81	2.21	1.65	0.67	61.63	1.64	101.34	4.000	No	No	2.00
378	25.11	82.33	2.21	1.65	0.67	61.92	1.64	101.59	4.000	No	No	2.00
379	25.15	82.53	2.21	1.66	0.67	61.99	1.64	101.87	4.000	No	No	2.00
380	25.21	81.92	2.22	1.68	0.67	61.38	1.66	101.94	4.000	No	No	2.00
381	25.25	81.07	2.23	1.70	0.68	60.61	1.68	101.90	4.000	No	No	2.00
382	25.30	79.78	2.23	1.71	0.68	59.50	1.70	101.32	4.000	No	No	2.00
383	25.40	78.02	2.24	1.71	0.68	57.95	1.73	100.17	4.000	No	No	2.00
384	25.45	75.14	2.25	1.71	0.68	55.63	1.77	98.38	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	25.52	71.36	2.27	1.71	0.69	52.56	1.83	96.28	4.000	Yes	No	2.00
386	25.60	65.60	2.32	1.78	0.70	47.92	1.99	95.12	4.000	Yes	No	2.00
387	25.66	58.89	2.37	1.90	0.72	42.57	2.24	95.48	4.000	Yes	No	2.00
388	25.74	50.63	2.47	2.18	0.75	36.01	2.77	99.69	4.000	Yes	No	2.00
389	25.80	42.60	2.57	2.54	0.78	29.74	3.54	105.15	4.000	Yes	No	2.00
390	25.88	34.42	2.71	3.09	0.82	23.44	4.79	112.31	4.000	Yes	Yes	2.00
391	25.94	27.91	2.84	3.70	0.86	18.51	6.33	117.20	4.000	Yes	Yes	2.00
392	26.02	22.69	2.98	4.41	1.00	14.10	8.40	118.43	4.000	Yes	Yes	2.00
393	26.09	19.19	3.07	4.99	1.00	11.73	10.09	118.41	4.000	No	Yes	2.00
394	26.17	16.36	3.16	5.56	1.00	9.82	11.90	116.89	4.000	No	Yes	2.00
395	26.23	14.50	3.23	6.07	1.00	8.57	13.49	115.61	4.000	No	Yes	2.00
396	26.29	13.56	3.28	6.45	1.00	7.93	14.54	115.33	4.000	No	Yes	2.00
397	26.37	13.73	3.27	6.48	1.00	8.01	14.49	116.10	4.000	No	Yes	2.00
398	26.46	14.95	3.23	6.22	1.00	8.78	13.45	118.10	4.000	No	Yes	2.00
399	26.55	16.56	3.18	5.88	1.00	9.80	12.25	120.00	4.000	No	Yes	2.00
400	26.60	18.04	3.14	5.67	1.00	10.74	11.37	122.14	4.000	No	Yes	2.00
401	26.70	18.79	3.12	5.69	1.00	11.18	11.11	124.24	4.000	No	Yes	2.00
402	26.78	19.09	3.12	5.78	1.00	11.34	11.11	125.96	4.000	No	Yes	2.00
403	26.87	19.16	3.10	5.28	1.00	11.34	10.61	120.33	4.000	No	Yes	2.00
404	26.94	19.06	3.05	4.41	1.00	11.25	9.74	109.55	4.000	No	Yes	2.00
405	27.03	18.62	3.03	3.81	1.00	10.92	9.23	100.80	4.000	No	Yes	2.00
406	27.13	17.84	3.05	3.86	1.00	10.38	9.61	99.83	4.000	No	Yes	2.00
407	27.18	15.89	3.14	4.63	1.00	9.12	11.41	104.10	4.000	No	Yes	2.00
408	27.27	14.61	3.20	5.14	1.00	8.27	12.75	105.48	4.000	No	Yes	2.00
409	27.32	14.00	3.23	5.49	1.00	7.87	13.55	106.67	4.000	No	Yes	2.00
410	27.37	14.68	3.21	5.36	1.00	8.28	12.99	107.59	4.000	No	Yes	2.00
411	27.41	15.01	3.20	5.40	1.00	8.48	12.84	108.89	4.000	No	Yes	2.00
412	27.46	15.01	3.21	5.56	1.00	8.47	13.04	110.36	4.000	No	Yes	2.00
413	27.51	15.19	3.22	5.71	1.00	8.56	13.12	112.25	4.000	No	Yes	2.00
414	27.61	15.69	3.21	5.85	1.00	8.84	13.00	114.96	4.000	No	Yes	2.00
415	27.66	16.81	3.20	6.07	1.00	9.52	12.66	120.53	4.000	No	Yes	2.00
416	27.73	19.30	3.15	6.09	1.00	11.05	11.59	128.02	4.000	No	Yes	2.00
417	27.80	22.77	3.09	6.16	1.00	13.18	10.46	137.91	4.000	No	Yes	2.00
418	27.88	26.51	3.05	6.33	1.00	15.46	9.62	148.75	4.000	No	Yes	2.00
419	27.96	28.73	3.04	6.73	1.00	16.78	9.46	158.82	4.000	No	Yes	2.00
420	28.04	29.44	3.06	7.42	1.00	17.16	9.86	169.19	4.000	No	Yes	2.00
421	28.12	29.30	3.09	8.01	1.00	17.02	10.34	175.99	4.000	No	Yes	2.00
422	28.18	29.78	3.09	8.32	1.00	17.27	10.47	180.83	4.000	No	Yes	2.00
423	28.27	30.99	3.07	8.13	1.00	17.95	10.11	181.45	4.000	No	Yes	2.00
424	28.32	32.84	3.04	7.81	1.00	19.04	9.54	181.70	4.000	No	Yes	2.00
425	28.42	34.90	3.01	7.49	1.00	20.22	8.98	181.66	4.000	No	Yes	2.00
426	28.47	37.02	2.99	7.35	1.00	21.47	8.57	183.98	4.000	No	Yes	2.00
427	28.61	38.87	2.97	7.32	1.00	22.47	8.32	186.93	4.000	No	Yes	2.00
428	28.67	40.79	2.96	7.36	1.00	23.57	8.10	190.99	4.000	Yes	Yes	2.00
429	28.75	43.62	2.91	7.10	0.88	26.58	7.37	195.90	4.000	Yes	Yes	2.00
430	28.81	49.52	2.83	6.35	0.86	30.58	6.28	192.19	4.000	Yes	Yes	2.00
431	28.90	59.16	2.72	5.28	0.82	37.21	4.89	181.92	4.000	Yes	Yes	2.00
432	29.00	70.68	2.60	4.38	0.79	45.27	3.75	169.71	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	29.05	82.68	2.50	3.72	0.76	53.82	2.95	158.84	4.000	Yes	No	2.00
434	29.10	92.58	2.42	3.28	0.73	60.99	2.48	151.03	4.000	Yes	No	2.00
435	29.15	101.07	2.35	2.88	0.71	67.24	2.13	143.11	4.000	Yes	No	2.00
436	29.24	105.88	2.30	2.58	0.70	70.82	1.92	136.02	4.000	Yes	No	2.00
437	29.29	107.45	2.26	2.31	0.69	72.19	1.78	128.66	4.000	Yes	No	2.00
438	29.37	106.66	2.23	2.12	0.68	71.76	1.71	122.57	4.000	Yes	No	2.00
439	29.43	105.44	2.21	1.94	0.67	71.05	1.64	116.77	4.000	Yes	No	2.00
440	29.53	104.90	2.19	1.79	0.66	70.72	1.59	112.38	4.000	No	No	2.00
441	29.62	104.73	2.17	1.69	0.66	70.61	1.55	109.62	4.000	No	No	2.00
442	29.68	104.75	2.15	1.58	0.65	70.73	1.51	106.89	4.000	No	No	2.00
443	29.80	104.42	2.15	1.54	0.65	70.36	1.50	105.63	4.000	No	No	2.00
444	29.91	103.80	2.15	1.52	0.65	69.74	1.50	104.61	4.000	No	No	2.00
445	30.00	99.10	2.19	1.66	0.66	65.97	1.59	104.86	0.187	No	No	0.61
446	30.07	97.42	2.21	1.72	0.67	64.55	1.63	105.36	0.189	No	No	0.62
447	30.15	96.27	2.22	1.75	0.67	63.56	1.66	105.54	0.189	No	No	0.62
448	30.21	99.04	2.20	1.70	0.67	65.49	1.62	105.77	0.190	No	No	0.62
449	30.26	98.71	2.20	1.71	0.67	65.16	1.62	105.66	0.190	No	No	0.62
450	30.31	97.50	2.21	1.73	0.67	64.21	1.64	105.39	0.189	No	No	0.61
451	30.38	95.52	2.22	1.75	0.67	62.65	1.67	104.86	0.187	No	No	0.61
452	30.45	92.62	2.24	1.79	0.68	60.44	1.72	104.23	0.185	No	No	0.60
453	30.50	89.12	2.26	1.84	0.69	57.84	1.79	103.72	0.184	No	No	0.60
454	30.55	84.94	2.29	1.88	0.69	54.79	1.88	102.88	0.181	No	No	0.59
455	30.64	81.19	2.31	1.91	0.70	52.03	1.96	101.83	0.178	No	No	0.58
456	30.70	77.93	2.32	1.91	0.70	49.71	2.01	100.16	0.173	No	No	0.56
457	30.79	76.04	2.33	1.90	0.71	48.30	2.05	98.96	0.170	No	No	0.55
458	30.84	75.47	2.33	1.88	0.71	47.86	2.05	98.19	0.168	No	No	0.54
459	30.93	76.95	2.32	1.86	0.70	48.79	2.01	98.05	0.168	No	No	0.54
460	30.98	80.15	2.30	1.81	0.70	50.98	1.93	98.14	0.168	No	No	0.54
461	31.05	85.34	2.27	1.76	0.69	54.54	1.81	98.98	0.170	No	No	0.55
462	31.13	91.57	2.24	1.70	0.68	58.82	1.71	100.51	0.174	No	No	0.56
463	31.17	100.46	2.19	1.61	0.66	65.08	1.58	102.97	0.182	No	No	0.58
464	31.27	110.94	2.13	1.49	0.65	72.52	1.47	106.25	0.192	No	No	0.61
465	31.32	123.23	2.06	1.34	0.63	81.52	1.37	111.37	0.208	No	No	0.67
466	31.41	133.45	2.00	1.21	0.61	89.03	1.31	116.56	0.227	No	No	0.73
467	31.46	140.90	1.96	1.11	0.60	94.67	1.28	120.72	0.244	No	No	0.78
468	31.52	144.37	1.93	1.03	0.59	97.40	1.26	122.24	0.250	No	No	0.80
469	31.61	145.01	1.91	0.97	0.58	97.95	1.24	121.83	0.248	No	No	0.79
470	31.66	142.15	1.91	0.95	0.58	95.90	1.24	119.20	0.238	No	No	0.76
471	31.75	136.69	1.93	0.97	0.59	91.66	1.26	115.29	0.223	No	No	0.71
472	31.80	129.14	1.98	1.06	0.60	85.76	1.29	110.68	0.206	No	No	0.66
473	31.90	122.00	2.02	1.16	0.62	80.16	1.33	106.52	0.192	No	No	0.61
474	31.94	116.84	2.06	1.24	0.63	76.18	1.37	104.07	0.185	No	No	0.59
475	32.04	116.03	2.07	1.27	0.63	75.33	1.38	104.00	0.185	No	No	0.59
476	32.09	119.17	2.08	1.34	0.63	77.25	1.39	107.23	0.195	No	No	0.62
477	32.20	118.70	2.11	1.46	0.64	76.38	1.43	109.06	0.201	No	No	0.63
478	32.24	117.72	2.13	1.56	0.65	75.37	1.47	110.44	0.205	No	No	0.65
479	32.28	114.69	2.15	1.64	0.65	73.02	1.51	110.26	0.205	No	No	0.65
480	32.29	116.70	2.14	1.62	0.65	74.43	1.49	111.09	0.207	No	No	0.66

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	32.30	118.93	2.13	1.60	0.65	75.98	1.47	112.06	0.211	No	No	0.67
482	32.40	120.51	2.13	1.59	0.65	76.91	1.47	112.71	0.213	No	No	0.67
483	32.45	120.48	2.13	1.61	0.65	76.77	1.47	112.95	0.214	No	No	0.67
484	32.55	119.13	2.14	1.63	0.65	75.61	1.49	112.51	0.212	No	No	0.67
485	32.59	118.33	2.15	1.66	0.65	74.91	1.50	112.50	0.212	No	No	0.67
486	32.69	118.13	2.15	1.68	0.65	74.54	1.51	112.79	0.213	No	No	0.67
487	32.76	118.09	2.16	1.72	0.66	74.31	1.53	113.51	0.216	No	No	0.68
488	32.84	118.40	2.17	1.75	0.66	74.31	1.54	114.35	0.219	No	No	0.69
489	32.90	119.00	2.17	1.77	0.66	74.55	1.55	115.19	0.222	No	No	0.70
490	32.98	119.95	2.17	1.78	0.66	75.02	1.54	115.83	0.225	No	No	0.70
491	33.06	121.02	2.17	1.78	0.66	75.61	1.54	116.33	0.226	No	No	0.71
492	33.12	122.10	2.16	1.78	0.66	76.23	1.53	116.77	0.228	No	No	0.71
493	33.22	122.84	2.16	1.78	0.66	76.56	1.53	117.03	0.229	No	No	0.72
494	33.31	123.21	2.16	1.78	0.66	76.64	1.53	117.14	0.229	No	No	0.72
495	33.37	123.28	2.16	1.78	0.66	76.59	1.53	117.11	0.229	No	No	0.72
496	33.46	123.28	2.16	1.78	0.66	76.41	1.53	117.00	0.229	No	No	0.71
497	33.55	123.18	2.17	1.79	0.66	76.17	1.54	117.00	0.229	No	No	0.71
498	33.65	122.98	2.17	1.80	0.66	75.83	1.54	117.07	0.229	No	No	0.71
499	33.70	122.57	2.17	1.82	0.66	75.42	1.55	117.18	0.230	No	No	0.71
500	33.79	122.03	2.18	1.84	0.66	74.86	1.56	117.10	0.229	No	No	0.71
501	33.89	121.09	2.18	1.85	0.66	74.04	1.58	116.76	0.228	No	No	0.71
502	33.99	119.77	2.19	1.86	0.67	72.98	1.59	116.20	0.226	No	No	0.70
503	34.04	117.79	2.20	1.88	0.67	71.55	1.61	115.43	0.223	No	No	0.69
504	34.13	115.49	2.21	1.89	0.67	69.85	1.64	114.59	0.220	No	No	0.68
505	34.23	112.70	2.22	1.92	0.68	67.80	1.68	113.76	0.217	No	No	0.67
506	34.32	110.27	2.24	1.95	0.68	66.01	1.71	113.20	0.215	No	No	0.66
507	34.37	108.22	2.25	1.98	0.68	64.55	1.75	112.84	0.214	No	No	0.66
508	34.47	106.60	2.26	2.00	0.69	63.31	1.78	112.69	0.213	No	No	0.66
509	34.55	103.47	2.28	2.07	0.69	61.05	1.85	112.96	4.000	Yes	No	2.00
510	34.63	96.66	2.33	2.24	0.71	56.31	2.04	114.64	4.000	Yes	No	2.00
511	34.73	86.37	2.40	2.51	0.73	49.33	2.40	118.21	4.000	Yes	No	2.00
512	34.80	72.76	2.51	2.91	0.76	40.42	3.06	123.59	4.000	Yes	No	2.00
513	34.90	60.46	2.62	3.30	0.79	32.62	3.90	127.28	4.000	Yes	Yes	2.00
514	35.00	54.92	2.64	3.21	0.80	29.29	4.16	121.79	3.600	No	Yes	2.00
515	35.12	50.37	2.67	3.15	0.81	26.54	4.42	117.31	3.600	No	Yes	2.00
516	35.20	52.86	2.63	2.87	0.80	28.11	3.99	112.19	3.600	No	Yes	2.00
517	35.33	53.65	2.63	2.95	0.80	28.43	4.02	114.42	4.000	Yes	Yes	2.00
518	35.41	63.41	2.53	2.60	0.77	34.44	3.20	110.34	4.000	Yes	No	2.00
519	35.44	68.58	2.48	2.43	0.75	37.68	2.87	108.02	4.000	Yes	No	2.00
520	35.48	76.82	2.41	2.17	0.73	42.96	2.42	103.82	4.000	Yes	No	2.00
521	35.57	84.09	2.35	1.98	0.71	47.63	2.12	101.05	4.000	Yes	No	2.00
522	35.62	98.70	2.24	1.69	0.68	57.30	1.73	98.99	4.000	Yes	No	2.00
523	35.67	115.40	2.14	1.46	0.65	68.51	1.49	102.07	4.000	Yes	No	2.00
524	35.71	137.52	2.04	1.30	0.62	83.52	1.35	112.52	4.000	Yes	No	2.00
525	35.82	159.89	1.96	1.19	0.60	98.71	1.28	126.36	4.000	Yes	No	2.00
526	35.86	185.11	1.89	1.12	0.58	116.11	1.23	143.07	4.000	Yes	No	2.00
527	35.93	207.72	1.84	1.06	0.56	131.80	1.19	156.85	4.000	Yes	No	2.00
528	36.01	225.38	1.80	1.04	0.55	144.00	1.16	166.33	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	36.06	235.57	1.79	1.04	0.54	150.92	1.14	171.69	4.000	Yes	No	2.00
530	36.12	240.67	1.78	1.05	0.54	154.12	1.13	174.89	0.578	No	No	1.75
531	36.18	245.05	1.79	1.08	0.54	156.73	1.14	178.20	0.606	No	No	1.84
532	36.25	248.69	1.79	1.10	0.54	158.84	1.14	180.98	0.631	No	No	1.91
533	36.30	251.52	1.80	1.14	0.55	160.26	1.15	184.12	0.661	No	No	2.00
534	36.39	252.83	1.81	1.17	0.55	160.54	1.16	185.99	0.678	No	No	2.00
535	36.44	253.07	1.82	1.21	0.55	160.15	1.17	187.57	0.694	No	No	2.00
536	36.53	251.49	1.83	1.25	0.56	158.45	1.18	187.51	0.693	No	No	2.00
537	36.59	248.39	1.86	1.34	0.57	155.45	1.21	187.43	0.692	No	No	2.00
538	36.68	243.47	1.87	1.37	0.57	151.62	1.22	184.49	0.664	No	No	2.00
539	36.75	238.34	1.88	1.38	0.57	147.93	1.22	180.99	0.631	No	No	1.91
540	36.83	232.04	1.88	1.34	0.57	143.78	1.22	175.91	0.586	No	No	1.77
541	36.90	225.27	1.89	1.35	0.58	138.95	1.23	171.34	0.548	No	No	1.65
542	36.97	217.18	1.92	1.39	0.58	133.11	1.25	166.05	0.506	No	No	1.53
543	37.02	201.72	1.96	1.49	0.60	122.19	1.28	156.23	0.435	No	No	1.31
544	37.04	193.70	1.99	1.53	0.60	116.64	1.30	151.13	0.401	No	No	1.21
545	37.08	188.61	2.00	1.54	0.61	113.19	1.30	147.61	0.379	No	No	1.14
546	37.17	191.78	1.97	1.46	0.60	115.46	1.29	148.65	0.385	No	No	1.16
547	37.27	187.30	1.98	1.44	0.60	112.45	1.29	145.04	0.364	No	No	1.09
548	37.37	181.37	1.99	1.43	0.60	108.42	1.30	140.68	0.339	No	No	1.02
549	37.42	177.21	1.99	1.39	0.60	105.83	1.30	137.22	0.320	No	No	0.96
550	37.51	175.89	1.97	1.32	0.60	105.19	1.29	135.25	0.310	No	No	0.93
551	37.58	176.97	1.95	1.22	0.59	106.34	1.27	134.76	0.308	No	No	0.92
552	37.66	179.01	1.92	1.13	0.58	108.07	1.25	135.08	0.309	No	No	0.93
553	37.76	182.58	1.89	1.05	0.57	110.83	1.23	136.26	0.315	No	No	0.95
554	37.85	186.08	1.86	0.97	0.57	113.57	1.21	137.18	0.320	No	No	0.96
555	37.93	189.62	1.84	0.92	0.56	116.22	1.19	138.14	0.325	No	No	0.97
556	38.04	192.25	1.82	0.89	0.55	117.99	1.18	138.80	0.329	No	No	0.98
557	38.13	193.87	1.82	0.88	0.55	118.97	1.17	139.30	0.331	No	No	0.99
558	38.18	193.57	1.82	0.88	0.55	118.63	1.17	139.16	0.331	No	No	0.99
559	38.28	191.24	1.84	0.92	0.56	116.58	1.19	138.51	0.327	No	No	0.98
560	38.37	187.40	1.86	0.97	0.57	113.37	1.21	137.08	0.320	No	No	0.95
561	38.47	183.55	1.89	1.06	0.58	109.99	1.23	135.63	0.312	No	No	0.93
562	38.57	180.39	1.92	1.13	0.58	107.19	1.25	134.14	0.304	No	No	0.91
563	38.62	176.78	1.95	1.21	0.59	104.23	1.27	132.48	0.296	No	No	0.88
564	38.72	167.48	2.00	1.33	0.61	97.43	1.31	127.27	0.272	No	No	0.81
565	38.78	160.21	2.04	1.42	0.62	92.19	1.34	123.72	0.256	No	No	0.76
566	38.81	155.32	2.06	1.49	0.63	88.77	1.37	121.63	0.247	No	No	0.74
567	38.86	155.19	2.07	1.50	0.63	88.54	1.37	121.68	0.248	No	No	0.74
568	38.91	152.02	2.08	1.55	0.63	86.27	1.40	120.51	0.243	No	No	0.72
569	38.95	145.92	2.12	1.64	0.64	82.06	1.44	118.55	0.235	No	No	0.70
570	39.05	139.55	2.15	1.74	0.65	77.66	1.51	116.91	0.229	No	No	0.68
571	39.09	132.37	2.19	1.84	0.66	72.88	1.59	115.64	0.224	No	No	0.67
572	39.14	125.06	2.23	1.95	0.68	68.10	1.69	114.83	0.221	No	No	0.66
573	39.24	118.19	2.26	2.05	0.69	63.61	1.80	114.32	0.219	No	No	0.65
574	39.29	112.16	2.30	2.14	0.70	59.80	1.91	114.03	0.218	No	No	0.65
575	39.39	108.48	2.32	2.20	0.70	57.39	1.99	114.16	0.218	No	No	0.65
576	39.43	109.15	2.31	2.19	0.70	57.74	1.98	114.28	0.219	No	No	0.65

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	39.53	115.02	2.28	2.10	0.69	61.25	1.86	113.89	0.217	No	No	0.65
578	39.57	124.17	2.23	1.94	0.68	67.01	1.69	113.55	0.216	No	No	0.64
579	39.68	130.64	2.19	1.83	0.67	71.04	1.60	113.69	0.217	No	No	0.64
580	39.73	131.95	2.19	1.80	0.66	71.83	1.58	113.53	0.216	No	No	0.64
581	39.81	129.33	2.20	1.81	0.67	70.10	1.60	112.48	0.212	No	No	0.63
582	39.89	126.37	2.19	1.75	0.67	68.39	1.60	109.51	0.202	No	No	0.60
583	39.96	125.26	2.18	1.63	0.66	68.01	1.56	105.89	0.190	No	No	0.56
584	40.06	124.52	2.16	1.53	0.66	67.75	1.52	103.14	0.182	No	No	0.54
585	40.15	122.70	2.17	1.55	0.66	66.50	1.54	102.38	0.180	No	No	0.53
586	40.20	114.41	2.22	1.70	0.67	61.03	1.67	102.07	0.179	No	No	0.53
587	40.24	108.56	2.26	1.81	0.69	57.23	1.79	102.62	0.181	No	No	0.53
588	40.26	104.17	2.29	1.90	0.70	54.45	1.90	103.22	0.182	No	No	0.54
589	40.27	107.91	2.27	1.85	0.69	56.72	1.82	103.36	0.183	No	No	0.54
590	40.37	109.77	2.26	1.84	0.69	57.73	1.80	103.81	0.184	No	No	0.55
591	40.42	111.64	2.26	1.85	0.69	58.75	1.78	104.71	0.187	No	No	0.55
592	40.52	112.38	2.26	1.87	0.69	59.02	1.79	105.44	0.189	No	No	0.56
593	40.56	115.27	2.25	1.87	0.68	60.66	1.76	106.63	0.193	No	No	0.57
594	40.66	122.24	2.22	1.81	0.67	64.78	1.67	108.06	0.197	No	No	0.58
595	40.70	131.54	2.18	1.74	0.66	70.42	1.57	110.67	0.206	No	No	0.61
596	40.75	142.59	2.14	1.67	0.65	77.15	1.49	114.79	0.221	No	No	0.65
597	40.85	153.40	2.11	1.63	0.64	83.66	1.43	119.75	0.240	No	No	0.71
598	40.91	164.05	2.08	1.59	0.63	90.16	1.39	125.10	0.262	No	No	0.77
599	40.96	174.69	2.04	1.53	0.62	96.83	1.35	130.56	0.287	No	No	0.85
600	41.04	184.27	2.01	1.47	0.61	102.87	1.32	135.59	0.312	No	No	0.92
601	41.09	193.94	1.98	1.41	0.60	109.10	1.29	141.03	0.341	No	No	1.01
602	41.18	201.90	1.96	1.36	0.60	114.17	1.28	145.57	0.367	No	No	1.08
603	41.23	207.97	1.94	1.33	0.59	118.08	1.26	149.12	0.388	No	No	1.15
604	41.29	211.58	1.93	1.31	0.59	120.37	1.26	151.17	0.401	No	No	1.19
605	41.38	212.76	1.93	1.30	0.59	120.98	1.25	151.67	0.404	No	No	1.19
606	41.42	212.09	1.93	1.31	0.59	120.40	1.26	151.21	0.402	No	No	1.19
607	41.52	210.03	1.94	1.33	0.59	118.76	1.26	149.86	0.393	No	No	1.16
608	41.57	207.27	1.95	1.36	0.59	116.72	1.27	148.26	0.383	No	No	1.13
609	41.62	204.91	1.96	1.40	0.60	114.93	1.28	146.93	0.375	No	No	1.11
610	41.71	203.13	1.97	1.43	0.60	113.45	1.29	145.89	0.369	No	No	1.09
611	41.76	202.15	1.98	1.45	0.60	112.60	1.29	145.43	0.366	No	No	1.08
612	41.84	201.65	1.99	1.47	0.60	111.98	1.30	145.17	0.364	No	No	1.08
613	41.91	201.54	1.99	1.50	0.61	111.64	1.30	145.22	0.365	No	No	1.08
614	41.95	201.75	2.00	1.52	0.61	111.52	1.31	145.53	0.367	No	No	1.08
615	42.01	202.52	2.00	1.56	0.61	111.63	1.31	146.36	0.372	No	No	1.10
616	42.10	203.57	2.01	1.60	0.61	111.82	1.32	147.40	0.378	No	No	1.11
617	42.15	204.98	2.02	1.66	0.61	112.23	1.33	148.90	0.387	No	No	1.14
618	42.24	206.03	2.03	1.70	0.62	112.44	1.33	149.94	0.394	No	No	1.16
619	42.28	206.46	2.03	1.71	0.62	112.53	1.34	150.31	0.396	No	No	1.17
620	42.39	206.26	2.03	1.70	0.62	112.27	1.33	149.81	0.393	No	No	1.16
621	42.43	206.08	2.02	1.67	0.62	112.28	1.33	149.14	0.389	No	No	1.14
622	42.50	206.11	2.01	1.62	0.61	112.45	1.32	148.36	0.384	No	No	1.13
623	42.58	206.28	2.00	1.56	0.61	112.80	1.31	147.54	0.379	No	No	1.12
624	42.65	198.95	2.01	1.55	0.61	108.28	1.32	142.73	0.350	No	No	1.03

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	42.70	195.88	2.02	1.54	0.61	106.39	1.32	140.58	0.338	No	No	1.00
626	42.73	193.72	2.02	1.54	0.61	105.08	1.32	139.14	0.331	No	No	0.97
627	42.77	200.19	1.99	1.47	0.61	109.31	1.30	142.31	0.348	No	No	1.02
628	42.82	203.83	1.98	1.43	0.60	111.68	1.29	144.06	0.358	No	No	1.05
629	42.87	209.12	1.96	1.39	0.60	115.10	1.28	146.92	0.375	No	No	1.10
630	42.91	215.46	1.94	1.35	0.59	119.14	1.26	150.57	0.397	No	No	1.17
631	42.97	221.76	1.92	1.32	0.59	123.09	1.25	154.27	0.421	No	No	1.24
632	43.02	226.82	1.92	1.32	0.58	126.14	1.25	157.35	0.442	No	No	1.30
633	43.06	230.49	1.91	1.33	0.58	128.19	1.25	159.72	0.459	No	No	1.35
634	43.11	234.33	1.91	1.34	0.58	130.34	1.24	162.21	0.477	No	No	1.40
635	43.17	237.93	1.91	1.35	0.58	132.40	1.24	164.40	0.493	No	No	1.45
636	43.21	242.21	1.90	1.33	0.58	135.09	1.23	166.83	0.512	No	No	1.51
637	43.29	246.19	1.89	1.30	0.57	137.59	1.23	168.85	0.528	No	No	1.55
638	43.34	250.53	1.87	1.28	0.57	140.43	1.22	171.05	0.545	No	No	1.61
639	43.39	254.11	1.86	1.25	0.57	142.76	1.21	172.71	0.559	No	No	1.65
640	43.45	256.87	1.85	1.22	0.56	144.64	1.20	173.74	0.568	No	No	1.67
641	43.51	258.25	1.84	1.18	0.56	145.84	1.19	173.50	0.566	No	No	1.66
642	43.59	258.59	1.82	1.14	0.56	146.35	1.18	172.47	0.557	No	No	1.64
643	43.64	259.19	1.80	1.07	0.55	147.38	1.16	170.73	0.543	No	No	1.60
644	43.70	259.29	1.78	1.01	0.54	148.12	1.13	168.10	0.522	No	No	1.54
645	43.78	258.35	1.77	0.96	0.54	147.98	1.12	165.08	0.498	No	No	1.47
646	43.88	255.18	1.77	0.96	0.54	145.77	1.12	163.55	0.487	No	No	1.43
647	43.94	244.77	1.82	1.04	0.55	138.10	1.17	161.52	0.472	No	No	1.39
648	44.04	234.93	1.86	1.12	0.57	130.84	1.21	157.74	0.445	No	No	1.31
649	44.07	225.87	1.89	1.21	0.58	124.41	1.23	153.31	0.415	No	No	1.22
650	44.12	223.58	1.90	1.23	0.58	122.68	1.24	152.08	0.407	No	No	1.20
651	44.16	221.15	1.91	1.25	0.58	120.94	1.25	150.70	0.398	No	No	1.17
652	44.21	218.05	1.93	1.28	0.59	118.76	1.25	148.86	0.387	No	No	1.14
653	44.26	214.65	1.94	1.30	0.59	116.39	1.26	146.86	0.375	No	No	1.10
654	44.31	210.81	1.95	1.34	0.59	113.73	1.27	144.63	0.361	No	No	1.06
655	44.35	206.97	1.97	1.37	0.60	111.11	1.28	142.44	0.349	No	No	1.03
656	44.40	203.26	1.98	1.40	0.60	108.60	1.29	140.32	0.337	No	No	0.99
657	44.45	200.16	1.99	1.43	0.61	106.49	1.30	138.56	0.327	No	No	0.96
658	44.50	197.83	2.00	1.45	0.61	104.91	1.31	137.24	0.320	No	No	0.94
659	44.54	195.81	2.01	1.47	0.61	103.53	1.32	136.15	0.315	No	No	0.93
660	44.60	193.46	2.02	1.49	0.61	101.86	1.32	134.97	0.309	No	No	0.91
661	44.64	190.96	2.03	1.53	0.62	100.11	1.34	133.85	0.303	No	No	0.89
662	44.69	188.57	2.05	1.57	0.62	98.42	1.35	132.85	0.298	No	No	0.88
663	44.74	187.78	2.05	1.59	0.62	97.76	1.36	132.59	0.297	No	No	0.87
664	44.79	187.17	2.06	1.60	0.62	97.27	1.36	132.34	0.296	No	No	0.87
665	44.83	187.71	2.05	1.60	0.62	97.52	1.36	132.53	0.296	No	No	0.87
666	44.88	188.84	2.05	1.59	0.62	98.15	1.35	132.96	0.299	No	No	0.88
667	44.93	191.20	2.04	1.57	0.62	99.52	1.35	134.02	0.304	No	No	0.89
668	44.98	193.69	2.03	1.55	0.62	100.99	1.34	135.20	0.310	No	No	0.91
669	45.03	195.31	2.03	1.54	0.62	101.90	1.33	135.95	0.314	No	No	0.92
670	45.08	196.49	2.03	1.54	0.62	102.54	1.33	136.45	0.316	No	No	0.93
671	45.16	197.53	2.02	1.52	0.62	103.08	1.33	136.81	0.318	No	No	0.94
672	45.19	198.24	2.02	1.50	0.61	103.58	1.32	136.91	0.319	No	No	0.94

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	45.27	198.44	2.01	1.47	0.61	103.76	1.32	136.53	0.317	No	No	0.93
674	45.32	197.56	2.00	1.44	0.61	103.38	1.31	135.53	0.312	No	No	0.92
675	45.37	195.58	2.00	1.39	0.61	102.45	1.31	133.73	0.302	No	No	0.89
676	45.45	192.44	1.99	1.35	0.61	100.80	1.30	131.17	0.290	No	No	0.85
677	45.51	187.22	1.99	1.31	0.61	97.91	1.30	127.52	0.273	No	No	0.80
678	45.56	180.52	2.01	1.31	0.61	93.92	1.31	123.37	4.000	Yes	No	2.00
679	45.61	169.84	2.04	1.36	0.62	87.34	1.35	117.60	4.000	Yes	No	2.00
680	45.69	156.32	2.10	1.48	0.64	78.89	1.42	111.79	4.000	Yes	No	2.00
681	45.75	137.42	2.20	1.74	0.67	67.17	1.61	108.19	4.000	Yes	No	2.00
682	45.81	115.31	2.30	1.96	0.70	54.45	1.93	105.04	4.000	Yes	No	2.00
683	45.89	93.28	2.42	2.23	0.73	42.25	2.49	105.10	4.000	Yes	No	2.00
684	45.94	73.36	2.54	2.43	0.77	31.83	3.26	103.73	4.000	Yes	No	2.00
685	46.04	59.21	2.67	2.85	0.81	24.44	4.42	108.05	4.000	Yes	Yes	2.00
686	46.08	46.61	2.83	3.46	0.86	18.15	6.18	112.07	4.000	Yes	Yes	2.00
687	46.15	39.94	2.97	3.96	1.00	13.37	8.22	109.85	4.000	Yes	Yes	2.00
688	46.17	36.10	3.03	4.33	1.00	11.98	9.26	110.89	3.600	No	Yes	2.00
689	46.18	36.17	3.02	4.27	1.00	12.00	9.18	110.17	3.600	No	Yes	2.00
690	46.23	36.48	3.01	4.17	1.00	12.10	9.03	109.18	3.600	No	Yes	2.00
691	46.27	37.18	3.00	4.00	1.00	12.34	8.72	107.58	3.600	No	Yes	2.00
692	46.32	38.64	2.96	3.74	1.00	12.85	8.20	105.33	3.600	No	Yes	2.00
693	46.41	40.63	2.89	3.49	0.87	15.29	7.01	107.19	3.600	No	Yes	2.00
694	46.47	43.16	2.85	3.30	0.86	16.49	6.44	106.19	3.600	No	Yes	2.00
695	46.52	45.45	2.82	3.23	0.85	17.54	6.09	106.89	3.600	No	Yes	2.00
696	46.56	47.57	2.81	3.31	0.85	18.46	5.95	109.81	3.600	No	Yes	2.00
697	46.65	49.42	2.80	3.44	0.85	19.21	5.91	113.60	3.600	No	Yes	2.00
698	46.71	51.52	2.80	3.58	0.85	20.07	5.86	117.68	3.600	No	Yes	2.00
699	46.76	54.41	2.78	3.59	0.84	21.37	5.62	120.04	3.600	No	Yes	2.00
700	46.85	58.19	2.75	3.48	0.83	23.13	5.21	120.43	3.600	No	Yes	2.00
701	46.90	63.28	2.69	3.26	0.82	25.63	4.63	118.71	3.600	No	Yes	2.00
702	46.99	67.89	2.65	3.04	0.80	27.93	4.16	116.19	3.600	No	Yes	2.00
703	47.04	70.35	2.62	2.93	0.79	29.16	3.93	114.63	3.600	No	Yes	2.00
704	47.10	69.50	2.63	2.95	0.80	28.71	4.00	114.71	3.600	No	Yes	2.00
705	47.16	65.45	2.67	3.09	0.81	26.63	4.36	116.10	3.600	No	Yes	2.00
706	47.23	59.62	2.72	3.30	0.82	23.71	4.94	117.23	3.600	No	Yes	2.00
707	47.30	51.46	2.81	3.62	0.85	19.76	5.97	117.96	3.600	No	Yes	2.00
708	47.38	42.76	2.96	4.09	1.00	13.97	8.12	113.48	3.600	No	Yes	2.00
709	47.43	34.23	3.08	4.68	1.00	10.97	10.19	111.84	3.600	No	Yes	2.00
710	47.52	28.17	3.17	4.93	1.00	8.83	11.99	105.92	3.600	No	Yes	2.00
711	47.59	23.92	3.20	4.34	1.00	7.34	12.70	93.23	3.600	No	Yes	2.00
712	47.66	21.40	3.20	3.59	1.00	6.45	12.70	81.89	3.600	No	Yes	2.00
713	47.77	19.71	3.20	3.13	1.00	5.85	12.77	74.67	3.600	No	Yes	2.00
714	47.82	18.77	3.24	3.41	1.00	5.51	13.75	75.76	3.600	No	Yes	2.00
715	47.91	18.38	3.26	3.59	1.00	5.37	14.28	76.63	3.600	No	Yes	2.00
716	47.93	17.68	3.30	3.86	1.00	5.12	15.17	77.65	3.600	No	Yes	2.00
717	47.97	17.78	3.30	3.92	1.00	5.15	15.21	78.37	3.600	No	Yes	2.00
718	48.02	17.86	3.31	4.05	1.00	5.17	15.38	79.56	3.600	No	Yes	2.00
719	48.07	18.51	3.30	4.11	1.00	5.39	15.07	81.21	3.600	No	Yes	2.00
720	48.12	18.61	3.31	4.43	1.00	5.42	15.51	84.04	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	48.19	18.71	3.33	4.73	1.00	5.44	15.90	86.54	3.600	No	Yes	2.00
722	48.23	18.91	3.33	4.96	1.00	5.51	16.11	88.74	3.600	No	Yes	2.00
723	48.31	19.15	3.33	5.05	1.00	5.58	16.11	89.88	3.600	No	Yes	2.00
724	48.35	19.35	3.33	5.13	1.00	5.64	16.11	90.92	3.600	No	Yes	2.00
725	48.40	19.25	3.34	5.27	1.00	5.60	16.37	91.72	3.600	No	Yes	2.00
726	48.45	18.81	3.36	5.50	1.00	5.45	16.96	92.39	3.600	No	Yes	2.00
727	48.50	18.07	3.40	5.83	1.00	5.19	17.92	92.93	3.600	No	Yes	2.00
728	48.55	17.80	3.41	6.00	1.00	5.09	18.35	93.37	3.600	No	Yes	2.00
729	48.59	17.64	3.42	6.20	1.00	5.03	18.75	94.24	3.600	No	Yes	2.00
730	48.67	17.87	3.42	6.18	1.00	5.10	18.56	94.62	3.600	No	Yes	2.00
731	48.73	17.84	3.42	6.16	1.00	5.08	18.58	94.36	3.600	No	Yes	2.00
732	48.78	17.97	3.40	5.89	1.00	5.12	18.13	92.80	3.600	No	Yes	2.00
733	48.83	17.97	3.39	5.58	1.00	5.11	17.74	90.68	3.600	No	Yes	2.00
734	48.91	17.94	3.38	5.27	1.00	5.09	17.35	88.35	3.600	No	Yes	2.00
735	48.98	17.84	3.37	5.04	1.00	5.05	17.10	86.35	3.600	No	Yes	2.00
736	49.03	17.74	3.37	4.91	1.00	5.01	17.00	85.19	3.600	No	Yes	2.00
737	49.12	17.68	3.35	4.63	1.00	4.98	16.65	82.90	3.600	No	Yes	2.00
738	49.17	17.75	3.33	4.17	1.00	5.00	15.91	79.48	3.600	No	Yes	2.00
739	49.27	18.02	3.30	3.75	1.00	5.08	15.07	76.51	3.600	No	Yes	2.00
740	49.31	18.56	3.28	3.65	1.00	5.25	14.57	76.55	3.600	No	Yes	2.00
741	49.38	19.20	3.27	3.79	1.00	5.46	14.44	78.88	3.600	No	Yes	2.00
742	49.45	19.70	3.27	3.95	1.00	5.62	14.44	81.15	3.600	No	Yes	2.00
743	49.51	19.00	3.31	4.33	1.00	5.38	15.44	83.00	3.600	No	Yes	2.00
744	49.54	19.44	3.30	4.37	1.00	5.52	15.24	84.13	3.600	No	Yes	2.00
745	49.59	20.18	3.28	4.25	1.00	5.76	14.65	84.45	3.600	No	Yes	2.00
746	49.64	21.53	3.23	3.89	1.00	6.21	13.47	83.63	3.600	No	Yes	2.00
747	49.73	21.20	3.24	3.89	1.00	6.09	13.64	83.01	3.600	No	Yes	2.00
748	49.83	20.02	3.27	4.07	1.00	5.68	14.52	82.47	3.600	No	Yes	2.00
749	49.92	18.88	3.31	4.30	1.00	5.29	15.55	82.19	3.600	No	Yes	2.00
750	49.98	17.86	3.35	4.49	1.00	4.94	16.51	81.62	3.600	No	Yes	2.00
751	50.07	17.33	3.37	4.57	1.00	4.75	17.04	81.01	3.600	No	Yes	2.00
752	50.16	16.99	3.38	4.61	1.00	4.63	17.38	80.51	3.600	No	Yes	2.00
753	50.24	16.69	3.39	4.65	1.00	4.52	17.70	80.06	3.600	No	Yes	2.00
754	50.32	16.46	3.40	4.71	1.00	4.44	17.99	79.87	3.600	No	Yes	2.00
755	50.41	16.32	3.41	4.79	1.00	4.39	18.25	80.02	3.600	No	Yes	2.00
756	50.50	16.36	3.41	4.79	1.00	4.39	18.25	80.09	3.600	No	Yes	2.00
757	50.56	16.26	3.41	4.73	1.00	4.35	18.25	79.36	3.600	No	Yes	2.00
758	50.66	16.09	3.41	4.63	1.00	4.28	18.27	78.27	3.600	No	Yes	2.00
759	50.74	15.92	3.41	4.59	1.00	4.22	18.37	77.53	3.600	No	Yes	2.00
760	50.84	15.85	3.43	4.94	1.00	4.19	19.00	79.62	3.600	No	Yes	2.00
761	50.93	15.95	3.46	5.57	1.00	4.21	19.91	83.88	3.600	No	Yes	2.00
762	50.98	16.77	3.48	6.56	1.00	4.47	20.59	92.08	3.600	No	Yes	2.00
763	51.08	19.60	3.43	7.08	1.00	5.39	19.08	102.75	3.600	No	Yes	2.00
764	51.17	24.45	3.34	6.97	1.00	6.95	16.30	113.31	3.600	No	Yes	2.00
765	51.24	30.11	3.25	6.75	1.00	8.78	13.98	122.80	3.600	No	Yes	2.00
766	51.34	33.65	3.21	6.76	1.00	9.91	13.03	129.12	3.600	No	Yes	2.00
767	51.41	34.16	3.18	6.01	1.00	10.06	12.19	122.59	3.600	No	Yes	2.00
768	51.51	32.81	3.17	5.54	1.00	9.60	12.05	115.66	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	51.58	31.20	3.16	4.92	1.00	9.06	11.80	106.93	3.600	No	Yes	2.00
770	51.68	29.95	3.20	5.43	1.00	8.64	12.73	109.98	3.600	No	Yes	2.00
771	51.79	27.39	3.26	5.93	1.00	7.80	14.12	110.16	3.600	No	Yes	2.00
772	51.82	25.87	3.30	6.27	1.00	7.31	15.07	110.15	3.600	No	Yes	2.00
773	51.85	24.39	3.34	6.78	1.00	6.83	16.27	111.07	3.600	No	Yes	2.00
774	51.91	25.00	3.34	6.90	1.00	7.01	16.14	113.23	3.600	No	Yes	2.00
775	52.00	24.87	3.36	7.36	1.00	6.96	16.71	116.25	3.600	No	Yes	2.00
776	52.05	27.06	3.31	7.10	1.00	7.65	15.54	118.92	3.600	No	Yes	2.00
777	52.10	31.78	3.21	6.10	1.00	9.15	13.00	118.95	3.600	No	Yes	2.00
778	52.19	38.49	3.08	4.92	1.00	11.27	10.28	115.81	3.600	No	Yes	2.00
779	52.28	44.04	2.99	4.15	1.00	13.02	8.58	111.69	3.600	No	Yes	2.00
780	52.34	46.37	2.95	3.85	1.00	13.74	7.96	109.32	3.600	No	Yes	2.00
781	52.42	46.09	2.96	3.90	1.00	13.63	8.05	109.66	3.600	No	Yes	2.00
782	52.48	44.34	2.98	4.10	1.00	13.05	8.50	111.03	3.600	No	Yes	2.00
783	52.57	42.32	3.01	4.26	1.00	12.39	8.98	111.27	3.600	No	Yes	2.00
784	52.62	40.26	3.03	4.31	1.00	11.73	9.37	109.88	3.600	No	Yes	2.00
785	52.69	38.51	3.05	4.22	1.00	11.16	9.58	106.89	3.600	No	Yes	2.00
786	52.77	36.89	3.06	4.17	1.00	10.63	9.83	104.50	3.600	No	Yes	2.00
787	52.87	35.55	3.08	4.24	1.00	10.19	10.19	103.83	3.600	No	Yes	2.00
788	52.91	34.07	3.10	4.28	1.00	9.71	10.56	102.56	3.600	No	Yes	2.00
789	53.01	32.55	3.12	4.42	1.00	9.21	11.08	102.13	3.600	No	Yes	2.00
790	53.10	32.18	3.14	4.56	1.00	9.08	11.35	103.11	3.600	No	Yes	2.00
791	53.16	34.04	3.15	5.28	1.00	9.65	11.74	113.26	3.600	No	Yes	2.00
792	53.25	38.69	3.13	5.64	1.00	11.08	11.13	123.32	3.600	No	Yes	2.00
793	53.29	44.28	3.10	6.15	1.00	12.82	10.63	136.25	3.600	No	Yes	2.00
794	53.38	48.90	3.07	6.34	1.00	14.23	10.13	144.18	3.600	No	Yes	2.00
795	53.42	59.32	2.99	5.88	1.00	17.47	8.56	149.47	3.600	No	Yes	2.00
796	53.47	74.66	2.87	5.11	1.00	22.21	6.75	150.02	3.600	No	Yes	2.00
797	53.52	92.88	2.76	4.46	1.00	27.85	5.32	148.22	3.600	No	Yes	2.00
798	53.58	102.94	2.72	4.44	1.00	30.94	4.93	152.55	3.600	No	Yes	2.00
799	53.66	103.80	2.74	4.76	1.00	31.15	5.14	160.18	3.600	No	Yes	2.00
800	53.75	98.64	2.79	5.33	1.00	29.50	5.74	169.41	3.600	No	Yes	2.00
801	53.81	88.93	2.86	5.98	1.00	26.46	6.64	175.67	3.600	No	Yes	2.00
802	53.87	78.89	2.93	6.58	1.00	23.33	7.63	177.89	3.600	No	Yes	2.00
803	53.95	67.24	3.02	7.41	1.00	19.70	9.07	178.71	3.600	No	Yes	2.00
804	54.01	57.35	3.10	8.28	1.00	16.64	10.67	177.57	3.600	No	Yes	2.00
805	54.06	47.51	3.20	9.23	1.00	13.60	12.71	172.90	3.600	No	Yes	2.00
806	54.15	41.78	3.26	9.77	1.00	11.83	14.16	167.57	3.600	No	Yes	2.00
807	54.20	40.60	3.27	9.77	1.00	11.46	14.42	165.24	3.600	No	Yes	2.00
808	54.29	47.57	3.17	8.38	1.00	13.59	12.09	164.23	3.600	No	Yes	2.00
809	54.34	69.40	2.89	4.90	1.00	20.27	7.00	141.87	4.000	Yes	Yes	2.00
810	54.43	100.37	2.59	2.67	1.00	29.73	3.65	108.63	4.000	Yes	No	2.00
811	54.45	137.16	2.32	1.48	1.00	41.00	2.00	82.07	4.000	Yes	No	2.00
812	54.48	166.07	2.20	1.22	1.00	49.83	1.62	80.59	4.000	Yes	No	2.00
813	54.52	185.51	2.14	1.11	1.00	55.76	1.48	82.69	4.000	Yes	No	2.00
814	54.53	198.85	2.12	1.13	1.00	59.83	1.45	86.57	4.000	Yes	No	2.00
815	54.58	207.94	2.11	1.17	1.00	62.58	1.44	89.91	0.148	No	No	0.45
816	54.62	219.64	2.10	1.19	1.00	66.13	1.42	93.59	0.156	No	No	0.47

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	54.65	233.46	2.07	1.16	1.00	70.33	1.38	96.81	0.164	No	No	0.50
818	54.70	244.67	2.05	1.15	1.00	73.72	1.36	99.98	0.173	No	No	0.52
819	54.76	251.12	2.05	1.17	1.00	75.64	1.35	102.23	0.179	No	No	0.54
820	54.77	249.88	2.06	1.22	1.00	75.25	1.37	102.77	0.181	No	No	0.55
821	54.82	251.50	2.06	1.21	1.00	75.71	1.36	103.16	0.182	No	No	0.55
822	54.87	253.07	2.05	1.21	1.00	76.14	1.36	103.55	0.183	No	No	0.56
823	54.88	255.63	2.05	1.20	1.00	76.92	1.35	104.08	0.185	No	No	0.56
824	54.91	257.28	2.05	1.20	1.00	77.39	1.35	104.56	0.186	No	No	0.56
825	54.96	263.42	2.04	1.18	1.00	79.22	1.34	106.09	0.191	No	No	0.58
826	54.97	276.70	2.01	1.17	1.00	83.26	1.32	109.90	0.203	No	No	0.62
827	55.03	294.89	1.99	1.17	1.00	88.74	1.30	115.47	0.223	No	No	0.68
828	55.09	315.21	1.96	1.11	1.00	94.86	1.27	120.89	0.244	No	No	0.74
829	55.15	327.84	1.89	0.92	1.00	98.63	1.23	121.55	0.247	No	No	0.75
830	55.20	338.35	1.85	0.83	1.00	101.77	1.20	122.41	0.251	No	No	0.76
831	55.25	358.17	1.78	0.67	1.00	107.74	1.13	121.49	0.247	No	No	0.75
832	55.30	386.84	1.77	0.71	1.00	116.38	1.11	129.28	0.281	No	No	0.85
833	55.34	417.50	1.74	0.72	1.00	125.63	1.07	134.62	0.307	No	No	0.93
834	55.39	440.05	1.76	0.82	1.00	132.40	1.10	146.03	0.370	No	No	1.12
835	55.40	462.28	1.76	0.87	1.00	139.13	1.10	153.71	0.418	No	No	1.27
836	55.44	482.80	1.75	0.87	1.00	145.29	1.08	157.35	0.442	No	No	1.34
837	55.44	511.21	1.72	0.83	1.00	153.88	1.02	157.04	0.440	No	No	1.34
838	55.49	517.76	1.72	0.86	1.00	155.78	1.03	160.78	0.467	No	No	1.42
839	55.54	533.43	1.73	0.91	1.00	160.44	1.05	167.71	0.519	No	No	1.58
840	55.59	534.98	1.76	1.00	1.00	160.82	1.10	176.17	0.588	No	No	1.79
841	55.63	551.08	1.75	1.02	1.00	165.61	1.09	180.34	0.625	No	No	1.90
842	55.64	553.47	1.75	1.02	1.00	166.31	1.09	180.79	0.630	No	No	1.91
843	55.68	566.94	1.73	0.98	1.00	170.31	1.06	179.92	0.622	No	No	1.89
844	55.69	570.38	1.73	0.97	1.00	171.33	1.04	178.50	0.609	No	No	1.85
845	55.69	566.17	1.73	0.98	1.00	170.04	1.05	179.38	0.617	No	No	1.88
846	55.71	561.62	1.75	1.03	1.00	168.63	1.09	183.08	0.651	No	No	1.98
847	55.76	567.28	1.76	1.06	1.00	170.25	1.10	186.45	0.683	No	No	2.00
848	55.78	580.19	1.75	1.05	1.00	174.11	1.08	187.85	0.696	No	No	2.00
849	55.81	581.23	1.72	0.98	1.00	174.36	1.04	180.96	0.631	No	No	1.92
850	55.85	584.16	1.69	0.88	1.00	175.16	1.00	175.16	0.580	No	No	1.77
851	55.86	588.34	1.65	0.77	1.00	176.41	1.00	176.41	0.591	No	No	1.80
852	55.91	598.65	1.62	0.70	1.00	179.42	1.00	179.42	0.617	No	No	1.88
853	55.92	602.25	1.60	0.66	1.00	180.48	1.00	180.48	0.627	No	No	1.91
854	55.96	619.03	1.58	0.63	1.00	185.46	1.00	185.46	0.673	No	No	2.00
855	55.97	634.09	1.57	0.63	1.00	189.98	1.00	189.98	0.718	No	No	2.00
856	56.00	654.37	1.56	0.64	1.00	196.01	1.00	196.01	0.780	No	No	2.00
857	56.01	660.12	1.58	0.69	1.00	197.72	1.00	197.72	0.799	No	No	2.00
858	56.03	661.79	1.59	0.72	1.00	198.18	1.00	198.18	0.804	No	No	2.00
859	56.05	661.82	1.60	0.74	1.00	198.14	1.00	198.14	0.803	No	No	2.00
860	56.10	665.04	1.60	0.73	1.00	198.99	1.00	198.99	0.813	No	No	2.00
861	56.12	668.02	1.58	0.70	1.00	199.86	1.00	199.86	0.822	No	No	2.00
862	56.16	667.69	1.57	0.68	1.00	199.67	1.00	199.67	0.820	No	No	2.00
863	56.17	654.78	1.57	0.67	1.00	195.76	1.00	195.76	0.778	No	No	2.00
864	56.20	635.11	1.59	0.69	1.00	189.78	1.00	189.78	0.716	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	56.22	617.48	1.61	0.71	1.00	184.46	1.00	184.46	0.664	No	No	2.00
866	56.24	608.45	1.61	0.71	1.00	181.69	1.00	181.69	0.638	No	No	1.95
867	56.30	602.69	1.62	0.70	1.00	179.84	1.00	179.84	0.621	No	No	1.89
868	56.31	595.69	1.63	0.72	1.00	177.72	1.00	177.72	0.602	No	No	1.84
869	56.34	586.22	1.65	0.77	1.00	174.82	1.00	174.82	0.577	No	No	1.76
870	56.39	579.04	1.66	0.78	1.00	172.57	1.00	172.57	0.558	No	No	1.70
871	56.45	572.30	1.67	0.79	1.00	170.44	1.00	170.44	0.540	No	No	1.65
872	56.48	565.39	1.67	0.79	1.00	168.31	1.00	168.31	0.523	No	No	1.60
873	56.49	555.45	1.70	0.85	1.00	165.32	1.00	165.32	0.500	No	No	1.53
874	56.53	542.15	1.73	0.91	1.00	161.25	1.05	168.57	0.525	No	No	1.60
875	56.58	529.04	1.75	0.94	1.00	157.24	1.08	169.38	0.532	No	No	1.62
876	56.63	524.73	1.67	0.72	1.00	155.86	1.00	155.86	0.432	No	No	1.32
877	56.68	526.01	1.58	0.52	1.00	156.17	1.00	156.17	0.434	No	No	1.33
878	56.73	531.33	1.53	0.43	1.00	157.68	1.00	157.68	0.445	No	No	1.36
879	56.78	526.31	1.62	0.60	1.00	156.09	1.00	156.09	0.434	No	No	1.33
880	56.83	517.99	1.69	0.76	1.00	153.53	1.00	153.53	0.417	No	No	1.27
881	56.89	503.37	1.73	0.85	1.00	149.05	1.06	157.35	0.442	No	No	1.35
882	56.95	485.04	1.77	0.94	1.00	143.50	1.12	160.76	0.466	No	No	1.43
883	56.99	470.25	1.81	1.02	1.00	139.02	1.16	161.37	0.471	No	No	1.44
884	57.01	460.92	1.83	1.07	1.00	136.23	1.18	160.98	0.468	No	No	1.43
885	57.04	461.73	1.82	1.05	1.00	136.41	1.18	160.65	0.466	No	No	1.43
886	57.09	468.20	1.81	1.02	1.00	138.26	1.17	161.13	0.469	No	No	1.44
887	57.11	477.43	1.81	1.03	1.00	140.98	1.16	163.57	0.487	No	No	1.49
888	57.13	488.62	1.81	1.06	1.00	144.26	1.16	167.47	0.517	No	No	1.58
889	57.18	488.78	1.82	1.11	1.00	144.24	1.17	169.44	0.532	No	No	1.63
890	57.19	477.80	1.85	1.18	1.00	140.96	1.20	168.95	0.529	No	No	1.62
891	57.21	464.47	1.87	1.22	1.00	136.96	1.21	166.30	0.508	No	No	1.56
892	57.24	456.12	1.88	1.23	1.00	134.45	1.22	164.00	0.490	No	No	1.50
893	57.28	456.72	1.87	1.20	1.00	134.56	1.21	163.35	0.485	No	No	1.49
894	57.32	450.91	1.87	1.19	1.00	132.78	1.22	161.45	0.471	No	No	1.44
895	57.35	445.39	1.88	1.21	1.00	131.08	1.22	160.03	0.461	No	No	1.41
896	57.38	435.59	1.89	1.22	1.00	128.14	1.23	157.50	0.443	No	No	1.36
897	57.43	430.50	1.89	1.21	1.00	126.56	1.23	155.53	0.430	No	No	1.32
898	57.48	414.66	1.90	1.19	1.00	121.80	1.23	150.26	0.396	No	No	1.21
899	57.52	398.59	1.89	1.12	1.00	116.98	1.23	143.92	0.357	No	No	1.10
900	57.57	389.56	1.91	1.18	1.00	114.25	1.25	142.28	0.348	No	No	1.07
901	57.62	396.66	1.94	1.29	1.00	116.29	1.26	146.53	0.373	No	No	1.14
902	57.68	427.50	1.92	1.35	1.00	125.32	1.25	157.03	0.440	No	No	1.35
903	57.76	462.23	1.88	1.27	1.00	135.46	1.23	166.00	0.505	No	No	1.55
904	57.81	505.50	1.75	0.90	1.00	148.16	1.09	161.17	0.469	No	No	1.44
905	57.86	543.58	1.63	0.63	1.00	159.31	1.00	159.31	0.456	No	No	1.40
906	57.89	572.52	1.49	0.39	1.00	167.80	1.00	167.80	0.519	No	No	1.60
907	57.91	583.54	1.48	0.39	1.00	171.02	1.00	171.02	0.545	No	No	1.68
908	57.92	577.13	1.50	0.42	1.00	169.11	1.00	169.11	0.530	No	No	1.63
909	57.95	569.05	1.54	0.47	1.00	166.67	1.00	166.67	0.511	No	No	1.57
910	57.99	570.66	1.56	0.52	1.00	167.08	1.00	167.08	0.514	No	No	1.58
911	58.01	578.72	1.57	0.56	1.00	169.42	1.00	169.42	0.532	No	No	1.64
912	58.05	591.19	1.58	0.58	1.00	173.02	1.00	173.02	0.562	No	No	1.73

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	58.05	598.87	1.59	0.62	1.00	175.27	1.00	175.27	0.581	No	No	1.79
914	58.10	604.77	1.60	0.65	1.00	176.91	1.00	176.91	0.595	No	No	1.83
915	58.13	611.17	1.60	0.67	1.00	178.73	1.00	178.73	0.611	No	No	1.88
916	58.15	618.51	1.60	0.66	1.00	180.87	1.00	180.87	0.630	No	No	1.94
917	58.17	625.12	1.59	0.65	1.00	182.75	1.00	182.75	0.648	No	No	1.99
918	58.20	623.43	1.59	0.66	1.00	182.21	1.00	182.21	0.643	No	No	1.98
919	58.21	619.40	1.60	0.67	1.00	181.00	1.00	181.00	0.632	No	No	1.94
920	58.21	614.30	1.61	0.68	1.00	179.50	1.00	179.50	0.618	No	No	1.90
921	58.23	613.93	1.61	0.68	1.00	179.34	1.00	179.34	0.616	No	No	1.90
922	58.24	608.11	1.62	0.69	1.00	177.62	1.00	177.62	0.601	No	No	1.85
923	58.25	609.21	1.54	0.52	1.00	177.92	1.00	177.92	0.604	No	No	1.86
924	58.29	613.99	1.44	0.36	1.00	179.26	1.00	179.26	0.616	No	No	1.90
925	58.31	627.24	1.32	0.20	1.00	183.11	1.00	183.11	0.651	No	No	2.00
926	58.33	639.00	1.34	0.24	1.00	186.52	1.00	186.52	0.683	No	No	2.00
927	58.38	651.36	1.37	0.28	1.00	190.06	1.00	190.06	0.718	No	No	2.00
928	58.39	661.87	1.39	0.32	1.00	193.13	1.00	193.13	0.750	No	No	2.00
929	58.43	670.53	1.40	0.34	1.00	195.59	1.00	195.59	0.776	No	No	2.00
930	58.43	682.73	1.39	0.33	1.00	199.15	1.00	199.15	0.815	No	No	2.00
931	58.48	688.02	1.40	0.35	1.00	200.60	1.00	200.60	4.000	No	No	2.00
932	58.53	694.39	1.41	0.38	1.00	202.36	1.00	202.36	4.000	No	No	2.00
933	58.56	696.37	1.46	0.46	1.00	202.90	1.00	202.90	4.000	No	No	2.00
934	58.58	704.43	1.47	0.49	1.00	205.20	1.00	205.20	4.000	No	No	2.00
935	58.59	710.90	1.49	0.52	1.00	207.06	1.00	207.06	4.000	No	No	2.00
936	58.63	707.18	1.49	0.53	1.00	205.90	1.00	205.90	4.000	No	No	2.00
937	58.63	709.20	1.50	0.54	1.00	206.49	1.00	206.49	4.000	No	No	2.00
938	58.63	695.36	1.51	0.54	1.00	202.42	1.00	202.42	4.000	No	No	2.00
939	58.68	700.19	1.49	0.51	1.00	203.74	1.00	203.74	4.000	No	No	2.00
940	58.69	701.88	1.45	0.44	1.00	204.22	1.00	204.22	4.000	No	No	2.00
941	58.72	717.85	1.40	0.38	1.00	208.81	1.00	208.81	4.000	No	No	2.00
942	58.73	722.94	1.38	0.36	1.00	210.28	1.00	210.28	4.000	No	No	2.00
943	58.74	728.64	1.41	0.40	1.00	211.92	1.00	211.92	4.000	No	No	2.00
944	58.77	726.96	1.44	0.45	1.00	211.36	1.00	211.36	4.000	No	No	2.00
945	58.81	722.67	1.47	0.50	1.00	210.02	1.00	210.02	4.000	No	No	2.00
946	58.82	713.94	1.49	0.53	1.00	207.44	1.00	207.44	4.000	No	No	2.00
947	58.83	715.80	1.51	0.57	1.00	207.97	1.00	207.97	4.000	No	No	2.00
948	58.87	722.33	1.52	0.60	1.00	209.78	1.00	209.78	4.000	No	No	2.00
949	58.91	731.67	1.53	0.63	1.00	212.41	1.00	212.41	4.000	No	No	2.00
950	58.92	737.87	1.54	0.64	1.00	214.21	1.00	214.21	4.000	No	No	2.00
951	58.93	740.53	1.53	0.64	1.00	214.95	1.00	214.95	4.000	No	No	2.00
952	58.96	739.05	1.53	0.63	1.00	214.44	1.00	214.44	4.000	No	No	2.00
953	59.01	716.31	1.56	0.67	1.00	207.70	1.00	207.70	4.000	No	No	2.00
954	59.06	687.29	1.59	0.73	1.00	199.13	1.00	199.13	0.814	No	No	2.00
955	59.08	655.28	1.63	0.78	1.00	189.77	1.00	189.77	0.716	No	No	2.00
956	59.11	638.94	1.65	0.81	1.00	184.95	1.00	184.95	0.668	No	No	2.00
957	59.15	627.21	1.68	0.88	1.00	181.46	1.00	181.46	0.636	No	No	1.96
958	59.21	618.28	1.70	0.94	1.00	178.75	1.00	178.75	0.611	No	No	1.89
959	59.26	606.09	1.72	0.96	1.00	175.11	1.02	178.89	0.612	No	No	1.89
960	59.30	592.31	1.71	0.92	1.00	171.02	1.01	173.20	0.563	No	No	1.74

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	59.35	579.87	1.71	0.90	1.00	167.32	1.01	169.07	0.529	No	No	1.64
962	59.40	562.76	1.73	0.91	1.00	162.26	1.04	168.73	0.527	No	No	1.63
963	59.42	550.96	1.74	0.92	1.00	158.81	1.06	168.34	0.524	No	No	1.62
964	59.47	539.34	1.75	0.93	1.00	155.35	1.08	167.78	0.519	No	No	1.61
965	59.51	539.41	1.75	0.95	1.00	155.29	1.09	168.63	0.526	No	No	1.63
966	59.56	537.97	1.75	0.95	1.00	154.79	1.09	168.59	0.526	No	No	1.63
967	59.61	537.36	1.74	0.90	1.00	154.53	1.06	164.50	0.494	No	No	1.53
968	59.67	541.98	1.70	0.80	1.00	155.77	1.00	155.77	0.432	No	No	1.34
969	59.71	553.73	1.65	0.69	1.00	159.11	1.00	159.11	0.455	No	No	1.41
970	59.80	555.82	1.61	0.59	1.00	159.56	1.00	159.56	0.458	No	No	1.42
971	59.85	552.45	1.59	0.54	1.00	158.50	1.00	158.50	0.450	No	No	1.40
972	59.90	542.21	1.59	0.53	1.00	155.47	1.00	155.47	0.429	No	No	1.33
973	60.00	542.99	1.59	0.54	1.00	155.53	1.00	155.53	0.430	No	No	1.33
974	60.04	541.71	1.60	0.56	1.00	155.09	1.00	155.09	0.427	No	No	1.33
975	60.10	526.52	1.63	0.60	1.00	150.62	1.00	150.62	0.398	No	No	1.23
976	60.15	508.32	1.67	0.66	1.00	145.30	1.00	145.30	0.365	No	No	1.13
977	60.19	487.40	1.70	0.69	1.00	139.22	1.00	139.22	0.331	No	No	1.03
978	60.23	483.49	1.69	0.66	1.00	138.03	1.00	138.03	0.325	No	No	1.01
979	60.28	482.61	1.68	0.63	1.00	137.71	1.00	137.71	0.323	No	No	1.00
980	60.33	488.98	1.67	0.62	1.00	139.47	1.00	139.47	0.332	No	No	1.03
981	60.38	491.97	1.67	0.64	1.00	140.26	1.00	140.26	0.337	No	No	1.05
982	60.42	493.85	1.69	0.68	1.00	140.74	1.00	140.74	0.339	No	No	1.05
983	60.44	487.18	1.71	0.72	1.00	138.79	1.01	140.24	0.337	No	No	1.05
984	60.47	475.94	1.74	0.79	1.00	135.53	1.08	145.72	0.368	No	No	1.14
985	60.52	465.53	1.78	0.87	1.00	132.47	1.12	148.94	0.387	No	No	1.20
986	60.56	462.70	1.79	0.92	1.00	131.60	1.15	150.90	0.400	No	No	1.24
987	60.57	465.03	1.79	0.92	1.00	132.25	1.15	151.48	0.403	No	No	1.25
988	60.61	470.62	1.78	0.89	1.00	133.80	1.13	151.48	0.403	No	No	1.25
989	60.66	477.29	1.77	0.88	1.00	135.64	1.12	151.98	0.406	No	No	1.27
990	60.71	486.66	1.77	0.87	1.00	138.25	1.11	153.21	0.414	No	No	1.29
991	60.76	495.25	1.77	0.90	1.00	140.63	1.11	156.59	0.437	No	No	1.36
992	60.81	504.76	1.77	0.92	1.00	143.27	1.11	159.58	0.458	No	No	1.43
993	60.86	523.05	1.75	0.90	1.00	148.43	1.08	161.02	0.468	No	No	1.46
994	60.91	559.78	1.70	0.83	1.00	158.84	1.00	158.84	0.453	No	No	1.41
995	60.95	601.50	1.66	0.78	1.00	170.69	1.00	170.69	0.542	No	No	1.69
996	61.00	637.66	1.64	0.77	1.00	180.91	1.00	180.91	0.631	No	No	1.97
997	61.02	657.74	1.64	0.79	1.00	186.60	1.00	186.60	0.684	No	No	2.00
998	61.05	685.10	1.62	0.78	1.00	194.34	1.00	194.34	0.763	No	No	2.00
999	61.08	710.24	1.61	0.77	1.00	201.44	1.00	201.44	4.000	No	No	2.00
1000	61.09	731.84	1.59	0.76	1.00	207.57	1.00	207.57	4.000	No	No	2.00
1001	61.13	737.94	1.59	0.76	1.00	209.24	1.00	209.24	4.000	No	No	2.00
1002	61.14	739.46	1.60	0.77	1.00	209.63	1.00	209.63	4.000	No	No	2.00
1003	61.16	741.44	1.60	0.78	1.00	210.15	1.00	210.15	4.000	No	No	2.00
1004	61.20	750.88	1.58	0.75	1.00	212.77	1.00	212.77	4.000	No	No	2.00
1005	61.23	762.13	1.56	0.71	1.00	215.88	1.00	215.88	4.000	No	No	2.00
1006	61.24	766.92	1.52	0.62	1.00	217.23	1.00	217.23	4.000	No	No	2.00
1007	61.29	758.86	1.51	0.59	1.00	214.83	1.00	214.83	4.000	No	No	2.00
1008	61.30	744.24	1.52	0.59	1.00	210.65	1.00	210.65	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	61.33	734.57	1.55	0.65	1.00	207.82	1.00	207.82	4.000	No	No	2.00
1010	61.38	730.90	1.55	0.65	1.00	206.66	1.00	206.66	4.000	No	No	2.00
1011	61.43	731.07	1.53	0.60	1.00	206.60	1.00	206.60	4.000	No	No	2.00
1012	61.48	738.25	1.50	0.56	1.00	208.54	1.00	208.54	4.000	No	No	2.00
1013	61.53	750.91	1.48	0.53	1.00	212.02	1.00	212.02	4.000	No	No	2.00
1014	61.56	754.78	1.48	0.52	1.00	213.05	1.00	213.05	4.000	No	No	2.00
1015	61.58	726.93	1.50	0.54	1.00	205.10	1.00	205.10	4.000	No	No	2.00
1016	61.59	702.39	1.52	0.55	1.00	198.13	1.00	198.13	0.803	No	No	2.00
1017	61.62	600.70	1.61	0.64	1.00	169.24	1.00	169.24	0.531	No	No	1.66
1018	61.63	595.30	1.61	0.64	1.00	167.67	1.00	167.67	0.518	No	No	1.62
1019	61.67	588.36	1.62	0.64	1.00	165.65	1.00	165.65	0.503	No	No	1.57
1020	61.71	662.66	1.55	0.57	1.00	186.61	1.00	186.61	0.684	No	No	2.00
1021	61.76	655.52	1.55	0.57	1.00	184.50	1.00	184.50	0.664	No	No	2.00
1022	61.81	634.02	1.54	0.53	1.00	178.32	1.00	178.32	0.607	No	No	1.90
1023	61.86	615.02	1.52	0.48	1.00	172.85	1.00	172.85	0.560	No	No	1.75
1024	61.87	600.83	1.48	0.38	1.00	168.83	1.00	168.83	0.528	No	No	1.65
1025	61.91	588.87	1.44	0.32	1.00	165.39	1.00	165.39	0.501	No	No	1.57
1026	61.95	578.02	1.42	0.27	1.00	162.25	1.00	162.25	0.477	No	No	1.49
1027	61.96	566.74	1.42	0.26	1.00	159.04	1.00	159.04	0.454	No	No	1.42
1028	62.00	553.70	1.45	0.29	1.00	155.30	1.00	155.30	0.428	No	No	1.34
1029	62.04	535.16	1.49	0.33	1.00	150.01	1.00	150.01	0.394	No	No	1.23
1030	62.06	510.97	1.55	0.41	1.00	143.15	1.00	143.15	0.353	No	No	1.11
1031	62.10	491.66	1.60	0.47	1.00	137.65	1.00	137.65	0.323	No	No	1.01
1032	62.14	475.52	1.64	0.51	1.00	133.04	1.00	133.04	0.299	No	No	0.94
1033	62.20	463.08	1.66	0.55	1.00	129.46	1.00	129.46	0.282	No	No	0.88
1034	62.22	439.20	1.71	0.60	1.00	122.70	1.00	122.70	0.252	No	No	0.79
1035	62.27	415.48	1.75	0.66	1.00	115.96	1.08	125.13	0.262	No	No	0.82
1036	62.29	396.37	1.78	0.71	1.00	110.55	1.13	125.44	0.264	No	No	0.83
1037	62.34	380.26	1.82	0.77	1.00	105.96	1.17	124.22	0.258	No	No	0.81
1038	62.39	366.62	1.86	0.86	1.00	102.08	1.21	123.46	0.255	No	No	0.80
1039	62.43	347.78	1.93	1.03	1.00	96.73	1.26	121.51	0.247	No	No	0.77
1040	62.49	340.13	1.97	1.16	1.00	94.52	1.28	121.38	0.246	No	No	0.77
1041	62.57	336.43	1.99	1.25	1.00	93.40	1.30	121.70	0.248	No	No	0.78
1042	62.68	357.18	1.98	1.25	1.00	99.12	1.29	127.79	0.274	No	No	0.86
1043	62.75	398.26	1.93	1.21	1.00	110.56	1.26	139.12	0.330	No	No	1.04
1044	62.87	426.23	1.91	1.20	1.00	118.25	1.24	146.86	0.375	No	No	1.18
1045	62.88	409.21	1.93	1.22	1.00	113.48	1.25	142.25	0.348	No	No	1.09
1046	62.89	424.34	1.86	1.01	1.00	117.70	1.21	142.29	0.348	No	No	1.09
1047	62.93	485.42	1.74	0.76	1.00	134.75	1.06	142.80	0.351	No	No	1.10
1048	62.98	571.92	1.61	0.59	1.00	158.87	1.00	158.87	0.453	No	No	1.42
1049	63.02	620.24	1.47	0.38	1.00	172.30	1.00	172.30	0.556	No	No	1.75
1050	63.07	658.55	1.31	0.19	1.00	182.93	1.00	182.93	0.649	No	No	2.00
1051	63.12	710.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1052	63.14	752.36	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1053	63.17	781.30	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1054	63.17	799.36	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1055	63.20	825.98	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1056	63.21	830.83	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	63.23	842.91	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1058	63.26	834.75	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1059	63.28	841.52	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1060	63.31	838.10	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1061	63.32	839.38	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1062	63.36	837.12	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1063	63.40	836.85	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.01	2.00	0.00	0.00	0.02	0.00	0.04	2.00	0.00	0.00	0.02	0.00
0.09	2.00	0.00	0.00	0.05	0.00	0.11	2.00	0.00	0.00	0.02	0.00
0.14	2.00	0.00	0.00	0.03	0.00	0.14	2.00	0.00	0.00	0.01	0.00
0.18	2.00	0.00	0.00	0.04	0.00	0.23	2.00	0.00	0.00	0.05	0.00
0.24	2.00	0.00	0.00	0.01	0.00	0.28	2.00	0.00	0.00	0.04	0.00
0.33	2.00	0.00	0.00	0.05	0.00	0.38	2.00	0.00	0.00	0.05	0.00
0.42	2.00	0.00	0.00	0.05	0.00	0.47	2.00	0.00	0.00	0.05	0.00
0.51	2.00	0.00	0.00	0.04	0.00	0.52	2.00	0.00	0.00	0.01	0.00
0.57	2.00	0.00	0.00	0.05	0.00	0.61	2.00	0.00	0.00	0.04	0.00
0.67	2.00	0.00	0.00	0.05	0.00	0.73	2.00	0.00	0.00	0.06	0.00
0.81	2.00	0.00	0.00	0.08	0.00	0.86	2.00	0.00	0.00	0.05	0.00
0.98	2.00	0.00	0.00	0.12	0.00	1.05	2.00	0.00	0.00	0.07	0.00
1.15	2.00	0.00	0.00	0.10	0.00	1.24	2.00	0.00	0.00	0.09	0.00
1.34	2.00	0.00	0.00	0.10	0.00	1.43	2.00	0.00	0.00	0.09	0.00
1.53	2.00	0.00	0.00	0.10	0.00	1.58	2.00	0.00	0.00	0.05	0.00
1.62	2.00	0.00	0.00	0.04	0.00	1.67	2.00	0.00	0.00	0.05	0.00
1.75	2.00	0.00	0.00	0.07	0.00	1.77	2.00	0.00	0.00	0.03	0.00
1.81	2.00	0.00	0.00	0.04	0.00	1.86	2.00	0.00	0.00	0.04	0.00
1.91	2.00	0.00	0.00	0.05	0.00	1.95	2.00	0.00	0.00	0.04	0.00
2.00	2.00	0.00	0.00	0.05	0.00	2.05	2.00	0.00	0.00	0.05	0.00
2.11	2.00	0.00	0.00	0.06	0.00	2.20	2.00	0.00	0.00	0.09	0.00
2.24	2.00	0.00	0.00	0.05	0.00	2.29	2.00	0.00	0.00	0.05	0.00
2.34	2.00	0.00	0.00	0.05	0.00	2.44	2.00	0.00	0.00	0.10	0.00
2.48	2.00	0.00	0.00	0.05	0.00	2.58	2.00	0.00	0.00	0.10	0.00
2.63	2.00	0.00	0.00	0.05	0.00	2.71	2.00	0.00	0.00	0.08	0.00
2.78	2.00	0.00	0.00	0.07	0.00	2.82	2.00	0.00	0.00	0.04	0.00
2.89	2.00	0.00	0.00	0.07	0.00	2.96	2.00	0.00	0.00	0.08	0.00
3.03	2.00	0.00	0.00	0.07	0.00	3.11	2.00	0.00	0.00	0.08	0.00
3.19	2.00	0.00	0.00	0.09	0.00	3.25	2.00	0.00	0.00	0.06	0.00
3.35	2.00	0.00	0.00	0.10	0.00	3.41	2.00	0.00	0.00	0.05	0.00
3.50	2.00	0.00	0.00	0.09	0.00	3.59	2.00	0.00	0.00	0.09	0.00
3.69	2.00	0.00	0.00	0.10	0.00	3.79	2.00	0.00	0.00	0.09	0.00
3.88	2.00	0.00	0.00	0.09	0.00	3.97	2.00	0.00	0.00	0.10	0.00
4.07	2.00	0.00	0.00	0.09	0.00	4.14	2.00	0.00	0.00	0.07	0.00
4.17	2.00	0.00	0.00	0.04	0.00	4.26	2.00	0.00	0.00	0.09	0.00
4.32	2.00	0.00	0.00	0.05	0.00	4.37	2.00	0.00	0.00	0.05	0.00
4.42	2.00	0.00	0.00	0.06	0.00	4.51	2.00	0.00	0.00	0.08	0.00
4.61	2.00	0.00	0.00	0.10	0.00	4.65	2.00	0.00	0.00	0.05	0.00
4.74	2.00	0.00	0.00	0.09	0.00	4.80	2.00	0.00	0.00	0.06	0.00
4.89	2.00	0.00	0.00	0.09	0.00	4.95	2.00	0.00	0.00	0.05	0.00
5.04	2.00	0.00	0.00	0.09	0.00	5.13	2.00	0.00	0.00	0.09	0.00
5.18	2.00	0.00	0.00	0.05	0.00	5.28	2.00	0.00	0.00	0.10	0.00
5.32	2.00	0.00	0.00	0.04	0.00	5.42	2.00	0.00	0.00	0.10	0.00
5.51	2.00	0.00	0.00	0.09	0.00	5.60	2.00	0.00	0.00	0.09	0.00
5.66	2.00	0.00	0.00	0.06	0.00	5.76	2.00	0.00	0.00	0.09	0.00
5.85	2.00	0.00	0.00	0.09	0.00	5.92	2.00	0.00	0.00	0.07	0.00
5.95	2.00	0.00	0.00	0.03	0.00	5.97	2.00	0.00	0.00	0.02	0.00
6.02	2.00	0.00	0.00	0.06	0.00	6.06	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
6.16	2.00	0.00	0.00	0.10	0.00	6.21	2.00	0.00	0.00	0.04	0.00
6.26	2.00	0.00	0.00	0.06	0.00	6.31	2.00	0.00	0.00	0.04	0.00
6.40	2.00	0.00	0.00	0.09	0.00	6.44	2.00	0.00	0.00	0.04	0.00
6.52	2.00	0.00	0.00	0.08	0.00	6.57	2.00	0.00	0.00	0.05	0.00
6.64	2.00	0.00	0.00	0.07	0.00	6.69	2.00	0.00	0.00	0.05	0.00
6.78	2.00	0.00	0.00	0.09	0.00	6.83	2.00	0.00	0.00	0.05	0.00
6.92	2.00	0.00	0.00	0.09	0.00	6.97	2.00	0.00	0.00	0.05	0.00
7.03	2.00	0.00	0.00	0.05	0.00	7.12	2.00	0.00	0.00	0.09	0.00
7.22	2.00	0.00	0.00	0.10	0.00	7.27	2.00	0.00	0.00	0.05	0.00
7.36	2.00	0.00	0.00	0.09	0.00	7.43	2.00	0.00	0.00	0.08	0.00
7.50	2.00	0.00	0.00	0.07	0.00	7.59	2.00	0.00	0.00	0.09	0.00
7.64	2.00	0.00	0.00	0.05	0.00	7.75	2.00	0.00	0.00	0.10	0.00
7.79	2.00	0.00	0.00	0.04	0.00	7.89	2.00	0.00	0.00	0.10	0.00
7.99	2.00	0.00	0.00	0.10	0.00	8.04	2.00	0.00	0.00	0.05	0.00
8.13	2.00	0.00	0.00	0.09	0.00	8.23	2.00	0.00	0.00	0.10	0.00
8.32	2.00	0.00	0.00	0.09	0.00	8.37	2.00	0.00	0.00	0.05	0.00
8.46	2.00	0.00	0.00	0.09	0.00	8.56	2.00	0.00	0.00	0.10	0.00
8.59	2.00	0.00	0.00	0.02	0.00	8.61	2.00	0.00	0.00	0.03	0.00
8.67	2.00	0.00	0.00	0.05	0.00	8.71	2.00	0.00	0.00	0.04	0.00
8.72	2.00	0.00	0.00	0.01	0.00	8.78	2.00	0.00	0.00	0.06	0.00
8.80	2.00	0.00	0.00	0.02	0.00	8.86	2.00	0.00	0.00	0.05	0.00
8.90	2.00	0.00	0.00	0.04	0.00	8.95	2.00	0.00	0.00	0.05	0.00
8.96	2.00	0.00	0.00	0.01	0.00	9.00	2.00	0.00	0.00	0.04	0.00
9.05	2.00	0.00	0.00	0.05	0.00	9.09	2.00	0.00	0.00	0.04	0.00
9.10	2.00	0.00	0.00	0.01	0.00	9.14	2.00	0.00	0.00	0.05	0.00
9.20	2.00	0.00	0.00	0.05	0.00	9.24	2.00	0.00	0.00	0.04	0.00
9.29	2.00	0.00	0.00	0.05	0.00	9.31	2.00	0.00	0.00	0.02	0.00
9.38	2.00	0.00	0.00	0.07	0.00	9.41	2.00	0.00	0.00	0.03	0.00
9.47	2.00	0.00	0.00	0.06	0.00	9.53	2.00	0.00	0.00	0.05	0.00
9.62	2.00	0.00	0.00	0.09	0.00	9.67	2.00	0.00	0.00	0.05	0.00
9.77	2.00	0.00	0.00	0.10	0.00	9.81	2.00	0.00	0.00	0.05	0.00
9.90	2.00	0.00	0.00	0.08	0.00	9.97	2.00	0.00	0.00	0.08	0.00
10.06	2.00	0.00	0.00	0.09	0.00	10.20	2.00	0.00	0.00	0.14	0.00
10.30	2.00	0.00	0.00	0.09	0.00	10.44	2.00	0.00	0.00	0.14	0.00
10.54	2.00	0.00	0.00	0.10	0.00	10.63	2.00	0.00	0.00	0.09	0.00
10.74	2.00	0.00	0.00	0.11	0.00	10.78	2.00	0.00	0.00	0.04	0.00
10.83	2.00	0.00	0.00	0.05	0.00	10.88	2.00	0.00	0.00	0.05	0.00
10.89	2.00	0.00	0.00	0.02	0.00	10.97	2.00	0.00	0.00	0.08	0.00
11.02	2.00	0.00	0.00	0.05	0.00	11.07	2.00	0.00	0.00	0.05	0.00
11.11	2.00	0.00	0.00	0.05	0.00	11.16	2.00	0.00	0.00	0.05	0.00
11.21	2.00	0.00	0.00	0.05	0.00	11.26	2.00	0.00	0.00	0.04	0.00
11.30	2.00	0.00	0.00	0.05	0.00	11.36	2.00	0.00	0.00	0.05	0.00
11.40	2.00	0.00	0.00	0.05	0.00	11.45	2.00	0.00	0.00	0.04	0.00
11.50	2.00	0.00	0.00	0.05	0.00	11.55	2.00	0.00	0.00	0.05	0.00
11.60	2.00	0.00	0.00	0.05	0.00	11.66	2.00	0.00	0.00	0.07	0.00
11.74	2.00	0.00	0.00	0.08	0.00	11.84	2.00	0.00	0.00	0.10	0.00
11.93	2.00	0.00	0.00	0.09	0.00	12.04	2.00	0.00	0.00	0.11	0.00
12.13	2.00	0.00	0.00	0.09	0.00	12.22	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
12.27	2.00	0.00	0.00	0.04	0.00	12.37	2.00	0.00	0.00	0.10	0.00
12.41	2.00	0.00	0.00	0.05	0.00	12.51	2.00	0.00	0.00	0.09	0.00
12.56	2.00	0.00	0.00	0.05	0.00	12.65	2.00	0.00	0.00	0.09	0.00
12.71	2.00	0.00	0.00	0.06	0.00	12.79	2.00	0.00	0.00	0.08	0.00
12.89	2.00	0.00	0.00	0.10	0.00	12.96	2.00	0.00	0.00	0.06	0.00
13.04	2.00	0.00	0.00	0.08	0.00	13.13	2.00	0.00	0.00	0.09	0.00
13.23	2.00	0.00	0.00	0.10	0.00	13.30	2.00	0.00	0.00	0.07	0.00
13.37	2.00	0.00	0.00	0.07	0.00	13.47	2.00	0.00	0.00	0.10	0.00
13.57	2.00	0.00	0.00	0.10	0.00	13.61	2.00	0.00	0.00	0.04	0.00
13.62	2.00	0.00	0.00	0.02	0.00	13.68	2.00	0.00	0.00	0.06	0.00
13.73	2.00	0.00	0.00	0.05	0.00	13.77	2.00	0.00	0.00	0.04	0.00
13.87	2.00	0.00	0.00	0.10	0.00	13.93	2.00	0.00	0.00	0.06	0.00
14.00	2.00	0.00	0.00	0.07	0.00	14.06	2.00	0.00	0.00	0.06	0.00
14.12	2.00	0.00	0.00	0.06	0.00	14.21	2.00	0.00	0.00	0.09	0.00
14.25	2.00	0.00	0.00	0.05	0.00	14.35	2.00	0.00	0.00	0.10	0.00
14.45	2.00	0.00	0.00	0.09	0.00	14.50	2.00	0.00	0.00	0.05	0.00
14.59	2.00	0.00	0.00	0.09	0.00	14.64	2.00	0.00	0.00	0.05	0.00
14.74	2.00	0.00	0.00	0.10	0.00	14.80	2.00	0.00	0.00	0.06	0.00
14.88	2.00	0.00	0.00	0.09	0.00	14.97	2.00	0.00	0.00	0.09	0.00
15.05	2.00	0.00	0.00	0.08	0.00	15.13	2.00	0.00	0.00	0.09	0.00
15.21	2.00	0.00	0.00	0.08	0.00	15.28	2.00	0.00	0.00	0.07	0.00
15.36	2.00	0.00	0.00	0.08	0.00	15.41	2.00	0.00	0.00	0.04	0.00
15.50	2.00	0.00	0.00	0.10	0.00	15.55	2.00	0.00	0.00	0.05	0.00
15.65	2.00	0.00	0.00	0.10	0.00	15.71	2.00	0.00	0.00	0.06	0.00
15.79	2.00	0.00	0.00	0.08	0.00	15.89	2.00	0.00	0.00	0.10	0.00
15.90	2.00	0.00	0.00	0.01	0.00	15.94	2.00	0.00	0.00	0.04	0.00
16.00	2.00	0.00	0.00	0.06	0.00	16.06	2.00	0.00	0.00	0.06	0.00
16.14	2.00	0.00	0.00	0.08	0.00	16.19	2.00	0.00	0.00	0.05	0.00
16.26	2.00	0.00	0.00	0.07	0.00	16.33	2.00	0.00	0.00	0.07	0.00
16.38	2.00	0.00	0.00	0.05	0.00	16.47	2.00	0.00	0.00	0.09	0.00
16.54	2.00	0.00	0.00	0.06	0.00	16.62	2.00	0.00	0.00	0.08	0.00
16.70	2.00	0.00	0.00	0.09	0.00	16.76	2.00	0.00	0.00	0.06	0.00
16.86	2.00	0.00	0.00	0.10	0.00	16.90	2.00	0.00	0.00	0.04	0.00
16.98	2.00	0.00	0.00	0.08	0.00	17.05	2.00	0.00	0.00	0.07	0.00
17.14	2.00	0.00	0.00	0.09	0.00	17.20	2.00	0.00	0.00	0.05	0.00
17.29	2.00	0.00	0.00	0.10	0.00	17.34	2.00	0.00	0.00	0.05	0.00
17.44	2.00	0.00	0.00	0.10	0.00	17.50	2.00	0.00	0.00	0.06	0.00
17.58	2.00	0.00	0.00	0.09	0.00	17.64	2.00	0.00	0.00	0.06	0.00
17.75	2.00	0.00	0.00	0.11	0.00	17.82	2.00	0.00	0.00	0.06	0.00
17.89	2.00	0.00	0.00	0.07	0.00	17.89	2.00	0.00	0.00	0.00	0.00
17.96	2.00	0.00	0.00	0.07	0.00	18.02	2.00	0.00	0.00	0.05	0.00
18.07	2.00	0.00	0.00	0.05	0.00	18.17	2.00	0.00	0.00	0.10	0.00
18.22	2.00	0.00	0.00	0.05	0.00	18.30	2.00	0.00	0.00	0.09	0.00
18.36	2.00	0.00	0.00	0.06	0.00	18.42	2.00	0.00	0.00	0.06	0.00
18.50	2.00	0.00	0.00	0.08	0.00	18.56	2.00	0.00	0.00	0.06	0.00
18.62	2.00	0.00	0.00	0.06	0.00	18.69	2.00	0.00	0.00	0.07	0.00
18.76	2.00	0.00	0.00	0.07	0.00	18.84	2.00	0.00	0.00	0.08	0.00
18.89	2.00	0.00	0.00	0.05	0.00	18.98	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
19.05	2.00	0.00	0.00	0.06	0.00	19.12	2.00	0.00	0.00	0.07	0.00
19.18	2.00	0.00	0.00	0.06	0.00	19.24	2.00	0.00	0.00	0.06	0.00
19.32	2.00	0.00	0.00	0.07	0.00	19.38	2.00	0.00	0.00	0.06	0.00
19.46	2.00	0.00	0.00	0.09	0.00	19.54	2.00	0.00	0.00	0.07	0.00
19.62	2.00	0.00	0.00	0.08	0.00	19.70	2.00	0.00	0.00	0.08	0.00
19.80	2.00	0.00	0.00	0.10	0.00	19.85	2.00	0.00	0.00	0.05	0.00
19.94	2.00	0.00	0.00	0.09	0.00	20.03	2.00	0.00	0.00	0.09	0.00
20.13	2.00	0.00	0.00	0.10	0.00	20.19	2.00	0.00	0.00	0.06	0.00
20.29	2.00	0.00	0.00	0.10	0.00	20.39	2.00	0.00	0.00	0.10	0.00
20.43	2.00	0.00	0.00	0.03	0.00	20.47	2.00	0.00	0.00	0.05	0.00
20.52	2.00	0.00	0.00	0.05	0.00	20.61	2.00	0.00	0.00	0.09	0.00
20.66	2.00	0.00	0.00	0.05	0.00	20.71	2.00	0.00	0.00	0.05	0.00
20.77	2.00	0.00	0.00	0.06	0.00	20.85	2.00	0.00	0.00	0.08	0.00
20.91	2.00	0.00	0.00	0.05	0.00	21.00	2.00	0.00	0.00	0.09	0.00
21.05	2.00	0.00	0.00	0.05	0.00	21.11	2.00	0.00	0.00	0.06	0.00
21.19	2.00	0.00	0.00	0.08	0.00	21.24	2.00	0.00	0.00	0.05	0.00
21.34	2.00	0.00	0.00	0.09	0.00	21.39	2.00	0.00	0.00	0.05	0.00
21.48	2.00	0.00	0.00	0.10	0.00	21.53	2.00	0.00	0.00	0.05	0.00
21.64	2.00	0.00	0.00	0.11	0.00	21.72	2.00	0.00	0.00	0.08	0.00
21.81	2.00	0.00	0.00	0.09	0.00	21.89	2.00	0.00	0.00	0.08	0.00
21.97	2.00	0.00	0.00	0.08	0.00	22.05	2.00	0.00	0.00	0.09	0.00
22.12	2.00	0.00	0.00	0.07	0.00	22.13	2.00	0.00	0.00	0.01	0.00
22.18	2.00	0.00	0.00	0.05	0.00	22.22	2.00	0.00	0.00	0.04	0.00
22.28	2.00	0.00	0.00	0.06	0.00	22.33	2.00	0.00	0.00	0.05	0.00
22.38	2.00	0.00	0.00	0.05	0.00	22.41	2.00	0.00	0.00	0.03	0.00
22.51	2.00	0.00	0.00	0.10	0.00	22.56	2.00	0.00	0.00	0.05	0.00
22.61	2.00	0.00	0.00	0.05	0.00	22.65	2.00	0.00	0.00	0.04	0.00
22.71	2.00	0.00	0.00	0.05	0.00	22.76	2.00	0.00	0.00	0.06	0.00
22.85	2.00	0.00	0.00	0.08	0.00	22.89	2.00	0.00	0.00	0.05	0.00
22.99	2.00	0.00	0.00	0.10	0.00	23.04	2.00	0.00	0.00	0.05	0.00
23.12	2.00	0.00	0.00	0.08	0.00	23.18	2.00	0.00	0.00	0.07	0.00
23.24	2.00	0.00	0.00	0.06	0.00	23.33	2.00	0.00	0.00	0.09	0.00
23.38	2.00	0.00	0.00	0.05	0.00	23.47	2.00	0.00	0.00	0.09	0.00
23.52	2.00	0.00	0.00	0.05	0.00	23.61	2.00	0.00	0.00	0.09	0.00
23.68	2.00	0.00	0.00	0.07	0.00	23.76	2.00	0.00	0.00	0.08	0.00
23.83	2.00	0.00	0.00	0.07	0.00	23.90	2.00	0.00	0.00	0.08	0.00
23.97	2.00	0.00	0.00	0.07	0.00	24.05	2.00	0.00	0.00	0.08	0.00
24.10	2.00	0.00	0.00	0.05	0.00	24.19	2.00	0.00	0.00	0.09	0.00
24.27	2.00	0.00	0.00	0.08	0.00	24.34	2.00	0.00	0.00	0.07	0.00
24.43	2.00	0.00	0.00	0.09	0.00	24.48	2.00	0.00	0.00	0.05	0.00
24.57	2.00	0.00	0.00	0.09	0.00	24.62	2.00	0.00	0.00	0.05	0.00
24.72	2.00	0.00	0.00	0.09	0.00	24.81	2.00	0.00	0.00	0.10	0.00
24.86	2.00	0.00	0.00	0.05	0.00	24.95	2.00	0.00	0.00	0.09	0.00
25.01	2.00	0.00	0.00	0.06	0.00	25.02	2.00	0.00	0.00	0.01	0.00
25.05	2.00	0.00	0.00	0.03	0.00	25.11	2.00	0.00	0.00	0.06	0.00
25.15	2.00	0.00	0.00	0.04	0.00	25.21	2.00	0.00	0.00	0.06	0.00
25.25	2.00	0.00	0.00	0.04	0.00	25.30	2.00	0.00	0.00	0.05	0.00
25.40	2.00	0.00	0.00	0.10	0.00	25.45	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
25.52	2.00	0.00	0.00	0.07	0.00	25.60	2.00	0.00	0.00	0.07	0.00
25.66	2.00	0.00	0.00	0.06	0.00	25.74	2.00	0.00	0.00	0.08	0.00
25.80	2.00	0.00	0.00	0.06	0.00	25.88	2.00	0.00	0.00	0.07	0.00
25.94	2.00	0.00	0.00	0.07	0.00	26.02	2.00	0.00	0.00	0.08	0.00
26.09	2.00	0.00	0.00	0.07	0.00	26.17	2.00	0.00	0.00	0.08	0.00
26.23	2.00	0.00	0.00	0.06	0.00	26.29	2.00	0.00	0.00	0.06	0.00
26.37	2.00	0.00	0.00	0.08	0.00	26.46	2.00	0.00	0.00	0.08	0.00
26.55	2.00	0.00	0.00	0.09	0.00	26.60	2.00	0.00	0.00	0.05	0.00
26.70	2.00	0.00	0.00	0.10	0.00	26.78	2.00	0.00	0.00	0.08	0.00
26.87	2.00	0.00	0.00	0.09	0.00	26.94	2.00	0.00	0.00	0.06	0.00
27.03	2.00	0.00	0.00	0.10	0.00	27.13	2.00	0.00	0.00	0.10	0.00
27.18	2.00	0.00	0.00	0.05	0.00	27.27	2.00	0.00	0.00	0.09	0.00
27.32	2.00	0.00	0.00	0.05	0.00	27.37	2.00	0.00	0.00	0.05	0.00
27.41	2.00	0.00	0.00	0.05	0.00	27.46	2.00	0.00	0.00	0.05	0.00
27.51	2.00	0.00	0.00	0.05	0.00	27.61	2.00	0.00	0.00	0.09	0.00
27.66	2.00	0.00	0.00	0.05	0.00	27.73	2.00	0.00	0.00	0.07	0.00
27.80	2.00	0.00	0.00	0.07	0.00	27.88	2.00	0.00	0.00	0.08	0.00
27.96	2.00	0.00	0.00	0.09	0.00	28.04	2.00	0.00	0.00	0.08	0.00
28.12	2.00	0.00	0.00	0.08	0.00	28.18	2.00	0.00	0.00	0.06	0.00
28.27	2.00	0.00	0.00	0.09	0.00	28.32	2.00	0.00	0.00	0.05	0.00
28.42	2.00	0.00	0.00	0.10	0.00	28.47	2.00	0.00	0.00	0.05	0.00
28.61	2.00	0.00	0.00	0.14	0.00	28.67	2.00	0.00	0.00	0.06	0.00
28.75	2.00	0.00	0.00	0.09	0.00	28.81	2.00	0.00	0.00	0.05	0.00
28.90	2.00	0.00	0.00	0.10	0.00	29.00	2.00	0.00	0.00	0.09	0.00
29.05	2.00	0.00	0.00	0.05	0.00	29.10	2.00	0.00	0.00	0.05	0.00
29.15	2.00	0.00	0.00	0.05	0.00	29.24	2.00	0.00	0.00	0.09	0.00
29.29	2.00	0.00	0.00	0.05	0.00	29.37	2.00	0.00	0.00	0.07	0.00
29.43	2.00	0.00	0.00	0.06	0.00	29.53	2.00	0.00	0.00	0.10	0.00
29.62	2.00	0.00	0.00	0.09	0.00	29.68	2.00	0.00	0.00	0.06	0.00
29.80	2.00	0.00	0.00	0.12	0.00	29.91	2.00	0.00	0.00	0.12	0.00
30.00	0.61	0.00	0.00	0.09	0.06	30.07	0.62	0.00	0.00	0.07	0.04
30.15	0.62	0.00	0.00	0.08	0.05	30.21	0.62	0.00	0.00	0.07	0.04
30.26	0.62	0.00	0.00	0.05	0.03	30.31	0.61	0.00	0.00	0.05	0.03
30.38	0.61	0.00	0.00	0.07	0.05	30.45	0.60	0.00	0.00	0.07	0.05
30.50	0.60	0.00	0.00	0.05	0.03	30.55	0.59	0.00	0.00	0.05	0.03
30.64	0.58	0.00	0.00	0.09	0.06	30.70	0.56	0.00	0.00	0.05	0.04
30.79	0.55	0.00	0.00	0.09	0.07	30.84	0.54	0.00	0.00	0.05	0.04
30.93	0.54	0.00	0.00	0.09	0.07	30.98	0.54	0.00	0.00	0.05	0.04
31.05	0.55	0.00	0.00	0.06	0.05	31.13	0.56	0.00	0.00	0.08	0.06
31.17	0.58	0.00	0.00	0.05	0.03	31.27	0.61	0.00	0.00	0.10	0.06
31.32	0.67	0.00	0.00	0.05	0.03	31.41	0.73	0.00	0.00	0.10	0.04
31.46	0.78	0.00	0.00	0.05	0.02	31.52	0.80	0.00	0.00	0.06	0.02
31.61	0.79	0.00	0.00	0.08	0.03	31.66	0.76	0.00	0.00	0.06	0.02
31.75	0.71	0.00	0.00	0.09	0.04	31.80	0.66	0.00	0.00	0.05	0.03
31.90	0.61	0.00	0.00	0.10	0.06	31.94	0.59	0.00	0.00	0.05	0.03
32.04	0.59	0.00	0.00	0.10	0.06	32.09	0.62	0.00	0.00	0.04	0.03
32.20	0.63	0.00	0.00	0.11	0.06	32.24	0.65	0.00	0.00	0.04	0.02
32.28	0.65	0.00	0.00	0.04	0.02	32.29	0.66	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
32.30	0.67	0.00	0.00	0.01	0.01	32.40	0.67	0.00	0.00	0.10	0.05
32.45	0.67	0.00	0.00	0.04	0.02	32.55	0.67	0.00	0.00	0.10	0.05
32.59	0.67	0.00	0.00	0.05	0.02	32.69	0.67	0.00	0.00	0.10	0.05
32.76	0.68	0.00	0.00	0.07	0.03	32.84	0.69	0.00	0.00	0.08	0.04
32.90	0.70	0.00	0.00	0.07	0.03	32.98	0.70	0.00	0.00	0.08	0.03
33.06	0.71	0.00	0.00	0.08	0.03	33.12	0.71	0.00	0.00	0.06	0.03
33.22	0.72	0.00	0.00	0.10	0.04	33.31	0.72	0.00	0.00	0.09	0.04
33.37	0.72	0.00	0.00	0.05	0.02	33.46	0.71	0.00	0.00	0.09	0.04
33.55	0.71	0.00	0.00	0.09	0.04	33.65	0.71	0.00	0.00	0.10	0.04
33.70	0.71	0.00	0.00	0.05	0.02	33.79	0.71	0.00	0.00	0.09	0.04
33.89	0.71	0.00	0.00	0.10	0.04	33.99	0.70	0.00	0.00	0.09	0.04
34.04	0.69	0.00	0.00	0.05	0.02	34.13	0.68	0.00	0.00	0.09	0.04
34.23	0.67	0.00	0.00	0.10	0.05	34.32	0.66	0.00	0.00	0.09	0.05
34.37	0.66	0.00	0.00	0.05	0.02	34.47	0.66	0.00	0.00	0.10	0.05
34.55	2.00	0.00	0.00	0.08	0.00	34.63	2.00	0.00	0.00	0.08	0.00
34.73	2.00	0.00	0.00	0.10	0.00	34.80	2.00	0.00	0.00	0.08	0.00
34.90	2.00	0.00	0.00	0.09	0.00	35.00	2.00	0.00	0.00	0.10	0.00
35.12	2.00	0.00	0.00	0.13	0.00	35.20	2.00	0.00	0.00	0.07	0.00
35.33	2.00	0.00	0.00	0.13	0.00	35.41	2.00	0.00	0.00	0.07	0.00
35.44	2.00	0.00	0.00	0.03	0.00	35.48	2.00	0.00	0.00	0.05	0.00
35.57	2.00	0.00	0.00	0.09	0.00	35.62	2.00	0.00	0.00	0.05	0.00
35.67	2.00	0.00	0.00	0.05	0.00	35.71	2.00	0.00	0.00	0.04	0.00
35.82	2.00	0.00	0.00	0.10	0.00	35.86	2.00	0.00	0.00	0.05	0.00
35.93	2.00	0.00	0.00	0.07	0.00	36.01	2.00	0.00	0.00	0.08	0.00
36.06	2.00	0.00	0.00	0.05	0.00	36.12	1.75	0.00	0.00	0.06	0.00
36.18	1.84	0.00	0.00	0.06	0.00	36.25	1.91	0.00	0.00	0.07	0.00
36.30	2.00	0.00	0.00	0.05	0.00	36.39	2.00	0.00	0.00	0.10	0.00
36.44	2.00	0.00	0.00	0.05	0.00	36.53	2.00	0.00	0.00	0.09	0.00
36.59	2.00	0.00	0.00	0.05	0.00	36.68	2.00	0.00	0.00	0.09	0.00
36.75	1.91	0.00	0.00	0.07	0.00	36.83	1.77	0.00	0.00	0.08	0.00
36.90	1.65	0.00	0.00	0.07	0.00	36.97	1.53	0.00	0.00	0.07	0.00
37.02	1.31	0.00	0.00	0.05	0.00	37.04	1.21	0.00	0.00	0.02	0.00
37.08	1.14	0.00	0.00	0.04	0.00	37.17	1.16	0.00	0.00	0.09	0.00
37.27	1.09	0.00	0.00	0.10	0.00	37.37	1.02	0.00	0.00	0.09	0.00
37.42	0.96	0.00	0.00	0.05	0.00	37.51	0.93	0.00	0.00	0.09	0.01
37.58	0.92	0.00	0.00	0.07	0.01	37.66	0.93	0.00	0.00	0.07	0.01
37.76	0.95	0.00	0.00	0.10	0.01	37.85	0.96	0.00	0.00	0.09	0.00
37.93	0.97	0.00	0.00	0.08	0.00	38.04	0.98	0.00	0.00	0.11	0.00
38.13	0.99	0.00	0.00	0.09	0.00	38.18	0.99	0.00	0.00	0.05	0.00
38.28	0.98	0.00	0.00	0.10	0.00	38.37	0.95	0.00	0.00	0.09	0.01
38.47	0.93	0.00	0.00	0.09	0.01	38.57	0.91	0.00	0.00	0.10	0.01
38.62	0.88	0.00	0.00	0.04	0.01	38.72	0.81	0.00	0.00	0.10	0.02
38.78	0.76	0.00	0.00	0.06	0.02	38.81	0.74	0.00	0.00	0.02	0.01
38.86	0.74	0.00	0.00	0.05	0.02	38.91	0.72	0.00	0.00	0.05	0.02
38.95	0.70	0.00	0.00	0.05	0.02	39.05	0.68	0.00	0.00	0.10	0.04
39.09	0.67	0.00	0.00	0.05	0.02	39.14	0.66	0.00	0.00	0.05	0.02
39.24	0.65	0.00	0.00	0.10	0.04	39.29	0.65	0.00	0.00	0.05	0.02
39.39	0.65	0.00	0.00	0.10	0.04	39.43	0.65	0.00	0.00	0.05	0.02

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
39.53	0.65	0.00	0.00	0.10	0.04	39.57	0.64	0.00	0.00	0.04	0.02
39.68	0.64	0.00	0.00	0.10	0.04	39.73	0.64	0.00	0.00	0.05	0.02
39.81	0.63	0.00	0.00	0.08	0.04	39.89	0.60	0.00	0.00	0.08	0.04
39.96	0.56	0.00	0.00	0.07	0.03	40.06	0.54	0.00	0.00	0.10	0.05
40.15	0.53	0.00	0.00	0.09	0.05	40.20	0.53	0.00	0.00	0.06	0.03
40.24	0.53	0.00	0.00	0.04	0.02	40.26	0.54	0.00	0.00	0.01	0.01
40.27	0.54	0.00	0.00	0.02	0.01	40.37	0.55	0.00	0.00	0.09	0.05
40.42	0.55	0.00	0.00	0.05	0.02	40.52	0.56	0.00	0.00	0.10	0.05
40.56	0.57	0.00	0.00	0.04	0.02	40.66	0.58	0.00	0.00	0.10	0.05
40.70	0.61	0.00	0.00	0.05	0.02	40.75	0.65	0.00	0.00	0.05	0.02
40.85	0.71	0.00	0.00	0.10	0.03	40.91	0.77	0.00	0.00	0.06	0.01
40.96	0.85	0.00	0.00	0.05	0.01	41.04	0.92	0.00	0.00	0.08	0.01
41.09	1.01	0.00	0.00	0.05	0.00	41.18	1.08	0.00	0.00	0.09	0.00
41.23	1.15	0.00	0.00	0.05	0.00	41.29	1.19	0.00	0.00	0.06	0.00
41.38	1.19	0.00	0.00	0.09	0.00	41.42	1.19	0.00	0.00	0.05	0.00
41.52	1.16	0.00	0.00	0.10	0.00	41.57	1.13	0.00	0.00	0.05	0.00
41.62	1.11	0.00	0.00	0.05	0.00	41.71	1.09	0.00	0.00	0.09	0.00
41.76	1.08	0.00	0.00	0.04	0.00	41.84	1.08	0.00	0.00	0.09	0.00
41.91	1.08	0.00	0.00	0.07	0.00	41.95	1.08	0.00	0.00	0.05	0.00
42.01	1.10	0.00	0.00	0.06	0.00	42.10	1.11	0.00	0.00	0.08	0.00
42.15	1.14	0.00	0.00	0.05	0.00	42.24	1.16	0.00	0.00	0.09	0.00
42.28	1.17	0.00	0.00	0.04	0.00	42.39	1.16	0.00	0.00	0.10	0.00
42.43	1.14	0.00	0.00	0.04	0.00	42.50	1.13	0.00	0.00	0.07	0.00
42.58	1.12	0.00	0.00	0.08	0.00	42.65	1.03	0.00	0.00	0.07	0.00
42.70	1.00	0.00	0.00	0.06	0.00	42.73	0.97	0.00	0.00	0.02	0.00
42.77	1.02	0.00	0.00	0.04	0.00	42.82	1.05	0.00	0.00	0.05	0.00
42.87	1.10	0.00	0.00	0.05	0.00	42.91	1.17	0.00	0.00	0.04	0.00
42.97	1.24	0.00	0.00	0.05	0.00	43.02	1.30	0.00	0.00	0.05	0.00
43.06	1.35	0.00	0.00	0.05	0.00	43.11	1.40	0.00	0.00	0.04	0.00
43.17	1.45	0.00	0.00	0.06	0.00	43.21	1.51	0.00	0.00	0.04	0.00
43.29	1.55	0.00	0.00	0.08	0.00	43.34	1.61	0.00	0.00	0.05	0.00
43.39	1.65	0.00	0.00	0.06	0.00	43.45	1.67	0.00	0.00	0.05	0.00
43.51	1.66	0.00	0.00	0.06	0.00	43.59	1.64	0.00	0.00	0.08	0.00
43.64	1.60	0.00	0.00	0.05	0.00	43.70	1.54	0.00	0.00	0.06	0.00
43.78	1.47	0.00	0.00	0.09	0.00	43.88	1.43	0.00	0.00	0.10	0.00
43.94	1.39	0.00	0.00	0.06	0.00	44.04	1.31	0.00	0.00	0.10	0.00
44.07	1.22	0.00	0.00	0.03	0.00	44.12	1.20	0.00	0.00	0.05	0.00
44.16	1.17	0.00	0.00	0.04	0.00	44.21	1.14	0.00	0.00	0.05	0.00
44.26	1.10	0.00	0.00	0.05	0.00	44.31	1.06	0.00	0.00	0.05	0.00
44.35	1.03	0.00	0.00	0.04	0.00	44.40	0.99	0.00	0.00	0.05	0.00
44.45	0.96	0.00	0.00	0.05	0.00	44.50	0.94	0.00	0.00	0.05	0.00
44.54	0.93	0.00	0.00	0.04	0.00	44.60	0.91	0.00	0.00	0.06	0.01
44.64	0.89	0.00	0.00	0.05	0.00	44.69	0.88	0.00	0.00	0.05	0.01
44.74	0.87	0.00	0.00	0.05	0.01	44.79	0.87	0.00	0.00	0.04	0.01
44.83	0.87	0.00	0.00	0.05	0.01	44.88	0.88	0.00	0.00	0.05	0.01
44.93	0.89	0.00	0.00	0.05	0.01	44.98	0.91	0.00	0.00	0.05	0.00
45.03	0.92	0.00	0.00	0.05	0.00	45.08	0.93	0.00	0.00	0.06	0.00
45.16	0.94	0.00	0.00	0.08	0.00	45.19	0.94	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
45.27	0.93	0.00	0.00	0.08	0.01	45.32	0.92	0.00	0.00	0.05	0.00
45.37	0.89	0.00	0.00	0.05	0.00	45.45	0.85	0.00	0.00	0.09	0.01
45.51	0.80	0.00	0.00	0.05	0.01	45.56	2.00	0.00	0.00	0.05	0.00
45.61	2.00	0.00	0.00	0.05	0.00	45.69	2.00	0.00	0.00	0.08	0.00
45.75	2.00	0.00	0.00	0.06	0.00	45.81	2.00	0.00	0.00	0.07	0.00
45.89	2.00	0.00	0.00	0.08	0.00	45.94	2.00	0.00	0.00	0.05	0.00
46.04	2.00	0.00	0.00	0.10	0.00	46.08	2.00	0.00	0.00	0.04	0.00
46.15	2.00	0.00	0.00	0.06	0.00	46.17	2.00	0.00	0.00	0.02	0.00
46.18	2.00	0.00	0.00	0.01	0.00	46.23	2.00	0.00	0.00	0.05	0.00
46.27	2.00	0.00	0.00	0.05	0.00	46.32	2.00	0.00	0.00	0.05	0.00
46.41	2.00	0.00	0.00	0.09	0.00	46.47	2.00	0.00	0.00	0.06	0.00
46.52	2.00	0.00	0.00	0.05	0.00	46.56	2.00	0.00	0.00	0.04	0.00
46.65	2.00	0.00	0.00	0.09	0.00	46.71	2.00	0.00	0.00	0.06	0.00
46.76	2.00	0.00	0.00	0.05	0.00	46.85	2.00	0.00	0.00	0.09	0.00
46.90	2.00	0.00	0.00	0.05	0.00	46.99	2.00	0.00	0.00	0.09	0.00
47.04	2.00	0.00	0.00	0.06	0.00	47.10	2.00	0.00	0.00	0.05	0.00
47.16	2.00	0.00	0.00	0.06	0.00	47.23	2.00	0.00	0.00	0.07	0.00
47.30	2.00	0.00	0.00	0.06	0.00	47.38	2.00	0.00	0.00	0.09	0.00
47.43	2.00	0.00	0.00	0.05	0.00	47.52	2.00	0.00	0.00	0.09	0.00
47.59	2.00	0.00	0.00	0.07	0.00	47.66	2.00	0.00	0.00	0.07	0.00
47.77	2.00	0.00	0.00	0.10	0.00	47.82	2.00	0.00	0.00	0.05	0.00
47.91	2.00	0.00	0.00	0.08	0.00	47.93	2.00	0.00	0.00	0.03	0.00
47.97	2.00	0.00	0.00	0.04	0.00	48.02	2.00	0.00	0.00	0.05	0.00
48.07	2.00	0.00	0.00	0.05	0.00	48.12	2.00	0.00	0.00	0.05	0.00
48.19	2.00	0.00	0.00	0.07	0.00	48.23	2.00	0.00	0.00	0.04	0.00
48.31	2.00	0.00	0.00	0.08	0.00	48.35	2.00	0.00	0.00	0.05	0.00
48.40	2.00	0.00	0.00	0.05	0.00	48.45	2.00	0.00	0.00	0.05	0.00
48.50	2.00	0.00	0.00	0.05	0.00	48.55	2.00	0.00	0.00	0.05	0.00
48.59	2.00	0.00	0.00	0.04	0.00	48.67	2.00	0.00	0.00	0.08	0.00
48.73	2.00	0.00	0.00	0.05	0.00	48.78	2.00	0.00	0.00	0.06	0.00
48.83	2.00	0.00	0.00	0.05	0.00	48.91	2.00	0.00	0.00	0.07	0.00
48.98	2.00	0.00	0.00	0.07	0.00	49.03	2.00	0.00	0.00	0.05	0.00
49.12	2.00	0.00	0.00	0.09	0.00	49.17	2.00	0.00	0.00	0.05	0.00
49.27	2.00	0.00	0.00	0.09	0.00	49.31	2.00	0.00	0.00	0.05	0.00
49.38	2.00	0.00	0.00	0.06	0.00	49.45	2.00	0.00	0.00	0.08	0.00
49.51	2.00	0.00	0.00	0.05	0.00	49.54	2.00	0.00	0.00	0.03	0.00
49.59	2.00	0.00	0.00	0.05	0.00	49.64	2.00	0.00	0.00	0.05	0.00
49.73	2.00	0.00	0.00	0.10	0.00	49.83	2.00	0.00	0.00	0.10	0.00
49.92	2.00	0.00	0.00	0.10	0.00	49.98	2.00	0.00	0.00	0.05	0.00
50.07	2.00	0.00	0.00	0.09	0.00	50.16	2.00	0.00	0.00	0.09	0.00
50.24	2.00	0.00	0.00	0.09	0.00	50.32	2.00	0.00	0.00	0.08	0.00
50.41	2.00	0.00	0.00	0.09	0.00	50.50	2.00	0.00	0.00	0.09	0.00
50.56	2.00	0.00	0.00	0.06	0.00	50.66	2.00	0.00	0.00	0.10	0.00
50.74	2.00	0.00	0.00	0.09	0.00	50.84	2.00	0.00	0.00	0.10	0.00
50.93	2.00	0.00	0.00	0.09	0.00	50.98	2.00	0.00	0.00	0.05	0.00
51.08	2.00	0.00	0.00	0.09	0.00	51.17	2.00	0.00	0.00	0.10	0.00
51.24	2.00	0.00	0.00	0.06	0.00	51.34	2.00	0.00	0.00	0.10	0.00
51.41	2.00	0.00	0.00	0.07	0.00	51.51	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
51.58	2.00	0.00	0.00	0.07	0.00	51.68	2.00	0.00	0.00	0.10	0.00
51.79	2.00	0.00	0.00	0.11	0.00	51.82	2.00	0.00	0.00	0.03	0.00
51.85	2.00	0.00	0.00	0.03	0.00	51.91	2.00	0.00	0.00	0.06	0.00
52.00	2.00	0.00	0.00	0.09	0.00	52.05	2.00	0.00	0.00	0.05	0.00
52.10	2.00	0.00	0.00	0.06	0.00	52.19	2.00	0.00	0.00	0.09	0.00
52.28	2.00	0.00	0.00	0.09	0.00	52.34	2.00	0.00	0.00	0.06	0.00
52.42	2.00	0.00	0.00	0.08	0.00	52.48	2.00	0.00	0.00	0.06	0.00
52.57	2.00	0.00	0.00	0.09	0.00	52.62	2.00	0.00	0.00	0.05	0.00
52.69	2.00	0.00	0.00	0.07	0.00	52.77	2.00	0.00	0.00	0.08	0.00
52.87	2.00	0.00	0.00	0.10	0.00	52.91	2.00	0.00	0.00	0.04	0.00
53.01	2.00	0.00	0.00	0.10	0.00	53.10	2.00	0.00	0.00	0.09	0.00
53.16	2.00	0.00	0.00	0.06	0.00	53.25	2.00	0.00	0.00	0.09	0.00
53.29	2.00	0.00	0.00	0.04	0.00	53.38	2.00	0.00	0.00	0.09	0.00
53.42	2.00	0.00	0.00	0.04	0.00	53.47	2.00	0.00	0.00	0.05	0.00
53.52	2.00	0.00	0.00	0.05	0.00	53.58	2.00	0.00	0.00	0.05	0.00
53.66	2.00	0.00	0.00	0.08	0.00	53.75	2.00	0.00	0.00	0.09	0.00
53.81	2.00	0.00	0.00	0.05	0.00	53.87	2.00	0.00	0.00	0.06	0.00
53.95	2.00	0.00	0.00	0.08	0.00	54.01	2.00	0.00	0.00	0.06	0.00
54.06	2.00	0.00	0.00	0.05	0.00	54.15	2.00	0.00	0.00	0.08	0.00
54.20	2.00	0.00	0.00	0.06	0.00	54.29	2.00	0.00	0.00	0.08	0.00
54.34	2.00	0.00	0.00	0.05	0.00	54.43	2.00	0.00	0.00	0.09	0.00
54.45	2.00	0.00	0.00	0.02	0.00	54.48	2.00	0.00	0.00	0.03	0.00
54.52	2.00	0.00	0.00	0.03	0.00	54.53	2.00	0.00	0.00	0.01	0.00
54.58	0.45	0.00	0.00	0.05	0.01	54.62	0.47	0.00	0.00	0.04	0.01
54.65	0.50	0.00	0.00	0.03	0.01	54.70	0.52	0.00	0.00	0.04	0.01
54.76	0.54	0.00	0.00	0.06	0.01	54.77	0.55	0.00	0.00	0.01	0.00
54.82	0.55	0.00	0.00	0.05	0.01	54.87	0.56	0.00	0.00	0.05	0.01
54.88	0.56	0.00	0.00	0.01	0.00	54.91	0.56	0.00	0.00	0.03	0.01
54.96	0.58	0.00	0.00	0.05	0.01	54.97	0.62	0.00	0.00	0.01	0.00
55.03	0.68	0.00	0.00	0.06	0.01	55.09	0.74	0.00	0.00	0.06	0.01
55.15	0.75	0.00	0.00	0.06	0.01	55.20	0.76	0.00	0.00	0.05	0.01
55.25	0.75	0.00	0.00	0.05	0.01	55.30	0.85	0.00	0.00	0.05	0.00
55.34	0.93	0.00	0.00	0.05	0.00	55.39	1.12	0.00	0.00	0.04	0.00
55.40	1.27	0.00	0.00	0.01	0.00	55.44	1.34	0.00	0.00	0.04	0.00
55.44	1.34	0.00	0.00	0.01	0.00	55.49	1.42	0.00	0.00	0.05	0.00
55.54	1.58	0.00	0.00	0.05	0.00	55.59	1.79	0.00	0.00	0.05	0.00
55.63	1.90	0.00	0.00	0.04	0.00	55.64	1.91	0.00	0.00	0.01	0.00
55.68	1.89	0.00	0.00	0.04	0.00	55.69	1.85	0.00	0.00	0.01	0.00
55.69	1.88	0.00	0.00	0.01	0.00	55.71	1.98	0.00	0.00	0.02	0.00
55.76	2.00	0.00	0.00	0.05	0.00	55.78	2.00	0.00	0.00	0.02	0.00
55.81	1.92	0.00	0.00	0.04	0.00	55.85	1.77	0.00	0.00	0.04	0.00
55.86	1.80	0.00	0.00	0.01	0.00	55.91	1.88	0.00	0.00	0.05	0.00
55.92	1.91	0.00	0.00	0.01	0.00	55.96	2.00	0.00	0.00	0.04	0.00
55.97	2.00	0.00	0.00	0.01	0.00	56.00	2.00	0.00	0.00	0.03	0.00
56.01	2.00	0.00	0.00	0.01	0.00	56.03	2.00	0.00	0.00	0.02	0.00
56.05	2.00	0.00	0.00	0.02	0.00	56.10	2.00	0.00	0.00	0.05	0.00
56.12	2.00	0.00	0.00	0.02	0.00	56.16	2.00	0.00	0.00	0.04	0.00
56.17	2.00	0.00	0.00	0.02	0.00	56.20	2.00	0.00	0.00	0.03	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
56.22	2.00	0.00	0.00	0.02	0.00	56.24	1.95	0.00	0.00	0.03	0.00
56.30	1.89	0.00	0.00	0.06	0.00	56.31	1.84	0.00	0.00	0.01	0.00
56.34	1.76	0.00	0.00	0.03	0.00	56.39	1.70	0.00	0.00	0.05	0.00
56.45	1.65	0.00	0.00	0.06	0.00	56.48	1.60	0.00	0.00	0.03	0.00
56.49	1.53	0.00	0.00	0.01	0.00	56.53	1.60	0.00	0.00	0.04	0.00
56.58	1.62	0.00	0.00	0.05	0.00	56.63	1.32	0.00	0.00	0.05	0.00
56.68	1.33	0.00	0.00	0.04	0.00	56.73	1.36	0.00	0.00	0.05	0.00
56.78	1.33	0.00	0.00	0.05	0.00	56.83	1.27	0.00	0.00	0.05	0.00
56.89	1.35	0.00	0.00	0.07	0.00	56.95	1.43	0.00	0.00	0.06	0.00
56.99	1.44	0.00	0.00	0.04	0.00	57.01	1.43	0.00	0.00	0.01	0.00
57.04	1.43	0.00	0.00	0.04	0.00	57.09	1.44	0.00	0.00	0.05	0.00
57.11	1.49	0.00	0.00	0.02	0.00	57.13	1.58	0.00	0.00	0.03	0.00
57.18	1.63	0.00	0.00	0.04	0.00	57.19	1.62	0.00	0.00	0.01	0.00
57.21	1.56	0.00	0.00	0.03	0.00	57.24	1.50	0.00	0.00	0.02	0.00
57.28	1.49	0.00	0.00	0.05	0.00	57.32	1.44	0.00	0.00	0.04	0.00
57.35	1.41	0.00	0.00	0.04	0.00	57.38	1.36	0.00	0.00	0.03	0.00
57.43	1.32	0.00	0.00	0.04	0.00	57.48	1.21	0.00	0.00	0.05	0.00
57.52	1.10	0.00	0.00	0.05	0.00	57.57	1.07	0.00	0.00	0.05	0.00
57.62	1.14	0.00	0.00	0.05	0.00	57.68	1.35	0.00	0.00	0.06	0.00
57.76	1.55	0.00	0.00	0.08	0.00	57.81	1.44	0.00	0.00	0.05	0.00
57.86	1.40	0.00	0.00	0.05	0.00	57.89	1.60	0.00	0.00	0.03	0.00
57.91	1.68	0.00	0.00	0.02	0.00	57.92	1.63	0.00	0.00	0.01	0.00
57.95	1.57	0.00	0.00	0.03	0.00	57.99	1.58	0.00	0.00	0.04	0.00
58.01	1.64	0.00	0.00	0.02	0.00	58.05	1.73	0.00	0.00	0.04	0.00
58.05	1.79	0.00	0.00	0.01	0.00	58.10	1.83	0.00	0.00	0.05	0.00
58.13	1.88	0.00	0.00	0.03	0.00	58.15	1.94	0.00	0.00	0.01	0.00
58.17	1.99	0.00	0.00	0.03	0.00	58.20	1.98	0.00	0.00	0.02	0.00
58.21	1.94	0.00	0.00	0.01	0.00	58.21	1.90	0.00	0.00	0.00	0.00
58.23	1.90	0.00	0.00	0.02	0.00	58.24	1.85	0.00	0.00	0.01	0.00
58.25	1.86	0.00	0.00	0.01	0.00	58.29	1.90	0.00	0.00	0.04	0.00
58.31	2.00	0.00	0.00	0.02	0.00	58.33	2.00	0.00	0.00	0.02	0.00
58.38	2.00	0.00	0.00	0.05	0.00	58.39	2.00	0.00	0.00	0.01	0.00
58.43	2.00	0.00	0.00	0.04	0.00	58.43	2.00	0.00	0.00	0.01	0.00
58.48	2.00	0.00	0.00	0.05	0.00	58.53	2.00	0.00	0.00	0.05	0.00
58.56	2.00	0.00	0.00	0.02	0.00	58.58	2.00	0.00	0.00	0.03	0.00
58.59	2.00	0.00	0.00	0.01	0.00	58.63	2.00	0.00	0.00	0.03	0.00
58.63	2.00	0.00	0.00	0.00	0.00	58.63	2.00	0.00	0.00	0.01	0.00
58.68	2.00	0.00	0.00	0.04	0.00	58.69	2.00	0.00	0.00	0.01	0.00
58.72	2.00	0.00	0.00	0.03	0.00	58.73	2.00	0.00	0.00	0.01	0.00
58.74	2.00	0.00	0.00	0.01	0.00	58.77	2.00	0.00	0.00	0.03	0.00
58.81	2.00	0.00	0.00	0.04	0.00	58.82	2.00	0.00	0.00	0.01	0.00
58.83	2.00	0.00	0.00	0.01	0.00	58.87	2.00	0.00	0.00	0.04	0.00
58.91	2.00	0.00	0.00	0.04	0.00	58.92	2.00	0.00	0.00	0.01	0.00
58.93	2.00	0.00	0.00	0.01	0.00	58.96	2.00	0.00	0.00	0.03	0.00
59.01	2.00	0.00	0.00	0.05	0.00	59.06	2.00	0.00	0.00	0.05	0.00
59.08	2.00	0.00	0.00	0.02	0.00	59.11	2.00	0.00	0.00	0.03	0.00
59.15	1.96	0.00	0.00	0.04	0.00	59.21	1.89	0.00	0.00	0.05	0.00
59.26	1.89	0.00	0.00	0.05	0.00	59.30	1.74	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
59.35	1.64	0.00	0.00	0.05	0.00	59.40	1.63	0.00	0.00	0.05	0.00
59.42	1.62	0.00	0.00	0.02	0.00	59.47	1.61	0.00	0.00	0.05	0.00
59.51	1.63	0.00	0.00	0.05	0.00	59.56	1.63	0.00	0.00	0.05	0.00
59.61	1.53	0.00	0.00	0.05	0.00	59.67	1.34	0.00	0.00	0.05	0.00
59.71	1.41	0.00	0.00	0.04	0.00	59.80	1.42	0.00	0.00	0.09	0.00
59.85	1.40	0.00	0.00	0.05	0.00	59.90	1.33	0.00	0.00	0.05	0.00
60.00	1.33	0.00	0.00	0.10	0.00	60.04	1.33	0.00	0.00	0.05	0.00
60.10	1.23	0.00	0.00	0.06	0.00	60.15	1.13	0.00	0.00	0.05	0.00
60.19	1.03	0.00	0.00	0.03	0.00	60.23	1.01	0.00	0.00	0.05	0.00
60.28	1.00	0.00	0.00	0.05	0.00	60.33	1.03	0.00	0.00	0.05	0.00
60.38	1.05	0.00	0.00	0.04	0.00	60.42	1.05	0.00	0.00	0.04	0.00
60.44	1.05	0.00	0.00	0.02	0.00	60.47	1.14	0.00	0.00	0.02	0.00
60.52	1.20	0.00	0.00	0.05	0.00	60.56	1.24	0.00	0.00	0.04	0.00
60.57	1.25	0.00	0.00	0.01	0.00	60.61	1.25	0.00	0.00	0.04	0.00
60.66	1.27	0.00	0.00	0.05	0.00	60.71	1.29	0.00	0.00	0.05	0.00
60.76	1.36	0.00	0.00	0.05	0.00	60.81	1.43	0.00	0.00	0.05	0.00
60.86	1.46	0.00	0.00	0.05	0.00	60.91	1.41	0.00	0.00	0.05	0.00
60.95	1.69	0.00	0.00	0.04	0.00	61.00	1.97	0.00	0.00	0.05	0.00
61.02	2.00	0.00	0.00	0.02	0.00	61.05	2.00	0.00	0.00	0.03	0.00
61.08	2.00	0.00	0.00	0.03	0.00	61.09	2.00	0.00	0.00	0.02	0.00
61.13	2.00	0.00	0.00	0.03	0.00	61.14	2.00	0.00	0.00	0.02	0.00
61.16	2.00	0.00	0.00	0.02	0.00	61.20	2.00	0.00	0.00	0.03	0.00
61.23	2.00	0.00	0.00	0.04	0.00	61.24	2.00	0.00	0.00	0.01	0.00
61.29	2.00	0.00	0.00	0.05	0.00	61.30	2.00	0.00	0.00	0.01	0.00
61.33	2.00	0.00	0.00	0.04	0.00	61.38	2.00	0.00	0.00	0.05	0.00
61.43	2.00	0.00	0.00	0.05	0.00	61.48	2.00	0.00	0.00	0.04	0.00
61.53	2.00	0.00	0.00	0.05	0.00	61.56	2.00	0.00	0.00	0.03	0.00
61.58	2.00	0.00	0.00	0.02	0.00	61.59	2.00	0.00	0.00	0.01	0.00
61.62	1.66	0.00	0.00	0.03	0.00	61.63	1.62	0.00	0.00	0.02	0.00
61.67	1.57	0.00	0.00	0.03	0.00	61.71	2.00	0.00	0.00	0.05	0.00
61.76	2.00	0.00	0.00	0.05	0.00	61.81	1.90	0.00	0.00	0.05	0.00
61.86	1.75	0.00	0.00	0.05	0.00	61.87	1.65	0.00	0.00	0.01	0.00
61.91	1.57	0.00	0.00	0.04	0.00	61.95	1.49	0.00	0.00	0.04	0.00
61.96	1.42	0.00	0.00	0.01	0.00	62.00	1.34	0.00	0.00	0.04	0.00
62.04	1.23	0.00	0.00	0.04	0.00	62.06	1.11	0.00	0.00	0.02	0.00
62.10	1.01	0.00	0.00	0.04	0.00	62.14	0.94	0.00	0.00	0.04	0.00
62.20	0.88	0.00	0.00	0.05	0.00	62.22	0.79	0.00	0.00	0.02	0.00
62.27	0.82	0.00	0.00	0.05	0.00	62.29	0.83	0.00	0.00	0.02	0.00
62.34	0.81	0.00	0.00	0.05	0.00	62.39	0.80	0.00	0.00	0.04	0.00
62.43	0.77	0.00	0.00	0.05	0.00	62.49	0.77	0.00	0.00	0.06	0.00
62.57	0.78	0.00	0.00	0.08	0.00	62.68	0.86	0.00	0.00	0.10	0.00
62.75	1.04	0.00	0.00	0.08	0.00	62.87	1.18	0.00	0.00	0.12	0.00
62.88	1.09	0.00	0.00	0.01	0.00	62.89	1.09	0.00	0.00	0.01	0.00
62.93	1.10	0.00	0.00	0.04	0.00	62.98	1.42	0.00	0.00	0.05	0.00
63.02	1.75	0.00	0.00	0.05	0.00	63.07	2.00	0.00	0.00	0.05	0.00
63.12	2.00	0.00	0.00	0.05	0.00	63.14	2.00	0.00	0.00	0.02	0.00
63.17	2.00	0.00	0.00	0.03	0.00	63.17	2.00	0.00	0.00	0.01	0.00
63.20	2.00	0.00	0.00	0.02	0.00	63.21	2.00	0.00	0.00	0.02	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
63.23	2.00	0.00	0.00	0.02	0.00	63.26	2.00	0.00	0.00	0.03	0.00
63.28	2.00	0.00	0.00	0.02	0.00	63.31	2.00	0.00	0.00	0.03	0.00
63.32	2.00	0.00	0.00	0.01	0.00	63.36	2.00	0.00	0.00	0.04	0.00
63.40	2.00	0.00	0.00	0.04	0.00						

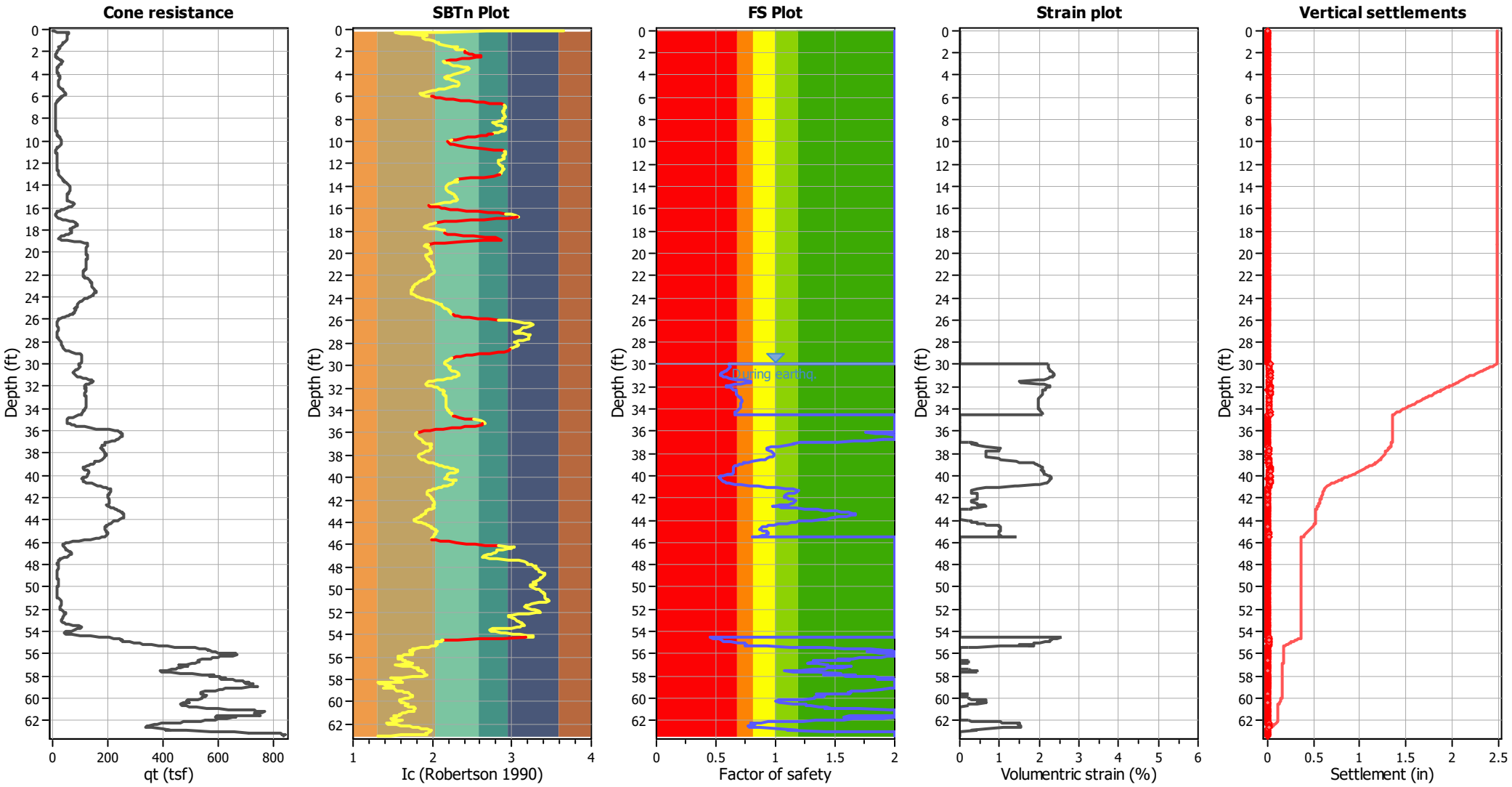
Overall liquefaction potential: 3.79

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.00	104.86	0.61	2.25	1.00	0.02	30.07	105.36	0.62	2.24	1.00	0.02
30.15	105.54	0.62	2.24	1.00	0.02	30.21	105.77	0.62	2.23	1.00	0.02
30.26	105.66	0.62	2.23	1.00	0.01	30.31	105.39	0.61	2.24	1.00	0.01
30.38	104.86	0.61	2.25	1.00	0.02	30.45	104.23	0.60	2.26	1.00	0.02
30.50	103.72	0.60	2.27	1.00	0.01	30.55	102.88	0.59	2.28	1.00	0.01
30.64	101.83	0.58	2.30	1.00	0.03	30.70	100.16	0.56	2.33	1.00	0.01
30.79	98.96	0.55	2.36	1.00	0.03	30.84	98.19	0.54	2.37	1.00	0.01
30.93	98.05	0.54	2.37	1.00	0.03	30.98	98.14	0.54	2.37	1.00	0.01
31.05	98.98	0.55	2.36	1.00	0.02	31.13	100.51	0.56	2.33	1.00	0.02
31.17	102.97	0.58	2.28	1.00	0.01	31.27	106.25	0.61	2.22	1.00	0.03
31.32	111.37	0.67	2.11	1.00	0.01	31.41	116.56	0.73	1.98	1.00	0.02
31.46	120.72	0.78	1.54	1.00	0.01	31.52	122.24	0.80	1.52	1.00	0.01
31.61	121.83	0.79	1.52	1.00	0.02	31.66	119.20	0.76	1.57	1.00	0.01
31.75	115.29	0.71	2.01	1.00	0.02	31.80	110.68	0.66	2.13	1.00	0.01
31.90	106.52	0.61	2.22	1.00	0.03	31.94	104.07	0.59	2.26	1.00	0.01
32.04	104.00	0.59	2.26	1.00	0.03	32.09	107.23	0.62	2.21	1.00	0.01
32.20	109.06	0.63	2.18	1.00	0.03	32.24	110.44	0.65	2.15	1.00	0.01
32.28	110.26	0.65	2.16	1.00	0.01	32.29	111.09	0.66	2.12	1.00	0.00
32.30	112.06	0.67	2.09	1.00	0.00	32.40	112.71	0.67	2.07	1.00	0.02
32.45	112.95	0.67	2.07	1.00	0.01	32.55	112.51	0.67	2.08	1.00	0.02
32.59	112.50	0.67	2.08	1.00	0.01	32.69	112.79	0.67	2.07	1.00	0.02
32.76	113.51	0.68	2.05	1.00	0.02	32.84	114.35	0.69	2.03	1.00	0.02
32.90	115.19	0.70	2.01	1.00	0.02	32.98	115.83	0.70	2.00	1.00	0.02
33.06	116.33	0.71	1.98	1.00	0.02	33.12	116.77	0.71	1.97	1.00	0.02
33.22	117.03	0.72	1.97	1.00	0.02	33.31	117.14	0.72	1.96	1.00	0.02
33.37	117.11	0.72	1.96	1.00	0.01	33.46	117.00	0.71	1.97	1.00	0.02
33.55	117.00	0.71	1.97	1.00	0.02	33.65	117.07	0.71	1.97	1.00	0.02
33.70	117.18	0.71	1.96	1.00	0.01	33.79	117.10	0.71	1.97	1.00	0.02
33.89	116.76	0.71	1.97	1.00	0.02	33.99	116.20	0.70	1.99	1.00	0.02
34.04	115.43	0.69	2.01	1.00	0.01	34.13	114.59	0.68	2.03	1.00	0.02
34.23	113.76	0.67	2.05	1.00	0.02	34.32	113.20	0.66	2.06	1.00	0.02
34.37	112.84	0.66	2.07	1.00	0.01	34.47	112.69	0.66	2.08	1.00	0.02
34.55	112.96	2.00	0.00	1.00	0.00	34.63	114.64	2.00	0.00	1.00	0.00
34.73	118.21	2.00	0.00	1.00	0.00	34.80	123.59	2.00	0.00	1.00	0.00
34.90	127.28	2.00	0.00	1.00	0.00	35.00	121.79	2.00	0.00	1.00	0.00
35.12	117.31	2.00	0.00	1.00	0.00	35.20	112.19	2.00	0.00	1.00	0.00
35.33	114.42	2.00	0.00	1.00	0.00	35.41	110.34	2.00	0.00	1.00	0.00
35.44	108.02	2.00	0.00	1.00	0.00	35.48	103.82	2.00	0.00	1.00	0.00
35.57	101.05	2.00	0.00	1.00	0.00	35.62	98.99	2.00	0.00	1.00	0.00
35.67	102.07	2.00	0.00	1.00	0.00	35.71	112.52	2.00	0.00	1.00	0.00
35.82	126.36	2.00	0.00	1.00	0.00	35.86	143.07	2.00	0.00	1.00	0.00
35.93	156.85	2.00	0.00	1.00	0.00	36.01	166.33	2.00	0.00	1.00	0.00
36.06	171.69	2.00	0.00	1.00	0.00	36.12	174.89	1.75	0.00	1.00	0.00
36.18	178.20	1.84	0.00	1.00	0.00	36.25	180.98	1.91	0.00	1.00	0.00
36.30	184.12	2.00	0.00	1.00	0.00	36.39	185.99	2.00	0.00	1.00	0.00
36.44	187.57	2.00	0.00	1.00	0.00	36.53	187.51	2.00	0.00	1.00	0.00
36.59	187.43	2.00	0.00	1.00	0.00	36.68	184.49	2.00	0.00	1.00	0.00
36.75	180.99	1.91	0.00	1.00	0.00	36.83	175.91	1.77	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
36.90	171.34	1.65	0.00	1.00	0.00	36.97	166.05	1.53	0.00	1.00	0.00
37.02	156.23	1.31	0.21	1.00	0.00	37.04	151.13	1.21	0.30	1.00	0.00
37.08	147.61	1.14	0.43	1.00	0.00	37.17	148.65	1.16	0.31	1.00	0.00
37.27	145.04	1.09	0.43	1.00	0.01	37.37	140.68	1.02	0.64	1.00	0.01
37.42	137.22	0.96	0.66	1.00	0.00	37.51	135.25	0.93	1.00	1.00	0.01
37.58	134.76	0.92	1.01	1.00	0.01	37.66	135.08	0.93	1.00	1.00	0.01
37.76	136.26	0.95	0.99	1.00	0.01	37.85	137.18	0.96	0.66	1.00	0.01
37.93	138.14	0.97	0.65	1.00	0.01	38.04	138.80	0.98	0.65	1.00	0.01
38.13	139.30	0.99	0.65	1.00	0.01	38.18	139.16	0.99	0.65	1.00	0.00
38.28	138.51	0.98	0.65	1.00	0.01	38.37	137.08	0.95	0.66	1.00	0.01
38.47	135.63	0.93	1.00	1.00	0.01	38.57	134.14	0.91	1.02	1.00	0.01
38.62	132.48	0.88	1.03	1.00	0.01	38.72	127.27	0.81	1.43	1.00	0.02
38.78	123.72	0.76	1.49	1.00	0.01	38.81	121.63	0.74	1.86	1.00	0.01
38.86	121.68	0.74	1.86	1.00	0.01	38.91	120.51	0.72	1.89	1.00	0.01
38.95	118.55	0.70	1.93	1.00	0.01	39.05	116.91	0.68	1.97	1.00	0.02
39.09	115.64	0.67	2.00	1.00	0.01	39.14	114.83	0.66	2.02	1.00	0.01
39.24	114.32	0.65	2.03	1.00	0.02	39.29	114.03	0.65	2.10	1.00	0.01
39.39	114.16	0.65	2.10	1.00	0.02	39.43	114.28	0.65	2.03	1.00	0.01
39.53	113.89	0.65	2.10	1.00	0.03	39.57	113.55	0.64	2.11	1.00	0.01
39.68	113.69	0.64	2.10	1.00	0.03	39.73	113.53	0.64	2.11	1.00	0.01
39.81	112.48	0.63	2.12	1.00	0.02	39.89	109.51	0.60	2.17	1.00	0.02
39.96	105.89	0.56	2.23	1.00	0.02	40.06	103.14	0.54	2.28	1.00	0.03
40.15	102.38	0.53	2.29	1.00	0.02	40.20	102.07	0.53	2.30	1.00	0.02
40.24	102.62	0.53	2.29	1.00	0.01	40.26	103.22	0.54	2.28	1.00	0.00
40.27	103.36	0.54	2.27	1.00	0.00	40.37	103.81	0.55	2.27	1.00	0.03
40.42	104.71	0.55	2.25	1.00	0.01	40.52	105.44	0.56	2.24	1.00	0.03
40.56	106.63	0.57	2.22	1.00	0.01	40.66	108.06	0.58	2.19	1.00	0.03
40.70	110.67	0.61	2.15	1.00	0.01	40.75	114.79	0.65	2.02	1.00	0.01
40.85	119.75	0.71	1.90	1.00	0.02	40.91	125.10	0.77	1.47	1.00	0.01
40.96	130.56	0.85	1.38	1.00	0.01	41.04	135.59	0.92	1.00	1.00	0.01
41.09	141.03	1.01	0.64	1.00	0.00	41.18	145.57	1.08	0.43	1.00	0.00
41.23	149.12	1.15	0.43	1.00	0.00	41.29	151.17	1.19	0.30	1.00	0.00
41.38	151.67	1.19	0.30	1.00	0.00	41.42	151.21	1.19	0.30	1.00	0.00
41.52	149.86	1.16	0.31	1.00	0.00	41.57	148.26	1.13	0.43	1.00	0.00
41.62	146.93	1.11	0.43	1.00	0.00	41.71	145.89	1.09	0.43	1.00	0.00
41.76	145.43	1.08	0.43	1.00	0.00	41.84	145.17	1.08	0.43	1.00	0.00
41.91	145.22	1.08	0.43	1.00	0.00	41.95	145.53	1.08	0.43	1.00	0.00
42.01	146.36	1.10	0.43	1.00	0.00	42.10	147.40	1.11	0.43	1.00	0.00
42.15	148.90	1.14	0.43	1.00	0.00	42.24	149.94	1.16	0.31	1.00	0.00
42.28	150.31	1.17	0.31	1.00	0.00	42.39	149.81	1.16	0.31	1.00	0.00
42.43	149.14	1.14	0.43	1.00	0.00	42.50	148.36	1.13	0.43	1.00	0.00
42.58	147.54	1.12	0.43	1.00	0.00	42.65	142.73	1.03	0.63	1.00	0.01
42.70	140.58	1.00	0.64	1.00	0.00	42.73	139.14	0.97	0.65	1.00	0.00
42.77	142.31	1.02	0.64	1.00	0.00	42.82	144.06	1.05	0.43	1.00	0.00
42.87	146.92	1.10	0.43	1.00	0.00	42.91	150.57	1.17	0.30	1.00	0.00
42.97	154.27	1.24	0.30	1.00	0.00	43.02	157.35	1.30	0.21	1.00	0.00
43.06	159.72	1.35	0.00	1.00	0.00	43.11	162.21	1.40	0.00	1.00	0.00
43.17	164.40	1.45	0.00	1.00	0.00	43.21	166.83	1.51	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
43.29	168.85	1.55	0.00	1.00	0.00	43.34	171.05	1.61	0.00	1.00	0.00
43.39	172.71	1.65	0.00	1.00	0.00	43.45	173.74	1.67	0.00	1.00	0.00
43.51	173.50	1.66	0.00	1.00	0.00	43.59	172.47	1.64	0.00	1.00	0.00
43.64	170.73	1.60	0.00	1.00	0.00	43.70	168.10	1.54	0.00	1.00	0.00
43.78	165.08	1.47	0.00	1.00	0.00	43.88	163.55	1.43	0.00	1.00	0.00
43.94	161.52	1.39	0.00	1.00	0.00	44.04	157.74	1.31	0.21	1.00	0.00
44.07	153.31	1.22	0.30	1.00	0.00	44.12	152.08	1.20	0.30	1.00	0.00
44.16	150.70	1.17	0.30	1.00	0.00	44.21	148.86	1.14	0.43	1.00	0.00
44.26	146.86	1.10	0.43	1.00	0.00	44.31	144.63	1.06	0.43	1.00	0.00
44.35	142.44	1.03	0.64	1.00	0.00	44.40	140.32	0.99	0.64	1.00	0.00
44.45	138.56	0.96	0.65	1.00	0.00	44.50	137.24	0.94	0.98	1.00	0.01
44.54	136.15	0.93	0.99	1.00	0.00	44.60	134.97	0.91	1.01	1.00	0.01
44.64	133.85	0.89	1.02	1.00	0.01	44.69	132.85	0.88	1.03	1.00	0.01
44.74	132.59	0.87	1.03	1.00	0.01	44.79	132.34	0.87	1.04	1.00	0.01
44.83	132.53	0.87	1.03	1.00	0.01	44.88	132.96	0.88	1.03	1.00	0.01
44.93	134.02	0.89	1.02	1.00	0.01	44.98	135.20	0.91	1.00	1.00	0.01
45.03	135.95	0.92	1.00	1.00	0.01	45.08	136.45	0.93	0.99	1.00	0.01
45.16	136.81	0.94	0.99	1.00	0.01	45.19	136.91	0.94	0.98	1.00	0.00
45.27	136.53	0.93	0.99	1.00	0.01	45.32	135.53	0.92	1.00	1.00	0.01
45.37	133.73	0.89	1.02	1.00	0.01	45.45	131.17	0.85	1.05	1.00	0.01
45.51	127.52	0.80	1.42	1.00	0.01	45.56	123.37	2.00	0.00	1.00	0.00
45.61	117.60	2.00	0.00	1.00	0.00	45.69	111.79	2.00	0.00	1.00	0.00
45.75	108.19	2.00	0.00	1.00	0.00	45.81	105.04	2.00	0.00	1.00	0.00
45.89	105.10	2.00	0.00	1.00	0.00	45.94	103.73	2.00	0.00	1.00	0.00
46.04	108.05	2.00	0.00	1.00	0.00	46.08	112.07	2.00	0.00	1.00	0.00
46.15	109.85	2.00	0.00	1.00	0.00	46.17	110.89	2.00	0.00	1.00	0.00
46.18	110.17	2.00	0.00	1.00	0.00	46.23	109.18	2.00	0.00	1.00	0.00
46.27	107.58	2.00	0.00	1.00	0.00	46.32	105.33	2.00	0.00	1.00	0.00
46.41	107.19	2.00	0.00	1.00	0.00	46.47	106.19	2.00	0.00	1.00	0.00
46.52	106.89	2.00	0.00	1.00	0.00	46.56	109.81	2.00	0.00	1.00	0.00
46.65	113.60	2.00	0.00	1.00	0.00	46.71	117.68	2.00	0.00	1.00	0.00
46.76	120.04	2.00	0.00	1.00	0.00	46.85	120.43	2.00	0.00	1.00	0.00
46.90	118.71	2.00	0.00	1.00	0.00	46.99	116.19	2.00	0.00	1.00	0.00
47.04	114.63	2.00	0.00	1.00	0.00	47.10	114.71	2.00	0.00	1.00	0.00
47.16	116.10	2.00	0.00	1.00	0.00	47.23	117.23	2.00	0.00	1.00	0.00
47.30	117.96	2.00	0.00	1.00	0.00	47.38	113.48	2.00	0.00	1.00	0.00
47.43	111.84	2.00	0.00	1.00	0.00	47.52	105.92	2.00	0.00	1.00	0.00
47.59	93.23	2.00	0.00	1.00	0.00	47.66	81.89	2.00	0.00	1.00	0.00
47.77	74.67	2.00	0.00	1.00	0.00	47.82	75.76	2.00	0.00	1.00	0.00
47.91	76.63	2.00	0.00	1.00	0.00	47.93	77.65	2.00	0.00	1.00	0.00
47.97	78.37	2.00	0.00	1.00	0.00	48.02	79.56	2.00	0.00	1.00	0.00
48.07	81.21	2.00	0.00	1.00	0.00	48.12	84.04	2.00	0.00	1.00	0.00
48.19	86.54	2.00	0.00	1.00	0.00	48.23	88.74	2.00	0.00	1.00	0.00
48.31	89.88	2.00	0.00	1.00	0.00	48.35	90.92	2.00	0.00	1.00	0.00
48.40	91.72	2.00	0.00	1.00	0.00	48.45	92.39	2.00	0.00	1.00	0.00
48.50	92.93	2.00	0.00	1.00	0.00	48.55	93.37	2.00	0.00	1.00	0.00
48.59	94.24	2.00	0.00	1.00	0.00	48.67	94.62	2.00	0.00	1.00	0.00
48.73	94.36	2.00	0.00	1.00	0.00	48.78	92.80	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
48.83	90.68	2.00	0.00	1.00	0.00	48.91	88.35	2.00	0.00	1.00	0.00
48.98	86.35	2.00	0.00	1.00	0.00	49.03	85.19	2.00	0.00	1.00	0.00
49.12	82.90	2.00	0.00	1.00	0.00	49.17	79.48	2.00	0.00	1.00	0.00
49.27	76.51	2.00	0.00	1.00	0.00	49.31	76.55	2.00	0.00	1.00	0.00
49.38	78.88	2.00	0.00	1.00	0.00	49.45	81.15	2.00	0.00	1.00	0.00
49.51	83.00	2.00	0.00	1.00	0.00	49.54	84.13	2.00	0.00	1.00	0.00
49.59	84.45	2.00	0.00	1.00	0.00	49.64	83.63	2.00	0.00	1.00	0.00
49.73	83.01	2.00	0.00	1.00	0.00	49.83	82.47	2.00	0.00	1.00	0.00
49.92	82.19	2.00	0.00	1.00	0.00	49.98	81.62	2.00	0.00	1.00	0.00
50.07	81.01	2.00	0.00	1.00	0.00	50.16	80.51	2.00	0.00	1.00	0.00
50.24	80.06	2.00	0.00	1.00	0.00	50.32	79.87	2.00	0.00	1.00	0.00
50.41	80.02	2.00	0.00	1.00	0.00	50.50	80.09	2.00	0.00	1.00	0.00
50.56	79.36	2.00	0.00	1.00	0.00	50.66	78.27	2.00	0.00	1.00	0.00
50.74	77.53	2.00	0.00	1.00	0.00	50.84	79.62	2.00	0.00	1.00	0.00
50.93	83.88	2.00	0.00	1.00	0.00	50.98	92.08	2.00	0.00	1.00	0.00
51.08	102.75	2.00	0.00	1.00	0.00	51.17	113.31	2.00	0.00	1.00	0.00
51.24	122.80	2.00	0.00	1.00	0.00	51.34	129.12	2.00	0.00	1.00	0.00
51.41	122.59	2.00	0.00	1.00	0.00	51.51	115.66	2.00	0.00	1.00	0.00
51.58	106.93	2.00	0.00	1.00	0.00	51.68	109.98	2.00	0.00	1.00	0.00
51.79	110.16	2.00	0.00	1.00	0.00	51.82	110.15	2.00	0.00	1.00	0.00
51.85	111.07	2.00	0.00	1.00	0.00	51.91	113.23	2.00	0.00	1.00	0.00
52.00	116.25	2.00	0.00	1.00	0.00	52.05	118.92	2.00	0.00	1.00	0.00
52.10	118.95	2.00	0.00	1.00	0.00	52.19	115.81	2.00	0.00	1.00	0.00
52.28	111.69	2.00	0.00	1.00	0.00	52.34	109.32	2.00	0.00	1.00	0.00
52.42	109.66	2.00	0.00	1.00	0.00	52.48	111.03	2.00	0.00	1.00	0.00
52.57	111.27	2.00	0.00	1.00	0.00	52.62	109.88	2.00	0.00	1.00	0.00
52.69	106.89	2.00	0.00	1.00	0.00	52.77	104.50	2.00	0.00	1.00	0.00
52.87	103.83	2.00	0.00	1.00	0.00	52.91	102.56	2.00	0.00	1.00	0.00
53.01	102.13	2.00	0.00	1.00	0.00	53.10	103.11	2.00	0.00	1.00	0.00
53.16	113.26	2.00	0.00	1.00	0.00	53.25	123.32	2.00	0.00	1.00	0.00
53.29	136.25	2.00	0.00	1.00	0.00	53.38	144.18	2.00	0.00	1.00	0.00
53.42	149.47	2.00	0.00	1.00	0.00	53.47	150.02	2.00	0.00	1.00	0.00
53.52	148.22	2.00	0.00	1.00	0.00	53.58	152.55	2.00	0.00	1.00	0.00
53.66	160.18	2.00	0.00	1.00	0.00	53.75	169.41	2.00	0.00	1.00	0.00
53.81	175.67	2.00	0.00	1.00	0.00	53.87	177.89	2.00	0.00	1.00	0.00
53.95	178.71	2.00	0.00	1.00	0.00	54.01	177.57	2.00	0.00	1.00	0.00
54.06	172.90	2.00	0.00	1.00	0.00	54.15	167.57	2.00	0.00	1.00	0.00
54.20	165.24	2.00	0.00	1.00	0.00	54.29	164.23	2.00	0.00	1.00	0.00
54.34	141.87	2.00	0.00	1.00	0.00	54.43	108.63	2.00	0.00	1.00	0.00
54.45	82.07	2.00	0.00	1.00	0.00	54.48	80.59	2.00	0.00	1.00	0.00
54.52	82.69	2.00	0.00	1.00	0.00	54.53	86.57	2.00	0.00	1.00	0.00
54.58	89.91	0.45	2.55	1.00	0.01	54.62	93.59	0.47	2.47	1.00	0.01
54.65	96.81	0.50	2.40	1.00	0.01	54.70	99.98	0.52	2.34	1.00	0.01
54.76	102.23	0.54	2.29	1.00	0.02	54.77	102.77	0.55	2.28	1.00	0.00
54.82	103.16	0.55	2.28	1.00	0.01	54.87	103.55	0.56	2.27	1.00	0.01
54.88	104.08	0.56	2.26	1.00	0.00	54.91	104.56	0.56	2.25	1.00	0.01
54.96	106.09	0.58	2.23	1.00	0.01	54.97	109.90	0.62	2.16	1.00	0.00
55.03	115.47	0.68	2.00	1.00	0.02	55.09	120.89	0.74	1.88	1.00	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
55.15	121.55	0.75	1.86	1.00	0.01	55.20	122.41	0.76	1.51	1.00	0.01
55.25	121.49	0.75	1.86	1.00	0.01	55.30	129.28	0.85	1.07	1.00	0.01
55.34	134.62	0.93	1.01	1.00	0.01	55.39	146.03	1.12	0.43	1.00	0.00
55.40	153.71	1.27	0.21	1.00	0.00	55.44	157.35	1.34	0.21	1.00	0.00
55.44	157.04	1.34	0.21	1.00	0.00	55.49	160.78	1.42	0.00	1.00	0.00
55.54	167.71	1.58	0.00	1.00	0.00	55.59	176.17	1.79	0.00	1.00	0.00
55.63	180.34	1.90	0.00	1.00	0.00	55.64	180.79	1.91	0.00	1.00	0.00
55.68	179.92	1.89	0.00	1.00	0.00	55.69	178.50	1.85	0.00	1.00	0.00
55.69	179.38	1.88	0.00	1.00	0.00	55.71	183.08	1.98	0.00	1.00	0.00
55.76	186.45	2.00	0.00	1.00	0.00	55.78	187.85	2.00	0.00	1.00	0.00
55.81	180.96	1.92	0.00	1.00	0.00	55.85	175.16	1.77	0.00	1.00	0.00
55.86	176.41	1.80	0.00	1.00	0.00	55.91	179.42	1.88	0.00	1.00	0.00
55.92	180.48	1.91	0.00	1.00	0.00	55.96	185.46	2.00	0.00	1.00	0.00
55.97	189.98	2.00	0.00	1.00	0.00	56.00	196.01	2.00	0.00	1.00	0.00
56.01	197.72	2.00	0.00	1.00	0.00	56.03	198.18	2.00	0.00	1.00	0.00
56.05	198.14	2.00	0.00	1.00	0.00	56.10	198.99	2.00	0.00	1.00	0.00
56.12	199.86	2.00	0.00	1.00	0.00	56.16	199.67	2.00	0.00	1.00	0.00
56.17	195.76	2.00	0.00	1.00	0.00	56.20	189.78	2.00	0.00	1.00	0.00
56.22	184.46	2.00	0.00	1.00	0.00	56.24	181.69	1.95	0.00	1.00	0.00
56.30	179.84	1.89	0.00	1.00	0.00	56.31	177.72	1.84	0.00	1.00	0.00
56.34	174.82	1.76	0.00	1.00	0.00	56.39	172.57	1.70	0.00	1.00	0.00
56.45	170.44	1.65	0.00	1.00	0.00	56.48	168.31	1.60	0.00	1.00	0.00
56.49	165.32	1.53	0.00	1.00	0.00	56.53	168.57	1.60	0.00	1.00	0.00
56.58	169.38	1.62	0.00	1.00	0.00	56.63	155.86	1.32	0.21	1.00	0.00
56.68	156.17	1.33	0.21	1.00	0.00	56.73	157.68	1.36	0.00	1.00	0.00
56.78	156.09	1.33	0.21	1.00	0.00	56.83	153.53	1.27	0.21	1.00	0.00
56.89	157.35	1.35	0.00	1.00	0.00	56.95	160.76	1.43	0.00	1.00	0.00
56.99	161.37	1.44	0.00	1.00	0.00	57.01	160.98	1.43	0.00	1.00	0.00
57.04	160.65	1.43	0.00	1.00	0.00	57.09	161.13	1.44	0.00	1.00	0.00
57.11	163.57	1.49	0.00	1.00	0.00	57.13	167.47	1.58	0.00	1.00	0.00
57.18	169.44	1.63	0.00	1.00	0.00	57.19	168.95	1.62	0.00	1.00	0.00
57.21	166.30	1.56	0.00	1.00	0.00	57.24	164.00	1.50	0.00	1.00	0.00
57.28	163.35	1.49	0.00	1.00	0.00	57.32	161.45	1.44	0.00	1.00	0.00
57.35	160.03	1.41	0.00	1.00	0.00	57.38	157.50	1.36	0.00	1.00	0.00
57.43	155.53	1.32	0.21	1.00	0.00	57.48	150.26	1.21	0.31	1.00	0.00
57.52	143.92	1.10	0.44	1.00	0.00	57.57	142.28	1.07	0.44	1.00	0.00
57.62	146.53	1.14	0.43	1.00	0.00	57.68	157.03	1.35	0.00	1.00	0.00
57.76	166.00	1.55	0.00	1.00	0.00	57.81	161.17	1.44	0.00	1.00	0.00
57.86	159.31	1.40	0.00	1.00	0.00	57.89	167.80	1.60	0.00	1.00	0.00
57.91	171.02	1.68	0.00	1.00	0.00	57.92	169.11	1.63	0.00	1.00	0.00
57.95	166.67	1.57	0.00	1.00	0.00	57.99	167.08	1.58	0.00	1.00	0.00
58.01	169.42	1.64	0.00	1.00	0.00	58.05	173.02	1.73	0.00	1.00	0.00
58.05	175.27	1.79	0.00	1.00	0.00	58.10	176.91	1.83	0.00	1.00	0.00
58.13	178.73	1.88	0.00	1.00	0.00	58.15	180.87	1.94	0.00	1.00	0.00
58.17	182.75	1.99	0.00	1.00	0.00	58.20	182.21	1.98	0.00	1.00	0.00
58.21	181.00	1.94	0.00	1.00	0.00	58.21	179.50	1.90	0.00	1.00	0.00
58.23	179.34	1.90	0.00	1.00	0.00	58.24	177.62	1.85	0.00	1.00	0.00
58.25	177.92	1.86	0.00	1.00	0.00	58.29	179.26	1.90	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
58.31	183.11	2.00	0.00	1.00	0.00	58.33	186.52	2.00	0.00	1.00	0.00
58.38	190.06	2.00	0.00	1.00	0.00	58.39	193.13	2.00	0.00	1.00	0.00
58.43	195.59	2.00	0.00	1.00	0.00	58.43	199.15	2.00	0.00	1.00	0.00
58.48	200.60	2.00	0.00	1.00	0.00	58.53	202.36	2.00	0.00	1.00	0.00
58.56	202.90	2.00	0.00	1.00	0.00	58.58	205.20	2.00	0.00	1.00	0.00
58.59	207.06	2.00	0.00	1.00	0.00	58.63	205.90	2.00	0.00	1.00	0.00
58.63	206.49	2.00	0.00	1.00	0.00	58.63	202.42	2.00	0.00	1.00	0.00
58.68	203.74	2.00	0.00	1.00	0.00	58.69	204.22	2.00	0.00	1.00	0.00
58.72	208.81	2.00	0.00	1.00	0.00	58.73	210.28	2.00	0.00	1.00	0.00
58.74	211.92	2.00	0.00	1.00	0.00	58.77	211.36	2.00	0.00	1.00	0.00
58.81	210.02	2.00	0.00	1.00	0.00	58.82	207.44	2.00	0.00	1.00	0.00
58.83	207.97	2.00	0.00	1.00	0.00	58.87	209.78	2.00	0.00	1.00	0.00
58.91	212.41	2.00	0.00	1.00	0.00	58.92	214.21	2.00	0.00	1.00	0.00
58.93	214.95	2.00	0.00	1.00	0.00	58.96	214.44	2.00	0.00	1.00	0.00
59.01	207.70	2.00	0.00	1.00	0.00	59.06	199.13	2.00	0.00	1.00	0.00
59.08	189.77	2.00	0.00	1.00	0.00	59.11	184.95	2.00	0.00	1.00	0.00
59.15	181.46	1.96	0.00	1.00	0.00	59.21	178.75	1.89	0.00	1.00	0.00
59.26	178.89	1.89	0.00	1.00	0.00	59.30	173.20	1.74	0.00	1.00	0.00
59.35	169.07	1.64	0.00	1.00	0.00	59.40	168.73	1.63	0.00	1.00	0.00
59.42	168.34	1.62	0.00	1.00	0.00	59.47	167.78	1.61	0.00	1.00	0.00
59.51	168.63	1.63	0.00	1.00	0.00	59.56	168.59	1.63	0.00	1.00	0.00
59.61	164.50	1.53	0.00	1.00	0.00	59.67	155.77	1.34	0.21	1.00	0.00
59.71	159.11	1.41	0.00	1.00	0.00	59.80	159.56	1.42	0.00	1.00	0.00
59.85	158.50	1.40	0.00	1.00	0.00	59.90	155.47	1.33	0.21	1.00	0.00
60.00	155.53	1.33	0.21	1.00	0.00	60.04	155.09	1.33	0.21	1.00	0.00
60.10	150.62	1.23	0.30	1.00	0.00	60.15	145.30	1.13	0.43	1.00	0.00
60.19	139.22	1.03	0.65	1.00	0.00	60.23	138.03	1.01	0.65	1.00	0.00
60.28	137.71	1.00	0.66	1.00	0.00	60.33	139.47	1.03	0.65	1.00	0.00
60.38	140.26	1.05	0.64	1.00	0.00	60.42	140.74	1.05	0.44	1.00	0.00
60.44	140.24	1.05	0.65	1.00	0.00	60.47	145.72	1.14	0.43	1.00	0.00
60.52	148.94	1.20	0.31	1.00	0.00	60.56	150.90	1.24	0.30	1.00	0.00
60.57	151.48	1.25	0.22	1.00	0.00	60.61	151.48	1.25	0.22	1.00	0.00
60.66	151.98	1.27	0.21	1.00	0.00	60.71	153.21	1.29	0.21	1.00	0.00
60.76	156.59	1.36	0.00	1.00	0.00	60.81	159.58	1.43	0.00	1.00	0.00
60.86	161.02	1.46	0.00	1.00	0.00	60.91	158.84	1.41	0.00	1.00	0.00
60.95	170.69	1.69	0.00	1.00	0.00	61.00	180.91	1.97	0.00	1.00	0.00
61.02	186.60	2.00	0.00	1.00	0.00	61.05	194.34	2.00	0.00	1.00	0.00
61.08	201.44	2.00	0.00	1.00	0.00	61.09	207.57	2.00	0.00	1.00	0.00
61.13	209.24	2.00	0.00	1.00	0.00	61.14	209.63	2.00	0.00	1.00	0.00
61.16	210.15	2.00	0.00	1.00	0.00	61.20	212.77	2.00	0.00	1.00	0.00
61.23	215.88	2.00	0.00	1.00	0.00	61.24	217.23	2.00	0.00	1.00	0.00
61.29	214.83	2.00	0.00	1.00	0.00	61.30	210.65	2.00	0.00	1.00	0.00
61.33	207.82	2.00	0.00	1.00	0.00	61.38	206.66	2.00	0.00	1.00	0.00
61.43	206.60	2.00	0.00	1.00	0.00	61.48	208.54	2.00	0.00	1.00	0.00
61.53	212.02	2.00	0.00	1.00	0.00	61.56	213.05	2.00	0.00	1.00	0.00
61.58	205.10	2.00	0.00	1.00	0.00	61.59	198.13	2.00	0.00	1.00	0.00
61.62	169.24	1.66	0.00	1.00	0.00	61.63	167.67	1.62	0.00	1.00	0.00
61.67	165.65	1.57	0.00	1.00	0.00	61.71	186.61	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
61.76	184.50	2.00	0.00	1.00	0.00	61.81	178.32	1.90	0.00	1.00	0.00
61.86	172.85	1.75	0.00	1.00	0.00	61.87	168.83	1.65	0.00	1.00	0.00
61.91	165.39	1.57	0.00	1.00	0.00	61.95	162.25	1.49	0.00	1.00	0.00
61.96	159.04	1.42	0.00	1.00	0.00	62.00	155.30	1.34	0.21	1.00	0.00
62.04	150.01	1.23	0.31	1.00	0.00	62.06	143.15	1.11	0.44	1.00	0.00
62.10	137.65	1.01	0.66	1.00	0.00	62.14	133.04	0.94	1.03	1.00	0.01
62.20	129.46	0.88	1.07	1.00	0.01	62.22	122.70	0.79	1.51	1.00	0.00
62.27	125.13	0.82	1.46	1.00	0.01	62.29	125.44	0.83	1.46	1.00	0.00
62.34	124.22	0.81	1.48	1.00	0.01	62.39	123.46	0.80	1.49	1.00	0.01
62.43	121.51	0.77	1.53	1.00	0.01	62.49	121.38	0.77	1.53	1.00	0.01
62.57	121.70	0.78	1.53	1.00	0.02	62.68	127.79	0.86	1.09	1.00	0.01
62.75	139.12	1.04	0.65	1.00	0.01	62.87	146.86	1.18	0.31	1.00	0.00
62.88	142.25	1.09	0.44	1.00	0.00	62.89	142.29	1.09	0.44	1.00	0.00
62.93	142.80	1.10	0.44	1.00	0.00	62.98	158.87	1.42	0.00	1.00	0.00
63.02	172.30	1.75	0.00	1.00	0.00	63.07	182.93	2.00	0.00	1.00	0.00
63.12	-1.00	2.00	0.00	1.00	0.00	63.14	-1.00	2.00	0.00	1.00	0.00
63.17	-1.00	2.00	0.00	1.00	0.00	63.17	-1.00	2.00	0.00	1.00	0.00
63.20	-1.00	2.00	0.00	1.00	0.00	63.21	-1.00	2.00	0.00	1.00	0.00
63.23	-1.00	2.00	0.00	1.00	0.00	63.26	-1.00	2.00	0.00	1.00	0.00
63.28	-1.00	2.00	0.00	1.00	0.00	63.31	-1.00	2.00	0.00	1.00	0.00
63.32	-1.00	2.00	0.00	1.00	0.00	63.36	-1.00	2.00	0.00	1.00	0.00
63.40	-1.00	2.00	0.00	1.00	0.00						

Total estimated settlement: 2.49

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.01	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.04	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.09	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.11	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.14	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.14	1.35	2.15	27.82	59.81	3.66	7.03	11.25
0.18	6.97	11.19	4.58	51.24	2.69	0.06	0.63
0.23	18.19	29.21	1.00	29.21	2.14	0.02	0.62
0.24	36.79	59.09	1.00	59.09	1.76	0.11	0.65
0.28	53.07	85.23	1.00	85.23	1.58	0.72	0.72
0.33	59.27	95.19	1.00	95.19	1.53	0.74	0.74
0.38	56.61	90.91	1.00	90.91	1.60	0.73	0.73
0.42	52.11	83.69	1.00	83.69	1.72	0.72	0.72
0.47	51.84	83.25	1.19	98.77	1.83	0.75	0.75
0.51	51.94	83.40	1.24	103.16	1.90	0.75	0.75
0.52	52.09	83.64	1.26	104.99	1.93	0.76	0.76
0.57	52.66	84.56	1.24	105.20	1.91	0.76	0.76
0.61	53.24	85.48	1.23	105.23	1.89	0.76	0.76
0.67	53.47	85.85	1.22	105.00	1.88	0.76	0.76
0.73	53.84	86.44	1.22	105.23	1.87	0.76	0.76
0.81	53.62	86.08	1.22	104.72	1.87	0.76	0.76
0.86	53.52	85.91	1.25	107.16	1.92	0.76	0.76
0.98	52.14	83.69	1.28	106.78	1.96	0.76	0.76
1.05	48.22	77.37	1.32	102.42	2.02	0.75	0.75
1.15	43.67	70.05	1.34	94.07	2.04	0.74	0.74
1.24	37.87	60.73	1.38	83.84	2.07	0.72	0.72
1.34	34.47	55.26	1.40	77.37	2.09	0.47	0.70
1.43	30.63	49.08	1.51	74.33	2.16	0.36	0.69
1.53	26.86	43.01	1.75	75.37	2.25	0.40	0.70
1.58	24.56	39.32	1.98	77.68	2.31	0.48	0.70
1.62	23.48	37.59	2.00	75.15	2.32	0.39	0.70
1.67	24.36	38.99	1.85	72.19	2.28	0.31	0.69
1.75	23.89	38.23	1.86	70.99	2.28	0.28	0.69
1.77	23.08	36.93	1.92	70.79	2.30	0.27	0.69
1.81	21.50	34.38	2.08	71.55	2.34	0.29	0.69
1.86	19.71	31.51	2.30	72.37	2.39	0.31	0.69
1.91	17.96	28.69	2.52	72.24	2.43	0.31	0.69
1.95	16.98	27.11	2.53	68.54	2.43	0.23	0.68
2.00	16.21	25.86	2.43	62.85	2.41	0.14	0.66
2.05	14.89	23.75	2.42	57.52	2.41	0.09	0.65
2.11	13.51	21.52	2.55	54.95	2.43	0.08	0.64
2.20	12.33	19.62	2.79	54.76	2.47	0.08	0.64
2.24	11.73	18.64	3.01	56.15	2.50	0.08	0.65
2.29	11.26	17.88	3.29	58.85	2.54	0.10	0.65
2.34	11.32	17.99	3.76	67.59	2.60	0.21	0.68
2.44	12.17	19.33	3.86	74.63	2.61	0.37	0.69
2.48	14.56	23.17	3.43	79.44	2.56	0.56	0.71
2.58	18.03	28.74	2.75	79.05	2.47	0.54	0.70

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
2.63	22.41	35.77	2.21	79.01	2.37	0.54	0.70
2.71	26.08	41.66	1.92	80.03	2.30	0.59	0.71
2.78	30.33	48.48	1.67	80.89	2.22	0.63	0.71
2.82	33.73	53.95	1.52	82.21	2.16	0.70	0.71
2.89	34.94	55.89	1.47	82.24	2.13	0.70	0.71
2.96	33.63	53.77	1.51	81.39	2.16	0.66	0.71
3.03	30.90	49.37	1.62	80.00	2.20	0.58	0.71
3.11	28.98	46.28	1.70	78.46	2.23	0.51	0.70
3.19	26.45	42.22	1.79	75.65	2.26	0.41	0.70
3.25	23.52	37.50	1.97	73.87	2.31	0.35	0.69
3.35	20.49	32.62	2.28	74.42	2.38	0.37	0.69
3.41	17.79	28.29	2.60	73.49	2.44	0.34	0.69
3.50	15.91	25.25	2.74	69.10	2.46	0.24	0.68
3.59	14.83	23.51	2.66	62.63	2.45	0.14	0.66
3.69	14.59	23.12	2.55	58.90	2.43	0.10	0.65
3.79	15.20	24.09	2.35	56.48	2.39	0.09	0.65
3.88	16.54	26.24	2.09	54.78	2.34	0.08	0.64
3.97	19.14	30.40	1.82	55.25	2.27	0.08	0.64
4.07	20.82	33.10	1.77	58.69	2.26	0.10	0.65
4.14	23.49	37.37	1.67	62.38	2.22	0.14	0.66
4.17	25.51	40.62	1.61	65.25	2.20	0.17	0.67
4.26	28.14	44.83	1.51	67.83	2.15	0.21	0.68
4.32	28.71	45.74	1.52	69.43	2.16	0.24	0.68
4.37	28.10	44.77	1.56	69.94	2.18	0.25	0.68
4.42	26.62	42.38	1.65	69.93	2.21	0.25	0.68
4.51	25.07	39.88	1.74	69.30	2.24	0.24	0.68
4.61	23.68	37.65	1.82	68.42	2.27	0.22	0.68
4.65	22.37	35.53	1.90	67.38	2.29	0.21	0.68
4.74	21.09	33.47	2.00	67.06	2.32	0.20	0.68
4.80	20.48	32.49	2.05	66.55	2.33	0.19	0.67
4.89	20.04	31.78	2.09	66.46	2.34	0.19	0.67
4.95	20.38	32.32	2.05	66.20	2.33	0.19	0.67
5.04	21.05	33.39	1.97	65.92	2.31	0.18	0.67
5.13	22.81	36.20	1.80	65.26	2.27	0.17	0.67
5.18	25.27	40.14	1.63	65.28	2.20	0.17	0.67
5.28	28.07	44.63	1.49	66.64	2.14	0.19	0.67
5.32	31.47	50.09	1.40	70.04	2.09	0.26	0.68
5.42	34.67	55.23	1.35	74.62	2.05	0.37	0.69
5.51	38.14	60.80	1.31	79.86	2.01	0.58	0.71
5.60	41.28	65.83	1.26	83.18	1.94	0.71	0.71
5.66	44.24	70.58	1.22	86.14	1.88	0.72	0.72
5.76	45.86	73.17	1.00	73.17	1.83	0.33	0.69
5.85	44.91	71.65	1.21	86.53	1.86	0.72	0.72
5.92	41.11	65.53	1.25	81.79	1.92	0.68	0.71
5.95	38.21	60.87	1.28	77.76	1.96	0.48	0.70
5.97	36.15	57.56	1.30	74.97	1.99	0.38	0.70
6.02	35.37	56.31	1.31	73.90	2.01	0.35	0.69
6.06	32.74	52.08	1.36	70.59	2.05	0.27	0.68

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.16	29.98	47.63	1.42	67.87	2.10	0.21	0.68
6.21	26.98	42.82	1.56	66.83	2.18	0.20	0.68
6.26	24.29	38.48	1.79	68.74	2.26	0.23	0.68
6.31	21.62	34.19	2.18	74.63	2.36	0.37	0.69
6.40	19.23	30.34	2.70	82.06	2.46	0.69	0.71
6.44	16.91	26.60	3.43	91.18	2.56	0.73	0.73
6.52	15.12	23.73	4.16	98.65	2.64	0.75	0.75
6.57	13.47	21.08	5.01	105.63	2.73	0.76	0.76
6.64	12.16	18.96	5.81	110.19	2.80	0.77	0.77
6.69	10.98	17.06	6.65	113.46	2.86	0.77	0.77
6.78	10.34	16.02	7.15	114.49	2.90	0.77	0.77
6.83	9.90	15.31	7.38	112.96	2.91	0.77	0.77
6.92	9.60	14.82	7.45	110.37	2.92	0.77	0.77
6.97	9.39	14.48	7.39	107.07	2.91	0.76	0.76
7.03	9.29	14.32	7.35	105.27	2.91	0.76	0.76
7.12	9.32	14.36	7.25	104.07	2.90	0.76	0.76
7.22	9.39	14.46	7.17	103.64	2.90	0.75	0.75
7.27	9.52	14.66	7.09	103.89	2.89	0.76	0.76
7.36	9.65	14.86	7.06	104.93	2.89	0.76	0.76
7.43	9.75	15.01	7.08	106.34	2.89	0.76	0.76
7.50	9.78	15.06	7.16	107.82	2.90	0.76	0.76
7.59	9.77	15.04	7.22	108.69	2.90	0.76	0.76
7.64	9.70	14.93	7.34	109.64	2.91	0.77	0.77
7.75	9.63	14.81	7.46	110.40	2.92	0.77	0.77
7.79	9.70	14.91	7.43	110.74	2.92	0.77	0.77
7.89	9.97	15.33	7.19	110.22	2.90	0.77	0.77
7.99	10.24	15.76	6.97	109.89	2.88	0.77	0.77
8.04	10.34	15.91	6.96	110.71	2.88	0.77	0.77
8.13	10.31	15.85	7.03	111.39	2.89	0.77	0.77
8.23	10.27	15.79	6.35	100.23	2.84	0.75	0.75
8.32	10.27	15.77	5.78	91.18	2.79	0.73	0.73
8.37	10.53	16.20	5.34	86.47	2.76	0.72	0.72
8.46	11.04	17.00	5.74	97.61	2.79	0.74	0.74
8.56	11.30	17.42	6.05	105.35	2.82	0.76	0.76
8.59	11.30	17.41	6.35	110.51	2.84	0.77	0.77
8.61	11.03	16.97	6.71	113.97	2.87	0.77	0.77
8.67	10.89	16.75	6.98	116.82	2.88	0.78	0.78
8.71	10.69	16.41	7.24	118.78	2.90	0.78	0.78
8.72	10.51	16.13	7.46	120.30	2.92	0.78	0.78
8.78	10.44	16.02	7.56	121.13	2.92	0.78	0.78
8.80	10.44	16.02	7.59	121.54	2.93	0.79	0.79
8.86	10.44	16.01	7.60	121.62	2.93	0.79	0.79
8.90	10.55	16.17	7.55	122.08	2.92	0.79	0.79
8.95	10.68	16.39	7.49	122.77	2.92	0.79	0.79
8.96	10.89	16.71	7.39	123.54	2.91	0.79	0.79
9.00	11.05	16.98	7.33	124.43	2.91	0.79	0.79
9.05	11.29	17.35	7.24	125.55	2.90	0.79	0.79
9.09	11.56	17.78	7.10	126.26	2.89	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
9.10	11.96	18.43	6.89	127.03	2.88	0.79	0.79
9.14	12.47	19.24	6.66	128.15	2.86	0.80	0.80
9.20	13.21	20.42	6.33	129.23	2.84	0.80	0.80
9.24	14.09	21.83	5.95	129.98	2.81	0.80	0.80
9.29	15.03	23.34	5.57	129.97	2.78	0.80	0.80
9.31	15.90	24.74	5.28	130.54	2.75	0.80	0.80
9.38	16.61	25.88	5.06	130.87	2.73	0.80	0.80
9.41	17.32	27.00	4.80	129.53	2.71	0.80	0.80
9.47	18.02	28.13	4.48	126.15	2.68	0.79	0.79
9.53	19.33	30.23	3.91	118.10	2.62	0.78	0.78
9.62	21.08	33.03	3.29	108.83	2.54	0.76	0.76
9.67	23.71	36.88	2.63	97.08	2.45	0.74	0.74
9.77	26.25	39.96	2.22	88.55	2.37	0.73	0.73
9.81	28.83	43.12	1.89	81.52	2.29	0.66	0.71
9.90	30.67	45.16	1.72	77.57	2.24	0.48	0.70
9.97	32.26	46.92	1.61	75.55	2.20	0.40	0.70
10.06	32.63	47.13	1.61	75.67	2.20	0.41	0.70
10.20	32.13	46.19	1.68	77.59	2.22	0.48	0.70
10.30	29.29	42.06	1.79	75.15	2.26	0.39	0.70
10.44	25.52	36.67	2.06	75.52	2.33	0.40	0.70
10.54	20.70	30.03	2.66	79.87	2.45	0.58	0.71
10.63	16.56	24.49	4.08	99.92	2.64	0.75	0.75
10.74	13.83	20.66	5.64	116.62	2.78	0.78	0.78
10.78	12.62	18.99	6.71	127.39	2.86	0.79	0.79
10.83	12.48	18.76	6.96	130.59	2.88	0.80	0.80
10.88	12.31	18.47	7.21	133.16	2.90	0.80	0.80
10.89	12.15	18.24	7.50	136.86	2.92	0.81	0.81
10.97	12.25	18.30	7.62	139.36	2.93	0.81	0.81
11.02	12.48	18.59	7.62	141.70	2.93	0.82	0.82
11.07	12.79	18.96	7.51	142.37	2.92	0.82	0.82
11.11	13.06	19.28	7.42	143.00	2.91	0.82	0.82
11.16	13.39	19.70	7.30	143.71	2.91	0.82	0.82
11.21	13.76	20.15	7.19	144.81	2.90	0.82	0.82
11.26	14.14	20.62	7.10	146.37	2.89	0.82	0.82
11.30	14.37	20.90	7.10	148.42	2.89	0.82	0.82
11.36	14.54	21.07	7.14	150.43	2.90	0.83	0.83
11.40	14.68	21.19	7.17	151.92	2.90	0.83	0.83
11.45	14.81	21.32	7.18	152.97	2.90	0.83	0.83
11.50	15.04	21.57	7.12	153.64	2.89	0.83	0.83
11.55	15.31	21.86	7.06	154.44	2.89	0.83	0.83
11.60	15.85	22.53	6.88	155.07	2.88	0.83	0.83
11.66	16.56	23.39	6.63	155.14	2.86	0.83	0.83
11.74	17.40	24.38	6.31	153.92	2.84	0.83	0.83
11.84	17.98	24.97	6.15	153.46	2.82	0.83	0.83
11.93	18.18	25.08	6.17	154.65	2.82	0.83	0.83
12.04	18.04	24.73	6.38	157.76	2.84	0.84	0.84
12.13	17.87	24.37	6.58	160.42	2.86	0.84	0.84
12.22	17.67	23.94	6.76	161.87	2.87	0.84	0.84

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.27	17.51	23.64	6.85	161.93	2.88	0.84	0.84
12.37	17.27	23.16	6.98	161.58	2.88	0.84	0.84
12.41	17.17	22.94	7.03	161.26	2.89	0.84	0.84
12.51	17.06	22.65	7.13	161.48	2.89	0.84	0.84
12.56	17.23	22.78	7.08	161.37	2.89	0.84	0.84
12.65	17.64	23.15	6.96	161.03	2.88	0.84	0.84
12.71	18.45	24.09	6.70	161.44	2.86	0.84	0.84
12.79	19.23	24.96	6.59	164.56	2.86	0.85	0.85
12.89	20.10	25.92	6.50	168.54	2.85	0.85	0.85
12.96	20.98	26.96	6.43	173.33	2.84	0.86	0.86
13.04	22.23	28.37	6.15	174.57	2.82	0.86	0.86
13.13	24.11	30.49	5.62	171.40	2.78	0.85	0.85
13.23	26.80	33.27	4.19	139.58	2.65	0.81	0.81
13.30	30.34	36.95	2.91	107.47	2.49	0.76	0.76
13.37	34.15	40.77	2.02	82.17	2.32	0.70	0.71
13.47	38.32	45.44	1.87	85.15	2.29	0.72	0.72
13.57	38.79	45.84	1.94	89.15	2.31	0.73	0.73
13.61	39.19	46.27	1.98	91.39	2.31	0.73	0.73
13.62	40.31	47.52	1.94	92.31	2.30	0.73	0.73
13.68	44.31	51.92	1.78	92.36	2.26	0.73	0.73
13.73	47.82	55.76	1.68	93.57	2.22	0.74	0.74
13.77	50.08	58.23	1.65	95.79	2.21	0.74	0.74
13.87	52.91	61.16	1.61	98.26	2.20	0.74	0.74
13.93	55.78	64.26	1.58	101.41	2.19	0.75	0.75
14.00	58.54	67.15	1.55	104.21	2.17	0.76	0.76
14.06	60.62	69.33	1.54	106.89	2.17	0.76	0.76
14.12	62.21	70.95	1.54	109.37	2.17	0.77	0.77
14.21	63.05	71.63	1.55	111.13	2.17	0.77	0.77
14.25	63.45	71.96	1.56	112.44	2.18	0.77	0.77
14.35	63.35	71.51	1.58	112.67	2.18	0.77	0.77
14.45	62.61	70.37	1.60	112.38	2.19	0.77	0.77
14.50	61.06	68.50	1.63	111.75	2.21	0.77	0.77
14.59	59.18	66.15	1.68	111.04	2.22	0.77	0.77
14.64	57.19	63.82	1.73	110.49	2.24	0.77	0.77
14.74	55.60	61.79	1.78	110.08	2.26	0.77	0.77
14.80	54.22	60.12	1.83	109.86	2.27	0.77	0.77
14.88	53.18	58.73	1.87	109.70	2.28	0.77	0.77
14.97	52.24	57.45	1.91	109.62	2.30	0.77	0.77
15.05	51.43	56.38	1.95	110.04	2.31	0.77	0.77
15.13	50.85	55.53	1.99	110.56	2.32	0.77	0.77
15.21	50.95	55.42	1.99	110.46	2.32	0.77	0.77
15.28	52.23	56.58	1.93	109.48	2.30	0.77	0.77
15.36	55.10	59.37	1.82	108.07	2.27	0.76	0.76
15.41	60.22	64.61	1.66	107.30	2.22	0.76	0.76
15.50	66.38	70.74	1.53	108.00	2.16	0.76	0.76
15.55	72.78	77.07	1.38	106.45	2.07	0.76	0.76
15.65	76.92	80.83	1.31	105.71	2.00	0.76	0.76
15.71	78.17	81.68	1.27	103.43	1.94	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
15.79	75.07	78.22	1.28	99.99	1.96	0.75	0.75
15.89	67.29	69.97	1.33	92.88	2.02	0.73	0.73
15.90	61.09	63.58	1.38	88.03	2.07	0.72	0.72
15.94	56.21	58.47	1.45	84.99	2.12	0.72	0.72
16.00	53.24	55.28	1.51	83.45	2.15	0.71	0.71
16.06	47.68	49.45	1.67	82.65	2.22	0.71	0.71
16.14	40.74	42.17	2.02	85.02	2.32	0.72	0.72
16.19	34.10	35.24	2.56	90.26	2.43	0.73	0.73
16.26	27.10	27.88	3.51	97.89	2.57	0.74	0.74
16.33	21.54	22.01	4.74	104.24	2.70	0.76	0.76
16.38	17.06	17.28	6.24	107.80	2.83	0.76	0.76
16.47	14.43	14.45	7.58	109.50	2.93	0.77	0.77
16.54	12.64	12.69	8.71	110.54	3.00	0.77	0.77
16.62	11.80	11.71	9.67	113.31	3.05	0.52	0.84
16.70	11.53	11.36	10.18	115.66	3.08	0.56	0.81
16.76	12.28	12.12	9.88	119.66	3.06	0.59	0.87
16.86	14.88	14.80	8.08	119.59	2.96	0.78	0.78
16.90	19.33	19.15	6.07	116.24	2.82	0.78	0.78
16.98	25.84	25.69	4.22	108.51	2.65	0.76	0.76
17.05	35.42	35.23	2.81	99.11	2.48	0.75	0.75
17.14	47.54	47.19	1.94	91.71	2.30	0.73	0.73
17.20	61.48	60.90	1.51	91.88	2.15	0.73	0.73
17.29	73.03	72.03	1.35	97.56	2.05	0.74	0.74
17.34	81.99	80.70	1.30	104.58	1.99	0.76	0.76
17.44	86.87	85.21	1.28	109.31	1.97	0.76	0.76
17.50	88.89	86.96	1.26	109.36	1.93	0.76	0.76
17.58	88.15	85.91	1.24	106.78	1.91	0.76	0.76
17.64	85.02	82.63	1.24	102.13	1.90	0.75	0.75
17.75	80.50	77.97	1.27	99.12	1.95	0.75	0.75
17.82	72.08	69.66	1.35	93.80	2.04	0.74	0.74
17.89	66.02	63.60	1.43	91.18	2.11	0.73	0.73
17.89	62.68	60.37	1.51	91.04	2.15	0.73	0.73
17.96	64.06	61.55	1.50	92.30	2.15	0.73	0.73
18.02	65.34	62.67	1.51	94.33	2.15	0.74	0.74
18.07	66.86	64.01	1.51	96.43	2.15	0.74	0.74
18.17	68.78	65.62	1.49	98.02	2.14	0.74	0.74
18.22	68.74	65.47	1.51	98.54	2.15	0.75	0.75
18.30	65.20	61.85	1.59	98.20	2.19	0.74	0.74
18.36	57.69	54.52	1.83	99.83	2.27	0.75	0.75
18.42	49.20	46.28	2.30	106.36	2.39	0.76	0.76
18.50	39.97	37.31	3.16	118.00	2.53	0.78	0.78
18.56	32.38	29.97	4.32	129.55	2.66	0.80	0.80
18.62	25.71	23.53	5.80	136.40	2.80	0.81	0.81
18.69	23.96	21.78	6.13	133.60	2.82	0.80	0.80
18.76	22.21	20.05	6.60	132.24	2.86	0.80	0.80
18.84	24.30	21.95	5.90	129.41	2.80	0.80	0.80
18.89	31.88	29.04	4.26	123.66	2.66	0.79	0.79
18.98	52.85	48.61	2.23	108.20	2.37	0.76	0.76

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
19.05	78.42	72.48	1.52	110.23	2.16	0.77	0.77
19.12	101.80	94.21	1.32	124.65	2.02	0.79	0.79
19.18	115.88	107.18	1.27	136.09	1.95	0.81	0.81
19.24	124.07	114.61	1.25	142.72	1.91	0.82	0.82
19.32	126.76	116.83	1.24	144.84	1.90	0.82	0.82
19.38	126.53	116.38	1.25	145.16	1.92	0.82	0.82
19.46	124.81	114.42	1.26	144.25	1.94	0.82	0.82
19.54	122.62	112.08	1.28	142.92	1.96	0.82	0.82
19.62	121.00	110.26	1.28	141.68	1.97	0.82	0.82
19.70	119.99	109.01	1.29	140.65	1.98	0.81	0.81
19.80	119.75	108.41	1.29	140.01	1.98	0.81	0.81
19.85	119.75	108.23	1.29	139.71	1.98	0.81	0.81
19.94	119.95	108.07	1.29	139.71	1.98	0.81	0.81
20.03	120.73	108.50	1.28	138.61	1.96	0.81	0.81
20.13	121.84	109.19	1.26	137.92	1.94	0.81	0.81
20.19	123.33	110.40	1.25	137.60	1.91	0.81	0.81
20.29	124.05	110.67	1.25	138.32	1.92	0.81	0.81
20.39	124.51	110.70	1.25	138.76	1.93	0.81	0.81
20.43	124.14	110.23	1.26	138.70	1.93	0.81	0.81
20.47	124.09	109.99	1.26	138.78	1.94	0.81	0.81
20.52	123.97	109.69	1.27	139.06	1.95	0.81	0.81
20.61	123.97	109.33	1.27	139.29	1.96	0.81	0.81
20.66	123.26	108.48	1.28	139.08	1.97	0.81	0.81
20.71	122.22	107.35	1.29	138.34	1.98	0.81	0.81
20.77	121.00	106.04	1.30	137.35	1.99	0.81	0.81
20.85	120.53	105.33	1.30	136.79	1.99	0.81	0.81
20.91	120.63	105.23	1.30	136.74	1.99	0.81	0.81
21.00	121.00	105.23	1.30	136.71	1.99	0.81	0.81
21.05	120.93	105.01	1.30	136.53	1.99	0.81	0.81
21.11	120.50	104.40	1.30	136.06	2.00	0.81	0.81
21.19	120.16	103.82	1.31	135.66	2.00	0.81	0.81
21.24	120.23	103.70	1.31	135.67	2.00	0.81	0.81
21.34	120.39	103.52	1.31	135.57	2.00	0.81	0.81
21.39	119.99	103.00	1.31	135.16	2.01	0.81	0.81
21.48	118.68	101.52	1.32	133.84	2.01	0.80	0.80
21.53	116.39	99.34	1.33	131.86	2.02	0.80	0.80
21.64	113.86	96.79	1.34	129.36	2.03	0.80	0.80
21.72	111.80	94.83	1.33	125.65	2.02	0.79	0.79
21.81	110.79	93.80	1.31	122.48	2.00	0.79	0.79
21.89	110.52	93.48	1.28	120.09	1.97	0.78	0.78
21.97	110.69	93.44	1.28	119.40	1.96	0.78	0.78
22.05	110.81	93.32	1.27	118.94	1.96	0.78	0.78
22.12	110.92	93.25	1.27	118.64	1.95	0.78	0.78
22.13	110.89	93.20	1.27	118.54	1.95	0.78	0.78
22.18	111.98	94.01	1.27	119.22	1.95	0.78	0.78
22.22	114.49	96.10	1.26	121.02	1.93	0.78	0.78
22.28	118.47	99.41	1.25	123.90	1.91	0.79	0.79
22.33	122.55	102.85	1.23	126.89	1.90	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.38	126.36	106.02	1.22	129.64	1.88	0.80	0.80
22.41	129.99	109.11	1.21	132.05	1.86	0.80	0.80
22.51	133.16	111.59	1.20	133.67	1.85	0.80	0.80
22.56	135.86	113.83	1.18	134.77	1.83	0.81	0.81
22.61	137.68	115.29	1.17	135.13	1.82	0.81	0.81
22.65	139.23	116.56	1.16	135.07	1.81	0.81	0.81
22.71	140.30	117.38	1.15	134.57	1.79	0.81	0.81
22.76	141.15	118.01	1.13	133.54	1.78	0.80	0.80
22.85	141.55	118.16	1.12	132.33	1.77	0.80	0.80
22.89	141.79	118.28	1.11	131.19	1.77	0.80	0.80
22.99	141.85	118.07	1.10	130.38	1.76	0.80	0.80
23.04	142.19	118.24	1.10	129.89	1.76	0.80	0.80
23.12	143.24	118.92	1.09	129.72	1.75	0.80	0.80
23.18	145.12	120.36	1.08	129.86	1.75	0.80	0.80
23.24	147.55	122.28	1.07	130.48	1.74	0.80	0.80
23.33	150.28	124.35	1.05	131.06	1.73	0.80	0.80
23.38	152.77	126.31	1.04	131.98	1.73	0.80	0.80
23.47	154.92	127.86	1.04	132.70	1.72	0.80	0.80
23.52	155.87	128.46	1.05	134.34	1.73	0.80	0.80
23.61	155.50	127.76	1.06	136.02	1.74	0.81	0.81
23.68	153.41	125.65	1.10	137.67	1.76	0.81	0.81
23.76	149.87	122.29	1.13	137.84	1.78	0.81	0.81
23.83	145.42	118.19	1.16	136.72	1.80	0.81	0.81
23.90	140.77	113.95	1.18	134.56	1.83	0.81	0.81
23.97	136.02	109.66	1.20	131.87	1.85	0.80	0.80
24.05	130.36	104.58	1.22	128.11	1.88	0.80	0.80
24.10	123.83	98.86	1.25	123.41	1.92	0.79	0.79
24.19	116.14	92.13	1.28	117.58	1.96	0.78	0.78
24.27	109.37	86.22	1.31	112.54	2.00	0.77	0.77
24.34	103.31	80.98	1.34	108.37	2.03	0.76	0.76
24.43	99.26	77.39	1.37	105.81	2.06	0.76	0.76
24.48	95.99	74.54	1.40	104.29	2.09	0.76	0.76
24.57	93.77	72.46	1.43	103.72	2.11	0.75	0.75
24.62	91.81	70.77	1.45	102.28	2.12	0.75	0.75
24.72	90.33	69.37	1.46	101.12	2.12	0.75	0.75
24.81	89.08	68.17	1.47	100.03	2.13	0.75	0.75
24.86	87.96	67.09	1.50	100.81	2.15	0.75	0.75
24.95	85.18	64.60	1.56	100.88	2.18	0.75	0.75
25.01	82.83	62.55	1.62	101.05	2.20	0.75	0.75
25.02	81.04	61.07	1.66	101.09	2.22	0.75	0.75
25.05	81.81	61.63	1.64	101.34	2.21	0.75	0.75
25.11	82.33	61.92	1.64	101.59	2.21	0.75	0.75
25.15	82.53	61.99	1.64	101.87	2.21	0.75	0.75
25.21	81.92	61.38	1.66	101.94	2.22	0.75	0.75
25.25	81.07	60.61	1.68	101.90	2.23	0.75	0.75
25.30	79.78	59.50	1.70	101.32	2.23	0.75	0.75
25.40	78.02	57.95	1.73	100.17	2.24	0.75	0.75
25.45	75.14	55.63	1.77	98.38	2.25	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.52	71.36	52.56	1.83	96.28	2.27	0.74	0.74
25.60	65.60	47.92	1.99	95.12	2.32	0.74	0.74
25.66	58.89	42.57	2.24	95.48	2.37	0.74	0.74
25.74	50.63	36.01	2.77	99.69	2.47	0.75	0.75
25.80	42.60	29.74	3.54	105.15	2.57	0.76	0.76
25.88	34.42	23.44	4.79	112.31	2.71	0.77	0.77
25.94	27.91	18.51	6.33	117.20	2.84	0.78	0.78
26.02	22.69	14.10	8.40	118.43	2.98	0.78	0.78
26.09	19.19	11.73	10.09	118.41	3.07	0.59	0.84
26.17	16.36	9.82	11.90	116.89	3.16	0.54	0.70
26.23	14.50	8.57	13.49	115.61	3.23	0.51	0.61
26.29	13.56	7.93	14.54	115.33	3.28	0.51	0.57
26.37	13.73	8.01	14.49	116.10	3.27	0.51	0.57
26.46	14.95	8.78	13.45	118.10	3.23	0.54	0.63
26.55	16.56	9.80	12.25	120.00	3.18	0.59	0.70
26.60	18.04	10.74	11.37	122.14	3.14	0.60	0.77
26.70	18.79	11.18	11.11	124.24	3.12	0.63	0.80
26.78	19.09	11.34	11.11	125.96	3.12	0.67	0.81
26.87	19.16	11.34	10.61	120.33	3.10	0.66	0.81
26.94	19.06	11.25	9.74	109.55	3.05	0.47	0.80
27.03	18.62	10.92	9.23	100.80	3.03	0.36	0.78
27.13	17.84	10.38	9.61	99.83	3.05	0.42	0.74
27.18	15.89	9.12	11.41	104.10	3.14	0.42	0.65
27.27	14.61	8.27	12.75	105.48	3.20	0.42	0.59
27.32	14.00	7.87	13.55	106.67	3.23	0.43	0.56
27.37	14.68	8.28	12.99	107.59	3.21	0.44	0.59
27.41	15.01	8.48	12.84	108.89	3.20	0.46	0.61
27.46	15.01	8.47	13.04	110.36	3.21	0.47	0.60
27.51	15.19	8.56	13.12	112.25	3.22	0.48	0.61
27.61	15.69	8.84	13.00	114.96	3.21	0.51	0.63
27.66	16.81	9.52	12.66	120.53	3.20	0.56	0.68
27.73	19.30	11.05	11.59	128.02	3.15	0.66	0.79
27.80	22.77	13.18	10.46	137.91	3.09	0.80	0.94
27.88	26.51	15.46	9.62	148.75	3.05	0.98	1.10
27.96	28.73	16.78	9.46	158.82	3.04	1.16	1.20
28.04	29.44	17.16	9.86	169.19	3.06	1.25	1.23
28.12	29.30	17.02	10.34	175.99	3.09	1.41	1.22
28.18	29.78	17.27	10.47	180.83	3.09	1.43	1.23
28.27	30.99	17.95	10.11	181.45	3.07	1.47	1.28
28.32	32.84	19.04	9.54	181.70	3.04	1.48	1.36
28.42	34.90	20.22	8.98	181.66	3.01	1.51	1.44
28.47	37.02	21.47	8.57	183.98	2.99	0.87	0.87
28.61	38.87	22.47	8.32	186.93	2.97	0.87	0.87
28.67	40.79	23.57	8.10	190.99	2.96	0.88	0.88
28.75	43.62	26.58	7.37	195.90	2.91	0.88	0.88
28.81	49.52	30.58	6.28	192.19	2.83	0.88	0.88
28.90	59.16	37.21	4.89	181.92	2.72	0.87	0.87
29.00	70.68	45.27	3.75	169.71	2.60	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
29.05	82.68	53.82	2.95	158.84	2.50	0.84	0.84
29.10	92.58	60.99	2.48	151.03	2.42	0.83	0.83
29.15	101.07	67.24	2.13	143.11	2.35	0.82	0.82
29.24	105.88	70.82	1.92	136.02	2.30	0.81	0.81
29.29	107.45	72.19	1.78	128.66	2.26	0.80	0.80
29.37	106.66	71.76	1.71	122.57	2.23	0.79	0.79
29.43	105.44	71.05	1.64	116.77	2.21	0.78	0.78
29.53	104.90	70.72	1.59	112.38	2.19	0.77	0.77
29.62	104.73	70.61	1.55	109.62	2.17	0.77	0.77
29.68	104.75	70.73	1.51	106.89	2.15	0.76	0.76
29.80	104.42	70.36	1.50	105.63	2.15	0.76	0.76
29.91	103.80	69.74	1.50	104.61	2.15	0.76	0.76
30.00	99.10	65.97	1.59	104.86	2.19	0.76	0.76
30.07	97.42	64.55	1.63	105.36	2.21	0.76	0.76
30.15	96.27	63.56	1.66	105.54	2.22	0.76	0.76
30.21	99.04	65.49	1.62	105.77	2.20	0.76	0.76
30.26	98.71	65.16	1.62	105.66	2.20	0.76	0.76
30.31	97.50	64.21	1.64	105.39	2.21	0.76	0.76
30.38	95.52	62.65	1.67	104.86	2.22	0.76	0.76
30.45	92.62	60.44	1.72	104.23	2.24	0.76	0.76
30.50	89.12	57.84	1.79	103.72	2.26	0.75	0.75
30.55	84.94	54.79	1.88	102.88	2.29	0.75	0.75
30.64	81.19	52.03	1.96	101.83	2.31	0.75	0.75
30.70	77.93	49.71	2.01	100.16	2.32	0.75	0.75
30.79	76.04	48.30	2.05	98.96	2.33	0.75	0.75
30.84	75.47	47.86	2.05	98.19	2.33	0.74	0.74
30.93	76.95	48.79	2.01	98.05	2.32	0.74	0.74
30.98	80.15	50.98	1.93	98.14	2.30	0.74	0.74
31.05	85.34	54.54	1.81	98.98	2.27	0.75	0.75
31.13	91.57	58.82	1.71	100.51	2.24	0.75	0.75
31.17	100.46	65.08	1.58	102.97	2.19	0.75	0.75
31.27	110.94	72.52	1.47	106.25	2.13	0.76	0.76
31.32	123.23	81.52	1.37	111.37	2.06	0.77	0.77
31.41	133.45	89.03	1.31	116.56	2.00	0.78	0.78
31.46	140.90	94.67	1.28	120.72	1.96	0.78	0.78
31.52	144.37	97.40	1.26	122.24	1.93	0.79	0.79
31.61	145.01	97.95	1.24	121.83	1.91	0.79	0.79
31.66	142.15	95.90	1.24	119.20	1.91	0.78	0.78
31.75	136.69	91.66	1.26	115.29	1.93	0.78	0.78
31.80	129.14	85.76	1.29	110.68	1.98	0.77	0.77
31.90	122.00	80.16	1.33	106.52	2.02	0.76	0.76
31.94	116.84	76.18	1.37	104.07	2.06	0.76	0.76
32.04	116.03	75.33	1.38	104.00	2.07	0.76	0.76
32.09	119.17	77.25	1.39	107.23	2.08	0.76	0.76
32.20	118.70	76.38	1.43	109.06	2.11	0.76	0.76
32.24	117.72	75.37	1.47	110.44	2.13	0.77	0.77
32.28	114.69	73.02	1.51	110.26	2.15	0.77	0.77
32.29	116.70	74.43	1.49	111.09	2.14	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
32.30	118.93	75.98	1.47	112.06	2.13	0.77	0.77
32.40	120.51	76.91	1.47	112.71	2.13	0.77	0.77
32.45	120.48	76.77	1.47	112.95	2.13	0.77	0.77
32.55	119.13	75.61	1.49	112.51	2.14	0.77	0.77
32.59	118.33	74.91	1.50	112.50	2.15	0.77	0.77
32.69	118.13	74.54	1.51	112.79	2.15	0.77	0.77
32.76	118.09	74.31	1.53	113.51	2.16	0.77	0.77
32.84	118.40	74.31	1.54	114.35	2.17	0.77	0.77
32.90	119.00	74.55	1.55	115.19	2.17	0.77	0.77
32.98	119.95	75.02	1.54	115.83	2.17	0.78	0.78
33.06	121.02	75.61	1.54	116.33	2.17	0.78	0.78
33.12	122.10	76.23	1.53	116.77	2.16	0.78	0.78
33.22	122.84	76.56	1.53	117.03	2.16	0.78	0.78
33.31	123.21	76.64	1.53	117.14	2.16	0.78	0.78
33.37	123.28	76.59	1.53	117.11	2.16	0.78	0.78
33.46	123.28	76.41	1.53	117.00	2.16	0.78	0.78
33.55	123.18	76.17	1.54	117.00	2.17	0.78	0.78
33.65	122.98	75.83	1.54	117.07	2.17	0.78	0.78
33.70	122.57	75.42	1.55	117.18	2.17	0.78	0.78
33.79	122.03	74.86	1.56	117.10	2.18	0.78	0.78
33.89	121.09	74.04	1.58	116.76	2.18	0.78	0.78
33.99	119.77	72.98	1.59	116.20	2.19	0.78	0.78
34.04	117.79	71.55	1.61	115.43	2.20	0.78	0.78
34.13	115.49	69.85	1.64	114.59	2.21	0.77	0.77
34.23	112.70	67.80	1.68	113.76	2.22	0.77	0.77
34.32	110.27	66.01	1.71	113.20	2.24	0.77	0.77
34.37	108.22	64.55	1.75	112.84	2.25	0.77	0.77
34.47	106.60	63.31	1.78	112.69	2.26	0.77	0.77
34.55	103.47	61.05	1.85	112.96	2.28	0.77	0.77
34.63	96.66	56.31	2.04	114.64	2.33	0.77	0.77
34.73	86.37	49.33	2.40	118.21	2.40	0.78	0.78
34.80	72.76	40.42	3.06	123.59	2.51	0.79	0.79
34.90	60.46	32.62	3.90	127.28	2.62	0.79	0.79
35.00	54.92	29.29	4.16	121.79	2.64	0.79	0.79
35.12	50.37	26.54	4.42	117.31	2.67	0.78	0.78
35.20	52.86	28.11	3.99	112.19	2.63	0.77	0.77
35.33	53.65	28.43	4.02	114.42	2.63	0.77	0.77
35.41	63.41	34.44	3.20	110.34	2.53	0.77	0.77
35.44	68.58	37.68	2.87	108.02	2.48	0.76	0.76
35.48	76.82	42.96	2.42	103.82	2.41	0.76	0.76
35.57	84.09	47.63	2.12	101.05	2.35	0.75	0.75
35.62	98.70	57.30	1.73	98.99	2.24	0.75	0.75
35.67	115.40	68.51	1.49	102.07	2.14	0.75	0.75
35.71	137.52	83.52	1.35	112.52	2.04	0.77	0.77
35.82	159.89	98.71	1.28	126.36	1.96	0.79	0.79
35.86	185.11	116.11	1.23	143.07	1.89	0.82	0.82
35.93	207.72	131.80	1.19	156.85	1.84	0.84	0.84
36.01	225.38	144.00	1.16	166.33	1.80	0.85	0.85

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
36.06	235.57	150.92	1.14	171.69	1.79	0.85	0.85
36.12	240.67	154.12	1.13	174.89	1.78	0.86	0.86
36.18	245.05	156.73	1.14	178.20	1.79	0.86	0.86
36.25	248.69	158.84	1.14	180.98	1.79	0.87	0.87
36.30	251.52	160.26	1.15	184.12	1.80	0.87	0.87
36.39	252.83	160.54	1.16	185.99	1.81	0.87	0.87
36.44	253.07	160.15	1.17	187.57	1.82	0.87	0.87
36.53	251.49	158.45	1.18	187.51	1.83	0.87	0.87
36.59	248.39	155.45	1.21	187.43	1.86	0.87	0.87
36.68	243.47	151.62	1.22	184.49	1.87	0.87	0.87
36.75	238.34	147.93	1.22	180.99	1.88	0.87	0.87
36.83	232.04	143.78	1.22	175.91	1.88	0.86	0.86
36.90	225.27	138.95	1.23	171.34	1.89	0.85	0.85
36.97	217.18	133.11	1.25	166.05	1.92	0.85	0.85
37.02	201.72	122.19	1.28	156.23	1.96	0.84	0.84
37.04	193.70	116.64	1.30	151.13	1.99	0.83	0.83
37.08	188.61	113.19	1.30	147.61	2.00	0.82	0.82
37.17	191.78	115.46	1.29	148.65	1.97	0.83	0.83
37.27	187.30	112.45	1.29	145.04	1.98	0.82	0.82
37.37	181.37	108.42	1.30	140.68	1.99	0.81	0.81
37.42	177.21	105.83	1.30	137.22	1.99	0.81	0.81
37.51	175.89	105.19	1.29	135.25	1.97	0.81	0.81
37.58	176.97	106.34	1.27	134.76	1.95	0.81	0.81
37.66	179.01	108.07	1.25	135.08	1.92	0.81	0.81
37.76	182.58	110.83	1.23	136.26	1.89	0.81	0.81
37.85	186.08	113.57	1.21	137.18	1.86	0.81	0.81
37.93	189.62	116.22	1.19	138.14	1.84	0.81	0.81
38.04	192.25	117.99	1.18	138.80	1.82	0.81	0.81
38.13	193.87	118.97	1.17	139.30	1.82	0.81	0.81
38.18	193.57	118.63	1.17	139.16	1.82	0.81	0.81
38.28	191.24	116.58	1.19	138.51	1.84	0.81	0.81
38.37	187.40	113.37	1.21	137.08	1.86	0.81	0.81
38.47	183.55	109.99	1.23	135.63	1.89	0.81	0.81
38.57	180.39	107.19	1.25	134.14	1.92	0.80	0.80
38.62	176.78	104.23	1.27	132.48	1.95	0.80	0.80
38.72	167.48	97.43	1.31	127.27	2.00	0.79	0.79
38.78	160.21	92.19	1.34	123.72	2.04	0.79	0.79
38.81	155.32	88.77	1.37	121.63	2.06	0.79	0.79
38.86	155.19	88.54	1.37	121.68	2.07	0.79	0.79
38.91	152.02	86.27	1.40	120.51	2.08	0.78	0.78
38.95	145.92	82.06	1.44	118.55	2.12	0.78	0.78
39.05	139.55	77.66	1.51	116.91	2.15	0.78	0.78
39.09	132.37	72.88	1.59	115.64	2.19	0.78	0.78
39.14	125.06	68.10	1.69	114.83	2.23	0.77	0.77
39.24	118.19	63.61	1.80	114.32	2.26	0.77	0.77
39.29	112.16	59.80	1.91	114.03	2.30	0.77	0.77
39.39	108.48	57.39	1.99	114.16	2.32	0.77	0.77
39.43	109.15	57.74	1.98	114.28	2.31	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.53	115.02	61.25	1.86	113.89	2.28	0.77	0.77
39.57	124.17	67.01	1.69	113.55	2.23	0.77	0.77
39.68	130.64	71.04	1.60	113.69	2.19	0.77	0.77
39.73	131.95	71.83	1.58	113.53	2.19	0.77	0.77
39.81	129.33	70.10	1.60	112.48	2.20	0.77	0.77
39.89	126.37	68.39	1.60	109.51	2.19	0.77	0.77
39.96	125.26	68.01	1.56	105.89	2.18	0.76	0.76
40.06	124.52	67.75	1.52	103.14	2.16	0.75	0.75
40.15	122.70	66.50	1.54	102.38	2.17	0.75	0.75
40.20	114.41	61.03	1.67	102.07	2.22	0.75	0.75
40.24	108.56	57.23	1.79	102.62	2.26	0.75	0.75
40.26	104.17	54.45	1.90	103.22	2.29	0.75	0.75
40.27	107.91	56.72	1.82	103.36	2.27	0.75	0.75
40.37	109.77	57.73	1.80	103.81	2.26	0.76	0.76
40.42	111.64	58.75	1.78	104.71	2.26	0.76	0.76
40.52	112.38	59.02	1.79	105.44	2.26	0.76	0.76
40.56	115.27	60.66	1.76	106.63	2.25	0.76	0.76
40.66	122.24	64.78	1.67	108.06	2.22	0.76	0.76
40.70	131.54	70.42	1.57	110.67	2.18	0.77	0.77
40.75	142.59	77.15	1.49	114.79	2.14	0.77	0.77
40.85	153.40	83.66	1.43	119.75	2.11	0.78	0.78
40.91	164.05	90.16	1.39	125.10	2.08	0.79	0.79
40.96	174.69	96.83	1.35	130.56	2.04	0.80	0.80
41.04	184.27	102.87	1.32	135.59	2.01	0.81	0.81
41.09	193.94	109.10	1.29	141.03	1.98	0.81	0.81
41.18	201.90	114.17	1.28	145.57	1.96	0.82	0.82
41.23	207.97	118.08	1.26	149.12	1.94	0.83	0.83
41.29	211.58	120.37	1.26	151.17	1.93	0.83	0.83
41.38	212.76	120.98	1.25	151.67	1.93	0.83	0.83
41.42	212.09	120.40	1.26	151.21	1.93	0.83	0.83
41.52	210.03	118.76	1.26	149.86	1.94	0.83	0.83
41.57	207.27	116.72	1.27	148.26	1.95	0.82	0.82
41.62	204.91	114.93	1.28	146.93	1.96	0.82	0.82
41.71	203.13	113.45	1.29	145.89	1.97	0.82	0.82
41.76	202.15	112.60	1.29	145.43	1.98	0.82	0.82
41.84	201.65	111.98	1.30	145.17	1.99	0.82	0.82
41.91	201.54	111.64	1.30	145.22	1.99	0.82	0.82
41.95	201.75	111.52	1.31	145.53	2.00	0.82	0.82
42.01	202.52	111.63	1.31	146.36	2.00	0.82	0.82
42.10	203.57	111.82	1.32	147.40	2.01	0.82	0.82
42.15	204.98	112.23	1.33	148.90	2.02	0.83	0.83
42.24	206.03	112.44	1.33	149.94	2.03	0.83	0.83
42.28	206.46	112.53	1.34	150.31	2.03	0.83	0.83
42.39	206.26	112.27	1.33	149.81	2.03	0.83	0.83
42.43	206.08	112.28	1.33	149.14	2.02	0.83	0.83
42.50	206.11	112.45	1.32	148.36	2.01	0.82	0.82
42.58	206.28	112.80	1.31	147.54	2.00	0.82	0.82
42.65	198.95	108.28	1.32	142.73	2.01	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.70	195.88	106.39	1.32	140.58	2.02	0.81	0.81
42.73	193.72	105.08	1.32	139.14	2.02	0.81	0.81
42.77	200.19	109.31	1.30	142.31	1.99	0.82	0.82
42.82	203.83	111.68	1.29	144.06	1.98	0.82	0.82
42.87	209.12	115.10	1.28	146.92	1.96	0.82	0.82
42.91	215.46	119.14	1.26	150.57	1.94	0.83	0.83
42.97	221.76	123.09	1.25	154.27	1.92	0.83	0.83
43.02	226.82	126.14	1.25	157.35	1.92	0.84	0.84
43.06	230.49	128.19	1.25	159.72	1.91	0.84	0.84
43.11	234.33	130.34	1.24	162.21	1.91	0.84	0.84
43.17	237.93	132.40	1.24	164.40	1.91	0.85	0.85
43.21	242.21	135.09	1.23	166.83	1.90	0.85	0.85
43.29	246.19	137.59	1.23	168.85	1.89	0.85	0.85
43.34	250.53	140.43	1.22	171.05	1.87	0.85	0.85
43.39	254.11	142.76	1.21	172.71	1.86	0.86	0.86
43.45	256.87	144.64	1.20	173.74	1.85	0.86	0.86
43.51	258.25	145.84	1.19	173.50	1.84	0.86	0.86
43.59	258.59	146.35	1.18	172.47	1.82	0.86	0.86
43.64	259.19	147.38	1.16	170.73	1.80	0.85	0.85
43.70	259.29	148.12	1.13	168.10	1.78	0.85	0.85
43.78	258.35	147.98	1.12	165.08	1.77	0.85	0.85
43.88	255.18	145.77	1.12	163.55	1.77	0.84	0.84
43.94	244.77	138.10	1.17	161.52	1.82	0.84	0.84
44.04	234.93	130.84	1.21	157.74	1.86	0.84	0.84
44.07	225.87	124.41	1.23	153.31	1.89	0.83	0.83
44.12	223.58	122.68	1.24	152.08	1.90	0.83	0.83
44.16	221.15	120.94	1.25	150.70	1.91	0.83	0.83
44.21	218.05	118.76	1.25	148.86	1.93	0.83	0.83
44.26	214.65	116.39	1.26	146.86	1.94	0.82	0.82
44.31	210.81	113.73	1.27	144.63	1.95	0.82	0.82
44.35	206.97	111.11	1.28	142.44	1.97	0.82	0.82
44.40	203.26	108.60	1.29	140.32	1.98	0.81	0.81
44.45	200.16	106.49	1.30	138.56	1.99	0.81	0.81
44.50	197.83	104.91	1.31	137.24	2.00	0.81	0.81
44.54	195.81	103.53	1.32	136.15	2.01	0.81	0.81
44.60	193.46	101.86	1.32	134.97	2.02	0.81	0.81
44.64	190.96	100.11	1.34	133.85	2.03	0.80	0.80
44.69	188.57	98.42	1.35	132.85	2.05	0.80	0.80
44.74	187.78	97.76	1.36	132.59	2.05	0.80	0.80
44.79	187.17	97.27	1.36	132.34	2.06	0.80	0.80
44.83	187.71	97.52	1.36	132.53	2.05	0.80	0.80
44.88	188.84	98.15	1.35	132.96	2.05	0.80	0.80
44.93	191.20	99.52	1.35	134.02	2.04	0.80	0.80
44.98	193.69	100.99	1.34	135.20	2.03	0.81	0.81
45.03	195.31	101.90	1.33	135.95	2.03	0.81	0.81
45.08	196.49	102.54	1.33	136.45	2.03	0.81	0.81
45.16	197.53	103.08	1.33	136.81	2.02	0.81	0.81
45.19	198.24	103.58	1.32	136.91	2.02	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
45.27	198.44	103.76	1.32	136.53	2.01	0.81	0.81
45.32	197.56	103.38	1.31	135.53	2.00	0.81	0.81
45.37	195.58	102.45	1.31	133.73	2.00	0.80	0.80
45.45	192.44	100.80	1.30	131.17	1.99	0.80	0.80
45.51	187.22	97.91	1.30	127.52	1.99	0.79	0.79
45.56	180.52	93.92	1.31	123.37	2.01	0.79	0.79
45.61	169.84	87.34	1.35	117.60	2.04	0.78	0.78
45.69	156.32	78.89	1.42	111.79	2.10	0.77	0.77
45.75	137.42	67.17	1.61	108.19	2.20	0.76	0.76
45.81	115.31	54.45	1.93	105.04	2.30	0.76	0.76
45.89	93.28	42.25	2.49	105.10	2.42	0.76	0.76
45.94	73.36	31.83	3.26	103.73	2.54	0.75	0.75
46.04	59.21	24.44	4.42	108.05	2.67	0.76	0.76
46.08	46.61	18.15	6.18	112.07	2.83	0.77	0.77
46.15	39.94	13.37	8.22	109.85	2.97	0.77	0.77
46.17	36.10	11.98	9.26	110.89	3.03	0.63	0.86
46.18	36.17	12.00	9.18	110.17	3.02	0.63	0.86
46.23	36.48	12.10	9.03	109.18	3.01	0.62	0.86
46.27	37.18	12.34	8.72	107.58	3.00	0.76	0.76
46.32	38.64	12.85	8.20	105.33	2.96	0.76	0.76
46.41	40.63	15.29	7.01	107.19	2.89	0.76	0.76
46.47	43.16	16.49	6.44	106.19	2.85	0.76	0.76
46.52	45.45	17.54	6.09	106.89	2.82	0.76	0.76
46.56	47.57	18.46	5.95	109.81	2.81	0.77	0.77
46.65	49.42	19.21	5.91	113.60	2.80	0.77	0.77
46.71	51.52	20.07	5.86	117.68	2.80	0.78	0.78
46.76	54.41	21.37	5.62	120.04	2.78	0.78	0.78
46.85	58.19	23.13	5.21	120.43	2.75	0.78	0.78
46.90	63.28	25.63	4.63	118.71	2.69	0.78	0.78
46.99	67.89	27.93	4.16	116.19	2.65	0.78	0.78
47.04	70.35	29.16	3.93	114.63	2.62	0.77	0.77
47.10	69.50	28.71	4.00	114.71	2.63	0.77	0.77
47.16	65.45	26.63	4.36	116.10	2.67	0.78	0.78
47.23	59.62	23.71	4.94	117.23	2.72	0.78	0.78
47.30	51.46	19.76	5.97	117.96	2.81	0.78	0.78
47.38	42.76	13.97	8.12	113.48	2.96	0.77	0.77
47.43	34.23	10.97	10.19	111.84	3.08	0.65	0.78
47.52	28.17	8.83	11.99	105.92	3.17	0.55	0.63
47.59	23.92	7.34	12.70	93.23	3.20	0.41	0.52
47.66	21.40	6.45	12.70	81.89	3.20	0.22	0.46
47.77	19.71	5.85	12.77	74.67	3.20	0.23	0.42
47.82	18.77	5.51	13.75	75.76	3.24	0.23	0.39
47.91	18.38	5.37	14.28	76.63	3.26	0.24	0.38
47.93	17.68	5.12	15.17	77.65	3.30	0.24	0.37
47.97	17.78	5.15	15.21	78.37	3.30	0.25	0.37
48.02	17.86	5.17	15.38	79.56	3.31	0.26	0.37
48.07	18.51	5.39	15.07	81.21	3.30	0.27	0.38
48.12	18.61	5.42	15.51	84.04	3.31	0.29	0.39

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
48.19	18.71	5.44	15.90	86.54	3.33	0.33	0.39
48.23	18.91	5.51	16.11	88.74	3.33	0.34	0.39
48.31	19.15	5.58	16.11	89.88	3.33	0.35	0.40
48.35	19.35	5.64	16.11	90.92	3.33	0.36	0.40
48.40	19.25	5.60	16.37	91.72	3.34	0.37	0.40
48.45	18.81	5.45	16.96	92.39	3.36	0.37	0.39
48.50	18.07	5.19	17.92	92.93	3.40	0.38	0.37
48.55	17.80	5.09	18.35	93.37	3.41	0.38	0.36
48.59	17.64	5.03	18.75	94.24	3.42	0.39	0.36
48.67	17.87	5.10	18.56	94.62	3.42	0.40	0.36
48.73	17.84	5.08	18.58	94.36	3.42	0.39	0.36
48.78	17.97	5.12	18.13	92.80	3.40	0.38	0.37
48.83	17.97	5.11	17.74	90.68	3.39	0.36	0.37
48.91	17.94	5.09	17.35	88.35	3.38	0.33	0.36
48.98	17.84	5.05	17.10	86.35	3.37	0.32	0.36
49.03	17.74	5.01	17.00	85.19	3.37	0.31	0.36
49.12	17.68	4.98	16.65	82.90	3.35	0.30	0.36
49.17	17.75	5.00	15.91	79.48	3.33	0.26	0.36
49.27	18.02	5.08	15.07	76.51	3.30	0.22	0.36
49.31	18.56	5.25	14.57	76.55	3.28	0.24	0.38
49.38	19.20	5.46	14.44	78.88	3.27	0.26	0.39
49.45	19.70	5.62	14.44	81.15	3.27	0.28	0.40
49.51	19.00	5.38	15.44	83.00	3.31	0.29	0.38
49.54	19.44	5.52	15.24	84.13	3.30	0.30	0.39
49.59	20.18	5.76	14.65	84.45	3.28	0.31	0.41
49.64	21.53	6.21	13.47	83.63	3.23	0.31	0.44
49.73	21.20	6.09	13.64	83.01	3.24	0.29	0.43
49.83	20.02	5.68	14.52	82.47	3.27	0.29	0.41
49.92	18.88	5.29	15.55	82.19	3.31	0.29	0.38
49.98	17.86	4.94	16.51	81.62	3.35	0.28	0.35
50.07	17.33	4.75	17.04	81.01	3.37	0.27	0.34
50.16	16.99	4.63	17.38	80.51	3.38	0.27	0.33
50.24	16.69	4.52	17.70	80.06	3.39	0.27	0.32
50.32	16.46	4.44	17.99	79.87	3.40	0.26	0.32
50.41	16.32	4.39	18.25	80.02	3.41	0.26	0.31
50.50	16.36	4.39	18.25	80.09	3.41	0.27	0.31
50.56	16.26	4.35	18.25	79.36	3.41	0.27	0.31
50.66	16.09	4.28	18.27	78.27	3.41	0.25	0.31
50.74	15.92	4.22	18.37	77.53	3.41	0.24	0.30
50.84	15.85	4.19	19.00	79.62	3.43	0.25	0.30
50.93	15.95	4.21	19.91	83.88	3.46	0.30	0.30
50.98	16.77	4.47	20.59	92.08	3.48	0.35	0.32
51.08	19.60	5.39	19.08	102.75	3.43	0.47	0.38
51.17	24.45	6.95	16.30	113.31	3.34	0.63	0.50
51.24	30.11	8.78	13.98	122.80	3.25	0.75	0.63
51.34	33.65	9.91	13.03	129.12	3.21	0.89	0.71
51.41	34.16	10.06	12.19	122.59	3.18	0.93	0.72
51.51	32.81	9.60	12.05	115.66	3.17	0.50	0.69

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
51.58	31.20	9.06	11.80	106.93	3.16	0.61	0.65
51.68	29.95	8.64	12.73	109.98	3.20	0.60	0.62
51.79	27.39	7.80	14.12	110.16	3.26	0.59	0.56
51.82	25.87	7.31	15.07	110.15	3.30	0.59	0.52
51.85	24.39	6.83	16.27	111.07	3.34	0.59	0.49
51.91	25.00	7.01	16.14	113.23	3.34	0.60	0.50
52.00	24.87	6.96	16.71	116.25	3.36	0.67	0.50
52.05	27.06	7.65	15.54	118.92	3.31	0.70	0.55
52.10	31.78	9.15	13.00	118.95	3.21	0.72	0.65
52.19	38.49	11.27	10.28	115.81	3.08	0.73	0.80
52.28	44.04	13.02	8.58	111.69	2.99	0.77	0.77
52.34	46.37	13.74	7.96	109.32	2.95	0.76	0.76
52.42	46.09	13.63	8.05	109.66	2.96	0.77	0.77
52.48	44.34	13.05	8.50	111.03	2.98	0.77	0.77
52.57	42.32	12.39	8.98	111.27	3.01	0.69	0.88
52.62	40.26	11.73	9.37	109.88	3.03	0.66	0.84
52.69	38.51	11.16	9.58	106.89	3.05	0.61	0.80
52.77	36.89	10.63	9.83	104.50	3.06	0.56	0.76
52.87	35.55	10.19	10.19	103.83	3.08	0.55	0.73
52.91	34.07	9.71	10.56	102.56	3.10	0.57	0.69
53.01	32.55	9.21	11.08	102.13	3.12	0.49	0.66
53.10	32.18	9.08	11.35	103.11	3.14	0.52	0.65
53.16	34.04	9.65	11.74	113.26	3.15	0.59	0.69
53.25	38.69	11.08	11.13	123.32	3.13	0.87	0.79
53.29	44.28	12.82	10.63	136.25	3.10	0.97	0.92
53.38	48.90	14.23	10.13	144.18	3.07	1.22	1.02
53.42	59.32	17.47	8.56	149.47	2.99	0.83	0.83
53.47	74.66	22.21	6.75	150.02	2.87	0.83	0.83
53.52	92.88	27.85	5.32	148.22	2.76	0.82	0.82
53.58	102.94	30.94	4.93	152.55	2.72	0.83	0.83
53.66	103.80	31.15	5.14	160.18	2.74	0.84	0.84
53.75	98.64	29.50	5.74	169.41	2.79	0.85	0.85
53.81	88.93	26.46	6.64	175.67	2.86	0.86	0.86
53.87	78.89	23.33	7.63	177.89	2.93	0.86	0.86
53.95	67.24	19.70	9.07	178.71	3.02	1.90	1.41
54.01	57.35	16.64	10.67	177.57	3.10	1.79	1.19
54.06	47.51	13.60	12.71	172.90	3.20	1.68	0.97
54.15	41.78	11.83	14.16	167.57	3.26	1.42	0.85
54.20	40.60	11.46	14.42	165.24	3.27	1.40	0.82
54.29	47.57	13.59	12.09	164.23	3.17	1.54	0.97
54.34	69.40	20.27	7.00	141.87	2.89	0.82	0.82
54.43	100.37	29.73	3.65	108.63	2.59	0.76	0.76
54.45	137.16	41.00	2.00	82.07	2.32	0.69	0.71
54.48	166.07	49.83	1.62	80.59	2.20	0.61	0.71
54.52	185.51	55.76	1.48	82.69	2.14	0.71	0.71
54.53	198.85	59.83	1.45	86.57	2.12	0.72	0.72
54.58	207.94	62.58	1.44	89.91	2.11	0.73	0.73
54.62	219.64	66.13	1.42	93.59	2.10	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
54.65	233.46	70.33	1.38	96.81	2.07	0.74	0.74
54.70	244.67	73.72	1.36	99.98	2.05	0.75	0.75
54.76	251.12	75.64	1.35	102.23	2.05	0.75	0.75
54.77	249.88	75.25	1.37	102.77	2.06	0.75	0.75
54.82	251.50	75.71	1.36	103.16	2.06	0.75	0.75
54.87	253.07	76.14	1.36	103.55	2.05	0.75	0.75
54.88	255.63	76.92	1.35	104.08	2.05	0.76	0.76
54.91	257.28	77.39	1.35	104.56	2.05	0.76	0.76
54.96	263.42	79.22	1.34	106.09	2.04	0.76	0.76
54.97	276.70	83.26	1.32	109.90	2.01	0.77	0.77
55.03	294.89	88.74	1.30	115.47	1.99	0.78	0.78
55.09	315.21	94.86	1.27	120.89	1.96	0.78	0.78
55.15	327.84	98.63	1.23	121.55	1.89	0.79	0.79
55.20	338.35	101.77	1.20	122.41	1.85	0.79	0.79
55.25	358.17	107.74	1.13	121.49	1.78	0.79	0.79
55.30	386.84	116.38	1.11	129.28	1.77	0.80	0.80
55.34	417.50	125.63	1.07	134.62	1.74	0.81	0.81
55.39	440.05	132.40	1.10	146.03	1.76	0.82	0.82
55.40	462.28	139.13	1.10	153.71	1.76	0.83	0.83
55.44	482.80	145.29	1.08	157.35	1.75	0.84	0.84
55.44	511.21	153.88	1.02	157.04	1.72	0.84	0.84
55.49	517.76	155.78	1.03	160.78	1.72	0.84	0.84
55.54	533.43	160.44	1.05	167.71	1.73	0.85	0.85
55.59	534.98	160.82	1.10	176.17	1.76	0.86	0.86
55.63	551.08	165.61	1.09	180.34	1.75	0.86	0.86
55.64	553.47	166.31	1.09	180.79	1.75	0.87	0.87
55.68	566.94	170.31	1.06	179.92	1.73	0.86	0.86
55.69	570.38	171.33	1.04	178.50	1.73	0.86	0.86
55.69	566.17	170.04	1.05	179.38	1.73	0.86	0.86
55.71	561.62	168.63	1.09	183.08	1.75	0.87	0.87
55.76	567.28	170.25	1.10	186.45	1.76	0.87	0.87
55.78	580.19	174.11	1.08	187.85	1.75	0.87	0.87
55.81	581.23	174.36	1.04	180.96	1.72	0.87	0.87
55.85	584.16	175.16	1.00	175.16	1.69	0.86	0.86
55.86	588.34	176.41	1.00	176.41	1.65	0.86	0.86
55.91	598.65	179.42	1.00	179.42	1.62	0.86	0.86
55.92	602.25	180.48	1.00	180.48	1.60	0.87	0.87
55.96	619.03	185.46	1.00	185.46	1.58	0.87	0.87
55.97	634.09	189.98	1.00	189.98	1.57	0.88	0.88
56.00	654.37	196.01	1.00	196.01	1.56	0.88	0.88
56.01	660.12	197.72	1.00	197.72	1.58	0.88	0.88
56.03	661.79	198.18	1.00	198.18	1.59	0.88	0.88
56.05	661.82	198.14	1.00	198.14	1.60	0.88	0.88
56.10	665.04	198.99	1.00	198.99	1.60	0.89	0.89
56.12	668.02	199.86	1.00	199.86	1.58	0.89	0.89
56.16	667.69	199.67	1.00	199.67	1.57	0.89	0.89
56.17	654.78	195.76	1.00	195.76	1.57	0.88	0.88
56.20	635.11	189.78	1.00	189.78	1.59	0.88	0.88

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
56.22	617.48	184.46	1.00	184.46	1.61	0.87	0.87
56.24	608.45	181.69	1.00	181.69	1.61	0.87	0.87
56.30	602.69	179.84	1.00	179.84	1.62	0.86	0.86
56.31	595.69	177.72	1.00	177.72	1.63	0.86	0.86
56.34	586.22	174.82	1.00	174.82	1.65	0.86	0.86
56.39	579.04	172.57	1.00	172.57	1.66	0.86	0.86
56.45	572.30	170.44	1.00	170.44	1.67	0.85	0.85
56.48	565.39	168.31	1.00	168.31	1.67	0.85	0.85
56.49	555.45	165.32	1.00	165.32	1.70	0.85	0.85
56.53	542.15	161.25	1.05	168.57	1.73	0.85	0.85
56.58	529.04	157.24	1.08	169.38	1.75	0.85	0.85
56.63	524.73	155.86	1.00	155.86	1.67	0.83	0.83
56.68	526.01	156.17	1.00	156.17	1.58	0.84	0.84
56.73	531.33	157.68	1.00	157.68	1.53	0.84	0.84
56.78	526.31	156.09	1.00	156.09	1.62	0.84	0.84
56.83	517.99	153.53	1.00	153.53	1.69	0.83	0.83
56.89	503.37	149.05	1.06	157.35	1.73	0.84	0.84
56.95	485.04	143.50	1.12	160.76	1.77	0.84	0.84
56.99	470.25	139.02	1.16	161.37	1.81	0.84	0.84
57.01	460.92	136.23	1.18	160.98	1.83	0.84	0.84
57.04	461.73	136.41	1.18	160.65	1.82	0.84	0.84
57.09	468.20	138.26	1.17	161.13	1.81	0.84	0.84
57.11	477.43	140.98	1.16	163.57	1.81	0.84	0.84
57.13	488.62	144.26	1.16	167.47	1.81	0.85	0.85
57.18	488.78	144.24	1.17	169.44	1.82	0.85	0.85
57.19	477.80	140.96	1.20	168.95	1.85	0.85	0.85
57.21	464.47	136.96	1.21	166.30	1.87	0.85	0.85
57.24	456.12	134.45	1.22	164.00	1.88	0.85	0.85
57.28	456.72	134.56	1.21	163.35	1.87	0.84	0.84
57.32	450.91	132.78	1.22	161.45	1.87	0.84	0.84
57.35	445.39	131.08	1.22	160.03	1.88	0.84	0.84
57.38	435.59	128.14	1.23	157.50	1.89	0.84	0.84
57.43	430.50	126.56	1.23	155.53	1.89	0.83	0.83
57.48	414.66	121.80	1.23	150.26	1.90	0.83	0.83
57.52	398.59	116.98	1.23	143.92	1.89	0.82	0.82
57.57	389.56	114.25	1.25	142.28	1.91	0.82	0.82
57.62	396.66	116.29	1.26	146.53	1.94	0.82	0.82
57.68	427.50	125.32	1.25	157.03	1.92	0.84	0.84
57.76	462.23	135.46	1.23	166.00	1.88	0.85	0.85
57.81	505.50	148.16	1.09	161.17	1.75	0.84	0.84
57.86	543.58	159.31	1.00	159.31	1.63	0.84	0.84
57.89	572.52	167.80	1.00	167.80	1.49	0.85	0.85
57.91	583.54	171.02	1.00	171.02	1.48	0.85	0.85
57.92	577.13	169.11	1.00	169.11	1.50	0.85	0.85
57.95	569.05	166.67	1.00	166.67	1.54	0.85	0.85
57.99	570.66	167.08	1.00	167.08	1.56	0.85	0.85
58.01	578.72	169.42	1.00	169.42	1.57	0.85	0.85
58.05	591.19	173.02	1.00	173.02	1.58	0.86	0.86

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
58.05	598.87	175.27	1.00	175.27	1.59	0.86	0.86
58.10	604.77	176.91	1.00	176.91	1.60	0.86	0.86
58.13	611.17	178.73	1.00	178.73	1.60	0.86	0.86
58.15	618.51	180.87	1.00	180.87	1.60	0.87	0.87
58.17	625.12	182.75	1.00	182.75	1.59	0.87	0.87
58.20	623.43	182.21	1.00	182.21	1.59	0.87	0.87
58.21	619.40	181.00	1.00	181.00	1.60	0.87	0.87
58.21	614.30	179.50	1.00	179.50	1.61	0.86	0.86
58.23	613.93	179.34	1.00	179.34	1.61	0.86	0.86
58.24	608.11	177.62	1.00	177.62	1.62	0.86	0.86
58.25	609.21	177.92	1.00	177.92	1.54	0.86	0.86
58.29	613.99	179.26	1.00	179.26	1.44	0.86	0.86
58.31	627.24	183.11	1.00	183.11	1.32	0.87	0.87
58.33	639.00	186.52	1.00	186.52	1.34	0.87	0.87
58.38	651.36	190.06	1.00	190.06	1.37	0.88	0.88
58.39	661.87	193.13	1.00	193.13	1.39	0.88	0.88
58.43	670.53	195.59	1.00	195.59	1.40	0.88	0.88
58.43	682.73	199.15	1.00	199.15	1.39	0.89	0.89
58.48	688.02	200.60	1.00	200.60	1.40	0.89	0.89
58.53	694.39	202.36	1.00	202.36	1.41	0.89	0.89
58.56	696.37	202.90	1.00	202.90	1.46	0.89	0.89
58.58	704.43	205.20	1.00	205.20	1.47	0.89	0.89
58.59	710.90	207.06	1.00	207.06	1.49	0.89	0.89
58.63	707.18	205.90	1.00	205.90	1.49	0.89	0.89
58.63	709.20	206.49	1.00	206.49	1.50	0.89	0.89
58.63	695.36	202.42	1.00	202.42	1.51	0.89	0.89
58.68	700.19	203.74	1.00	203.74	1.49	0.89	0.89
58.69	701.88	204.22	1.00	204.22	1.45	0.89	0.89
58.72	717.85	208.81	1.00	208.81	1.40	0.90	0.90
58.73	722.94	210.28	1.00	210.28	1.38	0.90	0.90
58.74	728.64	211.92	1.00	211.92	1.41	0.90	0.90
58.77	726.96	211.36	1.00	211.36	1.44	0.90	0.90
58.81	722.67	210.02	1.00	210.02	1.47	0.90	0.90
58.82	713.94	207.44	1.00	207.44	1.49	0.89	0.89
58.83	715.80	207.97	1.00	207.97	1.51	0.90	0.90
58.87	722.33	209.78	1.00	209.78	1.52	0.90	0.90
58.91	731.67	212.41	1.00	212.41	1.53	0.90	0.90
58.92	737.87	214.21	1.00	214.21	1.54	0.90	0.90
58.93	740.53	214.95	1.00	214.95	1.53	0.90	0.90
58.96	739.05	214.44	1.00	214.44	1.53	0.90	0.90
59.01	716.31	207.70	1.00	207.70	1.56	0.89	0.89
59.06	687.29	199.13	1.00	199.13	1.59	0.89	0.89
59.08	655.28	189.77	1.00	189.77	1.63	0.88	0.88
59.11	638.94	184.95	1.00	184.95	1.65	0.87	0.87
59.15	627.21	181.46	1.00	181.46	1.68	0.87	0.87
59.21	618.28	178.75	1.00	178.75	1.70	0.86	0.86
59.26	606.09	175.11	1.02	178.89	1.72	0.86	0.86
59.30	592.31	171.02	1.01	173.20	1.71	0.86	0.86

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.35	579.87	167.32	1.01	169.07	1.71	0.85	0.85
59.40	562.76	162.26	1.04	168.73	1.73	0.85	0.85
59.42	550.96	158.81	1.06	168.34	1.74	0.85	0.85
59.47	539.34	155.35	1.08	167.78	1.75	0.85	0.85
59.51	539.41	155.29	1.09	168.63	1.75	0.85	0.85
59.56	537.97	154.79	1.09	168.59	1.75	0.85	0.85
59.61	537.36	154.53	1.06	164.50	1.74	0.85	0.85
59.67	541.98	155.77	1.00	155.77	1.70	0.83	0.83
59.71	553.73	159.11	1.00	159.11	1.65	0.84	0.84
59.80	555.82	159.56	1.00	159.56	1.61	0.84	0.84
59.85	552.45	158.50	1.00	158.50	1.59	0.84	0.84
59.90	542.21	155.47	1.00	155.47	1.59	0.83	0.83
60.00	542.99	155.53	1.00	155.53	1.59	0.83	0.83
60.04	541.71	155.09	1.00	155.09	1.60	0.83	0.83
60.10	526.52	150.62	1.00	150.62	1.63	0.83	0.83
60.15	508.32	145.30	1.00	145.30	1.67	0.82	0.82
60.19	487.40	139.22	1.00	139.22	1.70	0.81	0.81
60.23	483.49	138.03	1.00	138.03	1.69	0.81	0.81
60.28	482.61	137.71	1.00	137.71	1.68	0.81	0.81
60.33	488.98	139.47	1.00	139.47	1.67	0.81	0.81
60.38	491.97	140.26	1.00	140.26	1.67	0.81	0.81
60.42	493.85	140.74	1.00	140.74	1.69	0.81	0.81
60.44	487.18	138.79	1.01	140.24	1.71	0.81	0.81
60.47	475.94	135.53	1.08	145.72	1.74	0.82	0.82
60.52	465.53	132.47	1.12	148.94	1.78	0.83	0.83
60.56	462.70	131.60	1.15	150.90	1.79	0.83	0.83
60.57	465.03	132.25	1.15	151.48	1.79	0.83	0.83
60.61	470.62	133.80	1.13	151.48	1.78	0.83	0.83
60.66	477.29	135.64	1.12	151.98	1.77	0.83	0.83
60.71	486.66	138.25	1.11	153.21	1.77	0.83	0.83
60.76	495.25	140.63	1.11	156.59	1.77	0.84	0.84
60.81	504.76	143.27	1.11	159.58	1.77	0.84	0.84
60.86	523.05	148.43	1.08	161.02	1.75	0.84	0.84
60.91	559.78	158.84	1.00	158.84	1.70	0.84	0.84
60.95	601.50	170.69	1.00	170.69	1.66	0.85	0.85
61.00	637.66	180.91	1.00	180.91	1.64	0.87	0.87
61.02	657.74	186.60	1.00	186.60	1.64	0.87	0.87
61.05	685.10	194.34	1.00	194.34	1.62	0.88	0.88
61.08	710.24	201.44	1.00	201.44	1.61	0.89	0.89
61.09	731.84	207.57	1.00	207.57	1.59	0.89	0.89
61.13	737.94	209.24	1.00	209.24	1.59	0.90	0.90
61.14	739.46	209.63	1.00	209.63	1.60	0.90	0.90
61.16	741.44	210.15	1.00	210.15	1.60	0.90	0.90
61.20	750.88	212.77	1.00	212.77	1.58	0.90	0.90
61.23	762.13	215.88	1.00	215.88	1.56	0.90	0.90
61.24	766.92	217.23	1.00	217.23	1.52	0.90	0.90
61.29	758.86	214.83	1.00	214.83	1.51	0.90	0.90
61.30	744.24	210.65	1.00	210.65	1.52	0.90	0.90

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
61.33	734.57	207.82	1.00	207.82	1.55	0.90	0.90
61.38	730.90	206.66	1.00	206.66	1.55	0.89	0.89
61.43	731.07	206.60	1.00	206.60	1.53	0.89	0.89
61.48	738.25	208.54	1.00	208.54	1.50	0.90	0.90
61.53	750.91	212.02	1.00	212.02	1.48	0.90	0.90
61.56	754.78	213.05	1.00	213.05	1.48	0.90	0.90
61.58	726.93	205.10	1.00	205.10	1.50	0.89	0.89
61.59	702.39	198.13	1.00	198.13	1.52	0.88	0.88
61.62	600.70	169.24	1.00	169.24	1.61	0.85	0.85
61.63	595.30	167.67	1.00	167.67	1.61	0.85	0.85
61.67	588.36	165.65	1.00	165.65	1.62	0.85	0.85
61.71	662.66	186.61	1.00	186.61	1.55	0.87	0.87
61.76	655.52	184.50	1.00	184.50	1.55	0.87	0.87
61.81	634.02	178.32	1.00	178.32	1.54	0.86	0.86
61.86	615.02	172.85	1.00	172.85	1.52	0.86	0.86
61.87	600.83	168.83	1.00	168.83	1.48	0.85	0.85
61.91	588.87	165.39	1.00	165.39	1.44	0.85	0.85
61.95	578.02	162.25	1.00	162.25	1.42	0.84	0.84
61.96	566.74	159.04	1.00	159.04	1.42	0.84	0.84
62.00	553.70	155.30	1.00	155.30	1.45	0.83	0.83
62.04	535.16	150.01	1.00	150.01	1.49	0.83	0.83
62.06	510.97	143.15	1.00	143.15	1.55	0.82	0.82
62.10	491.66	137.65	1.00	137.65	1.60	0.81	0.81
62.14	475.52	133.04	1.00	133.04	1.64	0.80	0.80
62.20	463.08	129.46	1.00	129.46	1.66	0.80	0.80
62.22	439.20	122.70	1.00	122.70	1.71	0.79	0.79
62.27	415.48	115.96	1.08	125.13	1.75	0.79	0.79
62.29	396.37	110.55	1.13	125.44	1.78	0.79	0.79
62.34	380.26	105.96	1.17	124.22	1.82	0.79	0.79
62.39	366.62	102.08	1.21	123.46	1.86	0.79	0.79
62.43	347.78	96.73	1.26	121.51	1.93	0.79	0.79
62.49	340.13	94.52	1.28	121.38	1.97	0.79	0.79
62.57	336.43	93.40	1.30	121.70	1.99	0.79	0.79
62.68	357.18	99.12	1.29	127.79	1.98	0.80	0.80
62.75	398.26	110.56	1.26	139.12	1.93	0.81	0.81
62.87	426.23	118.25	1.24	146.86	1.91	0.82	0.82
62.88	409.21	113.48	1.25	142.25	1.93	0.82	0.82
62.89	424.34	117.70	1.21	142.29	1.86	0.82	0.82
62.93	485.42	134.75	1.06	142.80	1.74	0.82	0.82
62.98	571.92	158.87	1.00	158.87	1.61	0.84	0.84
63.02	620.24	172.30	1.00	172.30	1.47	0.86	0.86
63.07	658.55	182.93	1.00	182.93	1.31	0.87	0.87
63.12	710.78	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.14	752.36	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.17	781.30	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.17	799.36	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.20	825.98	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.21	830.83	-1.00	1.00	-1.00	-1.00	0.00	0.00

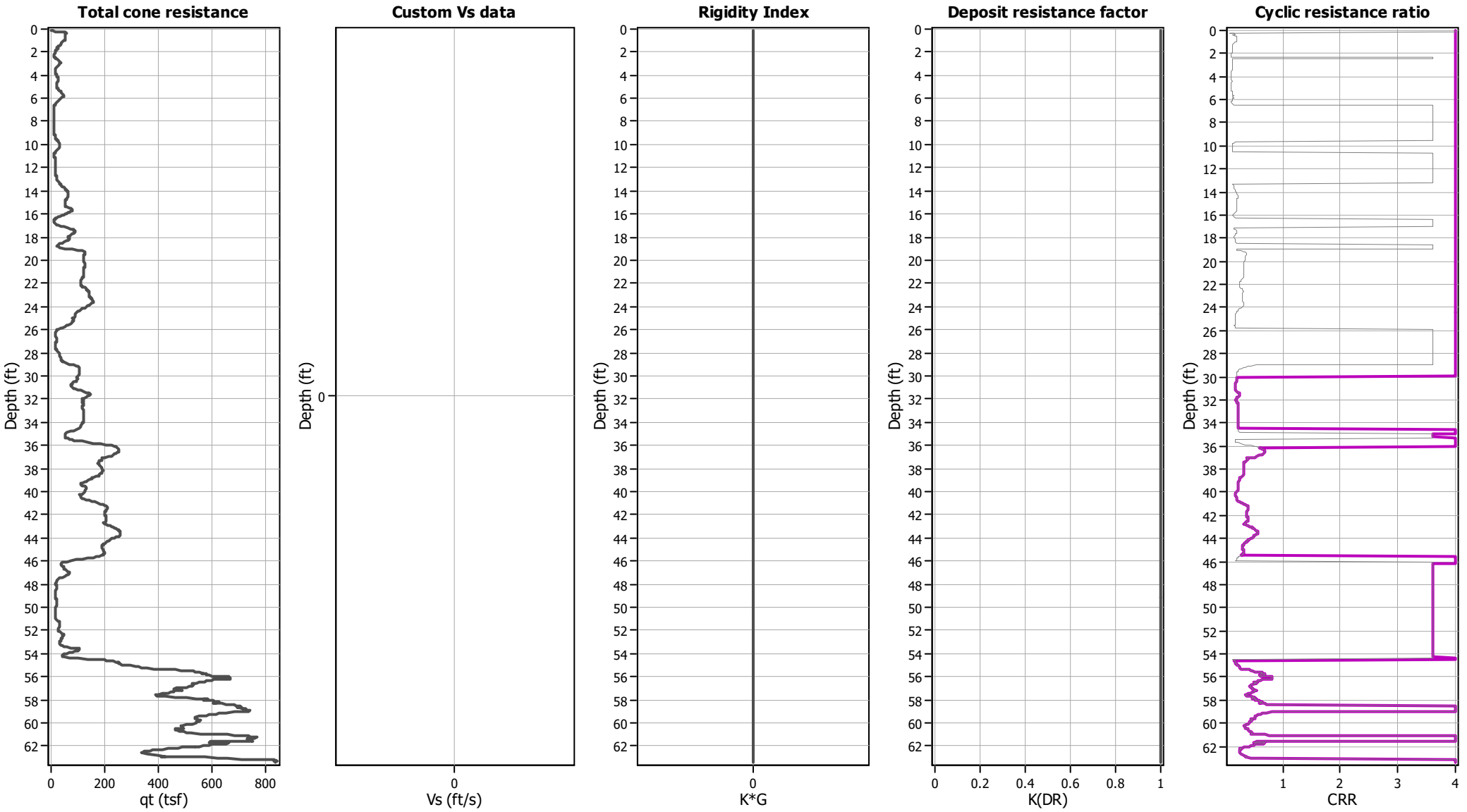
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.23	842.91	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.26	834.75	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.28	841.52	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.31	838.10	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.32	839.38	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.36	837.12	-1.00	1.00	-1.00	-1.00	0.00	0.00
63.40	836.85	-1.00	1.00	-1.00	-1.00	0.00	0.00

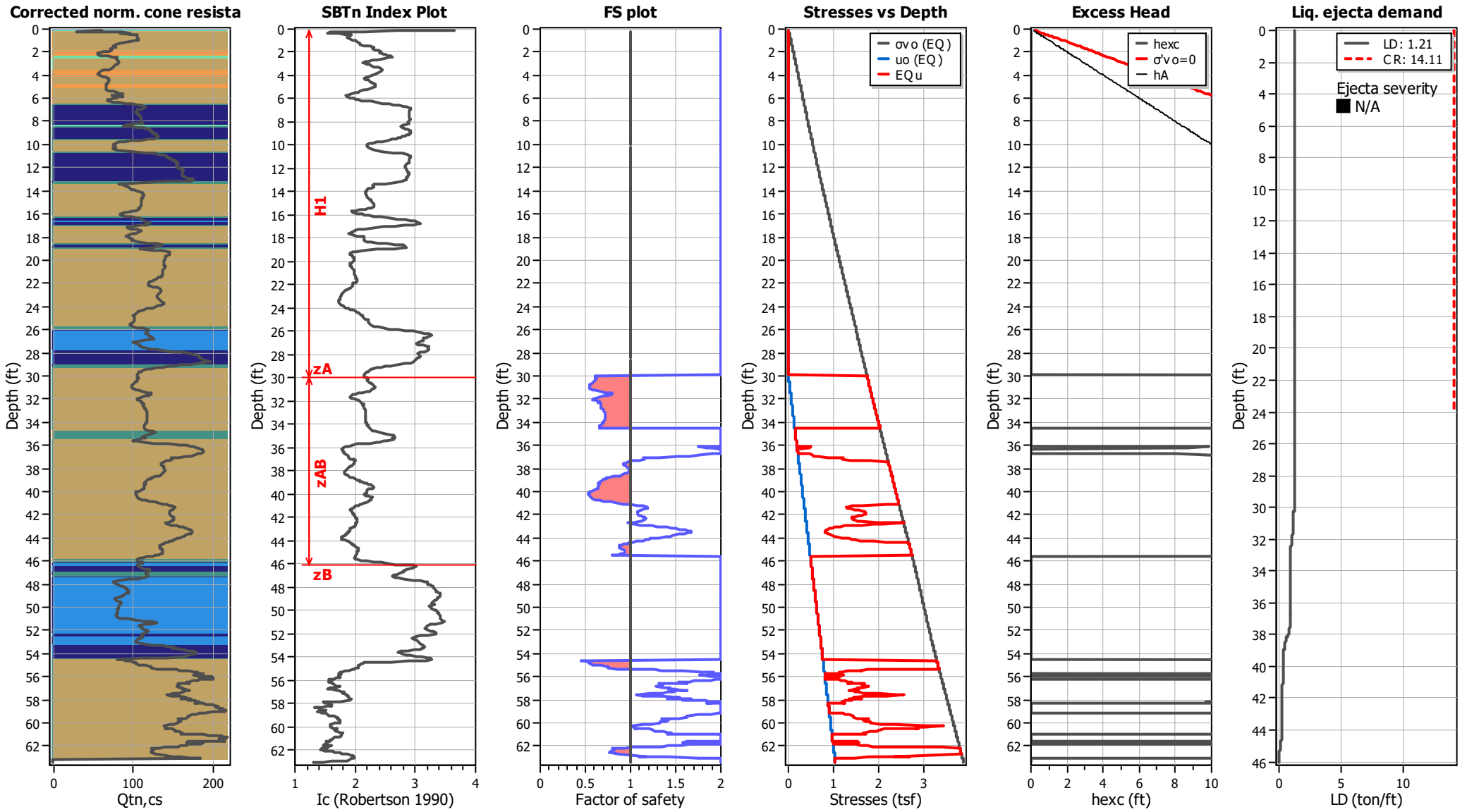
Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Aging Calculation Estimation



Ejecta Severity Estimation



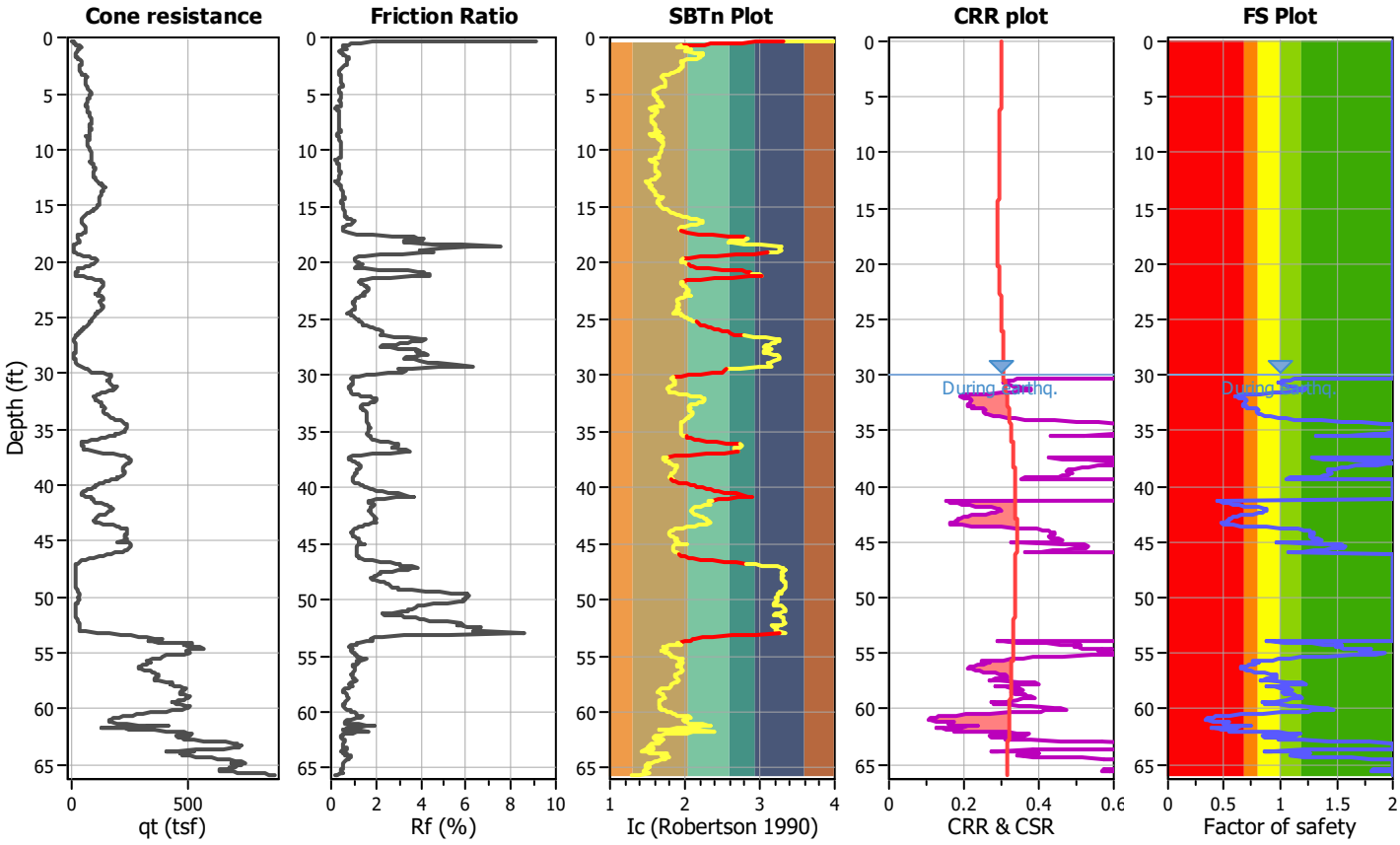
LIQUEFACTION ANALYSIS REPORT

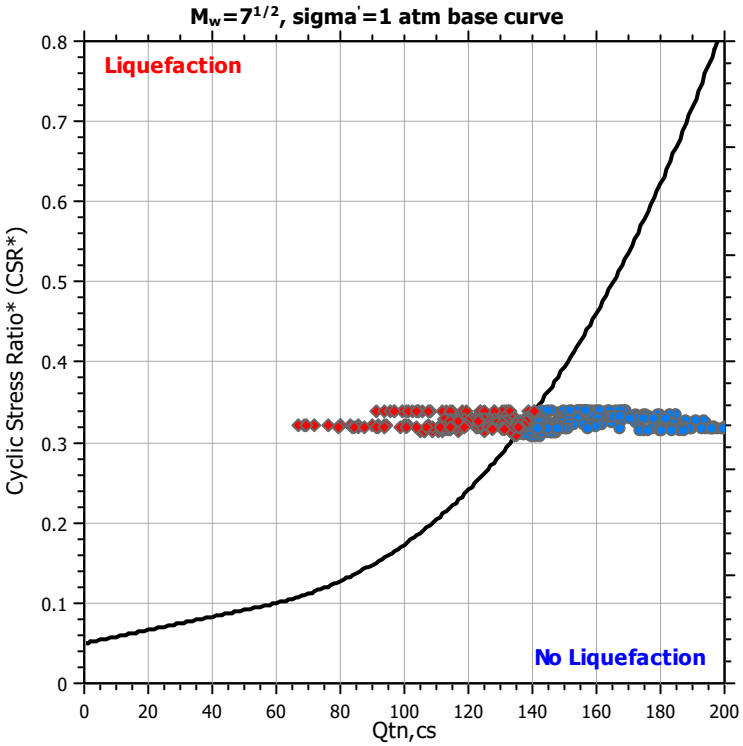
Project title : W1857-88-01 **Location : 331 The City Drive S**

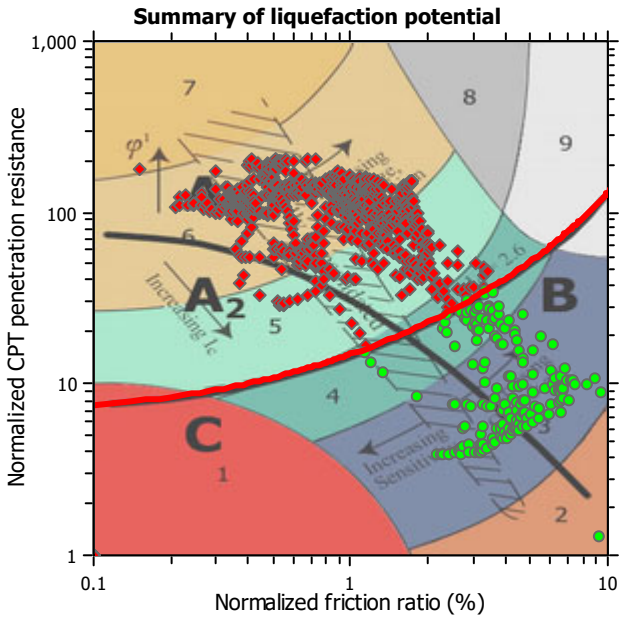
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.65	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

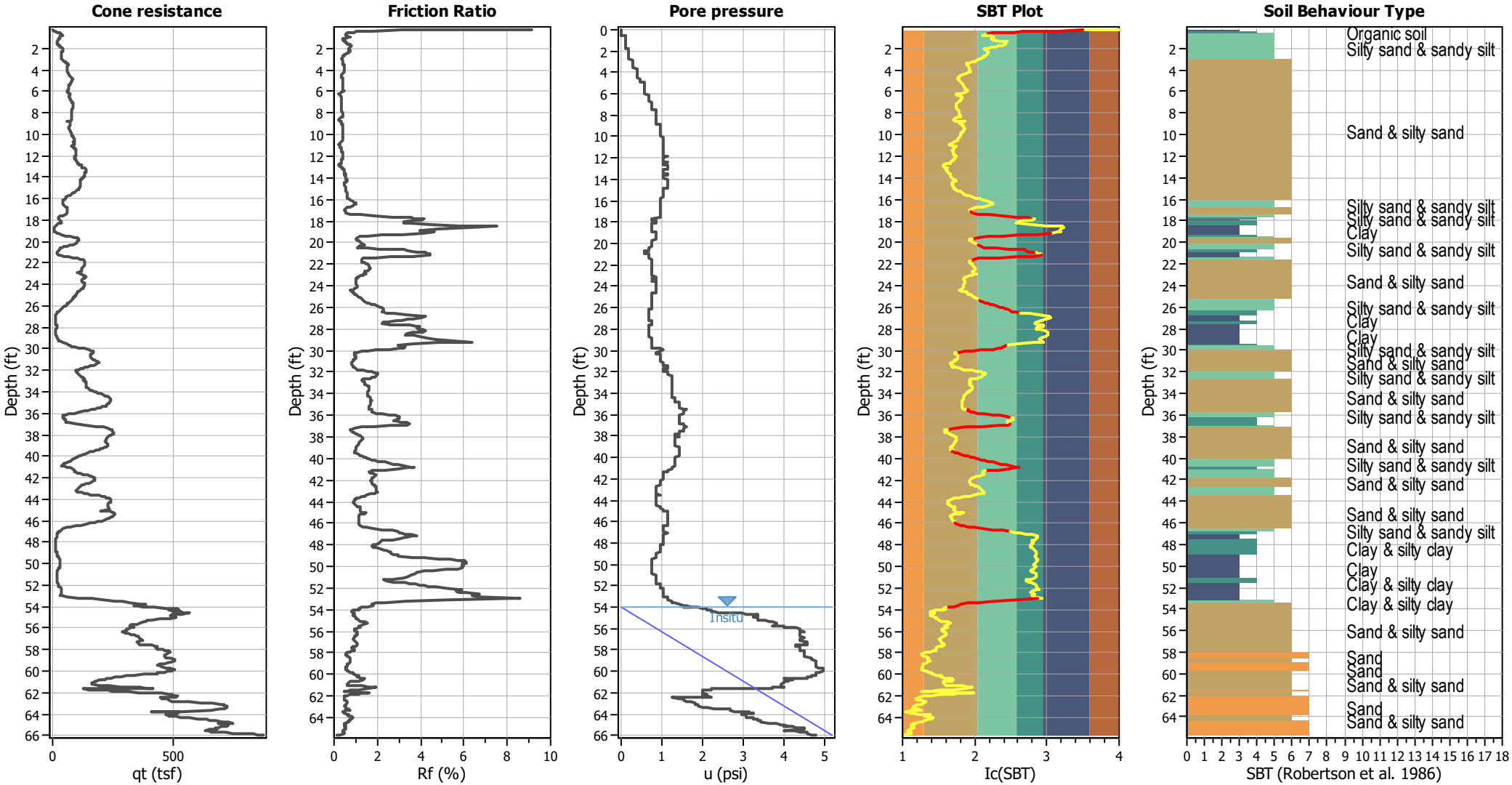






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



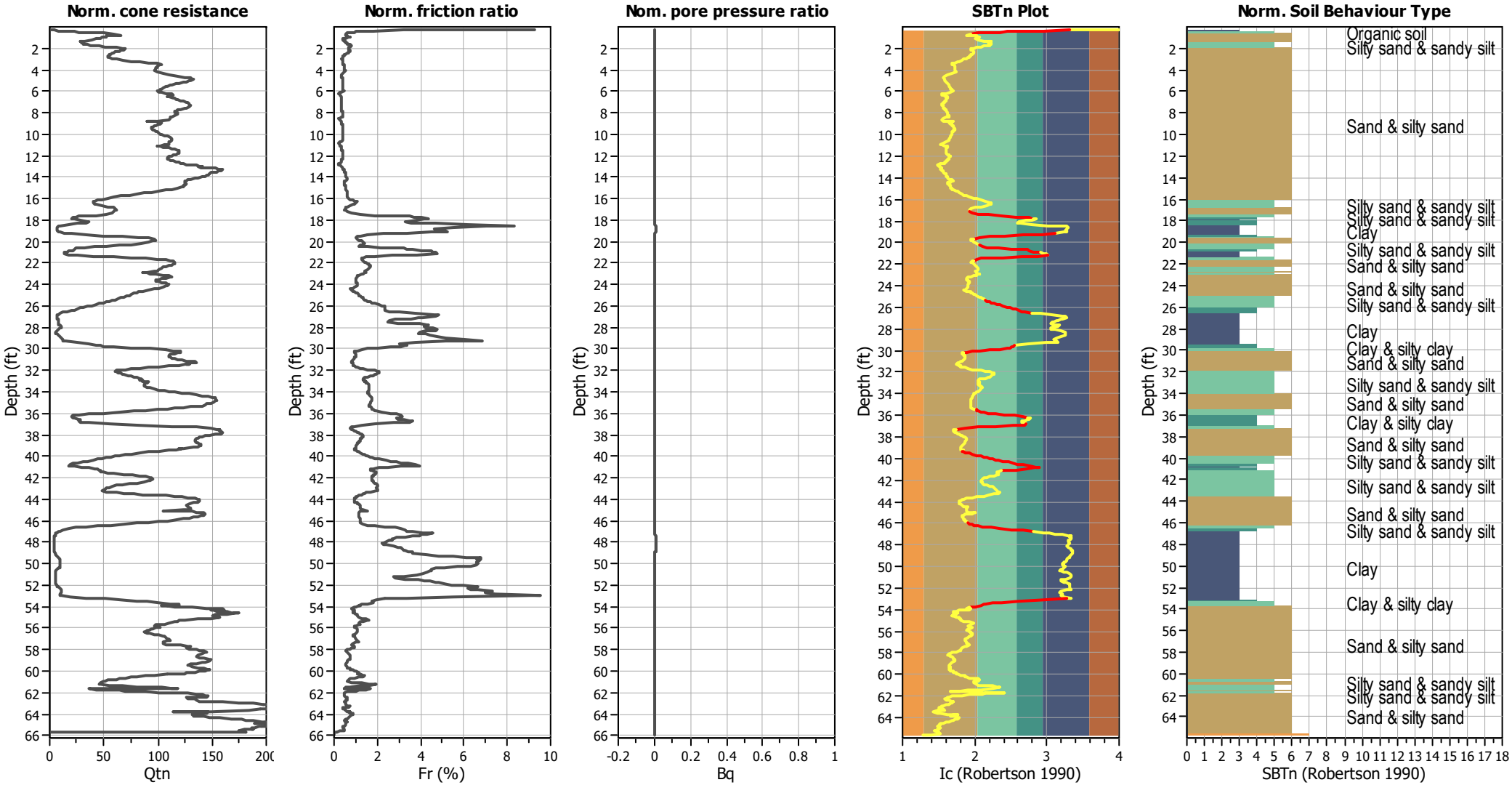
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



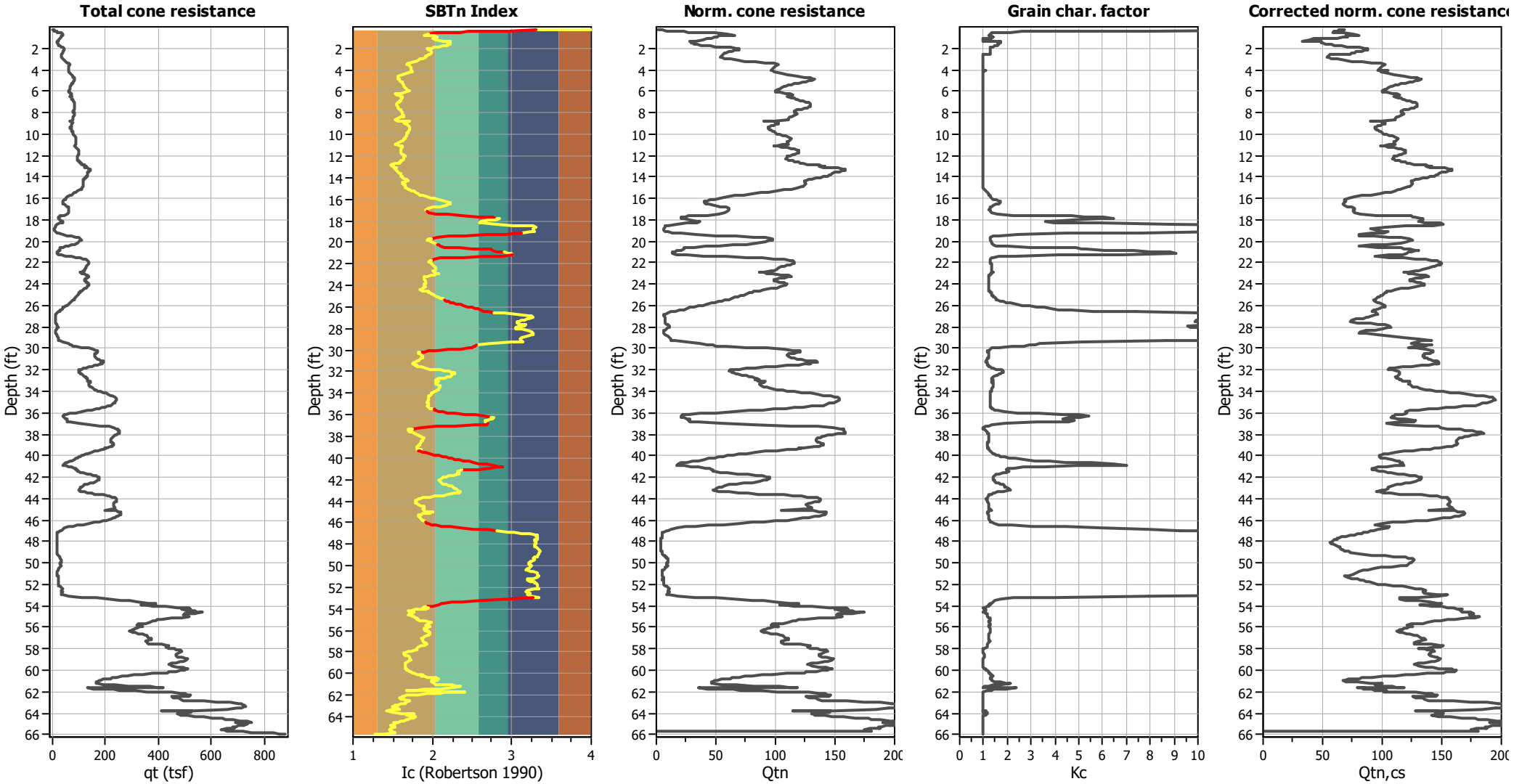
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

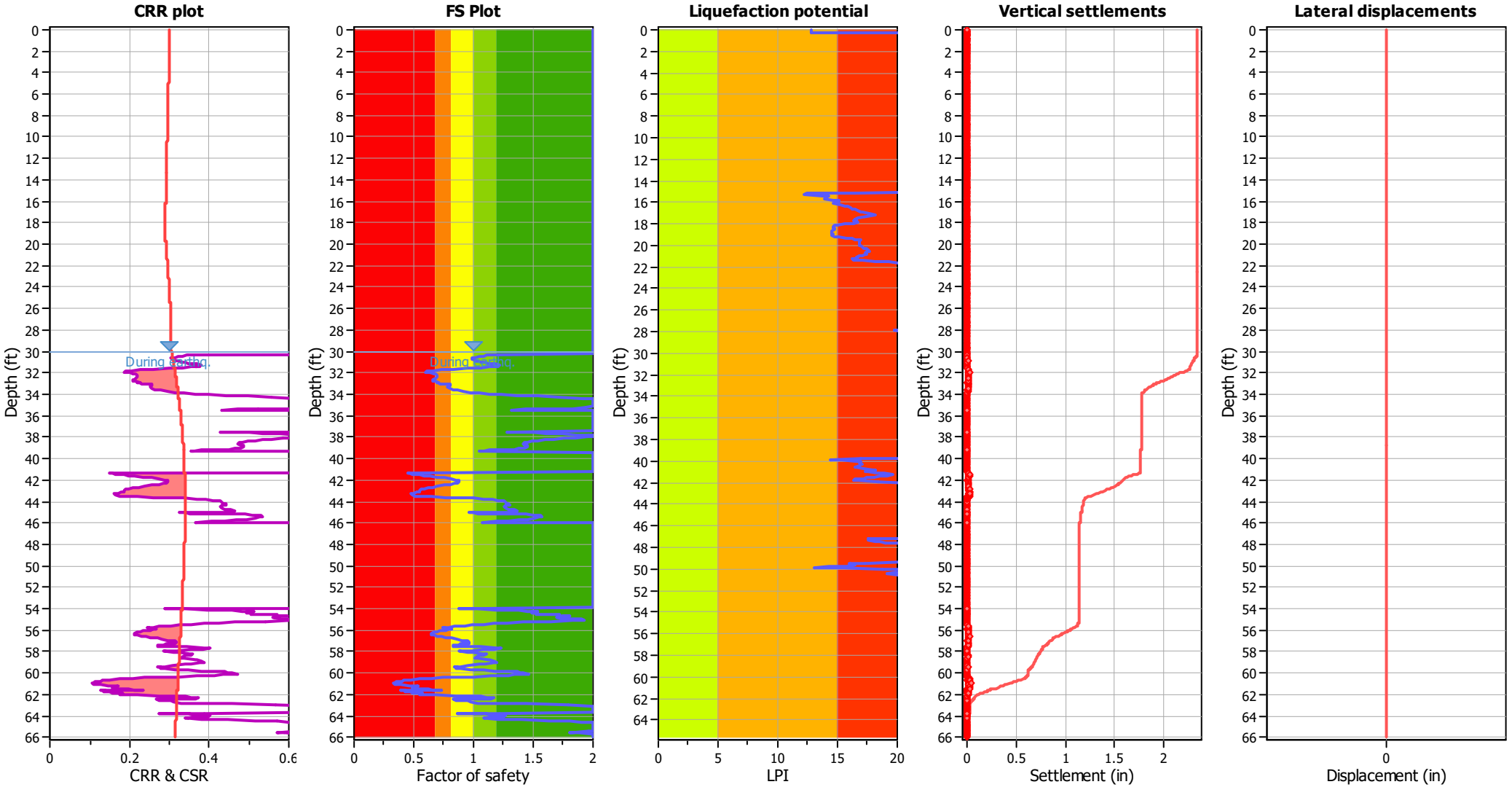
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

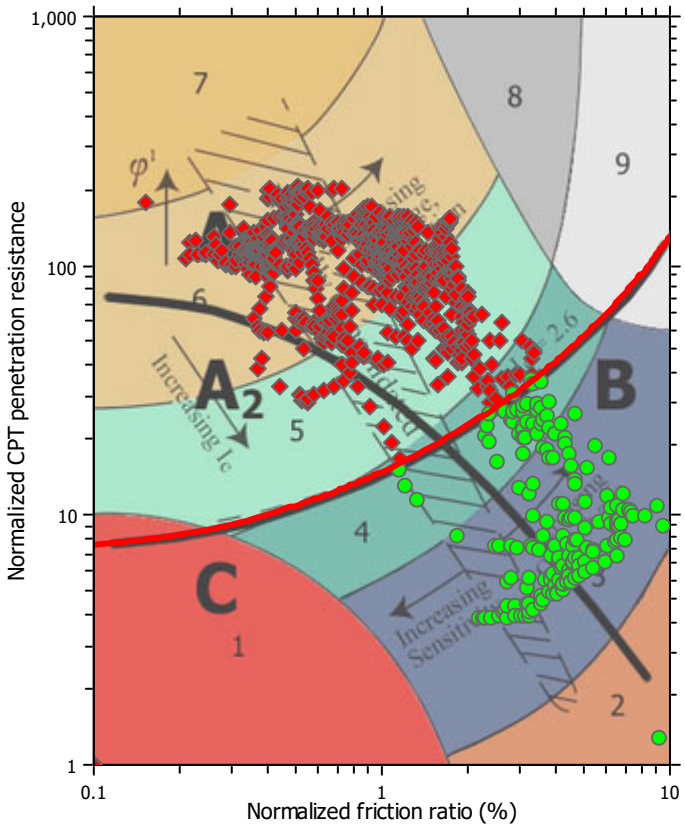
F.S. color scheme

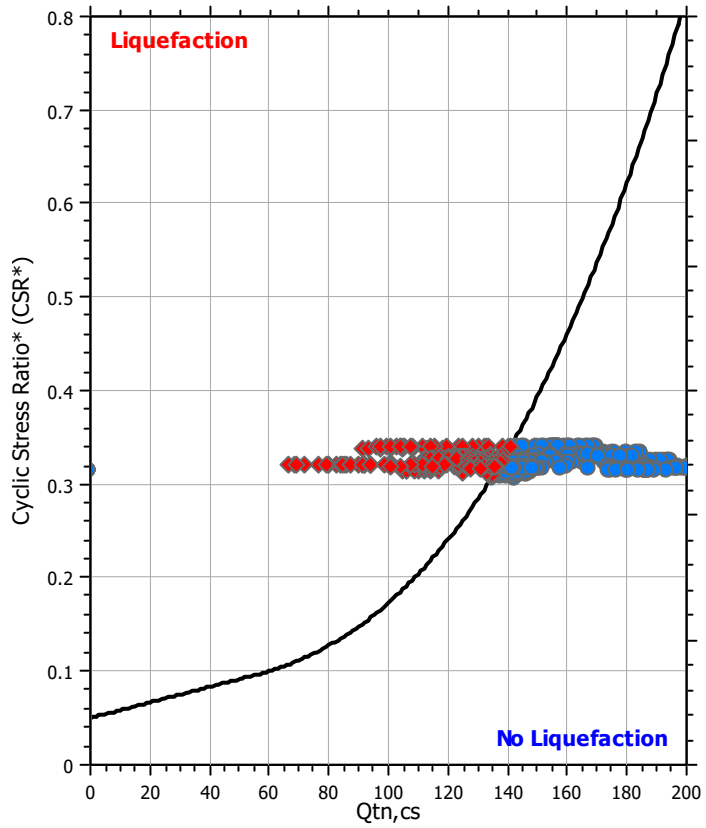
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

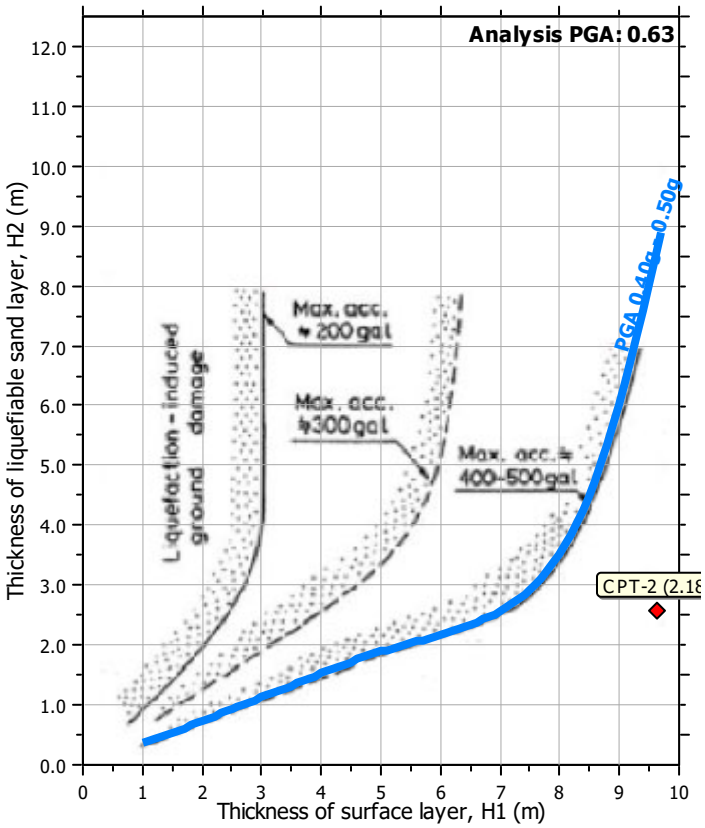
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



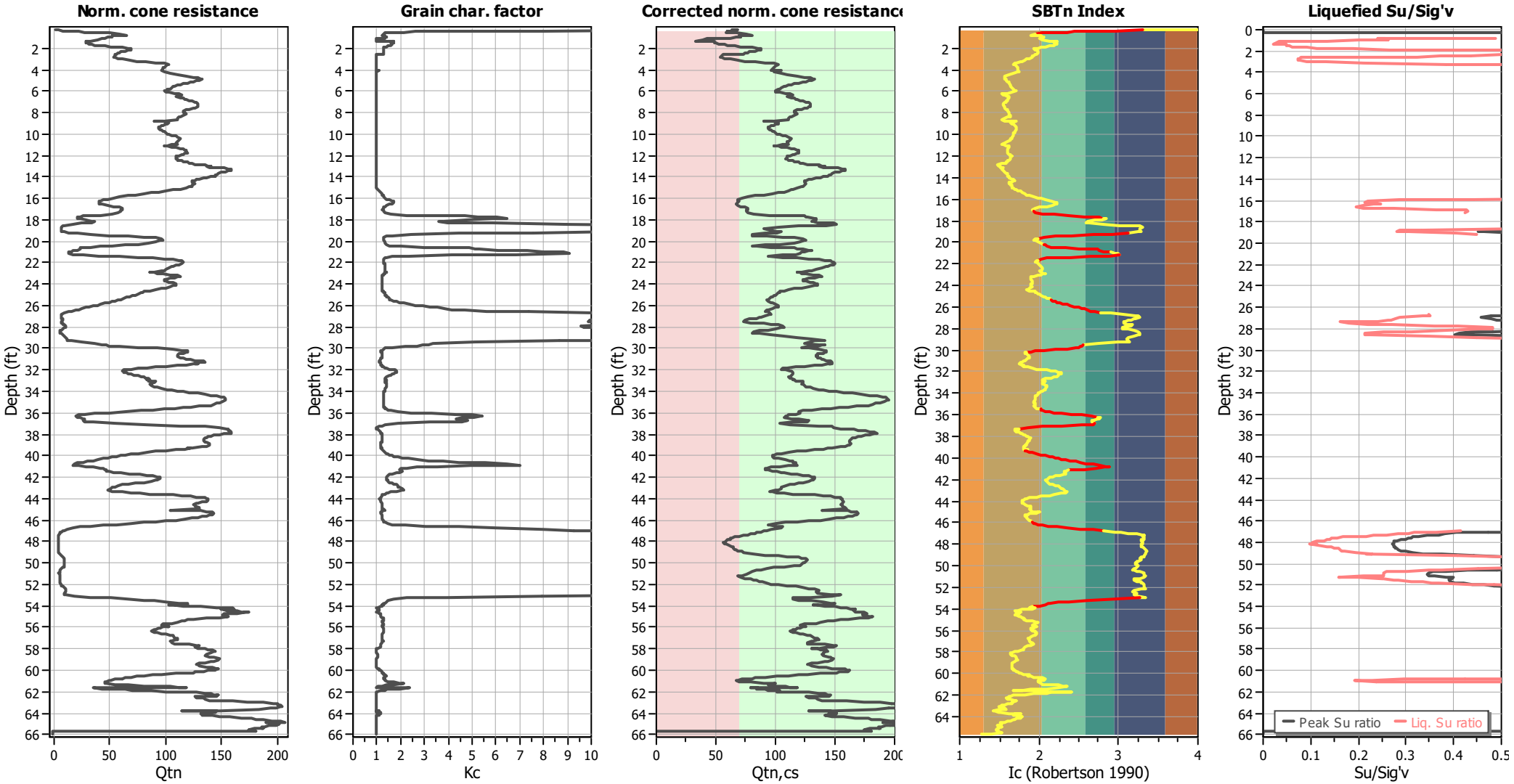




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

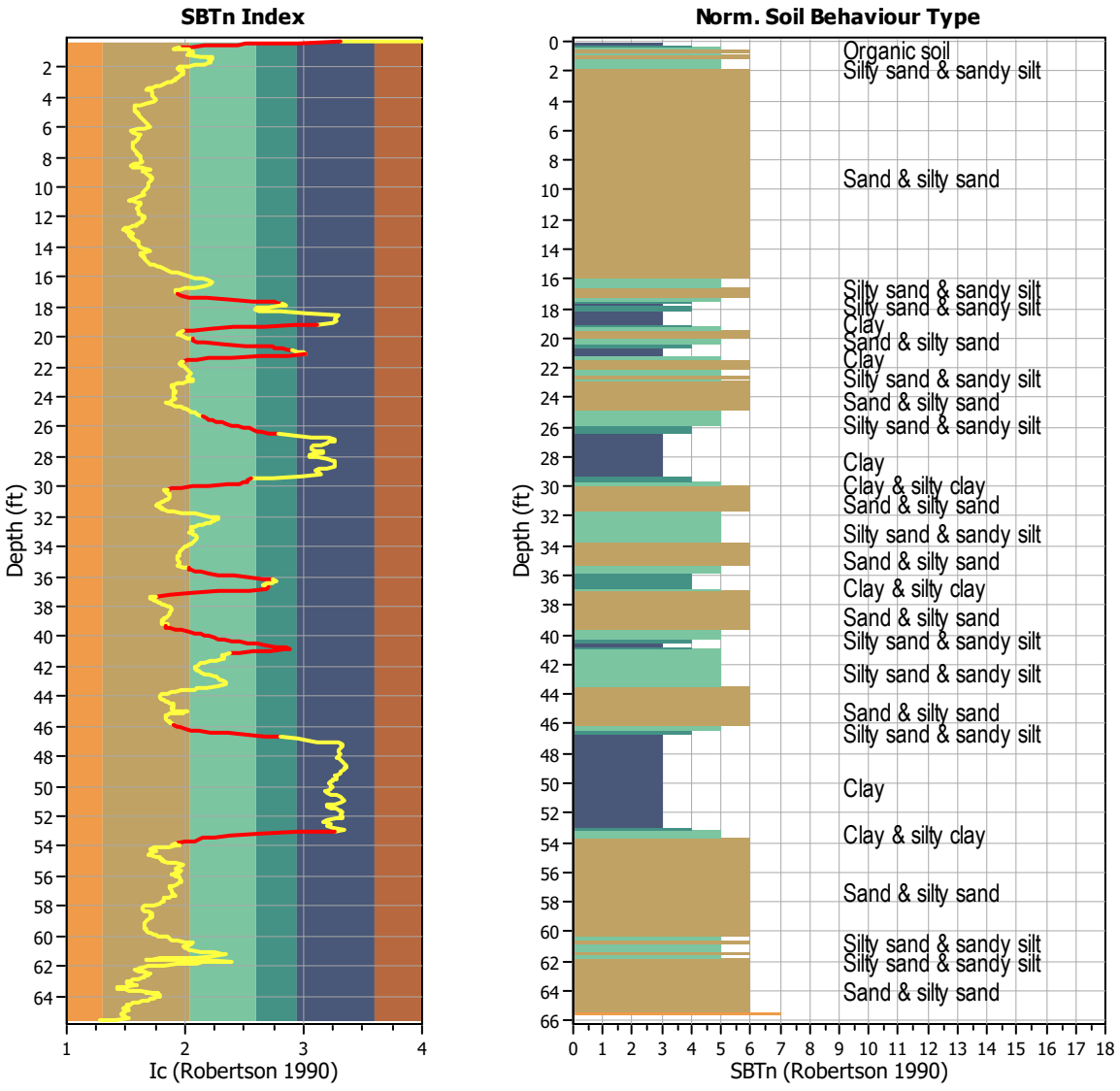
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	N/A

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between $1.80 < I_c < 3.0$) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties		General statistics	
I_c minimum check value:	1.70	Total points in CPT file:	1012
I_c maximum check value:	3.00	Total points excluded:	145
I_c change ratio value:	0.0250	Exclusion percentage:	14.33%
Minimum number of points in layer:	4	Number of layers detected:	13

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	13	Start depth: 0.36 (ft)	3	Clay
		End depth: 0.76 (ft)	6	Sand & silty sand
Transition layer 2	10	Start depth: 17.22 (ft)	6	Sand & silty sand
		End depth: 17.85 (ft)	3	Clay
Transition layer 3	7	Start depth: 19.22 (ft)	3	Clay
		End depth: 19.69 (ft)	6	Sand & silty sand
Transition layer 4	13	Start depth: 20.26 (ft)	5	Silty sand & sandy silt
		End depth: 20.96 (ft)	3	Clay
Transition layer 5	8	Start depth: 21.25 (ft)	3	Clay
		End depth: 21.69 (ft)	6	Sand & silty sand
Transition layer 6	16	Start depth: 25.41 (ft)	5	Silty sand & sandy silt
		End depth: 26.61 (ft)	3	Clay
Transition layer 7	12	Start depth: 29.63 (ft)	4	Clay & silty clay
		End depth: 30.24 (ft)	6	Sand & silty sand
Transition layer 8	11	Start depth: 35.51 (ft)	5	Silty sand & sandy silt
		End depth: 36.28 (ft)	4	Clay & silty clay
Transition layer 9	7	Start depth: 36.86 (ft)	4	Clay & silty clay
		End depth: 37.39 (ft)	6	Sand & silty sand
Transition layer 10	20	Start depth: 39.39 (ft)	6	Sand & silty sand
		End depth: 40.84 (ft)	3	Clay
Transition layer 11	7	Start depth: 40.84 (ft)	3	Clay
		End depth: 41.22 (ft)	5	Silty sand & sandy silt
Transition layer 12	11	Start depth: 46.02 (ft)	6	Sand & silty sand
		End depth: 46.84 (ft)	3	Clay
Transition layer 13	10	Start depth: 53.10 (ft)	3	Clay
		End depth: 53.92 (ft)	6	Sand & silty sand

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.01	0.00	0.00	0.00	N/A	120.90
2	0.04	-0.10	0.01	0.00	N/A	120.90
3	0.08	0.00	0.01	0.00	N/A	120.90
4	0.10	-0.10	0.01	0.00	N/A	120.90
5	0.13	0.00	0.02	0.00	N/A	120.90
6	0.18	0.00	0.03	0.00	N/A	120.90
7	0.22	0.00	0.05	0.00	N/A	120.90
8	0.27	0.00	0.08	0.00	100.00	90.68
9	0.33	2.43	0.09	0.00	81.96	94.98
10	0.36	5.87	0.09	0.00	55.30	96.98
11	0.37	7.19	0.09	0.00	43.87	97.82
12	0.38	8.30	0.10	0.00	39.79	98.46
13	0.42	9.11	0.11	0.00	36.64	99.41
14	0.44	10.73	0.12	0.00	34.37	100.58
15	0.47	11.94	0.14	0.00	31.37	101.55
16	0.47	13.87	0.14	0.00	28.15	102.58
17	0.52	16.90	0.16	0.00	24.51	103.55
18	0.56	20.24	0.17	0.00	21.06	104.60
19	0.58	24.29	0.18	0.00	17.61	105.59
20	0.61	30.26	0.19	0.10	14.26	106.54
21	0.66	37.55	0.20	0.10	11.58	107.34
22	0.76	43.02	0.21	0.10	10.25	107.74
23	0.80	41.80	0.21	0.10	11.05	107.65
24	0.81	31.17	0.21	0.10	12.33	107.41
25	0.85	33.50	0.20	0.10	13.76	107.15
26	0.86	32.59	0.20	0.10	13.66	107.29
27	0.90	32.29	0.22	0.10	14.33	107.68
28	0.95	31.78	0.24	0.10	14.92	108.07
29	1.00	31.38	0.24	0.10	14.72	106.94
30	1.05	28.44	0.12	0.10	14.03	104.83
31	1.14	26.82	0.10	0.10	5.00	101.56
32	1.24	24.39	0.08	0.10	5.00	100.45
33	1.31	21.66	0.09	0.10	5.00	100.02
34	1.36	15.49	0.10	0.10	19.77	100.07
35	1.37	16.65	0.10	0.10	20.16	100.28
36	1.39	21.17	0.10	0.10	19.32	100.40
37	1.43	17.81	0.10	0.10	18.80	100.44
38	1.44	18.12	0.10	0.10	19.86	100.33
39	1.49	18.22	0.10	0.10	19.73	100.60
40	1.53	18.72	0.11	0.10	19.64	101.22
41	1.58	19.74	0.12	0.10	19.61	102.17
42	1.63	20.55	0.14	0.10	19.60	103.26
43	1.68	21.56	0.16	0.10	19.49	104.34
44	1.72	22.98	0.18	0.10	18.93	105.39
45	1.77	25.40	0.20	0.10	17.98	106.40
46	1.82	28.04	0.22	0.19	16.68	107.38
47	1.86	31.48	0.24	0.19	15.32	108.26
48	1.92	35.02	0.26	0.19	13.84	108.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	1.97	38.77	0.26	0.19	12.52	109.50
50	2.01	42.21	0.27	0.19	11.75	110.13
51	2.09	43.83	0.31	0.19	11.40	110.51
52	2.16	43.62	0.30	0.19	11.59	110.65
53	2.20	41.70	0.29	0.19	12.00	110.35
54	2.25	39.07	0.28	0.19	12.39	109.98
55	2.31	38.77	0.27	0.19	12.55	109.49
56	2.37	37.96	0.25	0.19	12.51	108.98
57	2.40	36.64	0.24	0.19	12.56	108.51
58	2.46	36.03	0.23	0.19	12.53	107.92
59	2.54	35.22	0.20	0.19	12.28	107.21
60	2.59	34.82	0.18	0.19	5.00	106.07
61	2.69	34.01	0.14	0.19	5.00	105.12
62	2.74	33.91	0.14	0.19	5.00	104.27
63	2.83	33.91	0.13	0.29	5.00	104.04
64	2.88	33.81	0.13	0.29	5.00	103.96
65	2.98	35.32	0.13	0.29	5.00	104.13
66	3.03	37.96	0.13	0.29	5.00	104.69
67	3.12	42.41	0.15	0.29	5.00	105.94
68	3.21	46.56	0.19	0.29	5.00	107.29
69	3.27	51.52	0.21	0.29	5.00	108.51
70	3.34	56.88	0.23	0.29	5.00	109.32
71	3.41	62.75	0.24	0.29	5.00	110.12
72	3.51	66.09	0.27	0.29	5.00	110.66
73	3.55	63.76	0.28	0.29	5.00	111.08
74	3.65	61.03	0.29	0.38	5.00	111.24
75	3.75	62.45	0.30	0.38	5.00	111.31
76	3.83	61.64	0.29	0.38	5.00	111.22
77	3.94	60.22	0.28	0.38	5.00	111.12
78	4.04	61.44	0.28	0.38	5.00	111.07
79	4.13	59.21	0.29	0.38	7.02	111.59
80	4.24	61.23	0.34	0.38	5.00	111.65
81	4.38	64.57	0.29	0.38	5.00	110.97
82	4.50	69.64	0.19	0.38	4.69	110.20
83	4.62	72.57	0.25	0.48	3.95	110.29
84	4.71	80.16	0.28	0.48	3.93	111.40
85	4.75	80.92	0.29	0.48	3.90	112.19
86	4.84	81.68	0.33	0.48	3.97	112.65
87	4.89	83.70	0.33	0.57	4.02	112.99
88	4.94	83.40	0.33	0.57	4.04	113.02
89	4.98	81.68	0.33	0.57	4.17	112.97
90	5.07	80.06	0.33	0.57	4.33	112.85
91	5.13	78.54	0.33	0.57	4.49	112.71
92	5.17	76.82	0.32	0.57	4.57	112.40
93	5.27	75.00	0.30	0.57	4.72	112.10
94	5.32	72.47	0.30	0.57	4.84	111.72
95	5.42	70.75	0.28	0.57	4.99	111.41
96	5.46	69.33	0.27	0.57	5.00	111.08

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	5.56	67.91	0.26	0.57	5.00	110.88
98	5.61	66.80	0.26	0.57	5.00	110.75
99	5.71	65.89	0.26	0.57	5.00	110.68
100	5.78	64.88	0.26	0.57	5.00	110.63
101	5.85	63.97	0.26	0.57	5.00	110.57
102	5.95	62.65	0.26	0.57	5.00	110.53
103	6.00	61.84	0.26	0.57	5.00	110.86
104	6.09	62.45	0.30	0.67	5.00	109.42
105	6.14	64.47	0.11	0.67	4.43	108.06
106	6.24	67.31	0.14	0.67	3.33	106.15
107	6.30	70.75	0.17	0.67	3.46	107.71
108	6.38	73.18	0.20	0.67	3.76	108.87
109	6.46	70.24	0.23	0.67	4.34	109.63
110	6.50	65.28	0.24	0.67	4.73	110.08
111	6.56	69.74	0.25	0.67	4.82	110.41
112	6.63	71.46	0.26	0.67	4.59	110.75
113	6.68	72.67	0.26	0.67	4.51	110.97
114	6.76	73.38	0.27	0.76	4.44	111.12
115	6.82	74.39	0.27	0.76	4.37	111.23
116	6.88	75.81	0.27	0.76	4.21	111.32
117	6.96	78.34	0.27	0.76	3.98	111.40
118	7.03	80.97	0.27	0.76	3.77	111.49
119	7.11	82.29	0.27	0.76	3.64	111.55
120	7.16	82.89	0.27	0.76	3.60	111.70
121	7.26	83.91	0.29	0.76	3.62	111.86
122	7.31	84.62	0.29	0.76	3.65	112.04
123	7.40	84.72	0.29	0.76	3.70	112.13
124	7.45	84.51	0.30	0.76	3.76	112.18
125	7.54	84.31	0.30	0.86	3.86	112.16
126	7.60	83.00	0.30	0.86	3.98	112.07
127	7.68	81.17	0.29	0.86	4.16	111.94
128	7.74	79.45	0.29	0.86	4.33	111.82
129	7.83	78.44	0.29	0.86	4.51	111.77
130	7.90	77.73	0.29	0.86	4.60	111.85
131	7.98	78.85	0.30	0.86	4.65	112.09
132	8.05	80.67	0.31	0.86	4.62	112.42
133	8.12	82.29	0.32	0.86	4.65	112.70
134	8.19	82.08	0.33	0.86	4.77	112.88
135	8.27	80.57	0.34	0.86	5.03	113.00
136	8.36	78.74	0.34	0.86	5.00	112.80
137	8.41	78.04	0.31	0.86	4.51	111.23
138	8.50	78.24	0.15	0.86	3.85	109.61
139	8.60	78.95	0.18	0.86	3.40	108.40
140	8.70	79.15	0.21	0.86	3.76	109.30
141	8.74	78.14	0.22	0.86	4.96	109.52
142	8.78	55.57	0.22	0.86	5.00	109.55
143	8.81	62.96	0.23	0.96	5.00	109.69
144	8.86	72.17	0.24	0.96	5.00	110.13

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	8.91	74.09	0.25	0.96	5.00	110.49
146	8.94	75.00	0.25	0.96	5.00	110.79
147	9.02	73.89	0.27	0.96	5.00	111.08
148	9.10	72.47	0.28	0.96	5.00	111.34
149	9.17	71.15	0.28	0.96	5.00	111.44
150	9.22	69.84	0.28	0.96	5.00	111.44
151	9.31	68.83	0.28	0.96	5.00	111.41
152	9.37	68.32	0.28	0.96	5.00	111.39
153	9.42	68.32	0.28	0.96	5.00	111.39
154	9.52	69.13	0.28	0.96	5.00	111.41
155	9.60	70.04	0.28	0.96	5.00	111.49
156	9.66	71.36	0.29	0.96	5.00	111.61
157	9.74	73.18	0.29	0.96	5.00	111.74
158	9.81	74.80	0.29	0.96	5.00	111.88
159	9.89	75.71	0.30	0.96	5.00	112.10
160	9.98	76.82	0.32	0.96	5.00	112.42
161	10.03	78.54	0.33	1.05	5.00	112.78
162	10.13	80.97	0.34	1.05	5.00	113.14
163	10.23	84.21	0.35	1.05	5.00	113.45
164	10.32	86.94	0.36	1.05	5.00	113.68
165	10.38	88.16	0.36	1.05	5.00	113.80
166	10.47	89.17	0.37	1.05	5.00	113.83
167	10.57	88.66	0.36	1.05	5.00	113.81
168	10.66	87.45	0.36	1.05	4.50	112.22
169	10.76	87.65	0.16	1.05	3.90	110.65
170	10.85	87.85	0.19	1.05	3.30	108.99
171	10.92	88.46	0.22	1.05	3.57	109.92
172	11.00	89.27	0.23	1.05	4.11	110.26
173	11.07	77.73	0.23	1.05	4.54	110.35
174	11.10	79.45	0.23	1.05	4.87	110.48
175	11.15	83.40	0.25	1.05	4.71	110.88
176	11.19	85.53	0.26	1.05	4.61	111.40
177	11.24	87.25	0.28	1.05	4.59	111.90
178	11.29	89.47	0.30	1.05	4.51	112.30
179	11.34	92.21	0.31	1.05	4.40	112.73
180	11.40	95.14	0.33	1.05	4.33	113.17
181	11.47	97.27	0.35	1.05	4.32	113.59
182	11.53	97.98	0.36	1.05	4.38	113.88
183	11.58	97.87	0.36	1.05	4.42	114.06
184	11.65	98.78	0.37	1.05	4.46	114.22
185	11.72	99.39	0.38	1.05	4.50	114.36
186	11.77	99.29	0.38	1.05	4.57	114.43
187	11.82	98.28	0.38	1.05	4.67	114.45
188	11.88	97.47	0.38	1.15	5.03	114.87
189	11.97	95.95	0.45	1.05	5.00	114.84
190	12.02	94.84	0.38	1.05	5.00	114.75
191	12.06	93.42	0.38	1.05	5.00	114.18
192	12.11	92.31	0.37	1.05	5.00	114.03

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	12.21	93.32	0.36	1.05	5.00	113.85
194	12.25	92.21	0.35	1.05	5.00	113.70
195	12.30	93.22	0.35	1.05	5.01	113.58
196	12.31	93.52	0.35	1.05	4.95	113.56
197	12.32	93.52	0.35	1.05	4.93	113.57
198	12.35	93.83	0.35	1.05	4.77	113.38
199	12.40	95.24	0.32	1.05	4.60	113.25
200	12.45	96.66	0.32	1.15	4.38	113.11
201	12.52	98.38	0.32	1.05	4.29	113.28
202	12.56	100.20	0.33	1.05	4.25	113.61
203	12.62	102.33	0.36	1.05	4.25	113.99
204	12.65	103.54	0.37	1.05	3.77	113.26
205	12.71	105.16	0.23	1.15	3.23	112.19
206	12.76	106.68	0.23	1.15	2.62	110.90
207	12.83	110.12	0.23	1.15	2.60	111.55
208	12.88	114.17	0.28	1.15	2.77	112.94
209	12.93	118.52	0.37	1.15	2.90	114.26
210	12.98	124.09	0.40	1.15	3.08	115.17
211	13.03	121.66	0.41	1.15	3.06	115.51
212	13.04	125.50	0.42	1.15	3.47	115.78
213	13.07	113.26	0.46	1.05	3.50	116.29
214	13.13	129.35	0.50	1.05	3.58	116.95
215	13.17	134.31	0.54	1.05	3.26	117.70
216	13.22	139.37	0.58	1.05	3.29	118.28
217	13.27	139.88	0.62	1.05	3.36	118.74
218	13.32	141.09	0.64	1.05	3.46	119.07
219	13.37	142.31	0.66	1.05	3.56	119.26
220	13.41	140.38	0.67	1.05	3.64	119.30
221	13.46	139.27	0.66	1.05	3.75	119.26
222	13.51	137.45	0.66	1.15	3.85	119.23
223	13.56	136.13	0.66	1.15	4.04	119.31
224	13.60	134.31	0.69	1.05	4.26	119.44
225	13.66	132.39	0.70	1.05	4.38	119.40
226	13.75	131.68	0.66	1.05	4.42	119.28
227	13.80	131.27	0.66	1.05	4.39	119.11
228	13.89	130.57	0.66	1.05	4.46	119.13
229	13.94	130.36	0.67	1.05	4.60	119.22
230	13.99	128.44	0.69	1.15	4.88	119.41
231	14.09	125.71	0.72	1.15	5.27	119.59
232	14.14	121.96	0.73	1.15	5.70	119.79
233	14.23	119.13	0.76	1.15	6.08	119.87
234	14.28	117.00	0.76	1.15	5.80	119.04
235	14.38	115.38	0.51	1.15	5.31	118.06
236	14.42	116.85	0.51	1.15	4.82	116.96
237	14.52	113.76	0.52	1.15	4.88	117.10
238	14.57	116.70	0.53	1.15	4.95	117.39
239	14.67	119.74	0.57	1.15	5.03	117.62
240	14.68	116.09	0.57	1.15	5.00	117.81

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	14.70	117.61	0.58	1.15	5.00	117.84
242	14.75	115.48	0.58	1.15	5.31	117.93
243	14.80	116.60	0.59	1.15	5.43	118.05
244	14.89	116.40	0.61	1.05	5.52	118.17
245	14.94	115.59	0.61	1.05	5.70	118.20
246	15.04	112.25	0.60	1.05	5.96	118.05
247	15.13	107.59	0.59	1.05	6.34	117.77
248	15.21	101.82	0.57	1.05	6.81	117.40
249	15.28	95.75	0.55	1.05	7.34	116.95
250	15.38	89.98	0.52	1.05	7.88	116.40
251	15.47	84.21	0.48	1.05	8.48	115.75
252	15.57	77.33	0.45	1.05	9.19	115.05
253	15.67	71.05	0.42	1.05	10.08	114.27
254	15.77	63.87	0.38	0.96	11.15	113.43
255	15.86	56.78	0.35	0.96	12.43	112.60
256	15.96	51.11	0.33	0.96	13.84	112.03
257	16.05	47.27	0.34	0.96	15.41	111.80
258	16.15	43.52	0.35	0.96	17.50	112.16
259	16.25	39.98	0.42	0.96	19.14	112.43
260	16.31	39.78	0.40	0.96	20.17	112.68
261	16.39	39.78	0.40	0.96	20.08	112.48
262	16.48	39.57	0.38	0.96	19.41	112.23
263	16.59	42.10	0.35	0.96	17.84	112.02
264	16.68	47.47	0.35	0.96	15.50	111.89
265	16.76	54.25	0.33	0.96	13.16	111.73
266	16.86	59.92	0.29	0.96	11.62	111.63
267	16.92	61.94	0.31	0.96	10.95	111.65
268	17.02	61.84	0.32	0.96	10.86	111.63
269	17.11	61.13	0.29	0.96	11.26	111.95
270	17.22	60.42	0.35	0.96	11.88	112.47
271	17.35	59.61	0.39	0.96	14.04	114.30
272	17.45	55.47	0.60	0.96	18.38	116.52
273	17.55	44.33	0.88	0.96	25.48	117.93
274	17.61	30.36	0.95	0.96	33.75	118.25
275	17.64	27.02	0.93	0.76	40.43	117.69
276	17.70	24.80	0.87	0.76	43.23	117.15
277	17.75	22.67	0.84	0.76	45.31	116.73
278	17.80	21.86	0.84	0.76	46.98	116.55
279	17.85	21.56	0.84	0.86	48.89	116.96
280	17.94	21.26	1.00	0.86	45.90	117.91
281	17.99	30.26	1.09	0.86	40.69	119.19
282	18.09	37.65	1.19	0.86	35.41	120.26
283	18.15	41.30	1.27	0.76	34.54	120.72
284	18.23	36.03	1.26	0.76	36.66	120.67
285	18.33	30.87	1.23	0.76	46.11	119.75
286	18.43	14.17	1.16	0.76	59.31	117.89
287	18.52	10.22	0.82	0.76	78.74	114.99
288	18.59	9.41	0.56	0.76	81.21	111.71

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	18.72	8.10	0.35	0.76	78.82	108.87
290	18.81	7.79	0.30	0.76	77.80	106.89
291	18.87	7.69	0.30	0.76	78.37	106.65
292	18.95	7.69	0.32	0.86	79.72	107.66
293	19.05	8.40	0.43	0.86	76.48	109.13
294	19.14	10.73	0.48	0.86	66.73	110.57
295	19.22	14.78	0.48	0.86	53.52	111.65
296	19.29	20.75	0.49	0.86	39.10	113.06
297	19.38	34.31	0.56	0.86	26.85	114.86
298	19.44	55.26	0.63	0.86	19.18	117.03
299	19.53	74.70	0.80	0.86	14.77	118.92
300	19.62	90.89	0.91	0.86	12.57	120.49
301	19.69	102.43	1.00	0.76	11.54	121.67
302	19.79	108.50	1.15	0.76	11.36	122.57
303	19.86	109.41	1.24	0.76	11.84	123.28
304	19.97	106.58	1.33	0.76	12.61	123.60
305	20.07	101.72	1.35	0.76	13.52	123.57
306	20.16	94.94	1.29	0.76	14.68	123.29
307	20.26	85.73	1.27	0.76	14.95	121.49
308	20.34	72.77	0.61	0.67	15.95	119.48
309	20.43	59.51	0.65	0.67	17.67	117.13
310	20.50	47.17	0.70	0.67	23.52	117.36
311	20.60	37.15	0.83	0.67	30.86	117.42
312	20.62	28.74	0.85	0.67	38.22	117.36
313	20.63	25.51	0.86	0.57	41.38	117.35
314	20.68	29.96	0.89	0.57	42.41	117.60
315	20.73	27.73	0.95	0.57	43.48	118.01
316	20.82	25.20	1.01	0.57	47.06	118.03
317	20.87	23.48	0.98	0.57	50.17	117.77
318	20.91	21.66	0.93	0.57	52.49	117.09
319	20.96	19.53	0.83	0.67	55.24	116.20
320	21.05	17.51	0.75	0.67	58.65	115.41
321	21.11	15.69	0.75	0.67	59.61	115.06
322	21.17	17.71	0.75	0.67	59.41	115.10
323	21.25	17.91	0.76	0.67	50.49	115.80
324	21.30	28.04	0.80	0.67	37.44	117.17
325	21.37	47.77	0.89	0.67	25.95	118.97
326	21.45	69.84	1.01	0.76	19.10	120.73
327	21.49	88.87	1.16	0.76	15.54	122.37
328	21.58	104.65	1.36	0.76	13.61	123.67
329	21.64	116.80	1.47	0.76	12.50	124.67
330	21.69	125.61	1.57	0.76	11.91	125.41
331	21.78	131.07	1.71	0.76	11.69	126.01
332	21.83	134.51	1.80	0.76	11.79	126.54
333	21.89	135.73	1.90	0.76	12.04	126.96
334	21.98	136.03	2.02	0.76	12.40	127.34
335	22.03	136.23	2.09	0.76	12.75	127.63
336	22.12	135.42	2.15	0.76	13.09	127.77

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	22.22	132.99	2.16	0.76	13.41	127.81
338	22.26	131.17	2.15	0.76	13.69	127.73
339	22.36	128.44	2.12	0.76	13.97	127.61
340	22.41	125.51	2.10	0.76	14.35	127.56
341	22.51	123.38	2.14	0.76	14.15	127.06
342	22.60	121.66	1.74	0.76	13.83	126.45
343	22.70	118.93	1.65	0.76	13.30	125.68
344	22.75	117.41	1.61	0.76	13.43	125.41
345	22.84	114.27	1.59	0.76	14.48	125.10
346	22.89	96.25	1.56	0.76	14.75	124.96
347	22.90	110.88	1.55	0.76	15.01	124.78
348	22.94	107.49	1.51	0.76	13.97	124.76
349	23.00	111.94	1.47	0.76	13.47	124.67
350	23.08	117.61	1.47	0.86	12.40	124.71
351	23.13	127.23	1.45	0.86	11.31	124.84
352	23.20	136.23	1.45	0.86	10.47	124.96
353	23.27	138.66	1.46	0.86	10.12	124.97
354	23.33	136.23	1.43	0.76	10.11	124.75
355	23.42	131.78	1.34	0.86	10.24	124.32
356	23.48	126.62	1.25	0.76	10.39	123.80
357	23.57	122.37	1.20	0.86	10.62	123.46
358	23.61	120.44	1.20	0.86	10.81	123.34
359	23.66	120.75	1.21	0.86	10.87	123.44
360	23.73	123.28	1.25	0.86	10.80	123.73
361	23.80	128.04	1.32	0.86	10.61	124.10
362	23.85	132.49	1.37	0.86	10.45	124.49
363	23.94	135.32	1.42	0.86	10.34	124.75
364	24.00	136.54	1.44	0.86	10.35	124.89
365	24.09	135.73	1.44	0.86	10.44	124.90
366	24.16	133.80	1.43	0.86	10.68	124.85
367	24.24	130.46	1.43	0.86	10.08	123.73
368	24.33	125.81	0.86	0.86	9.54	122.48
369	24.43	121.05	0.88	0.86	8.99	121.06
370	24.52	116.40	0.91	0.86	9.98	121.07
371	24.58	105.36	0.92	0.86	10.82	121.05
372	24.59	104.91	0.92	0.86	11.52	121.00
373	24.63	103.24	0.93	0.76	11.65	121.07
374	24.68	104.45	0.95	0.76	11.99	121.27
375	24.77	102.63	1.00	0.76	12.42	121.51
376	24.82	100.30	1.03	0.76	13.12	121.77
377	24.92	97.98	1.08	0.76	13.83	121.94
378	25.01	95.24	1.10	0.76	14.55	122.06
379	25.06	92.41	1.11	0.76	15.23	122.08
380	25.16	89.47	1.12	0.76	15.90	122.02
381	25.25	86.54	1.11	0.76	16.59	121.94
382	25.30	83.50	1.11	0.76	17.28	121.83
383	25.41	80.57	1.11	0.76	18.09	121.73
384	25.49	77.23	1.11	0.76	18.98	121.65

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	25.55	73.99	1.11	0.76	20.07	121.62
386	25.64	70.65	1.15	0.76	21.32	121.62
387	25.70	67.11	1.16	0.76	22.79	121.64
388	25.79	63.26	1.19	0.76	24.37	121.58
389	25.89	59.31	1.18	0.76	26.26	121.42
390	25.94	54.15	1.17	0.76	28.33	121.11
391	26.02	49.29	1.13	0.76	30.48	120.54
392	26.12	44.64	1.03	0.76	32.30	119.79
393	26.17	41.19	0.94	0.67	34.00	118.80
394	26.28	36.64	0.83	0.67	35.82	117.81
395	26.36	33.20	0.76	0.67	37.65	116.64
396	26.45	30.06	0.64	0.67	40.39	115.51
397	26.50	25.00	0.59	0.67	44.96	114.33
398	26.61	19.74	0.56	0.67	52.70	113.36
399	26.70	15.69	0.53	0.67	63.56	112.54
400	26.77	12.45	0.54	0.67	73.76	111.85
401	26.85	10.73	0.52	0.67	77.64	111.21
402	26.94	12.35	0.44	0.67	78.19	110.57
403	27.04	11.23	0.43	0.67	74.40	110.13
404	27.14	12.25	0.42	0.67	72.81	110.00
405	27.23	13.16	0.41	0.76	69.26	109.81
406	27.28	13.26	0.38	0.76	67.37	109.59
407	27.29	13.21	0.37	0.76	64.60	108.54
408	27.38	13.36	0.25	0.76	63.04	107.81
409	27.48	13.26	0.28	0.76	62.75	107.60
410	27.57	13.16	0.35	0.76	65.67	108.83
411	27.64	13.36	0.41	0.76	68.02	109.83
412	27.65	13.36	0.43	0.67	70.74	111.13
413	27.74	13.56	0.57	0.67	69.81	112.46
414	27.80	16.60	0.65	0.67	65.76	114.19
415	27.90	20.55	0.77	0.67	61.65	115.18
416	27.99	20.34	0.77	0.67	61.92	115.44
417	28.07	17.11	0.72	0.67	66.57	114.64
418	28.16	13.87	0.62	0.67	72.64	113.23
419	28.25	12.35	0.50	0.67	76.77	111.52
420	28.34	11.34	0.41	0.67	77.68	109.88
421	28.44	10.83	0.35	0.67	77.85	108.83
422	28.53	10.83	0.35	0.67	78.14	108.53
423	28.62	10.83	0.37	0.67	77.38	110.10
424	28.76	13.56	0.57	0.67	72.35	112.51
425	28.86	18.22	0.74	0.76	67.30	115.27
426	28.96	21.15	0.97	0.76	65.09	117.31
427	29.08	21.56	1.17	0.76	67.25	119.00
428	29.19	21.15	1.43	0.76	69.03	120.29
429	29.29	23.48	1.60	0.76	57.91	120.47
430	29.39	37.85	0.97	0.76	42.67	122.13
431	29.50	60.73	1.83	0.76	33.13	124.03
432	29.63	74.39	2.28	0.76	32.04	126.13

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	29.65	65.49	2.34	0.76	31.66	126.80
434	29.66	70.75	2.34	0.76	31.48	126.90
435	29.72	76.72	2.35	0.76	30.48	126.99
436	29.80	73.08	2.34	0.76	28.82	127.09
437	29.85	83.60	2.30	0.96	24.74	127.25
438	29.94	111.74	2.18	1.05	19.12	127.53
439	30.00	139.37	2.11	0.96	14.70	127.66
440	30.05	155.36	1.99	0.96	11.90	127.40
441	30.14	164.17	1.72	0.86	10.16	126.80
442	30.19	168.22	1.55	0.86	9.10	126.23
443	30.24	170.24	1.55	0.86	8.70	126.01
444	30.29	170.34	1.56	0.86	8.77	126.09
445	30.38	168.42	1.60	0.96	9.02	126.13
446	30.43	164.37	1.60	0.96	9.33	126.13
447	30.48	161.54	1.59	0.96	9.59	126.05
448	30.54	158.91	1.58	0.96	9.78	125.95
449	30.62	156.98	1.55	0.96	9.79	125.86
450	30.67	159.11	1.54	0.96	9.79	125.78
451	30.72	157.18	1.54	0.96	9.69	125.76
452	30.76	159.31	1.53	0.96	9.55	125.70
453	30.86	161.84	1.49	0.96	9.23	125.64
454	30.91	164.98	1.48	0.96	8.91	125.62
455	30.95	168.42	1.49	0.96	8.55	125.64
456	31.03	173.38	1.47	0.96	8.12	125.67
457	31.10	179.65	1.45	1.05	7.69	125.73
458	31.15	185.02	1.48	1.05	7.34	125.89
459	31.20	190.38	1.52	1.05	7.18	126.13
460	31.26	193.52	1.57	1.05	7.15	126.36
461	31.34	193.62	1.60	1.05	7.71	126.40
462	31.37	171.46	1.60	1.05	7.87	126.43
463	31.38	188.76	1.60	1.15	8.09	126.36
464	31.43	183.91	1.58	1.15	7.77	126.31
465	31.47	181.17	1.53	1.15	8.03	126.07
466	31.55	172.87	1.49	1.15	8.51	125.78
467	31.59	160.83	1.47	1.15	9.39	125.48
468	31.66	147.27	1.45	1.15	10.59	125.21
469	31.73	135.12	1.45	1.05	12.03	125.03
470	31.78	124.80	1.48	1.05	13.62	124.95
471	31.84	115.28	1.53	1.05	15.49	125.08
472	31.93	106.78	1.65	1.05	17.52	125.26
473	31.98	99.59	1.73	1.15	19.53	125.52
474	32.02	94.84	1.82	1.15	20.69	125.90
475	32.09	100.05	1.96	1.15	21.58	126.26
476	32.16	96.05	2.03	1.15	21.57	126.59
477	32.22	100.51	2.04	1.15	21.42	126.73
478	32.27	104.25	2.05	1.15	20.75	126.84
479	32.34	105.67	2.06	1.24	20.20	126.90
480	32.42	108.10	2.04	1.24	19.56	126.93

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	32.46	112.85	2.02	1.24	18.55	126.88
482	32.54	118.12	1.95	1.24	17.41	126.77
483	32.60	122.16	1.87	1.24	16.07	126.34
484	32.67	124.90	1.62	1.24	15.05	125.97
485	32.75	127.33	1.63	1.24	14.32	125.74
486	32.81	130.26	1.68	1.24	14.20	126.03
487	32.89	133.50	1.79	1.24	14.12	126.37
488	32.94	136.34	1.83	1.24	14.96	126.52
489	32.95	118.52	1.84	1.24	14.91	126.69
490	33.00	138.16	1.90	1.24	14.89	126.92
491	33.06	141.90	1.98	1.24	14.05	127.30
492	33.11	143.12	2.03	1.24	14.18	127.55
493	33.20	141.70	2.09	1.24	14.56	127.71
494	33.25	138.76	2.13	1.24	15.10	127.86
495	33.34	136.54	2.19	1.24	15.55	127.94
496	33.38	135.73	2.19	1.24	15.74	128.03
497	33.48	137.75	2.22	1.24	15.68	128.19
498	33.58	141.70	2.30	1.24	15.42	128.42
499	33.63	146.25	2.34	1.24	15.06	128.72
500	33.73	152.23	2.43	1.24	14.62	129.02
501	33.82	158.70	2.51	1.24	14.13	129.36
502	33.87	165.89	2.57	1.24	13.67	129.70
503	33.96	172.57	2.69	1.24	13.23	130.04
504	34.02	179.65	2.77	1.24	12.84	130.48
505	34.11	189.47	2.95	1.24	12.43	131.00
506	34.18	200.91	3.15	1.24	12.08	131.61
507	34.26	211.03	3.36	1.24	11.89	132.25
508	34.35	219.33	3.65	1.24	11.82	132.88
509	34.44	227.93	3.92	1.34	11.72	133.37
510	34.49	235.22	3.98	1.34	11.56	133.69
511	34.59	238.66	4.05	1.34	11.45	133.86
512	34.69	239.88	4.13	1.34	11.44	133.98
513	34.76	241.39	4.15	1.34	11.40	134.01
514	34.83	241.50	4.07	1.43	11.43	134.00
515	34.93	238.86	4.12	1.43	11.44	133.81
516	35.02	233.50	3.89	1.43	11.54	133.60
517	35.12	229.05	3.79	1.43	11.46	133.22
518	35.22	226.72	3.60	1.43	11.42	132.94
519	35.30	223.58	3.51	1.43	11.44	132.63
520	35.38	216.29	3.41	1.43	12.34	132.31
521	35.43	185.73	3.36	1.43	13.07	132.03
522	35.46	192.21	3.30	1.53	13.71	131.78
523	35.51	190.18	3.21	1.62	13.68	131.56
524	35.56	179.15	3.11	1.62	14.30	131.05
525	35.66	160.93	2.83	1.53	15.30	130.47
526	35.70	150.40	2.73	1.53	16.62	129.73
527	35.80	133.20	2.53	1.53	18.63	129.08
528	35.89	111.94	2.45	1.53	21.97	128.26

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	35.96	88.76	2.31	1.53	26.84	127.15
530	36.04	66.50	1.99	1.43	32.56	125.33
531	36.14	49.39	1.45	1.43	38.50	123.16
532	36.19	40.49	1.23	1.43	42.06	121.28
533	36.28	40.49	1.16	1.43	44.05	120.76
534	36.33	40.49	1.27	1.43	43.63	120.56
535	36.42	40.49	1.14	1.43	42.36	120.82
536	36.48	45.85	1.23	1.43	39.85	121.28
537	36.52	51.52	1.40	1.43	38.41	122.62
538	36.62	55.67	1.74	1.43	38.39	123.71
539	36.68	55.06	1.84	1.43	39.88	124.37
540	36.77	51.42	1.88	1.43	40.89	124.37
541	36.86	51.92	1.78	1.43	39.71	124.46
542	36.90	60.53	1.84	1.53	32.23	124.83
543	37.00	90.49	1.76	1.53	21.98	125.79
544	37.10	143.32	1.82	1.62	14.18	126.63
545	37.20	187.14	1.82	1.53	9.48	127.07
546	37.29	217.10	1.62	1.53	7.15	127.31
547	37.39	234.82	1.72	1.53	6.16	127.69
548	37.49	245.04	1.93	1.53	6.15	128.39
549	37.53	245.80	2.08	1.53	6.43	129.01
550	37.58	245.80	2.19	1.43	6.79	129.47
551	37.62	246.56	2.33	1.43	7.05	129.90
552	37.69	251.11	2.46	1.43	7.41	130.49
553	37.77	253.95	2.76	1.43	7.74	131.04
554	37.82	255.46	2.89	1.34	8.12	131.53
555	37.87	255.46	3.00	1.34	8.40	131.80
556	37.91	253.54	3.09	1.34	8.73	131.98
557	37.97	249.09	3.14	1.34	9.14	132.07
558	38.06	242.00	3.17	1.43	9.58	132.05
559	38.10	234.61	3.14	1.34	9.96	131.95
560	38.17	230.06	3.08	1.34	10.09	131.72
561	38.25	227.93	2.95	1.34	9.95	131.37
562	38.35	226.21	2.75	1.34	9.74	130.98
563	38.40	223.18	2.65	1.34	9.59	130.66
564	38.46	220.85	2.61	1.34	9.55	130.46
565	38.54	220.85	2.57	1.34	9.50	130.34
566	38.60	220.85	2.53	1.34	9.36	130.20
567	38.69	220.85	2.46	1.34	9.14	130.07
568	38.74	224.90	2.42	1.34	8.84	129.97
569	38.83	228.95	2.40	1.34	8.66	130.01
570	38.88	229.65	2.47	1.34	8.43	129.87
571	38.97	228.95	2.27	1.43	8.33	129.71
572	39.02	227.63	2.26	1.43	8.17	129.42
573	39.11	225.10	2.21	1.43	8.23	129.25
574	39.16	220.54	2.14	1.43	8.40	128.95
575	39.23	209.82	2.04	1.43	9.12	128.58
576	39.24	186.03	2.02	1.43	9.26	128.31

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	39.28	206.53	1.96	1.43	9.26	128.10
578	39.32	203.24	1.90	1.43	8.75	127.86
579	39.39	195.95	1.80	1.43	9.08	127.52
580	39.47	184.41	1.77	1.43	9.80	127.22
581	39.54	171.46	1.78	1.43	10.93	127.03
582	39.62	158.50	1.78	1.43	12.28	126.82
583	39.71	145.24	1.76	1.43	13.78	126.57
584	39.76	133.40	1.75	1.43	15.25	126.29
585	39.85	124.80	1.72	1.43	16.63	126.05
586	39.90	117.71	1.71	1.43	17.85	125.82
587	40.00	111.03	1.69	1.34	19.15	125.63
588	40.06	104.35	1.69	1.34	20.49	125.46
589	40.15	98.68	1.69	1.34	21.96	125.31
590	40.21	92.91	1.69	1.34	23.70	125.27
591	40.29	86.84	1.76	1.34	25.91	125.29
592	40.35	79.96	1.83	1.34	28.93	125.45
593	40.43	72.17	1.95	1.34	31.85	125.15
594	40.52	64.47	1.72	1.34	35.38	124.58
595	40.58	54.86	1.64	1.34	39.26	123.64
596	40.67	46.25	1.54	1.34	44.53	122.80
597	40.77	39.47	1.43	1.34	48.71	122.20
598	40.84	39.12	1.45	1.34	51.09	121.91
599	40.89	38.77	1.46	1.24	47.89	122.14
600	40.94	48.89	1.45	1.24	41.53	122.58
601	41.03	61.54	1.47	1.24	34.10	123.11
602	41.08	73.89	1.47	1.24	28.70	123.52
603	41.14	83.60	1.45	1.15	25.34	123.76
604	41.22	88.56	1.45	1.15	23.58	123.93
605	41.28	90.89	1.47	1.15	23.00	124.13
606	41.33	91.80	1.53	1.05	23.16	124.56
607	41.42	93.22	1.69	1.05	23.59	125.16
608	41.47	95.85	1.84	1.05	23.66	125.86
609	41.52	101.92	1.97	1.05	22.91	126.69
610	41.62	114.27	2.20	1.05	21.31	127.57
611	41.67	130.16	2.38	1.05	19.54	128.55
612	41.76	145.55	2.62	1.05	17.95	129.34
613	41.82	157.59	2.74	1.05	16.90	130.00
614	41.90	165.99	2.90	1.05	16.15	130.44
615	41.99	172.67	2.96	1.05	15.70	130.73
616	42.05	176.01	2.98	1.05	15.44	130.86
617	42.15	175.71	3.00	0.96	15.47	130.91
618	42.23	173.89	3.02	0.96	15.76	130.92
619	42.30	170.34	3.03	0.96	16.20	130.85
620	42.38	164.37	2.97	0.96	16.79	130.64
621	42.48	156.17	2.87	0.96	17.75	130.21
622	42.57	140.79	2.70	0.96	19.03	129.66
623	42.64	128.95	2.56	0.86	20.48	129.02
624	42.72	120.14	2.42	0.86	21.44	128.37

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	42.82	114.47	2.21	0.86	22.03	127.72
626	42.90	109.51	2.08	0.86	22.42	127.19
627	42.97	106.07	2.04	0.86	23.04	126.89
628	43.06	102.53	2.03	0.86	23.94	126.76
629	43.15	98.28	2.05	0.86	24.28	126.30
630	43.20	95.44	1.73	0.86	23.92	125.87
631	43.30	99.49	1.72	0.86	21.66	125.62
632	43.40	117.61	1.75	0.86	18.56	126.10
633	43.48	142.51	1.83	0.96	16.70	126.59
634	43.51	137.14	1.89	0.96	15.94	126.91
635	43.52	137.65	1.91	0.86	15.16	127.23
636	43.56	163.87	1.98	0.86	13.67	127.68
637	43.61	178.84	2.08	0.86	11.96	128.22
638	43.67	193.82	2.13	0.86	10.83	128.59
639	43.72	206.98	2.13	0.86	9.87	128.82
640	43.80	217.20	2.15	0.86	9.14	128.98
641	43.85	225.30	2.16	0.86	8.63	129.13
642	43.90	231.68	2.18	0.86	8.26	129.25
643	43.94	236.74	2.19	0.86	7.97	129.33
644	43.99	240.69	2.18	0.86	7.76	129.35
645	44.08	242.00	2.18	0.86	7.68	129.38
646	44.14	241.90	2.20	0.86	7.83	129.54
647	44.22	240.59	2.33	0.86	8.11	129.75
648	44.28	238.66	2.39	0.86	8.47	129.97
649	44.33	235.63	2.43	0.86	8.80	130.11
650	44.40	232.69	2.50	0.86	9.29	130.33
651	44.48	228.44	2.64	0.86	9.67	130.62
652	44.52	232.74	2.75	0.86	10.35	131.05
653	44.61	224.49	3.00	0.96	10.26	131.06
654	44.72	232.79	2.65	0.96	10.27	131.18
655	44.77	237.24	2.86	0.96	9.91	131.18
656	44.91	238.36	2.94	1.05	10.09	131.47
657	44.95	237.95	2.96	1.05	10.63	131.50
658	45.02	218.72	2.98	1.05	10.98	131.47
659	45.04	225.50	2.97	1.15	13.35	131.14
660	45.06	152.63	2.96	1.15	12.86	131.13
661	45.11	232.29	2.89	1.15	12.30	131.08
662	45.15	240.38	2.84	1.15	9.78	131.30
663	45.21	247.16	2.81	1.15	9.27	131.31
664	45.25	253.14	2.82	1.15	8.95	131.37
665	45.30	256.98	2.86	1.15	8.80	131.48
666	45.35	258.70	2.90	1.15	8.79	131.59
667	45.41	258.40	2.92	1.15	8.84	131.65
668	45.49	258.10	2.93	1.15	8.94	131.65
669	45.55	254.45	2.91	1.15	9.06	131.57
670	45.63	249.80	2.86	1.15	9.25	131.42
671	45.69	244.23	2.81	1.15	9.48	131.22
672	45.78	236.94	2.74	1.15	9.80	131.01

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	45.84	228.64	2.69	1.15	10.17	130.69
674	45.93	218.52	2.57	1.15	10.59	130.25
675	46.02	205.87	2.39	1.15	11.15	129.68
676	46.08	190.89	2.26	1.15	11.83	128.94
677	46.16	174.39	2.03	1.15	12.80	128.17
678	46.24	157.89	1.90	1.15	14.14	127.35
679	46.31	139.07	1.81	1.15	16.32	126.66
680	46.41	117.21	1.75	1.05	19.70	126.05
681	46.48	95.75	1.74	1.05	24.72	125.44
682	46.56	74.29	1.72	1.05	31.32	124.66
683	46.65	57.08	1.60	1.05	39.23	123.40
684	46.75	42.81	1.33	1.05	46.43	121.67
685	46.84	36.34	1.06	1.05	55.36	119.83
686	46.94	30.67	0.95	1.05	60.33	118.19
687	47.02	25.20	0.82	1.15	66.74	116.92
688	47.08	21.46	0.75	1.15	74.89	115.79
689	47.12	17.41	0.72	1.15	81.21	115.04
690	47.16	17.36	0.69	1.05	83.23	114.56
691	47.21	18.72	0.65	1.05	82.03	114.08
692	47.27	17.31	0.59	1.05	81.52	113.39
693	47.35	16.30	0.53	1.05	83.53	112.58
694	47.40	15.59	0.49	1.05	83.45	111.48
695	47.50	15.28	0.39	1.05	82.43	110.45
696	47.55	15.18	0.36	1.05	80.62	109.38
697	47.61	14.98	0.33	1.05	80.14	108.87
698	47.69	14.78	0.32	1.05	80.47	108.49
699	47.76	14.37	0.31	1.05	81.28	108.16
700	47.83	13.97	0.29	1.05	81.76	107.60
701	47.93	13.66	0.26	1.05	81.12	106.97
702	48.02	13.87	0.24	1.05	80.49	106.61
703	48.09	13.87	0.26	1.05	79.44	106.28
704	48.18	13.87	0.22	0.96	80.27	106.53
705	48.27	13.76	0.27	0.96	81.39	107.03
706	48.37	13.97	0.31	0.96	83.22	107.94
707	48.46	14.17	0.33	0.96	84.23	108.58
708	48.52	14.17	0.35	0.96	85.01	108.99
709	48.60	14.17	0.36	0.96	85.57	109.30
710	48.70	14.37	0.37	0.96	85.68	109.56
711	48.79	14.57	0.38	0.96	85.16	109.83
712	48.85	14.98	0.40	0.96	84.80	110.40
713	48.94	15.59	0.45	0.86	84.36	111.35
714	49.04	16.60	0.53	0.86	82.26	112.03
715	49.13	17.81	0.50	0.86	82.44	114.35
716	49.23	20.45	0.95	0.86	79.90	116.80
717	49.33	25.10	1.19	0.86	78.26	119.08
718	49.38	26.52	1.32	0.86	79.49	120.23
719	49.42	22.98	1.49	0.86	79.52	121.11
720	49.48	28.24	1.64	0.76	79.69	121.78

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	49.53	28.85	1.70	0.76	76.78	122.38
722	49.58	29.25	1.78	0.76	76.54	122.73
723	49.63	30.16	1.86	0.76	76.14	123.06
724	49.72	30.87	1.90	0.76	75.17	123.25
725	49.77	31.68	1.88	0.76	74.33	123.29
726	49.83	31.68	1.86	0.76	74.18	123.23
727	49.92	30.87	1.85	0.76	75.14	123.07
728	49.97	29.55	1.80	0.76	75.30	122.90
729	50.04	30.72	1.75	0.76	76.58	122.68
730	50.11	28.14	1.74	0.76	75.95	122.69
731	50.20	30.57	1.79	0.76	74.75	122.53
732	50.27	31.88	1.62	0.76	72.22	122.03
733	50.34	29.86	1.37	0.76	71.16	120.74
734	50.45	26.72	1.07	0.76	72.38	119.07
735	50.54	23.68	0.89	0.76	75.35	117.45
736	50.59	20.75	0.82	0.76	79.17	116.17
737	50.68	18.93	0.71	0.76	82.34	115.07
738	50.79	18.02	0.62	0.76	83.79	114.12
739	50.88	17.41	0.60	0.76	83.70	113.63
740	50.98	17.97	0.60	0.86	84.20	113.54
741	51.07	17.51	0.60	0.86	82.59	113.17
742	51.17	17.91	0.50	0.86	77.88	112.22
743	51.24	19.84	0.38	0.86	73.04	111.69
744	51.33	20.75	0.47	0.86	72.41	112.26
745	51.46	19.94	0.60	0.86	75.43	113.32
746	51.46	19.53	0.60	0.86	78.27	114.06
747	51.51	19.89	0.66	0.86	79.25	114.37
748	51.56	19.84	0.68	0.86	80.43	114.92
749	51.65	19.84	0.75	0.86	81.58	115.41
750	51.71	20.14	0.80	0.86	82.75	115.96
751	51.79	20.24	0.85	0.86	82.76	116.41
752	51.85	21.05	0.88	0.96	82.60	117.17
753	51.94	22.37	1.05	0.96	82.55	118.05
754	51.99	22.87	1.16	0.96	82.91	119.26
755	52.09	24.39	1.38	0.96	83.97	120.45
756	52.19	25.20	1.63	0.96	79.61	121.96
757	52.28	33.60	1.89	1.05	72.62	123.41
758	52.35	41.19	2.10	1.05	70.52	124.45
759	52.43	34.41	2.30	1.05	71.21	125.03
760	52.52	35.53	2.36	1.05	74.91	125.21
761	52.62	35.53	2.39	1.05	74.30	125.23
762	52.72	35.73	2.30	1.05	73.23	125.06
763	52.81	36.64	2.18	1.05	76.25	125.06
764	52.91	30.36	2.50	1.05	84.74	125.89
765	53.00	26.92	3.37	1.05	78.34	127.32
766	53.10	54.35	3.37	1.15	54.98	129.03
767	53.20	105.77	3.09	1.15	36.28	130.96
768	53.29	164.47	4.18	1.15	25.56	132.47

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	53.38	221.05	4.12	1.24	20.37	133.80
770	53.46	256.07	4.20	1.24	17.07	134.82
771	53.53	303.03	5.14	1.24	16.36	136.29
772	53.63	317.00	6.49	1.34	15.39	137.26
773	53.73	349.49	5.84	1.43	13.15	137.28
774	53.82	418.82	4.63	1.53	10.93	136.47
775	53.92	396.66	4.29	1.62	10.04	135.51
776	53.94	347.57	4.04	1.72	10.76	134.94
777	53.96	336.23	3.96	1.53	11.60	134.54
778	53.97	324.90	3.90	1.82	10.87	134.48
779	54.05	386.03	3.80	1.91	9.65	134.60
780	54.08	421.76	3.84	2.01	7.98	134.88
781	54.13	470.95	3.88	2.01	6.82	135.32
782	54.19	526.82	4.09	2.10	6.18	136.15
783	54.25	558.50	4.85	2.10	6.33	136.53
784	54.28	487.24	4.52	2.20	6.83	136.70
785	54.29	486.79	4.52	2.20	7.28	136.40
786	54.34	486.33	4.52	2.20	7.28	136.41
787	54.35	487.45	4.52	2.20	7.16	136.45
788	54.40	502.73	4.55	2.29	6.91	136.58
789	54.44	524.39	4.66	2.29	6.59	136.78
790	54.49	539.67	4.74	2.39	6.33	136.88
791	54.53	542.71	4.62	2.39	6.16	137.00
792	54.57	556.27	4.81	2.68	6.01	137.19
793	54.58	575.70	5.00	2.96	6.08	137.28
794	54.63	571.25	5.32	3.06	6.35	137.28
795	54.68	535.62	5.13	3.15	7.02	137.28
796	54.73	501.92	5.33	3.35	7.61	137.28
797	54.78	493.82	5.24	3.25	7.81	137.28
798	54.83	503.13	4.96	3.35	8.02	137.28
799	54.88	483.80	5.42	3.25	8.15	137.28
800	54.92	504.35	5.80	3.35	8.44	137.28
801	54.97	513.76	5.91	3.35	8.28	137.28
802	55.02	514.17	5.71	3.35	8.29	137.28
803	55.12	512.24	5.99	3.35	9.19	137.28
804	55.17	437.14	6.44	3.35	10.90	137.28
805	55.25	397.97	6.94	3.54	12.33	137.28
806	55.31	396.35	6.00	3.63	12.48	137.28
807	55.36	388.16	5.24	3.73	11.51	136.87
808	55.45	379.86	4.35	3.82	10.76	135.80
809	55.50	375.10	3.96	3.82	10.78	135.09
810	55.60	342.61	4.16	3.82	11.41	134.98
811	55.65	335.83	4.33	3.82	12.01	134.55
812	55.71	318.11	3.48	3.73	11.81	133.90
813	55.75	318.32	3.23	4.01	11.15	133.00
814	55.79	324.59	3.09	4.01	10.75	132.84
815	55.84	332.28	3.22	4.01	10.43	132.92
816	55.89	340.38	3.26	4.11	10.29	133.07

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	55.90	341.19	3.24	4.30	10.16	133.10
818	55.94	341.70	3.23	4.30	10.40	133.09
819	55.99	325.71	3.29	4.40	10.86	133.10
820	56.03	315.28	3.33	4.40	11.37	133.06
821	56.08	312.45	3.28	4.40	11.60	132.92
822	56.14	307.08	3.17	4.40	11.73	132.73
823	56.22	299.39	3.13	4.40	11.94	132.53
824	56.28	293.01	3.09	4.49	12.14	132.38
825	56.33	290.28	3.03	4.40	12.22	132.35
826	56.38	294.23	3.11	4.40	12.04	132.26
827	56.45	297.47	2.97	4.40	11.65	132.30
828	56.52	312.14	3.01	4.40	11.06	132.37
829	56.62	327.93	3.08	4.40	10.51	132.50
830	56.66	335.32	3.02	4.40	9.79	132.45
831	56.73	351.82	2.83	4.40	9.62	132.89
832	56.81	362.85	3.53	4.49	9.77	133.43
833	56.95	356.47	3.65	4.40	10.06	134.06
834	57.00	370.75	3.68	4.40	10.03	134.48
835	57.09	389.98	4.06	4.40	10.22	134.71
836	57.19	358.40	4.02	4.59	10.60	134.88
837	57.27	357.18	4.00	4.49	11.00	134.55
838	57.35	346.35	3.69	4.59	10.13	133.80
839	57.44	369.23	2.85	4.49	9.47	132.97
840	57.50	352.73	2.88	4.59	8.69	132.46
841	57.52	370.95	2.99	4.30	8.68	133.16
842	57.58	410.42	3.60	4.30	8.49	134.41
843	57.63	446.56	4.36	4.30	8.42	135.32
844	57.72	439.07	4.21	4.40	8.40	135.58
845	57.77	431.17	3.97	4.40	8.22	135.14
846	57.82	430.77	3.67	4.40	7.74	134.36
847	57.91	426.51	3.05	4.40	6.86	133.51
848	57.96	452.73	2.75	4.40	6.01	132.56
849	58.02	449.09	2.48	4.40	5.35	132.23
850	58.09	474.69	2.59	4.49	5.13	132.30
851	58.16	483.80	2.77	4.49	4.92	132.61
852	58.25	495.95	2.73	4.49	5.00	132.98
853	58.30	493.42	2.98	4.49	5.44	133.54
854	58.40	473.38	3.46	4.49	5.94	133.95
855	58.50	471.86	3.32	4.49	6.39	134.14
856	58.56	460.12	3.32	4.49	6.35	134.03
857	58.64	470.34	3.32	4.49	6.52	134.15
858	58.73	463.76	3.50	4.68	6.66	134.73
859	58.78	490.08	4.08	4.68	6.43	134.94
860	58.88	510.42	3.53	4.68	6.01	135.03
861	58.97	519.43	3.50	4.78	5.46	134.39
862	59.07	503.03	3.11	4.78	5.31	133.97
863	59.13	496.05	2.99	4.78	5.28	133.42
864	59.23	481.47	2.88	4.78	5.21	132.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	59.31	476.41	2.60	4.78	5.30	132.24
866	59.38	435.32	2.31	4.78	5.27	131.56
867	59.41	439.12	2.27	4.78	5.38	131.23
868	59.46	442.91	2.34	4.78	5.29	131.28
869	59.51	448.48	2.34	4.78	5.27	131.25
870	59.57	439.07	2.23	4.78	5.63	132.20
871	59.66	467.91	3.25	4.87	5.58	132.94
872	59.75	505.97	3.06	4.97	6.03	134.45
873	59.80	502.83	4.04	4.97	6.32	135.37
874	59.85	510.42	4.53	4.97	6.89	136.20
875	59.91	512.45	4.44	4.97	7.09	136.30
876	59.99	489.57	4.24	4.97	7.40	136.48
877	60.05	494.33	4.91	4.87	8.36	136.97
878	60.09	458.80	5.56	4.78	9.17	137.25
879	60.14	440.99	5.00	4.78	9.81	137.14
880	60.19	433.30	4.90	4.78	9.70	136.76
881	60.22	439.07	4.84	4.78	9.61	136.51
882	60.28	430.16	4.56	4.78	10.15	136.19
883	60.33	369.53	4.52	4.78	11.14	135.77
884	60.38	343.82	4.41	4.78	12.93	135.37
885	60.42	303.34	4.35	4.68	14.24	134.92
886	60.48	281.88	4.12	4.68	14.94	133.83
887	60.57	260.63	2.98	4.59	14.40	131.99
888	60.66	244.74	2.02	4.59	13.41	129.58
889	60.68	226.11	1.72	4.49	12.77	127.88
890	60.69	225.45	1.67	4.01	12.50	126.95
891	60.74	224.80	1.43	4.11	12.59	126.30
892	60.79	202.83	1.36	4.21	12.85	125.42
893	60.84	190.99	1.24	4.11	13.42	124.52
894	60.89	182.49	1.05	4.11	13.76	123.73
895	60.98	173.38	1.04	4.01	14.35	123.40
896	61.03	167.00	1.14	4.01	16.66	125.09
897	61.08	163.66	1.94	4.01	20.32	128.00
898	61.18	163.76	3.09	3.92	22.76	129.84
899	61.23	166.29	2.90	3.92	24.31	131.32
900	61.31	174.39	3.66	3.92	20.35	131.18
901	61.42	241.39	2.47	3.92	15.65	131.06
902	61.47	293.32	2.18	4.01	10.48	129.51
903	61.51	326.62	1.66	3.92	7.95	129.12
904	61.54	373.78	1.86	3.73	6.66	129.28
905	61.57	397.87	2.12	3.73	6.17	130.14
906	61.58	415.68	2.20	3.54	5.00	130.33
907	61.61	442.20	1.90	3.54	6.02	129.76
908	61.63	322.26	1.78	2.77	6.49	129.08
909	61.63	338.36	1.80	2.77	11.34	128.31
910	61.66	112.95	1.97	2.20	16.91	128.00
911	61.67	122.67	2.10	2.20	26.40	127.65
912	61.70	152.93	2.30	2.20	22.91	128.46

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	61.71	183.20	2.33	2.20	19.72	129.29
914	61.76	206.48	2.50	2.10	17.47	129.99
915	61.80	229.45	2.69	2.01	15.78	130.50
916	61.84	250.50	2.60	2.01	13.82	130.39
917	61.86	271.15	2.16	2.01	11.07	129.64
918	61.93	317.51	1.72	2.01	8.65	128.83
919	61.98	348.28	1.71	2.01	5.00	128.76
920	62.04	407.39	1.86	2.01	5.00	130.00
921	62.09	460.93	2.44	2.10	5.00	130.94
922	62.14	486.94	2.29	2.01	4.65	131.59
923	62.19	497.77	2.32	2.01	4.30	131.67
924	62.24	512.55	2.43	2.01	4.19	131.86
925	62.26	516.39	2.43	2.01	4.03	131.99
926	62.29	528.94	2.40	2.10	4.03	131.96
927	62.38	511.74	2.40	2.20	4.39	132.48
928	62.44	506.37	2.97	2.10	5.19	132.83
929	62.46	452.63	2.92	2.10	5.89	133.06
930	62.47	448.12	2.80	1.24	6.21	132.63
931	62.51	443.62	2.61	1.43	5.98	132.52
932	62.56	469.23	2.76	1.53	5.91	132.86
933	62.60	479.04	3.12	1.53	5.80	133.25
934	62.65	484.51	2.99	1.53	5.69	133.25
935	62.70	481.58	2.73	1.53	5.44	132.87
936	62.75	480.87	2.67	1.53	5.25	132.60
937	62.80	486.64	2.68	1.62	4.98	132.62
938	62.85	516.90	2.69	1.62	4.37	132.78
939	62.89	572.26	2.69	1.72	3.80	133.35
940	62.97	618.32	3.10	1.82	3.40	134.28
941	63.04	668.31	3.58	1.82	3.09	135.14
942	63.09	716.80	3.59	1.82	2.87	135.70
943	63.13	724.18	3.74	1.91	2.94	136.16
944	63.19	705.46	4.21	1.91	3.36	136.94
945	63.23	719.83	4.89	1.91	3.84	137.28
946	63.28	735.32	5.37	1.91	4.17	137.28
947	63.32	725.10	5.58	2.01	3.85	137.28
948	63.38	727.02	3.92	2.10	2.64	135.83
949	63.44	724.79	1.47	2.10	1.89	134.28
950	63.52	728.13	3.49	2.29	1.92	134.03
951	63.57	693.42	3.66	2.68	2.71	135.18
952	63.66	670.44	3.03	2.68	3.13	134.92
953	63.73	614.77	3.31	2.77	4.81	133.80
954	63.76	319.53	2.86	3.15	6.52	133.28
955	63.76	432.39	2.88	3.15	7.53	132.72
956	63.78	483.50	2.92	3.15	6.10	133.35
957	63.81	499.59	3.22	3.15	5.61	134.22
958	63.85	555.36	3.75	3.15	5.72	134.88
959	63.86	524.19	3.76	3.15	6.14	135.34
960	63.91	488.05	3.95	3.25	6.96	135.56

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	63.94	481.37	4.28	3.06	7.58	135.81
962	63.95	481.78	4.31	2.96	7.84	136.00
963	64.00	477.73	4.30	2.96	7.92	135.94
964	64.02	469.13	4.22	2.96	7.88	135.77
965	64.05	472.67	4.05	2.96	7.62	135.55
966	64.09	485.42	3.89	2.96	7.39	135.35
967	64.11	476.31	3.87	3.06	7.15	135.11
968	64.15	478.34	3.65	3.06	6.89	134.84
969	64.20	492.00	3.47	3.06	6.53	134.82
970	64.25	512.45	3.75	3.06	6.14	134.94
971	64.29	533.19	3.70	3.06	5.78	135.26
972	64.34	561.33	3.79	3.25	5.01	135.28
973	64.43	616.49	3.54	3.25	4.34	135.35
974	64.48	639.47	3.59	3.35	3.80	135.20
975	64.53	636.74	3.43	3.35	3.33	134.70
976	64.58	651.72	2.78	3.35	3.10	134.64
977	64.63	676.61	3.45	3.44	2.91	135.01
978	64.68	713.46	3.79	3.44	3.16	136.27
979	64.73	738.66	4.50	3.44	3.23	136.63
980	64.77	703.94	3.99	3.44	3.00	136.64
981	64.82	764.06	3.71	3.63	2.55	136.18
982	64.87	785.42	3.67	3.63	2.65	135.90
983	64.89	648.27	3.66	3.82	2.87	135.82
984	64.93	708.09	3.69	3.82	3.20	135.78
985	64.94	712.24	3.73	3.92	2.93	135.98
986	64.98	726.92	3.83	3.92	2.86	136.11
987	64.99	737.75	3.84	4.01	2.79	136.19
988	65.03	737.24	3.82	4.01	2.77	136.10
989	65.08	721.96	3.70	4.11	2.68	135.79
990	65.13	721.76	3.39	4.01	2.53	135.18
991	65.17	702.63	3.00	4.21	2.31	134.38
992	65.22	686.23	2.70	4.30	2.22	133.76
993	65.23	678.84	2.70	4.30	2.19	133.47
994	65.28	679.40	2.71	4.40	2.24	133.50
995	65.32	679.40	2.75	4.49	2.48	134.03
996	65.37	679.95	3.32	4.49	2.63	134.36
997	65.42	680.97	3.11	4.49	2.78	134.78
998	65.47	692.71	3.26	4.49	2.89	134.63
999	65.48	641.09	3.19	4.40	3.08	134.58
1000	65.49	637.65	3.11	4.01	3.14	134.13
1001	65.52	637.65	2.79	4.40	3.09	133.95
1002	65.57	634.21	2.97	4.30	1.61	130.82
1003	65.62	664.97	0.00	4.40	0.17	126.03
1004	65.67	684.10	0.00	4.49	N/A	87.36
1005	65.69	698.07	0.00	4.59	N/A	87.36
1006	65.72	709.31	0.00	4.59	N/A	87.36
1007	65.77	749.49	0.00	4.59	N/A	87.36
1008	65.82	797.77	0.00	4.59	N/A	87.36

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	65.86	824.89	0.00	4.59	N/A	87.36
1010	65.86	813.05	0.00	4.59	N/A	87.36
1011	65.91	862.75	0.00	4.68	N/A	87.36
1012	65.96	886.13	0.00	4.78	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.01	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
2	0.04	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
3	0.08	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
4	0.10	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
5	0.13	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
6	0.18	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
7	0.22	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
8	0.27	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
9	0.33	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
10	0.36	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
11	0.37	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
12	0.38	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
13	0.42	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
14	0.44	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
15	0.47	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
16	0.47	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
17	0.52	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
18	0.56	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
19	0.58	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
20	0.61	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
21	0.66	0.04	0.00	0.04	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
22	0.76	0.04	0.00	0.04	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
23	0.80	0.04	0.00	0.04	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
24	0.81	0.04	0.00	0.04	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
25	0.85	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
26	0.86	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
27	0.90	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
28	0.95	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
29	1.00	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
30	1.05	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
31	1.14	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
32	1.24	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
33	1.31	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
34	1.36	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
35	1.37	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
36	1.39	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
37	1.43	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
38	1.44	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
39	1.49	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
40	1.53	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
41	1.58	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
42	1.63	0.09	0.00	0.09	1.00	0.409	1.36	0.301	1.00	1.00	2.000	No
43	1.68	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
44	1.72	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
45	1.77	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
46	1.82	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
47	1.86	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
48	1.92	0.10	0.00	0.10	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	1.97	0.10	0.00	0.10	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
50	2.01	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
51	2.09	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
52	2.16	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
53	2.20	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
54	2.25	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
55	2.31	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
56	2.37	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
57	2.40	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
58	2.46	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
59	2.54	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
60	2.59	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
61	2.69	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
62	2.74	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
63	2.83	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
64	2.88	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
65	2.98	0.16	0.00	0.16	1.00	0.407	1.36	0.300	1.00	1.00	2.000	No
66	3.03	0.16	0.00	0.16	0.99	0.407	1.36	0.300	1.00	1.00	2.000	No
67	3.12	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
68	3.21	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
69	3.27	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
70	3.34	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
71	3.41	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
72	3.51	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
73	3.55	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
74	3.65	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
75	3.75	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
76	3.83	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
77	3.94	0.21	0.00	0.21	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
78	4.04	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
79	4.13	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
80	4.24	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
81	4.38	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
82	4.50	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
83	4.62	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
84	4.71	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
85	4.75	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
86	4.84	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
87	4.89	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
88	4.94	0.27	0.00	0.27	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
89	4.98	0.27	0.00	0.27	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
90	5.07	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
91	5.13	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
92	5.17	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
93	5.27	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
94	5.32	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
95	5.42	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
96	5.46	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	5.56	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
98	5.61	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
99	5.71	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
100	5.78	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
101	5.85	0.32	0.00	0.32	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
102	5.95	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
103	6.00	0.33	0.00	0.33	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
104	6.09	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
105	6.14	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
106	6.24	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
107	6.30	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
108	6.38	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
109	6.46	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
110	6.50	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
111	6.56	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
112	6.63	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
113	6.68	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
114	6.76	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
115	6.82	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
116	6.88	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
117	6.96	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
118	7.03	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
119	7.11	0.39	0.00	0.39	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
120	7.16	0.39	0.00	0.39	0.99	0.403	1.36	0.297	1.00	1.00	2.000	No
121	7.26	0.39	0.00	0.39	0.99	0.403	1.36	0.297	1.00	1.00	2.000	No
122	7.31	0.40	0.00	0.40	0.98	0.403	1.36	0.297	1.00	1.00	2.000	No
123	7.40	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
124	7.45	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
125	7.54	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
126	7.60	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
127	7.68	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
128	7.74	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
129	7.83	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
130	7.90	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
131	7.98	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
132	8.05	0.44	0.00	0.44	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
133	8.12	0.44	0.00	0.44	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
134	8.19	0.45	0.00	0.45	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
135	8.27	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
136	8.36	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
137	8.41	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
138	8.50	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
139	8.60	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
140	8.70	0.47	0.00	0.47	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
141	8.74	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
142	8.78	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
143	8.81	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
144	8.86	0.48	0.00	0.48	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	8.91	0.49	0.00	0.49	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
146	8.94	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
147	9.02	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
148	9.10	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
149	9.17	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
150	9.22	0.50	0.00	0.50	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
151	9.31	0.51	0.00	0.51	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
152	9.37	0.51	0.00	0.51	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
153	9.42	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
154	9.52	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
155	9.60	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
156	9.66	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
157	9.74	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
158	9.81	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
159	9.89	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
160	9.98	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
161	10.03	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
162	10.13	0.55	0.00	0.55	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
163	10.23	0.56	0.00	0.56	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
164	10.32	0.57	0.00	0.57	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
165	10.38	0.57	0.00	0.57	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
166	10.47	0.57	0.00	0.57	0.98	0.401	1.36	0.294	1.00	1.00	2.000	No
167	10.57	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
168	10.66	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
169	10.76	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
170	10.85	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
171	10.92	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
172	11.00	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
173	11.07	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
174	11.10	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
175	11.15	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
176	11.19	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
177	11.24	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
178	11.29	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
179	11.34	0.62	0.00	0.62	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
180	11.40	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
181	11.47	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
182	11.53	0.63	0.00	0.63	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
183	11.58	0.64	0.00	0.64	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
184	11.65	0.64	0.00	0.64	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
185	11.72	0.64	0.00	0.64	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
186	11.77	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
187	11.82	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
188	11.88	0.65	0.00	0.65	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
189	11.97	0.66	0.00	0.66	0.97	0.399	1.36	0.294	1.00	1.00	2.000	No
190	12.02	0.66	0.00	0.66	0.97	0.399	1.36	0.294	1.00	1.00	2.000	No
191	12.06	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
192	12.11	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	12.21	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
194	12.25	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
195	12.30	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
196	12.31	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
197	12.32	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
198	12.35	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
199	12.40	0.68	0.00	0.68	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
200	12.45	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
201	12.52	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
202	12.56	0.69	0.00	0.69	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
203	12.62	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
204	12.65	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
205	12.71	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
206	12.76	0.70	0.00	0.70	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
207	12.83	0.71	0.00	0.71	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
208	12.88	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
209	12.93	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
210	12.98	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
211	13.03	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
212	13.04	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
213	13.07	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
214	13.13	0.72	0.00	0.72	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
215	13.17	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
216	13.22	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
217	13.27	0.73	0.00	0.73	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
218	13.32	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
219	13.37	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
220	13.41	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
221	13.46	0.74	0.00	0.74	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
222	13.51	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
223	13.56	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
224	13.60	0.75	0.00	0.75	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
225	13.66	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
226	13.75	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
227	13.80	0.76	0.00	0.76	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
228	13.89	0.77	0.00	0.77	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
229	13.94	0.77	0.00	0.77	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
230	13.99	0.78	0.00	0.78	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
231	14.09	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
232	14.14	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
233	14.23	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
234	14.28	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
235	14.38	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
236	14.42	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
237	14.52	0.81	0.00	0.81	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
238	14.57	0.81	0.00	0.81	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
239	14.67	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
240	14.68	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	14.70	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
242	14.75	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
243	14.80	0.82	0.00	0.82	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
244	14.89	0.83	0.00	0.83	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
245	14.94	0.83	0.00	0.83	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
246	15.04	0.84	0.00	0.84	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
247	15.13	0.84	0.00	0.84	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
248	15.21	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
249	15.28	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
250	15.38	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
251	15.47	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
252	15.57	0.87	0.00	0.87	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
253	15.67	0.87	0.00	0.87	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
254	15.77	0.88	0.00	0.88	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
255	15.86	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
256	15.96	0.89	0.00	0.89	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
257	16.05	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
258	16.15	0.90	0.00	0.90	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
259	16.25	0.91	0.00	0.91	0.97	0.396	1.36	0.291	1.00	1.00	2.000	No
260	16.31	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
261	16.39	0.91	0.00	0.91	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
262	16.48	0.92	0.00	0.92	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
263	16.59	0.93	0.00	0.93	0.97	0.395	1.36	0.291	1.00	1.00	2.000	No
264	16.68	0.93	0.00	0.93	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
265	16.76	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
266	16.86	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
267	16.92	0.94	0.00	0.94	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
268	17.02	0.95	0.00	0.95	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
269	17.11	0.96	0.00	0.96	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
270	17.22	0.96	0.00	0.96	0.96	0.395	1.36	0.290	1.00	1.00	2.000	Yes
271	17.35	0.97	0.00	0.97	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
272	17.45	0.97	0.00	0.97	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
273	17.55	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
274	17.61	0.98	0.00	0.98	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
275	17.64	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
276	17.70	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
277	17.75	0.99	0.00	0.99	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
278	17.80	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
279	17.85	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	Yes
280	17.94	1.00	0.00	1.00	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
281	17.99	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
282	18.09	1.01	0.00	1.01	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
283	18.15	1.02	0.00	1.02	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
284	18.23	1.02	0.00	1.02	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
285	18.33	1.03	0.00	1.03	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
286	18.43	1.03	0.00	1.03	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
287	18.52	1.04	0.00	1.04	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
288	18.59	1.04	0.00	1.04	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	18.72	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
290	18.81	1.05	0.00	1.05	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
291	18.87	1.06	0.00	1.06	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
292	18.95	1.06	0.00	1.06	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
293	19.05	1.07	0.00	1.07	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
294	19.14	1.07	0.00	1.07	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
295	19.22	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
296	19.29	1.08	0.00	1.08	0.96	0.393	1.36	0.289	1.00	1.00	2.000	Yes
297	19.38	1.09	0.00	1.09	0.96	0.392	1.36	0.289	0.99	1.00	2.000	Yes
298	19.44	1.09	0.00	1.09	0.96	0.392	1.36	0.289	0.99	1.00	2.000	Yes
299	19.53	1.09	0.00	1.09	0.96	0.392	1.36	0.288	0.99	1.00	2.000	Yes
300	19.62	1.10	0.00	1.10	0.96	0.392	1.36	0.288	0.99	1.00	2.000	Yes
301	19.69	1.10	0.00	1.10	0.96	0.392	1.36	0.288	0.99	1.00	2.000	Yes
302	19.79	1.11	0.00	1.11	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
303	19.86	1.11	0.00	1.11	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
304	19.97	1.12	0.00	1.12	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
305	20.07	1.13	0.00	1.13	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
306	20.16	1.13	0.00	1.13	0.96	0.392	1.36	0.288	0.99	1.00	2.000	No
307	20.26	1.14	0.00	1.14	0.96	0.392	1.36	0.288	0.99	1.00	2.000	Yes
308	20.34	1.14	0.00	1.14	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
309	20.43	1.15	0.00	1.15	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
310	20.50	1.15	0.00	1.15	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
311	20.60	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
312	20.62	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
313	20.63	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
314	20.68	1.16	0.00	1.16	0.96	0.391	1.36	0.288	0.98	1.00	2.000	Yes
315	20.73	1.17	0.00	1.17	0.95	0.391	1.36	0.288	0.98	1.00	2.000	Yes
316	20.82	1.17	0.00	1.17	0.95	0.391	1.36	0.287	0.98	1.00	2.000	Yes
317	20.87	1.17	0.00	1.17	0.95	0.391	1.36	0.287	0.98	1.00	2.000	Yes
318	20.91	1.18	0.00	1.18	0.95	0.391	1.36	0.287	0.98	1.00	2.000	Yes
319	20.96	1.18	0.00	1.18	0.95	0.391	1.36	0.287	0.98	1.00	2.000	Yes
320	21.05	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
321	21.11	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
322	21.17	1.19	0.00	1.19	0.95	0.391	1.36	0.287	0.98	1.00	2.000	No
323	21.25	1.20	0.00	1.20	0.95	0.390	1.36	0.287	0.98	1.00	2.000	Yes
324	21.30	1.20	0.00	1.20	0.95	0.390	1.36	0.287	0.98	1.00	2.000	Yes
325	21.37	1.20	0.00	1.20	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
326	21.45	1.21	0.00	1.21	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
327	21.49	1.21	0.00	1.21	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
328	21.58	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
329	21.64	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
330	21.69	1.22	0.00	1.22	0.95	0.390	1.36	0.287	0.97	1.00	2.000	Yes
331	21.78	1.23	0.00	1.23	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
332	21.83	1.23	0.00	1.23	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
333	21.89	1.24	0.00	1.24	0.95	0.390	1.36	0.287	0.97	1.00	2.000	No
334	21.98	1.24	0.00	1.24	0.95	0.390	1.36	0.286	0.97	1.00	2.000	No
335	22.03	1.25	0.00	1.25	0.95	0.390	1.36	0.286	0.97	1.00	2.000	No
336	22.12	1.25	0.00	1.25	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	22.22	1.26	0.00	1.26	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
338	22.26	1.26	0.00	1.26	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
339	22.36	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
340	22.41	1.27	0.00	1.27	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
341	22.51	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
342	22.60	1.28	0.00	1.28	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
343	22.70	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
344	22.75	1.29	0.00	1.29	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
345	22.84	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
346	22.89	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
347	22.90	1.30	0.00	1.30	0.95	0.389	1.36	0.286	0.96	1.00	2.000	No
348	22.94	1.30	0.00	1.30	0.95	0.388	1.36	0.286	0.96	1.00	2.000	No
349	23.00	1.31	0.00	1.31	0.95	0.388	1.36	0.286	0.96	1.00	2.000	No
350	23.08	1.31	0.00	1.31	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
351	23.13	1.31	0.00	1.31	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
352	23.20	1.32	0.00	1.32	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
353	23.27	1.32	0.00	1.32	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
354	23.33	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
355	23.42	1.33	0.00	1.33	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
356	23.48	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
357	23.57	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
358	23.61	1.34	0.00	1.34	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
359	23.66	1.35	0.00	1.35	0.95	0.388	1.36	0.285	0.95	1.00	2.000	No
360	23.73	1.35	0.00	1.35	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
361	23.80	1.36	0.00	1.36	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
362	23.85	1.36	0.00	1.36	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
363	23.94	1.36	0.00	1.36	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
364	24.00	1.37	0.00	1.37	0.95	0.387	1.36	0.285	0.95	1.00	2.000	No
365	24.09	1.37	0.00	1.37	0.94	0.387	1.36	0.285	0.95	1.00	2.000	No
366	24.16	1.38	0.00	1.38	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
367	24.24	1.38	0.00	1.38	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
368	24.33	1.39	0.00	1.39	0.94	0.387	1.36	0.284	0.95	1.00	2.000	No
369	24.43	1.40	0.00	1.40	0.94	0.386	1.36	0.284	0.95	1.00	2.000	No
370	24.52	1.40	0.00	1.40	0.94	0.386	1.36	0.284	0.95	1.00	2.000	No
371	24.58	1.40	0.00	1.40	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
372	24.59	1.40	0.00	1.40	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
373	24.63	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
374	24.68	1.41	0.00	1.41	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
375	24.77	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
376	24.82	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
377	24.92	1.42	0.00	1.42	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
378	25.01	1.43	0.00	1.43	0.94	0.386	1.36	0.284	0.94	1.00	2.000	No
379	25.06	1.43	0.00	1.43	0.94	0.386	1.36	0.283	0.94	1.00	2.000	No
380	25.16	1.44	0.00	1.44	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
381	25.25	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
382	25.30	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	No
383	25.41	1.45	0.00	1.45	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
384	25.49	1.46	0.00	1.46	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	25.55	1.46	0.00	1.46	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
386	25.64	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
387	25.70	1.47	0.00	1.47	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
388	25.79	1.48	0.00	1.48	0.94	0.385	1.36	0.283	0.94	1.00	2.000	Yes
389	25.89	1.48	0.00	1.48	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
390	25.94	1.49	0.00	1.49	0.94	0.384	1.36	0.283	0.93	1.00	2.000	Yes
391	26.02	1.49	0.00	1.49	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
392	26.12	1.50	0.00	1.50	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
393	26.17	1.50	0.00	1.50	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
394	26.28	1.51	0.00	1.51	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
395	26.36	1.51	0.00	1.51	0.94	0.384	1.36	0.282	0.93	1.00	2.000	Yes
396	26.45	1.52	0.00	1.52	0.94	0.383	1.36	0.282	0.93	1.00	2.000	Yes
397	26.50	1.52	0.00	1.52	0.94	0.383	1.36	0.282	0.93	1.00	2.000	Yes
398	26.61	1.53	0.00	1.53	0.94	0.383	1.36	0.282	0.93	1.00	2.000	Yes
399	26.70	1.53	0.00	1.53	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
400	26.77	1.54	0.00	1.54	0.94	0.383	1.36	0.282	0.93	1.00	2.000	No
401	26.85	1.54	0.00	1.54	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
402	26.94	1.54	0.00	1.54	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
403	27.04	1.55	0.00	1.55	0.93	0.383	1.36	0.281	0.93	1.00	2.000	No
404	27.14	1.56	0.00	1.56	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
405	27.23	1.56	0.00	1.56	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
406	27.28	1.56	0.00	1.56	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
407	27.29	1.56	0.00	1.56	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
408	27.38	1.57	0.00	1.57	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
409	27.48	1.57	0.00	1.57	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
410	27.57	1.58	0.00	1.58	0.93	0.382	1.36	0.281	0.92	1.00	2.000	No
411	27.64	1.58	0.00	1.58	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
412	27.65	1.58	0.00	1.58	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
413	27.74	1.59	0.00	1.59	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
414	27.80	1.59	0.00	1.59	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
415	27.90	1.60	0.00	1.60	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
416	27.99	1.60	0.00	1.60	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
417	28.07	1.61	0.00	1.61	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
418	28.16	1.61	0.00	1.61	0.93	0.381	1.36	0.280	0.92	1.00	2.000	No
419	28.25	1.62	0.00	1.62	0.93	0.380	1.36	0.280	0.92	1.00	2.000	No
420	28.34	1.62	0.00	1.62	0.93	0.380	1.36	0.280	0.92	1.00	2.000	No
421	28.44	1.63	0.00	1.63	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
422	28.53	1.63	0.00	1.63	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
423	28.62	1.64	0.00	1.64	0.93	0.380	1.36	0.279	0.92	1.00	2.000	No
424	28.76	1.65	0.00	1.65	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
425	28.86	1.65	0.00	1.65	0.93	0.379	1.36	0.279	0.91	1.00	2.000	No
426	28.96	1.66	0.00	1.66	0.93	0.379	1.36	0.279	0.91	1.00	2.000	No
427	29.08	1.66	0.00	1.66	0.93	0.379	1.36	0.279	0.91	1.00	2.000	No
428	29.19	1.67	0.00	1.67	0.92	0.379	1.36	0.278	0.91	1.00	2.000	No
429	29.29	1.68	0.00	1.68	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
430	29.39	1.68	0.00	1.68	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
431	29.50	1.69	0.00	1.69	0.92	0.378	1.36	0.278	0.91	1.00	2.000	No
432	29.63	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	29.65	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
434	29.66	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
435	29.72	1.70	0.00	1.70	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
436	29.80	1.71	0.00	1.71	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
437	29.85	1.71	0.00	1.71	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
438	29.94	1.72	0.00	1.72	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
439	30.00	1.72	0.00	1.72	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
440	30.05	1.72	0.00	1.72	0.92	0.377	1.36	0.277	0.91	1.00	2.000	Yes
441	30.14	1.73	0.00	1.73	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
442	30.19	1.73	0.01	1.73	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
443	30.24	1.74	0.01	1.73	0.92	0.378	1.36	0.278	0.91	1.00	2.000	Yes
444	30.29	1.74	0.01	1.73	0.92	0.378	1.36	0.278	0.91	1.00	0.307	No
445	30.38	1.75	0.01	1.73	0.92	0.379	1.36	0.278	0.91	1.00	0.307	No
446	30.43	1.75	0.01	1.74	0.92	0.379	1.36	0.279	0.91	1.00	0.308	No
447	30.48	1.75	0.01	1.74	0.92	0.379	1.36	0.279	0.91	1.00	0.308	No
448	30.54	1.76	0.02	1.74	0.92	0.379	1.36	0.279	0.91	1.00	0.308	No
449	30.62	1.76	0.02	1.74	0.92	0.380	1.36	0.279	0.91	1.00	0.309	No
450	30.67	1.76	0.02	1.74	0.92	0.380	1.36	0.279	0.91	1.00	0.309	No
451	30.72	1.77	0.02	1.74	0.92	0.380	1.36	0.280	0.90	1.00	0.309	No
452	30.76	1.77	0.02	1.75	0.92	0.380	1.36	0.280	0.90	1.00	0.309	No
453	30.86	1.78	0.03	1.75	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
454	30.91	1.78	0.03	1.75	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
455	30.95	1.78	0.03	1.75	0.92	0.381	1.36	0.280	0.90	1.00	0.310	No
456	31.03	1.79	0.03	1.75	0.92	0.382	1.36	0.281	0.90	1.00	0.310	No
457	31.10	1.79	0.03	1.76	0.91	0.382	1.36	0.281	0.90	1.00	0.311	No
458	31.15	1.79	0.04	1.76	0.91	0.382	1.36	0.281	0.90	1.00	0.311	No
459	31.20	1.80	0.04	1.76	0.91	0.382	1.36	0.281	0.90	1.00	0.311	No
460	31.26	1.80	0.04	1.76	0.91	0.383	1.36	0.281	0.90	1.00	0.311	No
461	31.34	1.81	0.04	1.76	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
462	31.37	1.81	0.04	1.77	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
463	31.38	1.81	0.04	1.77	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
464	31.43	1.81	0.04	1.77	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
465	31.47	1.81	0.05	1.77	0.91	0.383	1.36	0.282	0.90	1.00	0.312	No
466	31.55	1.82	0.05	1.77	0.91	0.384	1.36	0.282	0.90	1.00	0.313	No
467	31.59	1.82	0.05	1.77	0.91	0.384	1.36	0.282	0.90	1.00	0.313	No
468	31.66	1.83	0.05	1.77	0.91	0.384	1.36	0.282	0.90	1.00	0.313	No
469	31.73	1.83	0.05	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.314	No
470	31.78	1.83	0.06	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.314	No
471	31.84	1.84	0.06	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.314	No
472	31.93	1.84	0.06	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.314	No
473	31.98	1.85	0.06	1.78	0.91	0.385	1.36	0.283	0.90	1.00	0.315	No
474	32.02	1.85	0.06	1.79	0.91	0.386	1.36	0.284	0.90	1.00	0.315	No
475	32.09	1.85	0.07	1.79	0.91	0.386	1.36	0.284	0.90	1.00	0.315	No
476	32.16	1.86	0.07	1.79	0.91	0.386	1.36	0.284	0.90	1.00	0.315	No
477	32.22	1.86	0.07	1.79	0.91	0.386	1.36	0.284	0.90	1.00	0.316	No
478	32.27	1.86	0.07	1.79	0.91	0.387	1.36	0.284	0.90	1.00	0.316	No
479	32.34	1.87	0.07	1.80	0.91	0.387	1.36	0.284	0.90	1.00	0.316	No
480	32.42	1.87	0.08	1.80	0.91	0.387	1.36	0.285	0.90	1.00	0.316	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	32.46	1.88	0.08	1.80	0.91	0.387	1.36	0.285	0.90	1.00	0.317	No
482	32.54	1.88	0.08	1.80	0.91	0.388	1.36	0.285	0.90	1.00	0.317	No
483	32.60	1.89	0.08	1.80	0.91	0.388	1.36	0.285	0.90	1.00	0.317	No
484	32.67	1.89	0.08	1.81	0.91	0.388	1.36	0.285	0.90	1.00	0.317	No
485	32.75	1.89	0.09	1.81	0.91	0.388	1.36	0.285	0.90	1.00	0.318	No
486	32.81	1.90	0.09	1.81	0.90	0.389	1.36	0.286	0.90	1.00	0.318	No
487	32.89	1.90	0.09	1.81	0.90	0.389	1.36	0.286	0.90	1.00	0.318	No
488	32.94	1.91	0.09	1.82	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
489	32.95	1.91	0.09	1.82	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
490	33.00	1.91	0.09	1.82	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
491	33.06	1.91	0.10	1.82	0.90	0.389	1.36	0.286	0.90	1.00	0.319	No
492	33.11	1.92	0.10	1.82	0.90	0.390	1.36	0.286	0.90	1.00	0.319	No
493	33.20	1.92	0.10	1.82	0.90	0.390	1.36	0.287	0.90	1.00	0.320	No
494	33.25	1.93	0.10	1.83	0.90	0.390	1.36	0.287	0.90	1.00	0.320	No
495	33.34	1.93	0.10	1.83	0.90	0.390	1.36	0.287	0.90	1.00	0.320	No
496	33.38	1.94	0.11	1.83	0.90	0.390	1.36	0.287	0.90	1.00	0.320	No
497	33.48	1.94	0.11	1.83	0.90	0.391	1.36	0.287	0.90	1.00	0.321	No
498	33.58	1.95	0.11	1.84	0.90	0.391	1.36	0.287	0.90	1.00	0.321	No
499	33.63	1.95	0.11	1.84	0.90	0.391	1.36	0.288	0.90	1.00	0.321	No
500	33.73	1.96	0.12	1.84	0.90	0.391	1.36	0.288	0.90	1.00	0.322	No
501	33.82	1.96	0.12	1.84	0.90	0.392	1.36	0.288	0.89	1.00	0.322	No
502	33.87	1.97	0.12	1.85	0.90	0.392	1.36	0.288	0.89	1.00	0.322	No
503	33.96	1.97	0.12	1.85	0.90	0.392	1.36	0.288	0.89	1.00	0.322	No
504	34.02	1.98	0.13	1.85	0.90	0.392	1.36	0.288	0.89	1.00	0.323	No
505	34.11	1.98	0.13	1.85	0.90	0.393	1.36	0.289	0.89	1.00	0.323	No
506	34.18	1.99	0.13	1.86	0.90	0.393	1.36	0.289	0.89	1.00	0.323	No
507	34.26	1.99	0.13	1.86	0.90	0.393	1.36	0.289	0.89	1.00	0.323	No
508	34.35	2.00	0.14	1.86	0.90	0.393	1.36	0.289	0.89	1.00	0.324	No
509	34.44	2.00	0.14	1.87	0.89	0.393	1.36	0.289	0.89	1.00	0.324	No
510	34.49	2.01	0.14	1.87	0.89	0.394	1.36	0.289	0.89	1.00	0.324	No
511	34.59	2.01	0.14	1.87	0.89	0.394	1.36	0.290	0.89	1.00	0.325	No
512	34.69	2.02	0.15	1.87	0.89	0.394	1.36	0.290	0.89	1.00	0.325	No
513	34.76	2.03	0.15	1.88	0.89	0.394	1.36	0.290	0.89	1.00	0.325	No
514	34.83	2.03	0.15	1.88	0.89	0.394	1.36	0.290	0.89	1.00	0.325	No
515	34.93	2.04	0.15	1.88	0.89	0.395	1.36	0.290	0.89	1.00	0.326	No
516	35.02	2.04	0.16	1.89	0.89	0.395	1.36	0.290	0.89	1.00	0.326	No
517	35.12	2.05	0.16	1.89	0.89	0.395	1.36	0.291	0.89	1.00	0.326	No
518	35.22	2.06	0.16	1.89	0.89	0.395	1.36	0.291	0.89	1.00	0.327	No
519	35.30	2.06	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	0.327	No
520	35.38	2.07	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	0.327	No
521	35.43	2.07	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	0.327	No
522	35.46	2.07	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	0.327	No
523	35.51	2.08	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
524	35.56	2.08	0.17	1.90	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
525	35.66	2.08	0.18	1.91	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
526	35.70	2.09	0.18	1.91	0.89	0.396	1.36	0.291	0.89	1.00	2.000	Yes
527	35.80	2.09	0.18	1.91	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
528	35.89	2.10	0.18	1.92	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	35.96	2.10	0.19	1.92	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
530	36.04	2.11	0.19	1.92	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
531	36.14	2.12	0.19	1.92	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
532	36.19	2.12	0.19	1.93	0.88	0.397	1.36	0.292	0.89	1.00	2.000	Yes
533	36.28	2.12	0.20	1.93	0.88	0.398	1.36	0.292	0.89	1.00	2.000	Yes
534	36.33	2.13	0.20	1.93	0.88	0.398	1.36	0.292	0.89	1.00	0.330	No
535	36.42	2.13	0.20	1.93	0.88	0.398	1.36	0.293	0.89	1.00	0.330	No
536	36.48	2.14	0.20	1.93	0.88	0.398	1.36	0.293	0.89	1.00	0.330	No
537	36.52	2.14	0.20	1.94	0.88	0.398	1.36	0.293	0.89	1.00	0.330	No
538	36.62	2.14	0.21	1.94	0.88	0.398	1.36	0.293	0.89	1.00	0.330	No
539	36.68	2.15	0.21	1.94	0.88	0.398	1.36	0.293	0.89	1.00	0.331	No
540	36.77	2.15	0.21	1.94	0.88	0.398	1.36	0.293	0.89	1.00	0.331	No
541	36.86	2.16	0.21	1.95	0.88	0.399	1.36	0.293	0.89	1.00	2.000	Yes
542	36.90	2.16	0.22	1.95	0.88	0.399	1.36	0.293	0.89	1.00	2.000	Yes
543	37.00	2.17	0.22	1.95	0.88	0.399	1.36	0.293	0.88	1.00	2.000	Yes
544	37.10	2.17	0.22	1.95	0.88	0.399	1.36	0.293	0.88	1.00	2.000	Yes
545	37.20	2.18	0.22	1.96	0.87	0.399	1.36	0.293	0.88	1.00	2.000	Yes
546	37.29	2.19	0.23	1.96	0.87	0.399	1.36	0.294	0.88	1.00	2.000	Yes
547	37.39	2.19	0.23	1.96	0.87	0.399	1.36	0.294	0.88	1.00	2.000	Yes
548	37.49	2.20	0.23	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
549	37.53	2.20	0.24	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
550	37.58	2.21	0.24	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
551	37.62	2.21	0.24	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
552	37.69	2.21	0.24	1.97	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
553	37.77	2.22	0.24	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
554	37.82	2.22	0.24	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
555	37.87	2.22	0.25	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
556	37.91	2.23	0.25	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.333	No
557	37.97	2.23	0.25	1.98	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
558	38.06	2.24	0.25	1.99	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
559	38.10	2.24	0.25	1.99	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
560	38.17	2.24	0.25	1.99	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
561	38.25	2.25	0.26	1.99	0.87	0.400	1.36	0.294	0.88	1.00	0.334	No
562	38.35	2.26	0.26	2.00	0.87	0.401	1.36	0.294	0.88	1.00	0.334	No
563	38.40	2.26	0.26	2.00	0.86	0.401	1.36	0.295	0.88	1.00	0.334	No
564	38.46	2.26	0.26	2.00	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
565	38.54	2.27	0.27	2.00	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
566	38.60	2.27	0.27	2.00	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
567	38.69	2.28	0.27	2.01	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
568	38.74	2.28	0.27	2.01	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
569	38.83	2.29	0.28	2.01	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
570	38.88	2.29	0.28	2.01	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
571	38.97	2.30	0.28	2.02	0.86	0.401	1.36	0.295	0.88	1.00	0.335	No
572	39.02	2.30	0.28	2.02	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
573	39.11	2.31	0.28	2.02	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
574	39.16	2.31	0.29	2.02	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
575	39.23	2.31	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
576	39.24	2.31	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	39.28	2.32	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
578	39.32	2.32	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	0.336	No
579	39.39	2.32	0.29	2.03	0.86	0.401	1.36	0.295	0.88	1.00	2.000	Yes
580	39.47	2.33	0.30	2.03	0.86	0.401	1.36	0.295	0.88	1.00	2.000	Yes
581	39.54	2.33	0.30	2.04	0.86	0.401	1.36	0.295	0.88	1.00	2.000	Yes
582	39.62	2.34	0.30	2.04	0.85	0.401	1.36	0.295	0.88	1.00	2.000	Yes
583	39.71	2.34	0.30	2.04	0.85	0.401	1.36	0.295	0.88	1.00	2.000	Yes
584	39.76	2.35	0.30	2.04	0.85	0.401	1.36	0.295	0.88	1.00	2.000	Yes
585	39.85	2.35	0.31	2.05	0.85	0.401	1.36	0.295	0.88	1.00	2.000	Yes
586	39.90	2.36	0.31	2.05	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
587	40.00	2.36	0.31	2.05	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
588	40.06	2.37	0.31	2.05	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
589	40.15	2.37	0.32	2.05	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
590	40.21	2.38	0.32	2.06	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
591	40.29	2.38	0.32	2.06	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
592	40.35	2.38	0.32	2.06	0.85	0.402	1.36	0.295	0.88	1.00	2.000	Yes
593	40.43	2.39	0.33	2.06	0.85	0.402	1.36	0.295	0.87	1.00	2.000	Yes
594	40.52	2.39	0.33	2.07	0.85	0.402	1.36	0.295	0.87	1.00	2.000	Yes
595	40.58	2.40	0.33	2.07	0.85	0.402	1.36	0.295	0.87	1.00	2.000	Yes
596	40.67	2.40	0.33	2.07	0.85	0.402	1.36	0.295	0.87	1.00	2.000	Yes
597	40.77	2.41	0.34	2.07	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
598	40.84	2.41	0.34	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
599	40.89	2.42	0.34	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
600	40.94	2.42	0.34	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
601	41.03	2.43	0.34	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
602	41.08	2.43	0.35	2.08	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
603	41.14	2.43	0.35	2.09	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
604	41.22	2.44	0.35	2.09	0.84	0.402	1.36	0.295	0.87	1.00	2.000	Yes
605	41.28	2.44	0.35	2.09	0.84	0.402	1.36	0.295	0.87	1.00	0.338	No
606	41.33	2.44	0.35	2.09	0.84	0.402	1.36	0.295	0.87	1.00	0.338	No
607	41.42	2.45	0.36	2.09	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
608	41.47	2.45	0.36	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
609	41.52	2.46	0.36	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
610	41.62	2.46	0.36	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
611	41.67	2.47	0.36	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
612	41.76	2.47	0.37	2.10	0.84	0.402	1.36	0.295	0.87	1.00	0.339	No
613	41.82	2.48	0.37	2.11	0.83	0.402	1.36	0.295	0.87	1.00	0.339	No
614	41.90	2.48	0.37	2.11	0.83	0.402	1.36	0.295	0.87	1.00	0.339	No
615	41.99	2.49	0.37	2.11	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
616	42.05	2.49	0.38	2.11	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
617	42.15	2.50	0.38	2.12	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
618	42.23	2.50	0.38	2.12	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
619	42.30	2.51	0.38	2.12	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
620	42.38	2.51	0.39	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
621	42.48	2.52	0.39	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
622	42.57	2.52	0.39	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
623	42.64	2.53	0.39	2.13	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
624	42.72	2.53	0.40	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	42.82	2.54	0.40	2.14	0.83	0.401	1.36	0.295	0.87	1.00	0.339	No
626	42.90	2.55	0.40	2.14	0.82	0.401	1.36	0.295	0.87	1.00	0.339	No
627	42.97	2.55	0.40	2.15	0.82	0.401	1.36	0.295	0.87	1.00	0.339	No
628	43.06	2.56	0.41	2.15	0.82	0.401	1.36	0.295	0.87	1.00	0.340	No
629	43.15	2.56	0.41	2.15	0.82	0.401	1.36	0.295	0.87	1.00	0.340	No
630	43.20	2.56	0.41	2.15	0.82	0.401	1.36	0.295	0.87	1.00	0.340	No
631	43.30	2.57	0.41	2.16	0.82	0.401	1.36	0.295	0.87	1.00	0.340	No
632	43.40	2.58	0.42	2.16	0.82	0.401	1.36	0.294	0.87	1.00	0.340	No
633	43.48	2.58	0.42	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
634	43.51	2.58	0.42	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
635	43.52	2.58	0.42	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
636	43.56	2.59	0.42	2.16	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
637	43.61	2.59	0.42	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
638	43.67	2.59	0.43	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
639	43.72	2.60	0.43	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
640	43.80	2.60	0.43	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
641	43.85	2.61	0.43	2.17	0.82	0.400	1.36	0.294	0.87	1.00	0.340	No
642	43.90	2.61	0.43	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
643	43.94	2.61	0.43	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
644	43.99	2.62	0.44	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
645	44.08	2.62	0.44	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
646	44.14	2.62	0.44	2.18	0.81	0.400	1.36	0.294	0.87	1.00	0.340	No
647	44.22	2.63	0.44	2.19	0.81	0.400	1.36	0.294	0.86	1.00	0.340	No
648	44.28	2.63	0.45	2.19	0.81	0.400	1.36	0.294	0.86	1.00	0.340	No
649	44.33	2.64	0.45	2.19	0.81	0.400	1.36	0.294	0.86	1.00	0.340	No
650	44.40	2.64	0.45	2.19	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
651	44.48	2.65	0.45	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
652	44.52	2.65	0.45	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
653	44.61	2.66	0.46	2.20	0.81	0.399	1.36	0.294	0.86	1.00	0.340	No
654	44.72	2.66	0.46	2.20	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
655	44.77	2.67	0.46	2.21	0.81	0.399	1.36	0.293	0.86	1.00	0.340	No
656	44.91	2.67	0.47	2.21	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
657	44.95	2.68	0.47	2.21	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
658	45.02	2.68	0.47	2.21	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
659	45.04	2.68	0.47	2.21	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
660	45.06	2.69	0.47	2.22	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
661	45.11	2.69	0.47	2.22	0.80	0.399	1.36	0.293	0.86	1.00	0.340	No
662	45.15	2.69	0.47	2.22	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
663	45.21	2.69	0.47	2.22	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
664	45.25	2.70	0.48	2.22	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
665	45.30	2.70	0.48	2.22	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
666	45.35	2.70	0.48	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
667	45.41	2.71	0.48	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
668	45.49	2.71	0.48	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
669	45.55	2.72	0.49	2.23	0.80	0.398	1.36	0.293	0.86	1.00	0.340	No
670	45.63	2.72	0.49	2.24	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No
671	45.69	2.73	0.49	2.24	0.80	0.398	1.36	0.292	0.86	1.00	0.340	No
672	45.78	2.73	0.49	2.24	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	45.84	2.74	0.49	2.24	0.80	0.397	1.36	0.292	0.86	1.00	0.340	No
674	45.93	2.74	0.50	2.25	0.79	0.397	1.36	0.292	0.86	1.00	0.339	No
675	46.02	2.75	0.50	2.25	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
676	46.08	2.75	0.50	2.25	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
677	46.16	2.76	0.50	2.25	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
678	46.24	2.76	0.51	2.26	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
679	46.31	2.77	0.51	2.26	0.79	0.397	1.36	0.292	0.86	1.00	2.000	Yes
680	46.41	2.77	0.51	2.26	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
681	46.48	2.78	0.51	2.26	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
682	46.56	2.78	0.52	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
683	46.65	2.79	0.52	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
684	46.75	2.79	0.52	2.27	0.79	0.396	1.36	0.291	0.86	1.00	2.000	Yes
685	46.84	2.80	0.53	2.27	0.78	0.396	1.36	0.291	0.86	1.00	2.000	Yes
686	46.94	2.81	0.53	2.28	0.78	0.396	1.36	0.291	0.86	1.00	0.339	No
687	47.02	2.81	0.53	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
688	47.08	2.81	0.53	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
689	47.12	2.82	0.53	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
690	47.16	2.82	0.54	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
691	47.21	2.82	0.54	2.28	0.78	0.395	1.36	0.291	0.86	1.00	0.339	No
692	47.27	2.82	0.54	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
693	47.35	2.83	0.54	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
694	47.40	2.83	0.54	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
695	47.50	2.84	0.55	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
696	47.55	2.84	0.55	2.29	0.78	0.395	1.36	0.290	0.86	1.00	0.339	No
697	47.61	2.84	0.55	2.29	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
698	47.69	2.85	0.55	2.30	0.78	0.394	1.36	0.290	0.86	1.00	0.339	No
699	47.76	2.85	0.55	2.30	0.78	0.394	1.36	0.290	0.86	1.00	0.338	No
700	47.83	2.85	0.56	2.30	0.77	0.394	1.36	0.290	0.86	1.00	0.338	No
701	47.93	2.86	0.56	2.30	0.77	0.394	1.36	0.290	0.86	1.00	0.338	No
702	48.02	2.87	0.56	2.30	0.77	0.394	1.36	0.290	0.86	1.00	0.338	No
703	48.09	2.87	0.56	2.30	0.77	0.394	1.36	0.289	0.86	1.00	0.338	No
704	48.18	2.87	0.57	2.31	0.77	0.394	1.36	0.289	0.86	1.00	0.338	No
705	48.27	2.88	0.57	2.31	0.77	0.393	1.36	0.289	0.86	1.00	0.338	No
706	48.37	2.88	0.57	2.31	0.77	0.393	1.36	0.289	0.86	1.00	0.338	No
707	48.46	2.89	0.58	2.31	0.77	0.393	1.36	0.289	0.86	1.00	0.338	No
708	48.52	2.89	0.58	2.31	0.77	0.393	1.36	0.289	0.86	1.00	0.338	No
709	48.60	2.90	0.58	2.32	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
710	48.70	2.90	0.58	2.32	0.77	0.393	1.36	0.289	0.85	1.00	0.338	No
711	48.79	2.91	0.59	2.32	0.77	0.392	1.36	0.289	0.85	1.00	0.338	No
712	48.85	2.91	0.59	2.32	0.76	0.392	1.36	0.288	0.85	1.00	0.338	No
713	48.94	2.92	0.59	2.32	0.76	0.392	1.36	0.288	0.85	1.00	0.337	No
714	49.04	2.92	0.59	2.33	0.76	0.392	1.36	0.288	0.85	1.00	0.337	No
715	49.13	2.93	0.60	2.33	0.76	0.392	1.36	0.288	0.85	1.00	0.337	No
716	49.23	2.93	0.60	2.33	0.76	0.392	1.36	0.288	0.85	1.00	0.337	No
717	49.33	2.94	0.60	2.33	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No
718	49.38	2.94	0.60	2.34	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No
719	49.42	2.94	0.61	2.34	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No
720	49.48	2.95	0.61	2.34	0.76	0.391	1.36	0.288	0.85	1.00	0.337	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	49.53	2.95	0.61	2.34	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
722	49.58	2.95	0.61	2.34	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
723	49.63	2.96	0.61	2.34	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
724	49.72	2.96	0.62	2.35	0.76	0.391	1.36	0.287	0.85	1.00	0.337	No
725	49.77	2.96	0.62	2.35	0.76	0.390	1.36	0.287	0.85	1.00	0.337	No
726	49.83	2.97	0.62	2.35	0.75	0.390	1.36	0.287	0.85	1.00	0.337	No
727	49.92	2.97	0.62	2.35	0.75	0.390	1.36	0.287	0.85	1.00	0.337	No
728	49.97	2.98	0.62	2.35	0.75	0.390	1.36	0.287	0.85	1.00	0.336	No
729	50.04	2.98	0.63	2.36	0.75	0.390	1.36	0.287	0.85	1.00	0.336	No
730	50.11	2.99	0.63	2.36	0.75	0.390	1.36	0.287	0.85	1.00	0.336	No
731	50.20	2.99	0.63	2.36	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
732	50.27	3.00	0.63	2.36	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
733	50.34	3.00	0.63	2.36	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
734	50.45	3.01	0.64	2.37	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
735	50.54	3.01	0.64	2.37	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
736	50.59	3.01	0.64	2.37	0.75	0.389	1.36	0.286	0.85	1.00	0.336	No
737	50.68	3.02	0.65	2.37	0.75	0.388	1.36	0.286	0.85	1.00	0.336	No
738	50.79	3.03	0.65	2.38	0.74	0.388	1.36	0.285	0.85	1.00	0.336	No
739	50.88	3.03	0.65	2.38	0.74	0.388	1.36	0.285	0.85	1.00	0.335	No
740	50.98	3.04	0.65	2.38	0.74	0.388	1.36	0.285	0.85	1.00	0.335	No
741	51.07	3.04	0.66	2.38	0.74	0.388	1.36	0.285	0.85	1.00	0.335	No
742	51.17	3.05	0.66	2.39	0.74	0.387	1.36	0.285	0.85	1.00	0.335	No
743	51.24	3.05	0.66	2.39	0.74	0.387	1.36	0.285	0.85	1.00	0.335	No
744	51.33	3.06	0.67	2.39	0.74	0.387	1.36	0.285	0.85	1.00	0.335	No
745	51.46	3.06	0.67	2.39	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
746	51.46	3.06	0.67	2.39	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
747	51.51	3.07	0.67	2.40	0.74	0.387	1.36	0.284	0.85	1.00	0.335	No
748	51.56	3.07	0.67	2.40	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
749	51.65	3.07	0.68	2.40	0.74	0.386	1.36	0.284	0.85	1.00	0.335	No
750	51.71	3.08	0.68	2.40	0.74	0.386	1.36	0.284	0.85	1.00	0.334	No
751	51.79	3.08	0.68	2.40	0.73	0.386	1.36	0.284	0.85	1.00	0.334	No
752	51.85	3.09	0.68	2.40	0.73	0.386	1.36	0.284	0.85	1.00	0.334	No
753	51.94	3.09	0.68	2.41	0.73	0.386	1.36	0.284	0.85	1.00	0.334	No
754	51.99	3.09	0.69	2.41	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
755	52.09	3.10	0.69	2.41	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
756	52.19	3.11	0.69	2.41	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
757	52.28	3.11	0.70	2.42	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
758	52.35	3.12	0.70	2.42	0.73	0.385	1.36	0.283	0.85	1.00	0.334	No
759	52.43	3.12	0.70	2.42	0.73	0.384	1.36	0.283	0.85	1.00	0.334	No
760	52.52	3.13	0.70	2.42	0.73	0.384	1.36	0.282	0.85	1.00	0.333	No
761	52.62	3.13	0.71	2.43	0.73	0.384	1.36	0.282	0.85	1.00	0.333	No
762	52.72	3.14	0.71	2.43	0.73	0.384	1.36	0.282	0.85	1.00	0.333	No
763	52.81	3.14	0.71	2.43	0.72	0.383	1.36	0.282	0.85	1.00	0.333	No
764	52.91	3.15	0.71	2.44	0.72	0.383	1.36	0.282	0.85	1.00	0.333	No
765	53.00	3.16	0.72	2.44	0.72	0.383	1.36	0.282	0.85	1.00	0.333	No
766	53.10	3.16	0.72	2.44	0.72	0.383	1.36	0.281	0.85	1.00	2.000	Yes
767	53.20	3.17	0.72	2.45	0.72	0.382	1.36	0.281	0.85	1.00	2.000	Yes
768	53.29	3.18	0.73	2.45	0.72	0.382	1.36	0.281	0.85	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	53.38	3.18	0.73	2.45	0.72	0.382	1.36	0.281	0.85	1.00	2.000	Yes
770	53.46	3.19	0.73	2.46	0.72	0.382	1.36	0.281	0.85	1.00	2.000	Yes
771	53.53	3.19	0.73	2.46	0.72	0.382	1.36	0.281	0.84	1.00	2.000	Yes
772	53.63	3.20	0.74	2.46	0.72	0.381	1.36	0.280	0.84	1.00	2.000	Yes
773	53.73	3.21	0.74	2.47	0.72	0.381	1.36	0.280	0.84	1.00	2.000	Yes
774	53.82	3.21	0.74	2.47	0.71	0.381	1.36	0.280	0.84	1.00	2.000	Yes
775	53.92	3.22	0.75	2.47	0.71	0.380	1.36	0.280	0.84	1.00	2.000	Yes
776	53.94	3.22	0.75	2.47	0.71	0.380	1.36	0.280	0.84	1.00	0.331	No
777	53.96	3.22	0.75	2.47	0.71	0.380	1.36	0.280	0.84	1.00	0.331	No
778	53.97	3.22	0.75	2.47	0.71	0.380	1.36	0.280	0.84	1.00	0.331	No
779	54.05	3.23	0.75	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
780	54.08	3.23	0.75	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
781	54.13	3.23	0.75	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
782	54.19	3.24	0.75	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
783	54.25	3.24	0.76	2.48	0.71	0.380	1.36	0.279	0.84	1.00	0.331	No
784	54.28	3.24	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
785	54.29	3.24	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
786	54.34	3.25	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
787	54.35	3.25	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
788	54.40	3.25	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
789	54.44	3.25	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
790	54.49	3.26	0.76	2.49	0.71	0.379	1.36	0.279	0.84	1.00	0.331	No
791	54.53	3.26	0.77	2.50	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
792	54.57	3.26	0.77	2.50	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
793	54.58	3.26	0.77	2.50	0.71	0.379	1.36	0.278	0.84	1.00	0.331	No
794	54.63	3.27	0.77	2.50	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
795	54.68	3.27	0.77	2.50	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
796	54.73	3.27	0.77	2.50	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
797	54.78	3.28	0.77	2.50	0.71	0.378	1.36	0.278	0.84	1.00	0.330	No
798	54.83	3.28	0.77	2.51	0.70	0.378	1.36	0.278	0.84	1.00	0.330	No
799	54.88	3.28	0.78	2.51	0.70	0.378	1.36	0.278	0.84	1.00	0.330	No
800	54.92	3.29	0.78	2.51	0.70	0.378	1.36	0.278	0.84	1.00	0.330	No
801	54.97	3.29	0.78	2.51	0.70	0.378	1.36	0.278	0.84	1.00	0.330	No
802	55.02	3.29	0.78	2.51	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
803	55.12	3.30	0.78	2.52	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
804	55.17	3.30	0.79	2.52	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
805	55.25	3.31	0.79	2.52	0.70	0.377	1.36	0.277	0.84	1.00	0.330	No
806	55.31	3.31	0.79	2.52	0.70	0.377	1.36	0.277	0.84	1.00	0.329	No
807	55.36	3.32	0.79	2.53	0.70	0.376	1.36	0.277	0.84	1.00	0.329	No
808	55.45	3.32	0.79	2.53	0.70	0.376	1.36	0.277	0.84	1.00	0.329	No
809	55.50	3.33	0.80	2.53	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
810	55.60	3.33	0.80	2.53	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
811	55.65	3.34	0.80	2.54	0.70	0.376	1.36	0.276	0.84	1.00	0.329	No
812	55.71	3.34	0.80	2.54	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
813	55.75	3.34	0.80	2.54	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
814	55.79	3.35	0.80	2.54	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
815	55.84	3.35	0.81	2.54	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No
816	55.89	3.35	0.81	2.55	0.70	0.375	1.36	0.276	0.84	1.00	0.329	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	55.90	3.35	0.81	2.55	0.69	0.375	1.36	0.276	0.84	1.00	0.329	No
818	55.94	3.36	0.81	2.55	0.69	0.375	1.36	0.276	0.84	1.00	0.328	No
819	55.99	3.36	0.81	2.55	0.69	0.375	1.36	0.275	0.84	1.00	0.328	No
820	56.03	3.36	0.81	2.55	0.69	0.375	1.36	0.275	0.84	1.00	0.328	No
821	56.08	3.37	0.81	2.55	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
822	56.14	3.37	0.82	2.55	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
823	56.22	3.38	0.82	2.56	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
824	56.28	3.38	0.82	2.56	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
825	56.33	3.38	0.82	2.56	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
826	56.38	3.39	0.82	2.56	0.69	0.374	1.36	0.275	0.84	1.00	0.328	No
827	56.45	3.39	0.83	2.56	0.69	0.373	1.36	0.275	0.84	1.00	0.328	No
828	56.52	3.39	0.83	2.57	0.69	0.373	1.36	0.274	0.84	1.00	0.328	No
829	56.62	3.40	0.83	2.57	0.69	0.373	1.36	0.274	0.84	1.00	0.327	No
830	56.66	3.40	0.83	2.57	0.69	0.373	1.36	0.274	0.84	1.00	0.327	No
831	56.73	3.41	0.83	2.57	0.69	0.373	1.36	0.274	0.84	1.00	0.327	No
832	56.81	3.41	0.84	2.58	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
833	56.95	3.42	0.84	2.58	0.69	0.372	1.36	0.274	0.84	1.00	0.327	No
834	57.00	3.43	0.84	2.58	0.68	0.372	1.36	0.273	0.84	1.00	0.327	No
835	57.09	3.43	0.85	2.59	0.68	0.372	1.36	0.273	0.84	1.00	0.327	No
836	57.19	3.44	0.85	2.59	0.68	0.371	1.36	0.273	0.84	1.00	0.327	No
837	57.27	3.45	0.85	2.59	0.68	0.371	1.36	0.273	0.84	1.00	0.326	No
838	57.35	3.45	0.85	2.60	0.68	0.371	1.36	0.273	0.84	1.00	0.326	No
839	57.44	3.46	0.86	2.60	0.68	0.371	1.36	0.273	0.84	1.00	0.326	No
840	57.50	3.46	0.86	2.60	0.68	0.371	1.36	0.272	0.84	1.00	0.326	No
841	57.52	3.46	0.86	2.60	0.68	0.370	1.36	0.272	0.84	1.00	0.326	No
842	57.58	3.47	0.86	2.60	0.68	0.370	1.36	0.272	0.84	1.00	0.326	No
843	57.63	3.47	0.86	2.61	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
844	57.72	3.48	0.86	2.61	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
845	57.77	3.48	0.87	2.61	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
846	57.82	3.48	0.87	2.61	0.68	0.370	1.36	0.272	0.83	1.00	0.326	No
847	57.91	3.49	0.87	2.62	0.68	0.369	1.36	0.272	0.83	1.00	0.326	No
848	57.96	3.49	0.87	2.62	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
849	58.02	3.49	0.87	2.62	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
850	58.09	3.50	0.88	2.62	0.68	0.369	1.36	0.271	0.83	1.00	0.325	No
851	58.16	3.50	0.88	2.63	0.67	0.369	1.36	0.271	0.83	1.00	0.325	No
852	58.25	3.51	0.88	2.63	0.67	0.368	1.36	0.271	0.83	1.00	0.325	No
853	58.30	3.51	0.88	2.63	0.67	0.368	1.36	0.271	0.83	1.00	0.325	No
854	58.40	3.52	0.89	2.63	0.67	0.368	1.36	0.271	0.83	1.00	0.325	No
855	58.50	3.53	0.89	2.64	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
856	58.56	3.53	0.89	2.64	0.67	0.368	1.36	0.270	0.83	1.00	0.325	No
857	58.64	3.54	0.89	2.64	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
858	58.73	3.54	0.90	2.65	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
859	58.78	3.55	0.90	2.65	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
860	58.88	3.55	0.90	2.65	0.67	0.367	1.36	0.270	0.83	1.00	0.324	No
861	58.97	3.56	0.90	2.65	0.67	0.367	1.36	0.269	0.83	1.00	0.324	No
862	59.07	3.57	0.91	2.66	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
863	59.13	3.57	0.91	2.66	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No
864	59.23	3.58	0.91	2.66	0.67	0.366	1.36	0.269	0.83	1.00	0.324	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	59.31	3.58	0.91	2.67	0.66	0.366	1.36	0.269	0.83	1.00	0.323	No
866	59.38	3.59	0.92	2.67	0.66	0.365	1.36	0.269	0.83	1.00	0.323	No
867	59.41	3.59	0.92	2.67	0.66	0.365	1.36	0.269	0.83	1.00	0.323	No
868	59.46	3.59	0.92	2.67	0.66	0.365	1.36	0.269	0.83	1.00	0.323	No
869	59.51	3.59	0.92	2.67	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
870	59.57	3.60	0.92	2.68	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
871	59.66	3.60	0.93	2.68	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
872	59.75	3.61	0.93	2.68	0.66	0.365	1.36	0.268	0.83	1.00	0.323	No
873	59.80	3.61	0.93	2.68	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
874	59.85	3.62	0.93	2.69	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
875	59.91	3.62	0.93	2.69	0.66	0.364	1.36	0.268	0.83	1.00	0.323	No
876	59.99	3.63	0.94	2.69	0.66	0.364	1.36	0.268	0.83	1.00	0.322	No
877	60.05	3.63	0.94	2.69	0.66	0.364	1.36	0.267	0.83	1.00	0.322	No
878	60.09	3.63	0.94	2.69	0.66	0.364	1.36	0.267	0.83	1.00	0.322	No
879	60.14	3.64	0.94	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
880	60.19	3.64	0.94	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
881	60.22	3.64	0.94	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
882	60.28	3.65	0.94	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
883	60.33	3.65	0.95	2.70	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
884	60.38	3.65	0.95	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
885	60.42	3.66	0.95	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
886	60.48	3.66	0.95	2.71	0.66	0.363	1.36	0.267	0.83	1.00	0.322	No
887	60.57	3.67	0.95	2.71	0.65	0.362	1.36	0.266	0.83	1.00	0.322	No
888	60.66	3.67	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
889	60.68	3.67	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
890	60.69	3.67	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
891	60.74	3.68	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
892	60.79	3.68	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
893	60.84	3.68	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
894	60.89	3.69	0.96	2.72	0.65	0.362	1.36	0.266	0.83	1.00	0.321	No
895	60.98	3.69	0.97	2.73	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
896	61.03	3.69	0.97	2.73	0.65	0.361	1.36	0.266	0.83	1.00	0.321	No
897	61.08	3.70	0.97	2.73	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
898	61.18	3.70	0.97	2.73	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
899	61.23	3.71	0.97	2.73	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
900	61.31	3.71	0.98	2.74	0.65	0.361	1.36	0.265	0.83	1.00	0.321	No
901	61.42	3.72	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
902	61.47	3.72	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
903	61.51	3.73	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
904	61.54	3.73	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
905	61.57	3.73	0.98	2.74	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
906	61.58	3.73	0.99	2.75	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
907	61.61	3.73	0.99	2.75	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
908	61.63	3.73	0.99	2.75	0.65	0.360	1.36	0.265	0.83	1.00	0.320	No
909	61.63	3.73	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
910	61.66	3.74	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
911	61.67	3.74	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
912	61.70	3.74	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	61.71	3.74	0.99	2.75	0.65	0.360	1.36	0.264	0.83	1.00	0.320	No
914	61.76	3.74	0.99	2.75	0.65	0.359	1.36	0.264	0.83	1.00	0.320	No
915	61.80	3.75	0.99	2.75	0.65	0.359	1.36	0.264	0.83	1.00	0.320	No
916	61.84	3.75	0.99	2.75	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
917	61.86	3.75	0.99	2.75	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
918	61.93	3.75	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
919	61.98	3.76	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
920	62.04	3.76	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.320	No
921	62.09	3.76	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.319	No
922	62.14	3.77	1.00	2.76	0.64	0.359	1.36	0.264	0.83	1.00	0.319	No
923	62.19	3.77	1.00	2.77	0.64	0.358	1.36	0.264	0.83	1.00	0.319	No
924	62.24	3.77	1.01	2.77	0.64	0.358	1.36	0.263	0.83	1.00	0.319	No
925	62.26	3.77	1.01	2.77	0.64	0.358	1.36	0.263	0.83	1.00	0.319	No
926	62.29	3.78	1.01	2.77	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
927	62.38	3.78	1.01	2.77	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
928	62.44	3.79	1.01	2.77	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
929	62.46	3.79	1.01	2.78	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
930	62.47	3.79	1.01	2.78	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
931	62.51	3.79	1.01	2.78	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
932	62.56	3.79	1.02	2.78	0.64	0.358	1.36	0.263	0.82	1.00	0.319	No
933	62.60	3.80	1.02	2.78	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
934	62.65	3.80	1.02	2.78	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
935	62.70	3.80	1.02	2.78	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
936	62.75	3.81	1.02	2.79	0.64	0.357	1.36	0.263	0.82	1.00	0.319	No
937	62.80	3.81	1.02	2.79	0.64	0.357	1.36	0.262	0.82	1.00	0.319	No
938	62.85	3.81	1.02	2.79	0.64	0.357	1.36	0.262	0.82	1.00	0.318	No
939	62.89	3.82	1.03	2.79	0.64	0.357	1.36	0.262	0.82	1.00	0.318	No
940	62.97	3.82	1.03	2.79	0.64	0.357	1.36	0.262	0.82	1.00	0.318	No
941	63.04	3.83	1.03	2.80	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
942	63.09	3.83	1.03	2.80	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
943	63.13	3.83	1.03	2.80	0.64	0.356	1.36	0.262	0.82	1.00	0.318	No
944	63.19	3.84	1.04	2.80	0.63	0.356	1.36	0.262	0.82	1.00	0.318	No
945	63.23	3.84	1.04	2.80	0.63	0.356	1.36	0.262	0.82	1.00	0.318	No
946	63.28	3.84	1.04	2.81	0.63	0.356	1.36	0.262	0.82	1.00	0.318	No
947	63.32	3.85	1.04	2.81	0.63	0.356	1.36	0.261	0.82	1.00	0.318	No
948	63.38	3.85	1.04	2.81	0.63	0.356	1.36	0.261	0.82	1.00	0.318	No
949	63.44	3.85	1.04	2.81	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
950	63.52	3.86	1.05	2.81	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
951	63.57	3.86	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.318	No
952	63.66	3.87	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
953	63.73	3.87	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
954	63.76	3.88	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
955	63.76	3.88	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
956	63.78	3.88	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
957	63.81	3.88	1.05	2.82	0.63	0.355	1.36	0.261	0.82	1.00	0.317	No
958	63.85	3.88	1.06	2.83	0.63	0.354	1.36	0.261	0.82	1.00	0.317	No
959	63.86	3.88	1.06	2.83	0.63	0.354	1.36	0.261	0.82	1.00	0.317	No
960	63.91	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	63.94	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
962	63.95	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
963	64.00	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
964	64.02	3.89	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
965	64.05	3.90	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
966	64.09	3.90	1.06	2.83	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
967	64.11	3.90	1.06	2.84	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
968	64.15	3.90	1.07	2.84	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
969	64.20	3.91	1.07	2.84	0.63	0.354	1.36	0.260	0.82	1.00	0.317	No
970	64.25	3.91	1.07	2.84	0.63	0.353	1.36	0.260	0.82	1.00	0.317	No
971	64.29	3.91	1.07	2.84	0.63	0.353	1.36	0.260	0.82	1.00	0.317	No
972	64.34	3.92	1.07	2.84	0.63	0.353	1.36	0.260	0.82	1.00	0.317	No
973	64.43	3.92	1.07	2.85	0.63	0.353	1.36	0.260	0.82	1.00	0.316	No
974	64.48	3.92	1.08	2.85	0.63	0.353	1.36	0.259	0.82	1.00	0.316	No
975	64.53	3.93	1.08	2.85	0.63	0.353	1.36	0.259	0.82	1.00	0.316	No
976	64.58	3.93	1.08	2.85	0.62	0.353	1.36	0.259	0.82	1.00	0.316	No
977	64.63	3.93	1.08	2.85	0.62	0.353	1.36	0.259	0.82	1.00	0.316	No
978	64.68	3.94	1.08	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
979	64.73	3.94	1.08	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
980	64.77	3.94	1.08	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
981	64.82	3.95	1.09	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
982	64.87	3.95	1.09	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
983	64.89	3.95	1.09	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
984	64.93	3.95	1.09	2.86	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
985	64.94	3.96	1.09	2.87	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
986	64.98	3.96	1.09	2.87	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
987	64.99	3.96	1.09	2.87	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
988	65.03	3.96	1.09	2.87	0.62	0.352	1.36	0.259	0.82	1.00	0.316	No
989	65.08	3.96	1.09	2.87	0.62	0.352	1.36	0.258	0.82	1.00	0.316	No
990	65.13	3.97	1.10	2.87	0.62	0.351	1.36	0.258	0.82	1.00	0.316	No
991	65.17	3.97	1.10	2.87	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
992	65.22	3.97	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
993	65.23	3.98	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
994	65.28	3.98	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
995	65.32	3.98	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
996	65.37	3.98	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
997	65.42	3.99	1.10	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
998	65.47	3.99	1.11	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
999	65.48	3.99	1.11	2.88	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
1000	65.49	3.99	1.11	2.89	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
1001	65.52	3.99	1.11	2.89	0.62	0.351	1.36	0.258	0.82	1.00	0.315	No
1002	65.57	4.00	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1003	65.62	4.00	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1004	65.67	4.00	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1005	65.69	4.00	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1006	65.72	4.01	1.11	2.89	0.62	0.350	1.36	0.258	0.82	1.00	0.315	No
1007	65.77	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No
1008	65.82	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	65.86	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No
1010	65.86	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No
1011	65.91	4.01	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No
1012	65.96	4.02	1.12	2.89	0.62	0.350	1.36	0.257	0.82	1.00	0.315	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.01	-0.03	N/A	-11.45	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
2	0.04	-0.03	N/A	-18.30	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
3	0.08	-0.07	N/A	-13.93	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
4	0.10	-0.03	N/A	-40.02	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
5	0.13	-0.03	N/A	-55.83	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
6	0.18	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
7	0.22	0.00	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
8	0.27	0.81	4.01	9.28	1.00	1.28	50.14	63.98	4.000	No	Yes	2.00
9	0.33	2.77	3.31	3.21	1.00	4.42	15.47	68.30	4.000	No	Yes	2.00
10	0.36	5.16	2.95	1.83	1.00	8.26	7.99	66.07	4.000	Yes	Yes	2.00
11	0.37	7.12	2.76	1.34	0.84	11.41	5.40	61.61	4.000	Yes	Yes	2.00
12	0.38	8.20	2.69	1.21	0.81	13.14	4.58	60.15	4.000	Yes	Yes	2.00
13	0.42	9.38	2.63	1.15	0.80	15.03	3.98	59.88	4.000	Yes	Yes	2.00
14	0.44	10.59	2.58	1.15	0.78	16.98	3.58	60.79	4.000	Yes	No	2.00
15	0.47	12.18	2.52	1.09	0.76	19.53	3.09	60.26	4.000	Yes	No	2.00
16	0.47	14.24	2.44	1.01	0.74	22.83	2.61	59.51	4.000	Yes	No	2.00
17	0.52	17.00	2.35	0.91	0.71	27.27	2.14	58.39	4.000	Yes	No	2.00
18	0.56	20.48	2.26	0.82	0.69	32.85	1.78	58.60	4.000	Yes	No	2.00
19	0.58	24.93	2.16	0.72	0.66	40.00	1.52	60.77	4.000	Yes	No	2.00
20	0.61	30.70	2.05	0.62	0.62	49.27	1.35	66.61	4.000	Yes	No	2.00
21	0.66	36.94	1.95	0.54	0.59	59.30	1.27	75.22	4.000	Yes	No	2.00
22	0.76	40.79	1.89	0.50	0.58	65.47	1.23	80.72	4.000	Yes	No	2.00
23	0.80	38.66	1.93	0.54	0.59	62.05	1.25	77.85	4.000	No	No	2.00
24	0.81	35.49	1.98	0.58	0.60	56.95	1.29	73.41	4.000	No	No	2.00
25	0.85	32.42	2.03	0.63	0.62	52.02	1.33	69.37	4.000	No	No	2.00
26	0.86	32.79	2.03	0.63	0.62	52.62	1.33	69.99	4.000	No	No	2.00
27	0.90	32.22	2.05	0.69	0.62	51.69	1.35	70.01	4.000	No	No	2.00
28	0.95	31.82	2.07	0.73	0.63	51.04	1.38	70.34	4.000	No	No	2.00
29	1.00	30.53	2.06	0.67	0.63	48.97	1.37	67.09	4.000	No	No	2.00
30	1.05	28.88	2.04	0.54	0.62	46.31	1.34	62.22	4.000	No	No	2.00
31	1.14	26.55	2.01	0.38	0.61	42.56	1.00	42.56	4.000	No	No	2.00
32	1.24	24.29	2.04	0.37	0.62	38.92	1.00	38.92	4.000	No	No	2.00
33	1.31	20.51	2.14	0.44	0.65	32.85	1.00	32.85	4.000	No	No	2.00
34	1.36	17.93	2.22	0.53	0.67	28.70	1.67	48.03	4.000	No	No	2.00
35	1.37	17.77	2.23	0.55	0.68	28.44	1.71	48.50	4.000	No	No	2.00
36	1.39	18.54	2.21	0.53	0.67	29.68	1.64	48.64	4.000	No	No	2.00
37	1.43	19.03	2.19	0.52	0.67	30.46	1.60	48.73	4.000	No	No	2.00
38	1.44	18.05	2.23	0.54	0.68	28.88	1.68	48.54	4.000	No	No	2.00
39	1.49	18.35	2.22	0.55	0.67	29.36	1.67	49.05	4.000	No	No	2.00
40	1.53	18.89	2.22	0.58	0.67	30.23	1.66	50.30	4.000	No	No	2.00
41	1.58	19.67	2.22	0.62	0.67	31.47	1.66	52.29	4.000	No	No	2.00
42	1.63	20.62	2.22	0.68	0.67	32.99	1.66	54.77	4.000	No	No	2.00
43	1.68	21.70	2.21	0.74	0.67	34.72	1.65	57.36	4.000	No	No	2.00
44	1.72	23.31	2.20	0.77	0.67	37.31	1.61	60.04	4.000	No	No	2.00
45	1.77	25.48	2.17	0.79	0.66	40.78	1.54	62.93	4.000	No	No	2.00
46	1.82	28.31	2.13	0.78	0.65	45.33	1.46	66.36	4.000	No	No	2.00
47	1.86	31.52	2.08	0.77	0.63	50.48	1.40	70.45	4.000	No	No	2.00
48	1.92	35.09	2.03	0.73	0.62	56.22	1.34	75.14	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	1.97	38.67	1.98	0.69	0.60	61.96	1.29	80.21	4.000	No	No	2.00
50	2.01	41.61	1.95	0.68	0.59	66.68	1.27	84.88	4.000	No	No	2.00
51	2.09	43.22	1.94	0.68	0.59	69.27	1.26	87.55	4.000	No	No	2.00
52	2.16	43.05	1.95	0.70	0.59	68.99	1.27	87.53	4.000	No	No	2.00
53	2.20	41.47	1.96	0.71	0.60	66.43	1.28	85.02	4.000	No	No	2.00
54	2.25	39.85	1.98	0.71	0.60	63.83	1.29	82.39	4.000	No	No	2.00
55	2.31	38.60	1.99	0.69	0.60	61.82	1.30	80.09	4.000	No	No	2.00
56	2.37	37.79	1.98	0.66	0.60	60.52	1.29	78.32	4.000	No	No	2.00
57	2.40	36.88	1.99	0.64	0.60	59.05	1.30	76.51	4.000	No	No	2.00
58	2.46	35.97	1.98	0.61	0.60	57.57	1.29	74.55	4.000	No	No	2.00
59	2.54	35.36	1.97	0.57	0.60	56.59	1.29	72.87	4.000	No	No	2.00
60	2.59	34.69	1.96	0.50	0.59	55.51	1.00	55.51	4.000	No	No	2.00
61	2.69	34.25	1.94	0.45	0.59	54.80	1.00	54.80	4.000	No	No	2.00
62	2.74	33.95	1.92	0.40	0.58	54.31	1.00	54.31	4.000	No	No	2.00
63	2.83	33.88	1.92	0.39	0.58	54.19	1.00	54.19	4.000	No	No	2.00
64	2.88	34.35	1.91	0.38	0.58	54.94	1.00	54.94	4.000	No	No	2.00
65	2.98	35.70	1.89	0.37	0.57	57.10	1.00	57.10	4.000	No	No	2.00
66	3.03	38.57	1.85	0.36	0.56	61.71	1.00	61.71	4.000	No	No	2.00
67	3.12	42.31	1.82	0.38	0.55	67.72	1.00	67.72	4.000	No	No	2.00
68	3.21	46.83	1.79	0.40	0.55	74.97	1.00	74.97	4.000	No	No	2.00
69	3.27	51.66	1.76	0.41	0.54	82.72	1.00	82.72	4.000	No	No	2.00
70	3.34	57.05	1.72	0.40	0.52	91.38	1.00	91.38	4.000	No	No	2.00
71	3.41	61.91	1.69	0.40	0.51	99.18	1.00	99.18	4.000	No	No	2.00
72	3.51	64.20	1.68	0.41	0.51	102.85	1.00	102.85	4.000	No	No	2.00
73	3.55	63.63	1.70	0.44	0.52	101.93	1.00	101.93	4.000	No	No	2.00
74	3.65	62.42	1.72	0.46	0.52	99.97	1.00	99.97	4.000	No	No	2.00
75	3.75	61.71	1.73	0.47	0.53	98.83	1.00	98.83	4.000	No	No	2.00
76	3.83	61.44	1.73	0.47	0.53	98.39	1.00	98.39	4.000	No	No	2.00
77	3.94	61.11	1.73	0.47	0.53	97.84	1.00	97.84	4.000	No	No	2.00
78	4.04	60.30	1.73	0.47	0.53	96.53	1.00	96.53	4.000	No	No	2.00
79	4.13	60.63	1.75	0.50	0.53	97.06	1.08	104.72	4.000	No	No	2.00
80	4.24	61.68	1.74	0.50	0.53	98.73	1.00	98.73	4.000	No	No	2.00
81	4.38	65.15	1.68	0.42	0.51	104.30	1.00	104.30	4.000	No	No	2.00
82	4.50	68.93	1.62	0.35	0.50	110.36	1.00	110.36	4.000	No	No	2.00
83	4.62	74.13	1.57	0.32	0.50	118.70	1.00	118.70	4.000	No	No	2.00
84	4.71	77.89	1.57	0.35	0.50	124.73	1.00	124.73	4.000	No	No	2.00
85	4.75	80.93	1.57	0.37	0.50	129.61	1.00	129.61	4.000	No	No	2.00
86	4.84	82.11	1.58	0.39	0.50	131.50	1.00	131.50	4.000	No	No	2.00
87	4.89	82.93	1.58	0.40	0.50	132.82	1.00	132.82	4.000	No	No	2.00
88	4.94	82.93	1.58	0.40	0.50	132.82	1.00	132.82	4.000	No	No	2.00
89	4.98	81.72	1.59	0.41	0.50	130.87	1.00	130.87	4.000	No	No	2.00
90	5.07	80.10	1.60	0.41	0.50	128.25	1.00	128.25	4.000	No	No	2.00
91	5.13	78.48	1.61	0.42	0.50	125.65	1.00	125.65	4.000	No	No	2.00
92	5.17	76.79	1.61	0.41	0.50	122.93	1.00	122.93	4.000	No	No	2.00
93	5.27	74.77	1.62	0.41	0.50	119.67	1.00	119.67	4.000	No	No	2.00
94	5.32	72.75	1.63	0.40	0.50	116.42	1.00	116.42	4.000	No	No	2.00
95	5.42	70.86	1.64	0.40	0.50	113.37	1.00	113.37	4.000	No	No	2.00
96	5.46	69.34	1.64	0.39	0.50	110.93	1.00	110.93	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	5.56	68.02	1.65	0.39	0.50	108.80	1.00	108.80	4.000	No	No	2.00
98	5.61	66.87	1.66	0.39	0.50	106.96	1.00	106.96	4.000	No	No	2.00
99	5.71	65.86	1.66	0.40	0.51	105.32	1.00	105.32	4.000	No	No	2.00
100	5.78	64.92	1.67	0.40	0.51	103.80	1.00	103.80	4.000	No	No	2.00
101	5.85	63.84	1.68	0.41	0.51	102.06	1.00	102.06	4.000	No	No	2.00
102	5.95	62.83	1.69	0.42	0.52	100.42	1.00	100.42	4.000	No	No	2.00
103	6.00	62.32	1.71	0.44	0.52	99.61	1.00	99.61	4.000	No	No	2.00
104	6.09	62.93	1.66	0.36	0.51	100.57	1.00	100.57	4.000	No	No	2.00
105	6.14	64.75	1.60	0.29	0.50	103.50	1.00	103.50	4.000	No	No	2.00
106	6.24	67.52	1.53	0.21	0.50	107.94	1.00	107.94	4.000	No	No	2.00
107	6.30	70.42	1.54	0.24	0.50	112.60	1.00	112.60	4.000	No	No	2.00
108	6.38	71.40	1.56	0.28	0.50	114.16	1.00	114.16	4.000	No	No	2.00
109	6.46	69.58	1.60	0.32	0.50	111.22	1.00	111.22	4.000	No	No	2.00
110	6.50	68.43	1.62	0.35	0.50	109.38	1.00	109.38	4.000	No	No	2.00
111	6.56	68.84	1.63	0.36	0.50	110.02	1.00	110.02	4.000	No	No	2.00
112	6.63	71.30	1.61	0.36	0.50	113.98	1.00	113.98	4.000	No	No	2.00
113	6.68	72.51	1.61	0.37	0.50	115.92	1.00	115.92	4.000	No	No	2.00
114	6.76	73.49	1.61	0.37	0.50	117.34	1.00	117.34	4.000	No	No	2.00
115	6.82	74.54	1.60	0.37	0.50	118.51	1.00	118.51	4.000	No	No	2.00
116	6.88	76.19	1.59	0.36	0.50	120.59	1.00	120.59	4.000	No	No	2.00
117	6.96	78.38	1.58	0.35	0.50	123.33	1.00	123.33	4.000	No	No	2.00
118	7.03	80.54	1.56	0.34	0.50	126.09	1.00	126.09	4.000	No	No	2.00
119	7.11	82.06	1.55	0.34	0.50	127.75	1.00	127.75	4.000	No	No	2.00
120	7.16	83.04	1.55	0.34	0.50	128.83	1.00	128.83	4.000	No	No	2.00
121	7.26	83.82	1.55	0.34	0.50	129.11	1.00	129.11	4.000	No	No	2.00
122	7.31	84.43	1.56	0.35	0.50	129.55	1.00	129.55	4.000	No	No	2.00
123	7.40	84.63	1.56	0.35	0.50	129.06	1.00	129.06	4.000	No	No	2.00
124	7.45	84.52	1.56	0.35	0.50	128.43	1.00	128.43	4.000	No	No	2.00
125	7.54	83.95	1.57	0.35	0.50	126.75	1.00	126.75	4.000	No	No	2.00
126	7.60	82.84	1.58	0.36	0.50	124.58	1.00	124.58	4.000	No	No	2.00
127	7.68	81.22	1.59	0.36	0.50	121.42	1.00	121.42	4.000	No	No	2.00
128	7.74	79.70	1.60	0.36	0.50	118.70	1.00	118.70	4.000	No	No	2.00
129	7.83	78.55	1.61	0.37	0.50	116.27	1.00	116.27	4.000	No	No	2.00
130	7.90	78.35	1.61	0.37	0.50	115.47	1.00	115.47	4.000	No	No	2.00
131	7.98	79.10	1.62	0.38	0.50	115.95	1.00	115.95	4.000	No	No	2.00
132	8.05	80.62	1.62	0.39	0.50	117.66	1.00	117.66	4.000	No	No	2.00
133	8.12	81.69	1.62	0.40	0.50	118.66	1.00	118.66	4.000	No	No	2.00
134	8.19	81.66	1.62	0.41	0.50	118.08	1.00	118.08	4.000	No	No	2.00
135	8.27	80.48	1.64	0.42	0.50	115.81	1.00	115.81	4.000	No	No	2.00
136	8.36	79.13	1.65	0.42	0.50	113.39	1.00	113.39	4.000	No	No	2.00
137	8.41	78.35	1.61	0.34	0.50	111.75	1.00	111.75	4.000	No	No	2.00
138	8.50	78.42	1.57	0.27	0.50	111.21	1.00	111.21	4.000	No	No	2.00
139	8.60	78.79	1.54	0.23	0.50	111.10	1.00	111.10	4.000	No	No	2.00
140	8.70	78.76	1.56	0.26	0.50	110.43	1.00	110.43	4.000	No	No	2.00
141	8.74	70.97	1.64	0.31	0.50	99.16	1.00	99.16	4.000	No	No	2.00
142	8.78	65.57	1.68	0.35	0.51	92.36	1.00	92.36	4.000	No	No	2.00
143	8.81	63.58	1.71	0.37	0.52	89.84	1.00	89.84	4.000	No	No	2.00
144	8.86	69.75	1.66	0.34	0.51	97.38	1.00	97.38	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	8.91	73.77	1.64	0.34	0.50	102.14	1.00	102.14	4.000	No	No	2.00
146	8.94	74.34	1.64	0.35	0.50	102.81	1.00	102.81	4.000	No	No	2.00
147	9.02	73.80	1.66	0.36	0.51	101.95	1.00	101.95	4.000	No	No	2.00
148	9.10	72.52	1.68	0.39	0.51	100.12	1.00	100.12	4.000	No	No	2.00
149	9.17	71.17	1.69	0.40	0.52	98.18	1.00	98.18	4.000	No	No	2.00
150	9.22	69.95	1.70	0.41	0.52	96.47	1.00	96.47	4.000	No	No	2.00
151	9.31	69.01	1.71	0.42	0.52	94.84	1.00	94.84	4.000	No	No	2.00
152	9.37	68.50	1.72	0.42	0.52	93.92	1.00	93.92	4.000	No	No	2.00
153	9.42	68.60	1.72	0.42	0.52	93.81	1.00	93.81	4.000	No	No	2.00
154	9.52	69.18	1.72	0.41	0.52	94.01	1.00	94.01	4.000	No	No	2.00
155	9.60	70.19	1.71	0.41	0.52	94.84	1.00	94.84	4.000	No	No	2.00
156	9.66	71.54	1.70	0.41	0.52	96.20	1.00	96.20	4.000	No	No	2.00
157	9.74	73.13	1.69	0.40	0.52	97.75	1.00	97.75	4.000	No	No	2.00
158	9.81	74.58	1.69	0.40	0.51	99.20	1.00	99.20	4.000	No	No	2.00
159	9.89	75.79	1.68	0.40	0.51	100.34	1.00	100.34	4.000	No	No	2.00
160	9.98	77.04	1.68	0.41	0.51	101.50	1.00	101.50	4.000	No	No	2.00
161	10.03	78.79	1.68	0.42	0.51	103.47	1.00	103.47	4.000	No	No	2.00
162	10.13	81.26	1.67	0.42	0.51	106.04	1.00	106.04	4.000	No	No	2.00
163	10.23	84.06	1.66	0.42	0.51	108.97	1.00	108.97	4.000	No	No	2.00
164	10.32	86.45	1.65	0.42	0.50	111.33	1.00	111.33	4.000	No	No	2.00
165	10.38	88.11	1.65	0.42	0.50	112.97	1.00	112.97	4.000	No	No	2.00
166	10.47	88.68	1.65	0.41	0.50	113.17	1.00	113.17	4.000	No	No	2.00
167	10.57	88.44	1.65	0.41	0.50	112.36	1.00	112.36	4.000	No	No	2.00
168	10.66	87.94	1.61	0.34	0.50	111.05	1.00	111.05	4.000	No	No	2.00
169	10.76	87.67	1.57	0.27	0.50	110.18	1.00	110.18	4.000	No	No	2.00
170	10.85	88.00	1.53	0.22	0.50	110.11	1.00	110.11	4.000	No	No	2.00
171	10.92	88.54	1.55	0.24	0.50	110.44	1.00	110.44	4.000	No	No	2.00
172	11.00	85.17	1.58	0.27	0.50	105.80	1.00	105.80	4.000	No	No	2.00
173	11.07	82.17	1.61	0.29	0.50	101.74	1.00	101.74	4.000	No	No	2.00
174	11.10	80.21	1.63	0.30	0.50	99.18	1.00	99.18	4.000	No	No	2.00
175	11.15	82.81	1.62	0.30	0.50	102.16	1.00	102.16	4.000	No	No	2.00
176	11.19	85.41	1.61	0.31	0.50	105.18	1.00	105.18	4.000	No	No	2.00
177	11.24	87.43	1.61	0.32	0.50	107.45	1.00	107.45	4.000	No	No	2.00
178	11.29	89.66	1.61	0.33	0.50	109.95	1.00	109.95	4.000	No	No	2.00
179	11.34	92.29	1.60	0.34	0.50	112.96	1.00	112.96	4.000	No	No	2.00
180	11.40	94.89	1.60	0.35	0.50	115.81	1.00	115.81	4.000	No	No	2.00
181	11.47	96.81	1.60	0.36	0.50	117.83	1.00	117.83	4.000	No	No	2.00
182	11.53	97.72	1.60	0.37	0.50	118.60	1.00	118.60	4.000	No	No	2.00
183	11.58	98.23	1.60	0.37	0.50	118.97	1.00	118.97	4.000	No	No	2.00
184	11.65	98.70	1.61	0.38	0.50	119.16	1.00	119.16	4.000	No	No	2.00
185	11.72	99.17	1.61	0.38	0.50	119.34	1.00	119.34	4.000	No	No	2.00
186	11.77	99.00	1.61	0.39	0.50	118.88	1.00	118.88	4.000	No	No	2.00
187	11.82	98.36	1.62	0.39	0.50	117.83	1.00	117.83	4.000	No	No	2.00
188	11.88	97.25	1.64	0.42	0.50	116.19	1.00	116.19	4.000	No	No	2.00
189	11.97	96.10	1.65	0.43	0.50	114.49	1.00	114.49	4.000	No	No	2.00
190	12.02	94.75	1.65	0.43	0.50	112.75	1.00	112.75	4.000	No	No	2.00
191	12.06	93.54	1.65	0.40	0.50	110.95	1.00	110.95	4.000	No	No	2.00
192	12.11	93.03	1.65	0.40	0.50	110.11	1.00	110.11	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	12.21	92.63	1.65	0.39	0.50	109.15	1.00	109.15	4.000	No	No	2.00
194	12.25	92.93	1.64	0.38	0.50	109.21	1.00	109.21	4.000	No	No	2.00
195	12.30	93.00	1.64	0.38	0.50	109.05	1.00	109.05	4.000	No	No	2.00
196	12.31	93.44	1.63	0.37	0.50	109.51	1.00	109.51	4.000	No	No	2.00
197	12.32	93.64	1.63	0.37	0.50	109.72	1.00	109.72	4.000	No	No	2.00
198	12.35	94.21	1.62	0.36	0.50	110.25	1.00	110.25	4.000	No	No	2.00
199	12.40	95.26	1.61	0.35	0.50	111.26	1.00	111.26	4.000	No	No	2.00
200	12.45	96.78	1.60	0.33	0.50	112.82	1.00	112.82	4.000	No	No	2.00
201	12.52	98.43	1.60	0.33	0.50	114.40	1.00	114.40	4.000	No	No	2.00
202	12.56	100.32	1.59	0.34	0.50	116.43	1.00	116.43	4.000	No	No	2.00
203	12.62	102.04	1.59	0.35	0.50	118.16	1.00	118.16	4.000	No	No	2.00
204	12.65	103.69	1.56	0.31	0.50	119.90	1.00	119.90	4.000	No	No	2.00
205	12.71	105.14	1.53	0.26	0.50	121.32	1.00	121.32	4.000	No	No	2.00
206	12.76	107.34	1.48	0.22	0.50	123.61	1.00	123.61	4.000	No	No	2.00
207	12.83	110.34	1.48	0.23	0.50	126.74	1.00	126.74	4.000	No	No	2.00
208	12.88	114.29	1.50	0.26	0.50	131.03	1.00	131.03	4.000	No	No	2.00
209	12.93	118.94	1.50	0.30	0.50	136.14	1.00	136.14	4.000	No	No	2.00
210	12.98	121.44	1.52	0.33	0.50	138.73	1.00	138.73	4.000	No	No	2.00
211	13.03	123.77	1.52	0.33	0.50	141.10	1.00	141.10	4.000	No	No	2.00
212	13.04	120.16	1.54	0.36	0.50	136.93	1.00	136.93	4.000	No	No	2.00
213	13.07	122.72	1.54	0.38	0.50	139.66	1.00	139.66	4.000	No	No	2.00
214	13.13	125.66	1.55	0.40	0.50	142.70	1.00	142.70	4.000	No	No	2.00
215	13.17	134.36	1.53	0.40	0.50	152.37	1.00	152.37	4.000	No	No	2.00
216	13.22	137.87	1.53	0.42	0.50	156.08	1.00	156.08	4.000	No	No	2.00
217	13.27	140.13	1.54	0.44	0.50	158.31	1.00	158.31	4.000	No	No	2.00
218	13.32	141.11	1.54	0.46	0.50	159.12	1.00	159.12	4.000	No	No	2.00
219	13.37	141.28	1.55	0.47	0.50	159.00	1.00	159.00	4.000	No	No	2.00
220	13.41	140.67	1.55	0.47	0.50	158.02	1.00	158.02	4.000	No	No	2.00
221	13.46	139.05	1.56	0.48	0.50	155.85	1.00	155.85	4.000	No	No	2.00
222	13.51	137.63	1.57	0.48	0.50	153.98	1.00	153.98	4.000	No	No	2.00
223	13.56	135.98	1.58	0.49	0.50	151.81	1.00	151.81	4.000	No	No	2.00
224	13.60	134.29	1.59	0.51	0.50	149.65	1.00	149.65	4.000	No	No	2.00
225	13.66	132.81	1.60	0.52	0.50	147.65	1.00	147.65	4.000	No	No	2.00
226	13.75	131.80	1.60	0.51	0.50	145.98	1.00	145.98	4.000	No	No	2.00
227	13.80	131.19	1.60	0.51	0.50	145.02	1.00	145.02	4.000	No	No	2.00
228	13.89	130.75	1.61	0.51	0.50	144.01	1.00	144.01	4.000	No	No	2.00
229	13.94	129.81	1.61	0.52	0.50	142.69	1.00	142.69	4.000	No	No	2.00
230	13.99	128.19	1.63	0.54	0.50	140.62	1.00	140.62	4.000	No	No	2.00
231	14.09	125.39	1.65	0.57	0.50	137.21	1.00	137.21	4.000	No	No	2.00
232	14.14	122.28	1.68	0.61	0.51	133.79	1.00	133.79	4.000	No	No	2.00
233	14.23	119.38	1.70	0.64	0.52	130.35	1.00	130.35	4.000	No	No	2.00
234	14.28	117.19	1.68	0.58	0.51	127.54	1.00	127.54	4.000	No	No	2.00
235	14.38	116.43	1.66	0.51	0.50	125.95	1.00	125.95	4.000	No	No	2.00
236	14.42	115.35	1.63	0.45	0.50	124.40	1.00	124.40	4.000	No	No	2.00
237	14.52	115.79	1.63	0.45	0.50	124.40	1.00	124.40	4.000	No	No	2.00
238	14.57	116.75	1.64	0.47	0.50	125.23	1.00	125.23	4.000	No	No	2.00
239	14.67	117.53	1.64	0.48	0.50	125.60	1.00	125.60	4.000	No	No	2.00
240	14.68	117.83	1.64	0.49	0.50	125.93	1.00	125.93	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	14.70	116.41	1.65	0.50	0.50	124.39	1.00	124.39	4.000	No	No	2.00
242	14.75	116.58	1.66	0.50	0.50	124.38	1.00	124.38	4.000	No	No	2.00
243	14.80	116.18	1.66	0.51	0.51	123.80	1.00	123.80	4.000	No	No	2.00
244	14.89	116.21	1.67	0.52	0.51	123.45	1.00	123.45	4.000	No	No	2.00
245	14.94	114.76	1.68	0.53	0.51	121.75	1.00	121.75	4.000	No	No	2.00
246	15.04	111.83	1.69	0.54	0.52	118.29	1.00	118.29	4.000	No	No	2.00
247	15.13	107.24	1.71	0.55	0.52	113.18	1.01	114.51	4.000	No	No	2.00
248	15.21	101.74	1.74	0.56	0.53	107.19	1.06	113.68	4.000	No	No	2.00
249	15.28	95.87	1.76	0.57	0.54	100.87	1.10	111.36	4.000	No	No	2.00
250	15.38	90.00	1.79	0.58	0.54	94.46	1.14	107.63	4.000	No	No	2.00
251	15.47	83.86	1.82	0.58	0.55	87.79	1.17	102.77	4.000	No	No	2.00
252	15.57	77.55	1.85	0.59	0.56	80.97	1.20	97.12	4.000	No	No	2.00
253	15.67	70.76	1.89	0.60	0.57	73.71	1.23	90.52	4.000	No	No	2.00
254	15.77	63.91	1.93	0.61	0.59	66.40	1.26	83.47	4.000	No	No	2.00
255	15.86	57.27	1.98	0.63	0.60	59.33	1.29	76.63	4.000	No	No	2.00
256	15.96	51.73	2.03	0.67	0.62	53.45	1.34	71.45	4.000	No	No	2.00
257	16.05	47.31	2.09	0.73	0.63	48.75	1.40	68.25	4.000	No	No	2.00
258	16.15	43.60	2.15	0.86	0.65	44.83	1.51	67.79	4.000	No	No	2.00
259	16.25	41.11	2.20	0.97	0.67	42.13	1.63	68.47	4.000	No	No	2.00
260	16.31	39.86	2.23	1.04	0.68	40.76	1.71	69.57	4.000	No	No	2.00
261	16.39	39.72	2.23	1.02	0.68	40.48	1.70	68.78	4.000	No	No	2.00
262	16.48	40.50	2.21	0.96	0.67	41.08	1.65	67.59	4.000	No	No	2.00
263	16.59	43.06	2.17	0.86	0.66	43.47	1.53	66.70	4.000	No	No	2.00
264	16.68	47.95	2.09	0.73	0.64	48.20	1.40	67.68	4.000	No	No	2.00
265	16.76	53.89	2.01	0.61	0.61	53.96	1.31	70.90	4.000	No	No	2.00
266	16.86	58.72	1.95	0.54	0.59	58.53	1.27	74.31	4.000	No	No	2.00
267	16.92	61.25	1.92	0.51	0.58	60.90	1.25	76.25	4.000	No	No	2.00
268	17.02	61.65	1.92	0.50	0.58	61.10	1.25	76.36	4.000	No	No	2.00
269	17.11	61.14	1.94	0.53	0.59	60.41	1.26	76.12	4.000	No	No	2.00
270	17.22	60.40	1.96	0.58	0.60	59.48	1.28	75.94	4.000	Yes	No	2.00
271	17.35	58.51	2.04	0.78	0.62	57.44	1.34	77.19	4.000	Yes	No	2.00
272	17.45	53.15	2.18	1.20	0.66	52.07	1.57	81.76	4.000	Yes	No	2.00
273	17.55	43.40	2.38	1.91	0.72	42.36	2.26	95.58	4.000	Yes	No	2.00
274	17.61	33.92	2.57	2.79	0.78	32.93	3.48	114.42	4.000	Yes	No	2.00
275	17.64	27.41	2.70	3.46	0.82	26.45	4.70	124.38	4.000	Yes	Yes	2.00
276	17.70	24.84	2.75	3.68	0.83	23.84	5.27	125.58	4.000	Yes	Yes	2.00
277	17.75	23.12	2.79	3.84	0.84	22.09	5.71	126.01	4.000	Yes	Yes	2.00
278	17.80	22.04	2.82	4.00	0.85	20.96	6.07	127.17	4.000	Yes	Yes	2.00
279	17.85	21.57	2.85	4.36	0.86	20.45	6.49	132.79	4.000	Yes	Yes	2.00
280	17.94	24.37	2.80	4.19	0.85	23.10	5.83	134.72	4.000	No	Yes	2.00
281	17.99	29.74	2.70	3.80	0.82	28.29	4.75	134.51	4.000	No	Yes	2.00
282	18.09	36.42	2.60	3.34	0.79	34.65	3.76	130.35	4.000	No	Yes	2.00
283	18.15	38.34	2.58	3.31	0.78	36.42	3.61	131.44	4.000	No	No	2.00
284	18.23	36.08	2.63	3.58	0.80	34.09	3.99	135.89	4.000	No	Yes	2.00
285	18.33	27.03	2.80	4.68	0.85	25.22	5.88	148.20	4.000	No	Yes	2.00
286	18.43	18.43	3.01	6.17	1.00	16.85	8.99	151.54	4.000	No	Yes	2.00
287	18.52	11.28	3.27	8.30	1.00	9.87	14.46	142.66	4.000	No	Yes	2.00
288	18.59	9.25	3.30	7.06	1.00	7.88	15.23	120.07	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	18.72	8.44	3.27	5.49	1.00	7.05	14.48	102.14	4.000	No	Yes	2.00
290	18.81	7.87	3.26	4.64	1.00	6.47	14.17	91.69	4.000	No	Yes	2.00
291	18.87	7.73	3.27	4.61	1.00	6.32	14.34	90.62	4.000	No	Yes	2.00
292	18.95	7.94	3.28	5.10	1.00	6.48	14.76	95.67	4.000	No	Yes	2.00
293	19.05	8.95	3.24	5.23	1.00	7.39	13.77	101.75	4.000	No	Yes	2.00
294	19.14	11.32	3.12	4.53	1.00	9.56	10.96	104.74	4.000	No	Yes	2.00
295	19.22	15.43	2.92	3.38	0.89	13.37	7.56	101.14	4.000	Yes	Yes	2.00
296	19.29	23.29	2.67	2.31	0.81	20.64	4.44	91.70	4.000	Yes	Yes	2.00
297	19.38	36.79	2.41	1.58	0.73	33.12	2.43	80.52	4.000	Yes	No	2.00
298	19.44	54.77	2.21	1.24	0.67	49.78	1.63	81.04	4.000	Yes	No	2.00
299	19.53	73.63	2.06	1.07	0.63	67.13	1.37	92.11	4.000	Yes	No	2.00
300	19.62	89.35	1.99	1.02	0.60	81.50	1.30	105.61	4.000	Yes	No	2.00
301	19.69	100.62	1.95	1.03	0.59	91.73	1.27	116.28	4.000	Yes	No	2.00
302	19.79	106.79	1.94	1.07	0.59	97.11	1.26	122.62	4.000	No	No	2.00
303	19.86	108.17	1.96	1.16	0.60	98.11	1.28	125.15	4.000	No	No	2.00
304	19.97	105.91	1.99	1.25	0.60	95.65	1.30	124.06	4.000	No	No	2.00
305	20.07	101.09	2.02	1.32	0.61	90.89	1.33	120.48	4.000	No	No	2.00
306	20.16	94.14	2.06	1.40	0.63	84.23	1.37	115.28	4.000	No	No	2.00
307	20.26	84.49	2.07	1.27	0.63	75.23	1.38	103.79	4.000	Yes	No	2.00
308	20.34	72.68	2.10	1.18	0.64	64.34	1.43	91.71	4.000	Yes	No	2.00
309	20.43	59.83	2.16	1.11	0.66	52.55	1.52	80.02	4.000	Yes	No	2.00
310	20.50	47.95	2.33	1.55	0.71	41.63	2.03	84.51	4.000	Yes	No	2.00
311	20.60	37.70	2.50	2.17	0.76	32.23	3.01	96.91	4.000	Yes	No	2.00
312	20.62	30.48	2.66	2.88	0.81	25.73	4.28	110.02	4.000	Yes	Yes	2.00
313	20.63	28.08	2.72	3.22	0.82	23.58	4.89	115.31	4.000	Yes	Yes	2.00
314	20.68	27.74	2.74	3.38	0.83	23.22	5.10	118.43	4.000	Yes	Yes	2.00
315	20.73	27.64	2.76	3.60	0.83	23.06	5.32	122.67	4.000	Yes	Yes	2.00
316	20.82	25.48	2.82	4.04	0.85	21.06	6.08	128.12	4.000	Yes	Yes	2.00
317	20.87	23.45	2.87	4.37	0.87	19.23	6.78	130.45	4.000	Yes	Yes	2.00
318	20.91	21.57	2.91	4.48	0.88	17.54	7.32	128.42	4.000	Yes	Yes	2.00
319	20.96	19.58	2.95	4.54	1.00	15.59	7.98	124.40	4.000	Yes	Yes	2.00
320	21.05	17.59	3.00	4.73	1.00	13.84	8.82	122.12	4.000	No	Yes	2.00
321	21.11	16.98	3.02	4.74	1.00	13.29	9.07	120.49	4.000	No	Yes	2.00
322	21.17	17.11	3.01	4.72	1.00	13.36	9.02	120.44	4.000	No	Yes	2.00
323	21.25	21.23	2.88	3.84	0.87	17.01	6.86	116.62	4.000	Yes	Yes	2.00
324	21.30	31.25	2.64	2.71	0.80	25.68	4.13	106.03	4.000	Yes	Yes	2.00
325	21.37	48.56	2.39	1.90	0.72	40.77	2.31	94.37	4.000	Yes	No	2.00
326	21.45	68.84	2.20	1.51	0.67	58.49	1.62	94.86	4.000	Yes	No	2.00
327	21.49	87.80	2.09	1.36	0.64	75.10	1.41	105.59	4.000	Yes	No	2.00
328	21.58	103.45	2.02	1.30	0.62	88.68	1.33	117.80	4.000	Yes	No	2.00
329	21.64	115.70	1.98	1.28	0.60	99.28	1.29	128.46	4.000	Yes	No	2.00
330	21.69	124.50	1.96	1.29	0.60	106.86	1.28	136.49	4.000	Yes	No	2.00
331	21.78	130.41	1.95	1.31	0.59	111.69	1.27	142.03	4.000	No	No	2.00
332	21.83	133.78	1.96	1.36	0.59	114.42	1.27	145.79	4.000	No	No	2.00
333	21.89	135.43	1.97	1.42	0.60	115.57	1.28	148.03	4.000	No	No	2.00
334	21.98	136.01	1.98	1.49	0.60	115.67	1.29	149.32	4.000	No	No	2.00
335	22.03	135.90	1.99	1.55	0.61	115.31	1.30	150.06	4.000	No	No	2.00
336	22.12	134.89	2.01	1.60	0.61	114.06	1.31	149.60	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	22.22	133.20	2.02	1.63	0.61	112.20	1.32	148.31	4.000	No	No	2.00
338	22.26	130.88	2.03	1.65	0.62	110.01	1.33	146.45	4.000	No	No	2.00
339	22.36	128.38	2.04	1.67	0.62	107.52	1.34	144.21	4.000	No	No	2.00
340	22.41	125.79	2.05	1.70	0.62	105.07	1.36	142.38	4.000	No	No	2.00
341	22.51	123.53	2.04	1.63	0.62	102.88	1.35	138.65	4.000	No	No	2.00
342	22.60	121.33	2.03	1.54	0.62	100.82	1.34	134.71	4.000	No	No	2.00
343	22.70	119.34	2.01	1.41	0.61	98.95	1.32	130.43	4.000	No	No	2.00
344	22.75	116.88	2.02	1.40	0.61	96.72	1.32	127.90	4.000	No	No	2.00
345	22.84	109.32	2.05	1.47	0.62	89.92	1.36	122.31	4.000	No	No	2.00
346	22.89	107.14	2.06	1.48	0.63	87.93	1.37	120.57	4.000	No	No	2.00
347	22.90	104.88	2.07	1.49	0.63	85.98	1.38	118.82	4.000	No	No	2.00
348	22.94	110.11	2.04	1.39	0.62	90.42	1.34	121.26	4.000	No	No	2.00
349	23.00	112.36	2.02	1.34	0.61	92.21	1.32	122.07	4.000	No	No	2.00
350	23.08	118.94	1.98	1.24	0.60	97.70	1.29	126.15	4.000	No	No	2.00
351	23.13	127.04	1.94	1.16	0.59	104.57	1.26	131.91	4.000	No	No	2.00
352	23.20	134.05	1.90	1.10	0.58	110.43	1.24	136.83	4.000	No	No	2.00
353	23.27	137.05	1.89	1.07	0.57	112.81	1.23	138.66	4.000	No	No	2.00
354	23.33	135.57	1.89	1.05	0.57	111.40	1.23	136.90	4.000	No	No	2.00
355	23.42	131.55	1.89	1.03	0.58	107.76	1.23	132.83	4.000	No	No	2.00
356	23.48	126.94	1.90	1.01	0.58	103.73	1.24	128.30	4.000	No	No	2.00
357	23.57	123.16	1.91	1.00	0.58	100.30	1.24	124.68	4.000	No	No	2.00
358	23.61	121.20	1.92	1.01	0.58	98.52	1.25	122.97	4.000	No	No	2.00
359	23.66	121.50	1.92	1.02	0.58	98.62	1.25	123.25	4.000	No	No	2.00
360	23.73	124.04	1.92	1.03	0.58	100.52	1.25	125.44	4.000	No	No	2.00
361	23.80	127.95	1.91	1.04	0.58	103.59	1.24	128.73	4.000	No	No	2.00
362	23.85	131.96	1.90	1.05	0.58	106.79	1.24	132.25	4.000	No	No	2.00
363	23.94	134.80	1.90	1.06	0.58	108.87	1.24	134.50	4.000	No	No	2.00
364	24.00	135.88	1.90	1.07	0.58	109.59	1.24	135.41	4.000	No	No	2.00
365	24.09	135.37	1.90	1.07	0.58	108.86	1.24	134.81	4.000	No	No	2.00
366	24.16	133.34	1.91	1.09	0.58	106.93	1.24	133.09	4.000	No	No	2.00
367	24.24	130.04	1.89	0.97	0.57	104.25	1.23	128.02	4.000	No	No	2.00
368	24.33	125.79	1.86	0.85	0.57	100.75	1.21	122.05	4.000	No	No	2.00
369	24.43	121.10	1.84	0.74	0.56	96.90	1.19	115.53	4.000	No	No	2.00
370	24.52	114.28	1.88	0.80	0.57	90.85	1.23	111.31	4.000	No	No	2.00
371	24.58	108.90	1.92	0.85	0.58	86.13	1.25	107.54	4.000	No	No	2.00
372	24.59	104.52	1.95	0.89	0.59	82.40	1.27	104.41	4.000	No	No	2.00
373	24.63	104.21	1.95	0.90	0.59	82.05	1.27	104.24	4.000	No	No	2.00
374	24.68	103.45	1.96	0.94	0.60	81.24	1.28	103.96	4.000	No	No	2.00
375	24.77	102.47	1.98	0.98	0.60	80.14	1.29	103.52	4.000	No	No	2.00
376	24.82	100.31	2.01	1.05	0.61	78.15	1.31	102.59	4.000	No	No	2.00
377	24.92	97.85	2.03	1.11	0.62	75.83	1.34	101.32	4.000	No	No	2.00
378	25.01	95.22	2.06	1.17	0.63	73.42	1.36	100.09	4.000	No	No	2.00
379	25.06	92.38	2.08	1.22	0.63	70.94	1.39	98.75	4.000	No	No	2.00
380	25.16	89.48	2.10	1.27	0.64	68.36	1.42	97.29	4.000	No	No	2.00
381	25.25	86.51	2.13	1.31	0.65	65.75	1.46	95.92	4.000	No	No	2.00
382	25.30	83.55	2.15	1.35	0.65	63.24	1.50	94.77	4.000	No	No	2.00
383	25.41	80.44	2.17	1.40	0.66	60.52	1.55	93.81	4.000	Yes	No	2.00
384	25.49	77.27	2.20	1.47	0.67	57.80	1.61	93.24	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	25.55	73.97	2.23	1.55	0.68	55.02	1.70	93.42	4.000	Yes	No	2.00
386	25.64	70.59	2.27	1.65	0.69	52.13	1.81	94.24	4.000	Yes	No	2.00
387	25.70	67.02	2.31	1.78	0.70	49.15	1.95	95.94	4.000	Yes	No	2.00
388	25.79	63.24	2.35	1.91	0.71	46.00	2.13	97.75	4.000	Yes	No	2.00
389	25.89	58.92	2.40	2.05	0.73	42.45	2.35	99.94	4.000	Yes	No	2.00
390	25.94	54.26	2.45	2.20	0.74	38.75	2.63	101.97	4.000	Yes	No	2.00
391	26.02	49.37	2.50	2.32	0.76	34.89	2.95	102.81	4.000	Yes	No	2.00
392	26.12	45.05	2.54	2.37	0.77	31.51	3.23	101.92	4.000	Yes	No	2.00
393	26.17	40.83	2.57	2.37	0.78	28.31	3.52	99.58	4.000	Yes	No	2.00
394	26.28	37.02	2.61	2.37	0.79	25.37	3.84	97.30	4.000	Yes	Yes	2.00
395	26.36	33.31	2.65	2.33	0.80	22.57	4.17	94.10	4.000	Yes	Yes	2.00
396	26.45	29.43	2.70	2.37	0.82	19.65	4.69	92.22	4.000	Yes	Yes	2.00
397	26.50	24.94	2.78	2.55	0.84	16.31	5.63	91.86	4.000	Yes	Yes	2.00
398	26.61	20.15	2.91	3.01	0.88	12.75	7.37	93.95	4.000	Yes	Yes	2.00
399	26.70	15.97	3.07	3.75	1.00	9.43	10.10	95.23	4.000	No	Yes	2.00
400	26.77	12.97	3.21	4.62	1.00	7.45	12.95	96.46	4.000	No	Yes	2.00
401	26.85	11.85	3.26	4.83	1.00	6.70	14.12	94.58	4.000	No	Yes	2.00
402	26.94	11.45	3.27	4.67	1.00	6.41	14.29	91.60	4.000	No	Yes	2.00
403	27.04	11.95	3.22	4.13	1.00	6.71	13.15	88.25	4.000	No	Yes	2.00
404	27.14	12.22	3.20	3.92	1.00	6.86	12.68	86.95	4.000	No	Yes	2.00
405	27.23	12.90	3.15	3.53	1.00	7.27	11.66	84.75	4.000	No	Yes	2.00
406	27.28	13.22	3.13	3.30	1.00	7.46	11.13	83.02	4.000	No	Yes	2.00
407	27.29	13.29	3.09	2.84	1.00	7.50	10.38	77.81	4.000	No	Yes	2.00
408	27.38	13.29	3.07	2.57	1.00	7.47	9.96	74.44	4.000	No	Yes	2.00
409	27.48	13.27	3.06	2.51	1.00	7.43	9.89	73.48	4.000	No	Yes	2.00
410	27.57	13.27	3.10	2.97	1.00	7.41	10.67	79.00	4.000	No	Yes	2.00
411	27.64	13.30	3.13	3.39	1.00	7.41	11.31	83.76	4.000	No	Yes	2.00
412	27.65	13.44	3.17	3.99	1.00	7.49	12.08	90.43	4.000	No	Yes	2.00
413	27.74	14.52	3.16	4.27	1.00	8.14	11.82	96.17	4.000	No	Yes	2.00
414	27.80	16.91	3.10	4.34	1.00	9.63	10.69	102.90	4.000	No	Yes	2.00
415	27.90	19.17	3.05	4.16	1.00	11.00	9.59	105.58	4.000	No	Yes	2.00
416	27.99	19.34	3.05	4.25	1.00	11.07	9.67	106.99	4.000	No	Yes	2.00
417	28.07	17.12	3.11	4.55	1.00	9.65	10.91	105.31	4.000	No	Yes	2.00
418	28.16	14.45	3.20	4.79	1.00	7.96	12.63	100.58	4.000	No	Yes	2.00
419	28.25	12.53	3.25	4.68	1.00	6.75	13.86	93.48	4.000	No	Yes	2.00
420	28.34	11.52	3.26	4.24	1.00	6.10	14.13	86.20	4.000	No	Yes	2.00
421	28.44	11.01	3.26	3.94	1.00	5.76	14.19	81.77	4.000	No	Yes	2.00
422	28.53	10.84	3.26	3.87	1.00	5.64	14.27	80.51	4.000	No	Yes	2.00
423	28.62	11.75	3.26	4.25	1.00	6.17	14.04	86.70	4.000	No	Yes	2.00
424	28.76	14.21	3.19	4.46	1.00	7.64	12.54	95.81	4.000	No	Yes	2.00
425	28.86	17.65	3.12	4.75	1.00	9.69	11.11	107.72	4.000	No	Yes	2.00
426	28.96	20.32	3.09	5.14	1.00	11.26	10.51	118.36	4.000	No	Yes	2.00
427	29.08	21.30	3.12	6.06	1.00	11.80	11.10	130.98	4.000	No	Yes	2.00
428	29.19	22.07	3.15	6.87	1.00	12.21	11.60	141.58	4.000	No	Yes	2.00
429	29.29	27.50	2.99	5.17	1.00	15.40	8.64	133.06	4.000	No	Yes	2.00
430	29.39	40.70	2.74	3.77	0.83	25.08	5.15	129.21	4.000	No	Yes	2.00
431	29.50	57.67	2.55	3.03	0.77	36.81	3.37	124.06	4.000	No	No	2.00
432	29.63	66.88	2.53	3.30	0.77	42.86	3.19	136.79	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	29.65	70.22	2.52	3.39	0.76	45.09	3.13	141.18	4.000	Yes	No	2.00
434	29.66	71.00	2.52	3.38	0.76	45.61	3.10	141.50	4.000	Yes	No	2.00
435	29.72	73.53	2.50	3.27	0.76	47.34	2.95	139.57	4.000	Yes	No	2.00
436	29.80	77.81	2.46	3.07	0.75	50.31	2.70	135.94	4.000	Yes	No	2.00
437	29.85	89.49	2.36	2.59	0.72	58.79	2.17	127.49	4.000	Yes	No	2.00
438	29.94	111.58	2.20	2.00	0.67	75.08	1.62	121.89	4.000	Yes	No	2.00
439	30.00	135.50	2.06	1.57	0.63	93.20	1.37	127.60	4.000	Yes	No	2.00
440	30.05	152.98	1.96	1.28	0.60	106.83	1.28	136.43	4.000	Yes	No	2.00
441	30.14	162.60	1.89	1.09	0.58	114.57	1.23	140.95	4.000	Yes	No	2.00
442	30.19	167.56	1.84	0.97	0.56	118.78	1.20	142.08	4.000	Yes	No	2.00
443	30.24	169.61	1.83	0.93	0.56	120.45	1.18	142.19	4.000	Yes	No	2.00
444	30.29	169.68	1.83	0.93	0.56	120.31	1.18	142.38	0.348	No	No	1.14
445	30.38	167.72	1.84	0.95	0.56	118.51	1.19	141.39	0.343	No	No	1.12
446	30.43	164.79	1.85	0.98	0.56	116.05	1.20	139.76	0.334	No	No	1.09
447	30.48	161.62	1.87	0.99	0.57	113.47	1.21	137.67	0.323	No	No	1.05
448	30.54	159.16	1.87	1.00	0.57	111.46	1.22	135.86	0.313	No	No	1.02
449	30.62	158.35	1.87	0.99	0.57	110.69	1.22	134.98	0.309	No	No	1.00
450	30.67	157.77	1.87	0.99	0.57	110.16	1.22	134.34	0.305	No	No	0.99
451	30.72	158.55	1.87	0.98	0.57	110.67	1.22	134.61	0.307	No	No	0.99
452	30.76	159.46	1.86	0.96	0.57	111.32	1.21	134.89	0.308	No	No	1.00
453	30.86	162.06	1.85	0.94	0.56	113.16	1.20	135.92	0.314	No	No	1.01
454	30.91	165.09	1.84	0.91	0.56	115.46	1.19	137.26	0.321	No	No	1.03
455	30.95	168.94	1.82	0.88	0.55	118.37	1.17	138.94	0.329	No	No	1.06
456	31.03	173.83	1.80	0.85	0.55	122.03	1.15	140.71	0.339	No	No	1.09
457	31.10	179.36	1.78	0.83	0.54	126.19	1.13	142.33	0.348	No	No	1.12
458	31.15	185.03	1.76	0.81	0.54	130.44	1.10	144.07	0.358	No	No	1.15
459	31.20	189.66	1.75	0.81	0.53	133.76	1.09	146.05	0.370	No	No	1.19
460	31.26	192.52	1.75	0.82	0.53	135.69	1.09	147.81	0.380	No	No	1.22
461	31.34	186.22	1.78	0.86	0.54	130.42	1.13	147.23	0.377	No	No	1.21
462	31.37	184.63	1.79	0.87	0.54	129.08	1.14	146.99	0.375	No	No	1.20
463	31.38	181.39	1.80	0.89	0.55	126.56	1.15	145.70	0.368	No	No	1.18
464	31.43	184.63	1.78	0.86	0.54	129.02	1.13	146.17	0.370	No	No	1.19
465	31.47	179.33	1.80	0.87	0.55	124.92	1.15	143.44	0.354	No	No	1.13
466	31.55	171.64	1.82	0.88	0.55	118.91	1.17	139.35	0.332	No	No	1.06
467	31.59	160.34	1.86	0.93	0.57	110.19	1.21	132.93	0.298	No	No	0.95
468	31.66	147.76	1.91	1.00	0.58	100.47	1.24	124.83	0.261	No	No	0.83
469	31.73	135.75	1.97	1.09	0.60	91.20	1.28	116.80	0.228	No	No	0.73
470	31.78	125.08	2.02	1.21	0.62	83.04	1.33	110.36	0.205	No	No	0.65
471	31.84	115.64	2.09	1.36	0.63	75.76	1.40	106.34	0.192	No	No	0.61
472	31.93	107.23	2.16	1.55	0.65	69.27	1.51	104.84	0.187	No	No	0.60
473	31.98	100.42	2.22	1.75	0.67	64.06	1.66	106.04	0.191	No	No	0.61
474	32.02	98.18	2.25	1.90	0.68	62.19	1.75	108.88	0.200	No	No	0.64
475	32.09	97.00	2.27	2.03	0.69	61.07	1.83	111.87	0.210	No	No	0.67
476	32.16	98.89	2.27	2.07	0.69	62.18	1.83	113.86	0.217	No	No	0.69
477	32.22	100.29	2.27	2.07	0.69	63.04	1.82	114.52	0.220	No	No	0.70
478	32.27	103.49	2.25	2.02	0.68	65.22	1.76	114.53	0.220	No	No	0.70
479	32.34	106.02	2.24	1.97	0.68	66.91	1.71	114.38	0.219	No	No	0.69
480	32.42	108.89	2.22	1.91	0.67	68.85	1.66	114.11	0.218	No	No	0.69

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	32.46	113.04	2.19	1.80	0.66	71.82	1.58	113.62	0.216	No	No	0.68
482	32.54	117.73	2.15	1.68	0.65	75.15	1.51	113.25	0.215	No	No	0.68
483	32.60	121.74	2.11	1.51	0.64	78.23	1.43	112.00	0.211	No	No	0.66
484	32.67	124.81	2.07	1.39	0.63	80.60	1.38	111.53	0.209	No	No	0.66
485	32.75	127.51	2.05	1.31	0.62	82.59	1.35	111.85	0.210	No	No	0.66
486	32.81	130.38	2.05	1.32	0.62	84.43	1.35	113.95	0.218	No	No	0.68
487	32.89	133.38	2.04	1.34	0.62	86.29	1.35	116.21	0.226	No	No	0.71
488	32.94	129.47	2.07	1.43	0.63	83.21	1.38	114.84	0.221	No	No	0.69
489	32.95	131.02	2.07	1.44	0.63	84.23	1.38	116.07	0.225	No	No	0.71
490	33.00	132.88	2.07	1.46	0.63	85.36	1.38	117.56	0.231	No	No	0.72
491	33.06	141.08	2.04	1.42	0.62	91.06	1.34	122.40	0.251	No	No	0.79
492	33.11	142.26	2.04	1.45	0.62	91.66	1.35	123.66	0.256	No	No	0.80
493	33.20	141.21	2.06	1.50	0.63	90.60	1.36	123.53	0.255	No	No	0.80
494	33.25	139.02	2.08	1.56	0.63	88.78	1.39	123.06	0.253	No	No	0.79
495	33.34	137.03	2.09	1.61	0.64	87.07	1.41	122.48	0.251	No	No	0.78
496	33.38	136.69	2.10	1.63	0.64	86.68	1.42	122.68	0.252	No	No	0.79
497	33.48	138.41	2.10	1.64	0.64	87.63	1.41	123.78	0.256	No	No	0.80
498	33.58	141.92	2.09	1.64	0.63	89.83	1.40	125.79	0.265	No	No	0.83
499	33.63	146.74	2.07	1.63	0.63	93.05	1.38	128.81	0.279	No	No	0.87
500	33.73	152.41	2.06	1.61	0.63	96.75	1.37	132.15	0.295	No	No	0.92
501	33.82	158.96	2.04	1.60	0.62	101.09	1.35	136.16	0.315	No	No	0.98
502	33.87	165.74	2.03	1.58	0.62	105.66	1.33	140.58	0.338	No	No	1.05
503	33.96	172.72	2.01	1.57	0.61	110.29	1.32	145.13	0.364	No	No	1.13
504	34.02	180.58	2.00	1.57	0.61	115.54	1.30	150.66	0.398	No	No	1.23
505	34.11	190.03	1.98	1.57	0.60	121.77	1.29	157.32	0.442	No	No	1.37
506	34.18	200.49	1.97	1.59	0.60	128.68	1.28	164.99	0.498	No	No	1.54
507	34.26	210.44	1.96	1.63	0.60	135.11	1.28	172.52	0.558	No	No	1.72
508	34.35	219.45	1.96	1.68	0.60	140.77	1.28	179.50	0.618	No	No	1.91
509	34.44	227.51	1.95	1.71	0.59	145.83	1.27	185.53	0.674	No	No	2.00
510	34.49	233.96	1.95	1.72	0.59	150.02	1.27	190.23	0.720	No	No	2.00
511	34.59	237.94	1.94	1.72	0.59	152.42	1.27	192.83	0.747	No	No	2.00
512	34.69	240.00	1.94	1.73	0.59	153.47	1.26	194.12	0.760	No	No	2.00
513	34.76	240.94	1.94	1.72	0.59	153.92	1.26	194.53	0.765	No	No	2.00
514	34.83	240.60	1.94	1.72	0.59	153.43	1.26	194.02	0.759	No	No	2.00
515	34.93	237.97	1.94	1.71	0.59	151.43	1.26	191.54	0.733	No	No	2.00
516	35.02	233.82	1.95	1.70	0.59	148.39	1.27	188.08	0.699	No	No	2.00
517	35.12	229.78	1.94	1.65	0.59	145.60	1.27	184.23	0.662	No	No	2.00
518	35.22	226.47	1.94	1.62	0.59	143.26	1.26	181.13	0.633	No	No	1.94
519	35.30	222.22	1.94	1.59	0.59	140.29	1.26	177.46	0.600	No	No	1.83
520	35.38	208.55	1.98	1.66	0.60	130.48	1.29	168.21	0.523	No	No	1.60
521	35.43	198.10	2.00	1.71	0.61	123.09	1.31	161.35	0.471	No	No	1.44
522	35.46	189.40	2.03	1.76	0.62	116.99	1.33	155.80	0.432	No	No	1.32
523	35.51	187.20	2.03	1.73	0.62	115.53	1.33	153.78	4.000	Yes	No	2.00
524	35.56	176.78	2.05	1.75	0.62	108.45	1.35	146.76	4.000	Yes	No	2.00
525	35.66	163.52	2.08	1.79	0.63	99.31	1.39	138.53	4.000	Yes	No	2.00
526	35.70	148.20	2.13	1.85	0.65	89.01	1.46	130.03	4.000	Yes	No	2.00
527	35.80	131.87	2.19	1.98	0.66	77.90	1.59	123.66	4.000	Yes	No	2.00
528	35.89	111.32	2.28	2.22	0.69	64.17	1.87	119.95	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	35.96	89.09	2.41	2.59	0.73	49.72	2.43	120.81	4.000	Yes	No	2.00
530	36.04	68.24	2.54	2.90	0.77	36.73	3.28	120.37	4.000	Yes	No	2.00
531	36.14	52.15	2.66	3.11	0.81	27.04	4.33	117.01	4.000	Yes	Yes	2.00
532	36.19	43.48	2.73	3.10	0.83	22.01	5.03	110.69	4.000	Yes	Yes	2.00
533	36.28	40.51	2.77	3.18	0.84	20.23	5.44	110.05	4.000	Yes	Yes	2.00
534	36.33	40.51	2.76	3.10	0.84	20.24	5.35	108.32	3.600	No	Yes	2.00
535	36.42	42.30	2.74	3.02	0.83	21.24	5.09	108.08	3.600	No	Yes	2.00
536	36.48	45.97	2.69	2.87	0.81	23.38	4.59	107.27	3.600	No	Yes	2.00
537	36.52	51.03	2.66	2.98	0.81	26.20	4.31	112.95	3.600	No	Yes	2.00
538	36.62	54.10	2.66	3.19	0.81	27.78	4.31	119.67	3.600	No	Yes	2.00
539	36.68	54.07	2.69	3.50	0.81	27.55	4.59	126.59	3.600	No	Yes	2.00
540	36.77	52.82	2.71	3.61	0.82	26.73	4.79	128.11	3.600	No	Yes	2.00
541	36.86	54.64	2.69	3.49	0.81	27.76	4.56	126.60	4.000	Yes	Yes	2.00
542	36.90	67.67	2.53	2.74	0.77	35.75	3.22	115.19	4.000	Yes	No	2.00
543	37.00	98.14	2.29	1.88	0.69	55.13	1.87	103.13	4.000	Yes	No	2.00
544	37.10	140.34	2.04	1.30	0.62	83.45	1.35	112.56	4.000	Yes	No	2.00
545	37.20	182.54	1.86	0.97	0.57	113.15	1.21	136.84	4.000	Yes	No	2.00
546	37.29	213.04	1.75	0.82	0.53	135.23	1.09	147.30	4.000	Yes	No	2.00
547	37.39	232.34	1.70	0.76	0.52	149.01	1.00	149.01	4.000	Yes	No	2.00
548	37.49	241.91	1.70	0.80	0.52	155.00	1.00	155.00	0.426	No	No	1.28
549	37.53	245.57	1.72	0.85	0.52	156.74	1.02	160.20	0.462	No	No	1.39
550	37.58	246.07	1.73	0.90	0.53	156.33	1.06	165.44	0.501	No	No	1.51
551	37.62	247.84	1.75	0.95	0.53	156.88	1.08	169.66	0.534	No	No	1.60
552	37.69	250.56	1.77	1.01	0.54	157.82	1.11	175.10	0.579	No	No	1.74
553	37.77	253.53	1.78	1.07	0.54	158.95	1.13	179.78	0.620	No	No	1.86
554	37.82	254.98	1.80	1.14	0.55	159.10	1.15	183.39	0.654	No	No	1.96
555	37.87	254.84	1.81	1.18	0.55	158.42	1.17	184.85	0.667	No	No	2.00
556	37.91	252.72	1.83	1.23	0.56	156.44	1.18	184.82	0.667	No	No	2.00
557	37.97	248.23	1.85	1.27	0.56	152.87	1.20	183.06	0.650	No	No	1.95
558	38.06	241.92	1.87	1.31	0.57	148.07	1.21	179.59	0.619	No	No	1.85
559	38.10	235.58	1.88	1.34	0.57	143.53	1.22	175.74	0.585	No	No	1.75
560	38.17	230.89	1.89	1.34	0.57	140.30	1.23	172.34	0.556	No	No	1.67
561	38.25	228.09	1.88	1.30	0.57	138.57	1.22	169.66	0.534	No	No	1.60
562	38.35	225.79	1.87	1.25	0.57	137.24	1.22	167.11	0.514	No	No	1.54
563	38.40	223.43	1.87	1.21	0.57	135.86	1.21	164.83	0.496	No	No	1.48
564	38.46	221.65	1.86	1.19	0.57	134.68	1.21	163.21	0.484	No	No	1.45
565	38.54	220.87	1.86	1.18	0.57	134.09	1.21	162.26	0.477	No	No	1.43
566	38.60	220.87	1.86	1.15	0.56	134.14	1.21	161.69	0.473	No	No	1.41
567	38.69	222.22	1.85	1.12	0.56	135.09	1.20	161.77	0.474	No	No	1.41
568	38.74	224.92	1.83	1.09	0.56	137.05	1.19	162.53	0.479	No	No	1.43
569	38.83	227.85	1.82	1.08	0.56	138.91	1.18	163.73	0.488	No	No	1.46
570	38.88	229.20	1.81	1.05	0.55	139.97	1.17	163.54	0.487	No	No	1.45
571	38.97	228.76	1.81	1.03	0.55	139.65	1.16	162.47	0.479	No	No	1.43
572	39.02	227.25	1.80	1.00	0.55	138.83	1.16	160.45	0.464	No	No	1.38
573	39.11	224.44	1.81	0.99	0.55	136.82	1.16	158.54	0.451	No	No	1.34
574	39.16	218.51	1.81	0.99	0.55	132.80	1.17	154.99	0.426	No	No	1.27
575	39.23	205.48	1.85	1.02	0.56	123.73	1.20	148.10	0.382	No	No	1.14
576	39.24	200.81	1.85	1.01	0.56	120.69	1.20	145.08	0.364	No	No	1.08

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	39.28	198.62	1.85	1.00	0.56	119.29	1.20	143.39	0.354	No	No	1.05
578	39.32	201.93	1.83	0.94	0.56	121.86	1.18	144.08	0.358	No	No	1.07
579	39.39	194.55	1.84	0.95	0.56	116.84	1.20	139.67	4.000	Yes	No	2.00
580	39.47	183.96	1.88	0.98	0.57	109.44	1.22	133.48	4.000	Yes	No	2.00
581	39.54	171.48	1.92	1.05	0.58	100.68	1.25	125.99	4.000	Yes	No	2.00
582	39.62	158.42	1.98	1.14	0.60	91.63	1.29	117.99	4.000	Yes	No	2.00
583	39.71	145.73	2.03	1.23	0.62	82.95	1.33	110.70	4.000	Yes	No	2.00
584	39.76	134.50	2.08	1.32	0.63	75.46	1.39	105.08	4.000	Yes	No	2.00
585	39.85	125.32	2.13	1.40	0.65	69.36	1.46	101.34	4.000	Yes	No	2.00
586	39.90	117.87	2.17	1.48	0.66	64.48	1.53	98.95	4.000	Yes	No	2.00
587	40.00	111.05	2.20	1.56	0.67	60.00	1.63	97.53	4.000	Yes	No	2.00
588	40.06	104.71	2.24	1.65	0.68	55.91	1.73	96.96	4.000	Yes	No	2.00
589	40.15	98.67	2.28	1.75	0.69	52.00	1.87	97.18	4.000	Yes	No	2.00
590	40.21	92.83	2.33	1.90	0.71	48.24	2.05	98.86	4.000	Yes	No	2.00
591	40.29	86.59	2.39	2.09	0.72	44.24	2.31	102.19	4.000	Yes	No	2.00
592	40.35	79.68	2.46	2.39	0.75	39.85	2.72	108.27	4.000	Yes	No	2.00
593	40.43	72.22	2.53	2.63	0.77	35.37	3.16	111.81	4.000	Yes	No	2.00
594	40.52	63.85	2.60	2.88	0.79	30.51	3.76	114.58	4.000	Yes	Yes	2.00
595	40.58	55.21	2.68	3.09	0.81	25.70	4.47	115.00	4.000	Yes	Yes	2.00
596	40.67	46.88	2.77	3.45	0.84	21.09	5.54	116.83	4.000	Yes	Yes	2.00
597	40.77	41.63	2.85	3.76	0.86	18.24	6.45	117.65	4.000	Yes	Yes	2.00
598	40.84	39.14	2.89	3.94	0.87	16.87	6.99	117.99	4.000	Yes	Yes	2.00
599	40.89	42.28	2.83	3.65	0.86	18.55	6.27	116.25	4.000	Yes	Yes	2.00
600	40.94	49.75	2.72	3.09	0.82	22.62	4.92	111.31	4.000	Yes	Yes	2.00
601	41.03	61.46	2.57	2.48	0.78	29.20	3.53	103.18	4.000	Yes	No	2.00
602	41.08	73.03	2.45	2.07	0.74	35.94	2.68	96.47	4.000	Yes	No	2.00
603	41.14	82.03	2.37	1.83	0.72	41.30	2.24	92.51	4.000	Yes	No	2.00
604	41.22	87.70	2.33	1.71	0.71	44.68	2.04	90.97	4.000	Yes	No	2.00
605	41.28	90.43	2.31	1.68	0.70	46.24	1.97	91.29	0.151	No	No	0.45
606	41.33	91.99	2.32	1.74	0.70	46.96	1.99	93.52	0.156	No	No	0.46
607	41.42	93.64	2.33	1.85	0.71	47.61	2.04	97.02	0.165	No	No	0.49
608	41.47	97.01	2.33	1.94	0.71	49.31	2.04	100.81	0.175	No	No	0.52
609	41.52	104.03	2.31	1.97	0.70	53.17	1.96	104.48	0.186	No	No	0.55
610	41.62	115.47	2.27	1.93	0.69	59.72	1.81	107.92	0.197	No	No	0.58
611	41.67	130.01	2.22	1.88	0.67	68.21	1.66	112.91	0.214	No	No	0.63
612	41.76	144.45	2.17	1.82	0.66	76.74	1.54	118.23	0.234	No	No	0.69
613	41.82	156.39	2.14	1.79	0.65	83.80	1.48	123.75	0.256	No	No	0.76
614	41.90	165.43	2.11	1.76	0.64	89.14	1.44	128.02	0.275	No	No	0.81
615	41.99	171.57	2.10	1.74	0.64	92.73	1.41	131.05	0.289	No	No	0.85
616	42.05	174.81	2.09	1.73	0.63	94.61	1.40	132.58	0.297	No	No	0.88
617	42.15	175.22	2.09	1.74	0.63	94.64	1.40	132.77	0.298	No	No	0.88
618	42.23	173.33	2.10	1.77	0.64	93.24	1.42	132.06	0.294	No	No	0.87
619	42.30	169.55	2.11	1.80	0.64	90.73	1.44	130.51	0.287	No	No	0.85
620	42.38	163.64	2.13	1.84	0.65	86.97	1.47	127.88	0.274	No	No	0.81
621	42.48	153.79	2.16	1.88	0.66	80.87	1.53	123.60	0.256	No	No	0.75
622	42.57	141.98	2.20	1.94	0.67	73.69	1.62	119.15	0.237	No	No	0.70
623	42.64	129.97	2.24	2.01	0.68	66.53	1.73	115.28	0.222	No	No	0.66
624	42.72	121.20	2.27	2.02	0.69	61.42	1.82	111.72	0.210	No	No	0.62

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	42.82	114.72	2.29	1.99	0.69	57.72	1.88	108.24	0.198	No	No	0.58
626	42.90	110.03	2.30	1.96	0.70	55.08	1.91	105.42	0.189	No	No	0.56
627	42.97	106.05	2.31	1.98	0.70	52.74	1.98	104.32	0.186	No	No	0.55
628	43.06	102.31	2.34	2.04	0.71	50.43	2.08	104.69	0.187	No	No	0.55
629	43.15	98.76	2.35	2.01	0.71	48.44	2.11	102.43	0.180	No	No	0.53
630	43.20	97.75	2.34	1.92	0.71	48.00	2.07	99.54	0.172	No	No	0.51
631	43.30	104.19	2.28	1.70	0.69	51.99	1.84	95.67	0.161	No	No	0.48
632	43.40	119.88	2.19	1.51	0.66	61.38	1.58	97.12	0.165	No	No	0.49
633	43.48	132.43	2.13	1.40	0.65	68.91	1.47	100.97	0.176	No	No	0.52
634	43.51	139.11	2.10	1.37	0.64	72.90	1.43	103.89	0.184	No	No	0.54
635	43.52	146.23	2.08	1.34	0.63	77.22	1.39	107.23	0.195	No	No	0.57
636	43.56	160.13	2.03	1.26	0.62	85.83	1.33	114.20	0.219	No	No	0.64
637	43.61	178.86	1.96	1.17	0.60	97.60	1.28	124.81	0.261	No	No	0.77
638	43.67	193.23	1.92	1.11	0.58	106.74	1.25	133.29	0.300	No	No	0.88
639	43.72	206.01	1.88	1.05	0.57	115.04	1.22	140.56	0.338	No	No	1.00
640	43.80	216.51	1.85	1.00	0.56	121.88	1.20	145.95	0.369	No	No	1.09
641	43.85	224.74	1.82	0.97	0.56	127.26	1.18	149.84	0.393	No	No	1.16
642	43.90	231.25	1.81	0.95	0.55	131.51	1.16	152.56	0.410	No	No	1.21
643	43.94	236.38	1.79	0.94	0.55	134.87	1.14	154.37	0.422	No	No	1.24
644	43.99	239.82	1.78	0.92	0.54	137.13	1.13	155.28	0.428	No	No	1.26
645	44.08	241.54	1.78	0.92	0.54	138.11	1.13	155.65	0.431	No	No	1.27
646	44.14	241.51	1.79	0.94	0.54	137.71	1.14	156.49	0.436	No	No	1.28
647	44.22	240.40	1.80	0.97	0.55	136.41	1.15	157.19	0.441	No	No	1.30
648	44.28	238.31	1.82	1.01	0.55	134.50	1.17	157.37	0.442	No	No	1.30
649	44.33	235.67	1.83	1.05	0.56	132.35	1.18	156.78	0.438	No	No	1.29
650	44.40	232.27	1.85	1.10	0.56	129.52	1.20	155.80	0.432	No	No	1.27
651	44.48	231.30	1.87	1.15	0.57	128.25	1.22	155.90	0.432	No	No	1.27
652	44.52	228.57	1.90	1.24	0.58	125.64	1.24	155.24	0.428	No	No	1.26
653	44.61	230.02	1.89	1.23	0.58	126.41	1.23	155.88	0.432	No	No	1.27
654	44.72	231.52	1.90	1.24	0.58	127.03	1.23	156.70	0.438	No	No	1.29
655	44.77	236.14	1.88	1.21	0.57	130.05	1.22	159.04	0.454	No	No	1.34
656	44.91	237.86	1.89	1.24	0.57	130.46	1.23	160.27	0.463	No	No	1.36
657	44.95	231.69	1.91	1.29	0.58	126.16	1.24	156.88	0.439	No	No	1.29
658	45.02	227.41	1.92	1.32	0.59	123.19	1.25	154.33	0.422	No	No	1.24
659	45.04	198.97	2.01	1.51	0.61	104.88	1.32	138.44	0.327	No	No	0.96
660	45.06	203.49	2.00	1.46	0.61	107.81	1.30	140.63	0.339	No	No	1.00
661	45.11	208.45	1.98	1.41	0.60	111.04	1.29	143.03	0.352	No	No	1.04
662	45.15	239.96	1.87	1.20	0.57	131.64	1.22	160.49	0.464	No	No	1.37
663	45.21	246.91	1.85	1.16	0.56	136.23	1.20	163.81	0.489	No	No	1.44
664	45.25	252.44	1.84	1.13	0.56	139.80	1.19	166.43	0.509	No	No	1.50
665	45.30	256.29	1.83	1.13	0.56	142.11	1.18	168.34	0.524	No	No	1.54
666	45.35	258.04	1.83	1.13	0.56	143.02	1.18	169.35	0.532	No	No	1.57
667	45.41	258.42	1.83	1.14	0.56	143.02	1.19	169.64	0.534	No	No	1.57
668	45.49	257.00	1.84	1.15	0.56	141.89	1.19	168.87	0.528	No	No	1.55
669	45.55	254.13	1.84	1.15	0.56	139.97	1.19	167.24	0.515	No	No	1.52
670	45.63	249.51	1.85	1.16	0.56	136.90	1.20	164.52	0.494	No	No	1.46
671	45.69	243.67	1.86	1.16	0.57	133.19	1.21	161.09	0.469	No	No	1.38
672	45.78	236.62	1.88	1.18	0.57	128.61	1.22	156.88	0.439	No	No	1.29

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	45.84	228.05	1.89	1.18	0.58	123.25	1.23	151.68	0.405	No	No	1.19
674	45.93	217.69	1.91	1.19	0.58	116.85	1.24	145.18	0.365	No	No	1.07
675	46.02	205.11	1.93	1.19	0.59	109.16	1.26	137.24	4.000	Yes	No	2.00
676	46.08	190.40	1.96	1.19	0.60	100.37	1.28	128.00	4.000	Yes	No	2.00
677	46.16	174.41	1.99	1.20	0.61	90.73	1.30	118.20	4.000	Yes	No	2.00
678	46.24	157.13	2.04	1.24	0.62	80.39	1.35	108.31	4.000	Yes	No	2.00
679	46.31	138.07	2.12	1.34	0.64	68.91	1.44	99.54	4.000	Yes	No	2.00
680	46.41	117.36	2.22	1.54	0.67	56.54	1.67	94.32	4.000	Yes	No	2.00
681	46.48	95.77	2.36	1.87	0.72	44.06	2.17	95.41	4.000	Yes	No	2.00
682	46.56	75.72	2.51	2.32	0.76	32.98	3.08	101.49	4.000	Yes	No	2.00
683	46.65	58.08	2.68	2.81	0.81	23.81	4.47	106.39	4.000	Yes	Yes	2.00
684	46.75	45.43	2.81	3.12	0.85	17.64	5.95	104.92	4.000	Yes	Yes	2.00
685	46.84	36.62	2.95	3.29	1.00	12.08	8.01	96.75	4.000	Yes	Yes	2.00
686	46.94	30.75	3.03	3.37	1.00	9.96	9.25	92.20	3.600	No	Yes	2.00
687	47.02	25.79	3.12	3.65	1.00	8.18	10.96	89.65	3.600	No	Yes	2.00
688	47.08	21.37	3.22	4.12	1.00	6.60	13.29	87.68	3.600	No	Yes	2.00
689	47.12	18.76	3.30	4.53	1.00	5.66	15.23	86.24	3.600	No	Yes	2.00
690	47.16	17.85	3.33	4.58	1.00	5.33	15.88	84.67	3.600	No	Yes	2.00
691	47.21	17.81	3.31	4.30	1.00	5.32	15.49	82.35	3.600	No	Yes	2.00
692	47.27	17.46	3.31	4.03	1.00	5.18	15.33	79.44	3.600	No	Yes	2.00
693	47.35	16.42	3.33	3.97	1.00	4.80	15.97	76.72	3.600	No	Yes	2.00
694	47.40	15.74	3.33	3.65	1.00	4.56	15.95	72.71	3.600	No	Yes	2.00
695	47.50	15.37	3.32	3.29	1.00	4.42	15.62	68.97	3.600	No	Yes	2.00
696	47.55	15.16	3.29	2.90	1.00	4.34	15.04	65.28	3.600	No	Yes	2.00
697	47.61	15.00	3.29	2.76	1.00	4.27	14.89	63.67	3.600	No	Yes	2.00
698	47.69	14.73	3.29	2.69	1.00	4.17	15.00	62.57	3.600	No	Yes	2.00
699	47.76	14.39	3.30	2.67	1.00	4.05	15.25	61.71	3.600	No	Yes	2.00
700	47.83	14.02	3.31	2.58	1.00	3.91	15.40	60.22	3.600	No	Yes	2.00
701	47.93	13.85	3.30	2.41	1.00	3.84	15.20	58.40	3.600	No	Yes	2.00
702	48.02	13.82	3.29	2.31	1.00	3.82	15.00	57.34	3.600	No	Yes	2.00
703	48.09	13.88	3.28	2.19	1.00	3.84	14.67	56.35	3.600	No	Yes	2.00
704	48.18	13.85	3.29	2.28	1.00	3.82	14.94	57.05	3.600	No	Yes	2.00
705	48.27	13.88	3.30	2.43	1.00	3.82	15.29	58.44	3.600	No	Yes	2.00
706	48.37	13.98	3.33	2.72	1.00	3.85	15.87	61.09	3.600	No	Yes	2.00
707	48.46	14.12	3.34	2.92	1.00	3.89	16.20	62.98	3.600	No	Yes	2.00
708	48.52	14.18	3.35	3.07	1.00	3.90	16.46	64.25	3.600	No	Yes	2.00
709	48.60	14.25	3.35	3.18	1.00	3.92	16.64	65.23	3.600	No	Yes	2.00
710	48.70	14.38	3.35	3.25	1.00	3.96	16.68	65.99	3.600	No	Yes	2.00
711	48.79	14.65	3.35	3.27	1.00	4.04	16.50	66.70	3.600	No	Yes	2.00
712	48.85	15.06	3.34	3.39	1.00	4.18	16.39	68.42	3.600	No	Yes	2.00
713	48.94	15.74	3.34	3.61	1.00	4.40	16.24	71.44	3.600	No	Yes	2.00
714	49.04	16.68	3.31	3.62	1.00	4.71	15.57	73.34	3.600	No	Yes	2.00
715	49.13	18.30	3.32	4.31	1.00	5.25	15.62	82.09	3.600	No	Yes	2.00
716	49.23	21.13	3.29	4.85	1.00	6.21	14.82	92.00	3.600	No	Yes	2.00
717	49.33	24.04	3.27	5.48	1.00	7.18	14.31	102.80	3.600	No	Yes	2.00
718	49.38	24.88	3.28	6.09	1.00	7.46	14.69	109.60	3.600	No	Yes	2.00
719	49.42	25.93	3.28	6.47	1.00	7.81	14.70	114.80	3.600	No	Yes	2.00
720	49.48	26.70	3.28	6.79	1.00	8.06	14.75	118.93	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	49.53	28.79	3.25	6.60	1.00	8.76	13.86	121.43	3.600	No	Yes	2.00
722	49.58	29.43	3.24	6.72	1.00	8.97	13.78	123.62	3.600	No	Yes	2.00
723	49.63	30.10	3.24	6.80	1.00	9.19	13.66	125.52	3.600	No	Yes	2.00
724	49.72	30.91	3.23	6.72	1.00	9.44	13.37	126.23	3.600	No	Yes	2.00
725	49.77	31.42	3.22	6.60	1.00	9.60	13.13	125.98	3.600	No	Yes	2.00
726	49.83	31.42	3.22	6.55	1.00	9.59	13.08	125.40	3.600	No	Yes	2.00
727	49.92	30.71	3.23	6.62	1.00	9.33	13.37	124.67	3.600	No	Yes	2.00
728	49.97	30.39	3.23	6.56	1.00	9.21	13.41	123.55	3.600	No	Yes	2.00
729	50.04	29.48	3.25	6.66	1.00	8.89	13.80	122.65	3.600	No	Yes	2.00
730	50.11	29.82	3.24	6.56	1.00	8.99	13.61	122.33	3.600	No	Yes	2.00
731	50.20	30.21	3.22	6.30	1.00	9.10	13.25	120.55	3.600	No	Yes	2.00
732	50.27	30.78	3.19	5.73	1.00	9.28	12.51	116.01	3.600	No	Yes	2.00
733	50.34	29.50	3.18	5.11	1.00	8.83	12.20	107.79	3.600	No	Yes	2.00
734	50.45	26.76	3.19	4.68	1.00	7.90	12.55	99.22	3.600	No	Yes	2.00
735	50.54	23.73	3.23	4.48	1.00	6.88	13.43	92.39	3.600	No	Yes	2.00
736	50.59	21.13	3.28	4.47	1.00	6.01	14.59	87.71	3.600	No	Yes	2.00
737	50.68	19.24	3.32	4.43	1.00	5.37	15.59	83.78	3.600	No	Yes	2.00
738	50.79	18.13	3.33	4.26	1.00	4.99	16.06	80.17	3.600	No	Yes	2.00
739	50.88	17.81	3.33	4.10	1.00	4.88	16.03	78.18	3.600	No	Yes	2.00
740	50.98	17.64	3.34	4.11	1.00	4.81	16.19	77.89	3.600	No	Yes	2.00
741	51.07	17.81	3.32	3.85	1.00	4.86	15.67	76.09	3.600	No	Yes	2.00
742	51.17	18.43	3.26	3.21	1.00	5.05	14.19	71.67	3.600	No	Yes	2.00
743	51.24	19.51	3.20	2.74	1.00	5.40	12.74	68.77	3.600	No	Yes	2.00
744	51.33	20.19	3.19	2.81	1.00	5.61	12.56	70.43	3.600	No	Yes	2.00
745	51.46	20.09	3.23	3.28	1.00	5.56	13.45	74.75	3.600	No	Yes	2.00
746	51.46	19.80	3.27	3.71	1.00	5.46	14.31	78.20	3.600	No	Yes	2.00
747	51.51	19.77	3.28	3.88	1.00	5.45	14.62	79.60	3.600	No	Yes	2.00
748	51.56	19.87	3.29	4.15	1.00	5.47	14.98	82.02	3.600	No	Yes	2.00
749	51.65	19.95	3.31	4.41	1.00	5.49	15.35	84.26	3.600	No	Yes	2.00
750	51.71	20.09	3.32	4.71	1.00	5.53	15.72	86.89	3.600	No	Yes	2.00
751	51.79	20.49	3.32	4.86	1.00	5.65	15.73	88.80	3.600	No	Yes	2.00
752	51.85	21.23	3.32	5.11	1.00	5.88	15.68	92.19	3.600	No	Yes	2.00
753	51.94	22.11	3.32	5.42	1.00	6.15	15.66	96.33	3.600	No	Yes	2.00
754	51.99	23.22	3.32	5.95	1.00	6.51	15.77	102.62	3.600	No	Yes	2.00
755	52.09	24.17	3.33	6.60	1.00	6.80	16.12	109.52	3.600	No	Yes	2.00
756	52.19	27.74	3.28	6.62	1.00	7.93	14.73	116.81	3.600	No	Yes	2.00
757	52.28	33.34	3.20	6.19	1.00	9.72	12.62	122.63	3.600	No	Yes	2.00
758	52.35	36.42	3.17	6.29	1.00	10.69	12.02	128.41	3.600	No	Yes	2.00
759	52.43	37.06	3.18	6.64	1.00	10.87	12.22	132.82	3.600	No	Yes	2.00
760	52.52	35.17	3.22	7.33	1.00	10.25	13.30	136.28	3.600	No	Yes	2.00
761	52.62	35.61	3.22	7.23	1.00	10.37	13.11	135.93	3.600	No	Yes	2.00
762	52.72	35.98	3.20	6.96	1.00	10.46	12.80	133.92	3.600	No	Yes	2.00
763	52.81	34.26	3.24	7.47	1.00	9.89	13.70	135.53	3.600	No	Yes	2.00
764	52.91	31.32	3.34	9.52	1.00	8.94	16.37	146.31	3.600	No	Yes	2.00
765	53.00	37.23	3.27	9.04	1.00	10.79	14.34	154.70	3.600	No	Yes	2.00
766	53.10	62.36	2.95	5.53	1.00	18.71	7.92	148.13	4.000	Yes	Yes	2.00
767	53.20	108.21	2.62	3.37	1.00	33.14	3.92	129.79	4.000	Yes	Yes	2.00
768	53.29	163.78	2.38	2.36	1.00	50.57	2.27	114.61	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	53.38	213.88	2.24	1.98	1.00	66.21	1.72	114.09	4.000	Yes	No	2.00
770	53.46	260.07	2.14	1.75	1.00	80.59	1.49	119.81	4.000	Yes	No	2.00
771	53.53	292.05	2.12	1.83	1.00	90.48	1.45	130.93	4.000	Yes	No	2.00
772	53.63	323.19	2.09	1.82	1.00	100.02	1.40	139.93	4.000	Yes	No	2.00
773	53.73	361.79	2.01	1.58	1.00	111.85	1.31	146.92	4.000	Yes	No	2.00
774	53.82	388.35	1.92	1.28	1.00	119.89	1.25	150.03	4.000	Yes	No	2.00
775	53.92	387.71	1.89	1.12	1.00	119.45	1.23	146.54	4.000	Yes	No	2.00
776	53.94	360.18	1.92	1.15	1.00	110.85	1.25	138.23	0.326	No	No	0.98
777	53.96	336.26	1.95	1.19	1.00	103.38	1.27	131.20	0.290	No	No	0.88
778	53.97	349.08	1.92	1.12	1.00	107.34	1.25	134.16	0.305	No	No	0.92
779	54.05	377.59	1.87	1.03	1.00	116.04	1.22	141.00	0.341	No	No	1.03
780	54.08	426.28	1.79	0.91	1.00	131.09	1.15	150.15	0.395	No	No	1.19
781	54.13	473.21	1.74	0.84	1.00	145.55	1.06	154.41	0.422	No	No	1.28
782	54.19	518.79	1.70	0.83	1.00	159.56	1.00	159.56	0.458	No	No	1.38
783	54.25	524.22	1.71	0.86	1.00	161.12	1.01	162.94	0.482	No	No	1.46
784	54.28	510.87	1.74	0.91	1.00	156.95	1.06	166.66	0.510	No	No	1.54
785	54.29	486.82	1.76	0.94	1.00	149.48	1.10	164.40	0.493	No	No	1.49
786	54.34	486.89	1.76	0.94	1.00	149.42	1.10	164.35	0.493	No	No	1.49
787	54.35	492.20	1.75	0.93	1.00	151.05	1.09	164.72	0.496	No	No	1.50
788	54.40	504.89	1.74	0.91	1.00	154.89	1.07	165.62	0.503	No	No	1.52
789	54.44	522.30	1.72	0.90	1.00	160.18	1.04	166.45	0.509	No	No	1.54
790	54.49	535.62	1.71	0.88	1.00	164.19	1.01	165.88	0.505	No	No	1.53
791	54.53	546.25	1.70	0.87	1.00	167.39	1.00	167.39	0.516	No	No	1.56
792	54.57	558.27	1.69	0.87	1.00	171.02	1.00	171.02	0.545	No	No	1.65
793	54.58	567.78	1.70	0.89	1.00	173.92	1.00	173.92	0.569	No	No	1.72
794	54.63	560.90	1.71	0.92	1.00	171.71	1.01	173.90	0.569	No	No	1.72
795	54.68	536.31	1.75	0.99	1.00	164.04	1.08	176.93	0.595	No	No	1.80
796	54.73	510.50	1.78	1.03	1.00	156.00	1.12	175.12	0.579	No	No	1.75
797	54.78	499.67	1.79	1.04	1.00	152.59	1.14	173.29	0.564	No	No	1.71
798	54.83	493.63	1.80	1.06	1.00	150.64	1.15	172.82	0.560	No	No	1.70
799	54.88	497.14	1.80	1.09	1.00	151.64	1.15	175.08	0.579	No	No	1.75
800	54.92	500.68	1.81	1.15	1.00	152.65	1.17	178.37	0.608	No	No	1.84
801	54.97	510.81	1.81	1.14	1.00	155.66	1.16	180.73	0.629	No	No	1.91
802	55.02	513.44	1.81	1.15	1.00	156.38	1.16	181.62	0.637	No	No	1.93
803	55.12	487.90	1.85	1.25	1.00	148.39	1.20	178.01	0.605	No	No	1.83
804	55.17	449.17	1.92	1.45	1.00	136.44	1.25	170.63	0.542	No	No	1.64
805	55.25	410.54	1.98	1.59	1.00	124.51	1.29	160.49	0.464	No	No	1.41
806	55.31	394.21	1.98	1.55	1.00	119.43	1.29	154.46	0.423	No	No	1.28
807	55.36	388.18	1.95	1.35	1.00	117.52	1.27	148.87	0.387	No	No	1.17
808	55.45	381.09	1.91	1.20	1.00	115.23	1.25	143.68	0.356	No	No	1.08
809	55.50	365.91	1.92	1.15	1.00	110.54	1.25	137.89	0.324	No	No	0.98
810	55.60	351.24	1.94	1.19	1.00	105.95	1.26	133.93	0.303	No	No	0.92
811	55.65	332.24	1.96	1.21	1.00	100.11	1.28	128.15	0.276	No	No	0.84
812	55.71	324.14	1.96	1.15	1.00	97.58	1.27	124.39	0.259	No	No	0.79
813	55.75	320.40	1.93	1.03	1.00	96.40	1.26	121.19	0.246	No	No	0.75
814	55.79	325.12	1.91	0.99	1.00	97.79	1.25	121.90	0.248	No	No	0.76
815	55.84	332.47	1.90	0.97	1.00	99.97	1.24	123.76	0.256	No	No	0.78
816	55.89	338.01	1.90	0.97	1.00	101.60	1.23	125.39	0.263	No	No	0.80

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	55.90	341.15	1.89	0.96	1.00	102.54	1.23	126.17	0.267	No	No	0.81
818	55.94	336.26	1.90	0.98	1.00	101.02	1.24	124.98	0.262	No	No	0.80
819	55.99	327.63	1.92	1.01	1.00	98.34	1.25	122.89	0.253	No	No	0.77
820	56.03	317.88	1.94	1.05	1.00	95.34	1.26	120.41	0.242	No	No	0.74
821	56.08	311.67	1.95	1.06	1.00	93.40	1.27	118.54	0.235	No	No	0.72
822	56.14	306.37	1.95	1.05	1.00	91.74	1.27	116.74	0.228	No	No	0.69
823	56.22	299.89	1.96	1.06	1.00	89.70	1.28	114.65	0.220	No	No	0.67
824	56.28	294.29	1.97	1.06	1.00	87.95	1.28	112.90	0.214	No	No	0.65
825	56.33	292.57	1.97	1.06	1.00	87.39	1.29	112.38	0.212	No	No	0.65
826	56.38	294.06	1.97	1.04	1.00	87.79	1.28	112.46	0.212	No	No	0.65
827	56.45	301.34	1.95	1.02	1.00	89.92	1.27	114.23	0.219	No	No	0.67
828	56.52	312.58	1.93	0.98	1.00	93.24	1.25	117.01	0.229	No	No	0.70
829	56.62	325.19	1.90	0.94	1.00	96.94	1.24	120.21	0.242	No	No	0.74
830	56.66	338.42	1.87	0.89	1.00	100.88	1.22	123.02	0.253	No	No	0.77
831	56.73	350.06	1.87	0.90	1.00	104.30	1.21	126.65	0.269	No	No	0.82
832	56.81	357.11	1.87	0.94	1.00	106.33	1.22	129.59	0.282	No	No	0.86
833	56.95	363.42	1.89	1.01	1.00	108.06	1.23	132.64	0.297	No	No	0.91
834	57.00	372.46	1.88	1.03	1.00	110.72	1.23	135.80	0.313	No	No	0.96
835	57.09	373.11	1.89	1.06	1.00	110.80	1.23	136.52	0.317	No	No	0.97
836	57.19	368.58	1.91	1.10	1.00	109.32	1.24	135.85	0.313	No	No	0.96
837	57.27	354.04	1.92	1.11	1.00	104.88	1.25	131.44	0.291	No	No	0.89
838	57.35	357.65	1.89	0.99	1.00	105.87	1.23	130.16	0.285	No	No	0.87
839	57.44	356.17	1.86	0.89	1.00	105.33	1.21	127.36	0.272	No	No	0.83
840	57.50	364.37	1.83	0.81	1.00	107.70	1.18	127.07	0.271	No	No	0.83
841	57.52	378.10	1.83	0.84	1.00	111.77	1.18	131.85	0.293	No	No	0.90
842	57.58	409.37	1.82	0.90	1.00	121.03	1.17	141.73	0.345	No	No	1.06
843	57.63	432.08	1.81	0.95	1.00	127.73	1.17	149.17	0.389	No	No	1.19
844	57.72	439.00	1.81	0.96	1.00	129.66	1.17	151.31	0.402	No	No	1.23
845	57.77	433.73	1.80	0.92	1.00	128.03	1.16	148.26	0.383	No	No	1.18
846	57.82	429.55	1.78	0.84	1.00	126.71	1.13	143.29	0.354	No	No	1.09
847	57.91	436.73	1.74	0.73	1.00	128.72	1.06	137.09	0.320	No	No	0.98
848	57.96	442.84	1.69	0.63	1.00	130.46	1.00	130.46	0.287	No	No	0.88
849	58.02	458.90	1.66	0.57	1.00	135.16	1.00	135.16	0.310	No	No	0.95
850	58.09	469.26	1.65	0.56	1.00	138.12	1.00	138.12	0.325	No	No	1.00
851	58.16	484.88	1.63	0.56	1.00	142.65	1.00	142.65	0.350	No	No	1.08
852	58.25	491.12	1.64	0.58	1.00	144.36	1.00	144.36	0.360	No	No	1.11
853	58.30	487.65	1.66	0.63	1.00	143.26	1.00	143.26	0.353	No	No	1.09
854	58.40	479.62	1.69	0.68	1.00	140.74	1.00	140.74	0.339	No	No	1.04
855	58.50	468.52	1.71	0.72	1.00	137.31	1.02	139.77	0.334	No	No	1.03
856	58.56	467.50	1.71	0.71	1.00	136.92	1.01	138.70	0.328	No	No	1.01
857	58.64	464.81	1.72	0.73	1.00	136.01	1.03	140.28	0.337	No	No	1.04
858	58.73	474.79	1.73	0.77	1.00	138.81	1.05	145.16	0.364	No	No	1.12
859	58.78	488.15	1.72	0.76	1.00	142.67	1.02	145.87	0.369	No	No	1.14
860	58.88	506.71	1.69	0.74	1.00	147.98	1.00	147.98	0.381	No	No	1.18
861	58.97	511.03	1.66	0.67	1.00	149.10	1.00	149.10	0.388	No	No	1.20
862	59.07	506.24	1.66	0.64	1.00	147.53	1.00	147.53	0.379	No	No	1.17
863	59.13	493.59	1.65	0.61	1.00	143.73	1.00	143.73	0.356	No	No	1.10
864	59.23	484.71	1.65	0.59	1.00	140.99	1.00	140.99	0.341	No	No	1.05

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	59.31	464.47	1.65	0.56	1.00	134.94	1.00	134.94	0.308	No	No	0.95
866	59.38	450.35	1.65	0.54	1.00	130.71	1.00	130.71	0.288	No	No	0.89
867	59.41	439.19	1.66	0.53	1.00	127.40	1.00	127.40	0.272	No	No	0.84
868	59.46	443.57	1.65	0.53	1.00	128.62	1.00	128.62	0.278	No	No	0.86
869	59.51	443.56	1.65	0.52	1.00	128.55	1.00	128.55	0.278	No	No	0.86
870	59.57	451.89	1.67	0.58	1.00	130.91	1.00	130.91	0.289	No	No	0.89
871	59.66	471.05	1.67	0.61	1.00	136.37	1.00	136.37	0.316	No	No	0.98
872	59.75	492.31	1.70	0.71	1.00	142.44	1.00	142.44	0.349	No	No	1.08
873	59.80	506.48	1.71	0.77	1.00	146.48	1.01	147.84	0.380	No	No	1.18
874	59.85	508.64	1.74	0.86	1.00	147.04	1.07	156.99	0.440	No	No	1.36
875	59.91	504.22	1.75	0.88	1.00	145.65	1.08	158.02	0.447	No	No	1.39
876	59.99	498.85	1.77	0.91	1.00	143.96	1.11	159.53	0.458	No	No	1.42
877	60.05	480.97	1.81	1.03	1.00	138.68	1.17	161.59	0.472	No	No	1.47
878	60.09	464.78	1.85	1.12	1.00	133.92	1.20	160.52	0.465	No	No	1.44
879	60.14	444.43	1.88	1.17	1.00	127.94	1.22	156.08	0.434	No	No	1.35
880	60.19	437.86	1.87	1.13	1.00	125.96	1.22	153.23	0.415	No	No	1.29
881	60.22	434.25	1.87	1.11	1.00	124.88	1.21	151.55	0.404	No	No	1.25
882	60.28	412.99	1.89	1.13	1.00	118.63	1.23	145.94	0.369	No	No	1.15
883	60.33	381.24	1.93	1.19	1.00	109.36	1.26	137.48	0.322	No	No	1.00
884	60.38	338.97	2.00	1.32	1.00	97.07	1.31	126.83	0.270	No	No	0.84
885	60.42	309.75	2.05	1.40	1.00	88.57	1.35	119.65	0.239	No	No	0.74
886	60.48	282.02	2.07	1.37	1.00	80.50	1.38	111.02	0.207	No	No	0.64
887	60.57	262.48	2.05	1.17	1.00	74.78	1.36	101.50	0.177	No	No	0.55
888	60.66	243.89	2.02	0.93	1.00	69.35	1.32	91.67	0.152	No	No	0.47
889	60.68	232.16	1.99	0.79	1.00	65.95	1.30	85.85	0.139	No	No	0.43
890	60.69	225.51	1.98	0.72	1.00	64.02	1.29	82.84	0.133	No	No	0.41
891	60.74	217.75	1.99	0.69	1.00	61.75	1.30	80.07	0.128	No	No	0.40
892	60.79	206.27	2.00	0.66	1.00	58.41	1.30	76.18	0.121	No	No	0.38
893	60.84	192.16	2.02	0.64	1.00	54.32	1.32	71.82	0.114	No	No	0.36
894	60.89	182.35	2.03	0.62	1.00	51.47	1.33	68.64	0.110	No	No	0.34
895	60.98	174.35	2.05	0.63	1.00	49.12	1.36	66.57	0.107	No	No	0.33
896	61.03	168.07	2.13	0.84	1.00	47.30	1.46	69.19	0.111	No	No	0.35
897	61.08	164.86	2.24	1.28	1.00	46.35	1.72	79.69	0.127	No	No	0.40
898	61.18	164.63	2.31	1.64	1.00	46.24	1.95	90.12	0.148	No	No	0.46
899	61.23	168.20	2.35	1.96	1.00	47.23	2.12	100.04	0.173	No	No	0.54
900	61.31	194.08	2.24	1.58	1.00	54.62	1.72	94.03	0.157	No	No	0.49
901	61.42	236.42	2.09	1.19	1.00	66.70	1.41	94.11	0.158	No	No	0.49
902	61.47	287.17	1.90	0.74	1.00	81.21	1.24	100.64	0.175	No	No	0.55
903	61.51	331.30	1.79	0.58	1.00	93.81	1.14	107.25	0.195	No	No	0.61
904	61.54	366.14	1.73	0.52	1.00	103.76	1.05	108.54	0.199	No	No	0.62
905	61.57	395.83	1.70	0.53	1.00	112.23	1.00	112.23	0.211	No	No	0.66
906	61.58	418.64	1.67	0.50	1.00	118.74	1.00	118.74	0.236	No	No	0.74
907	61.61	393.43	1.70	0.50	1.00	111.49	1.00	111.49	0.209	No	No	0.65
908	61.63	367.65	1.72	0.50	1.00	104.10	1.03	107.07	0.194	No	No	0.61
909	61.63	257.89	1.94	0.73	1.00	72.70	1.26	91.77	0.152	No	No	0.47
910	61.66	191.36	2.14	1.04	1.00	53.66	1.48	79.27	0.126	No	No	0.39
911	61.67	129.55	2.40	1.69	1.00	35.97	2.37	85.35	0.138	No	No	0.43
912	61.70	152.96	2.31	1.50	1.00	42.66	1.96	83.80	0.135	No	No	0.42

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	61.71	180.90	2.22	1.34	1.00	50.64	1.67	84.55	0.136	No	No	0.43
914	61.76	206.41	2.15	1.24	1.00	57.90	1.51	87.45	0.142	No	No	0.44
915	61.80	228.84	2.10	1.15	1.00	64.28	1.42	91.10	0.150	No	No	0.47
916	61.84	250.40	2.03	1.01	1.00	70.41	1.34	94.04	0.157	No	No	0.49
917	61.86	279.75	1.93	0.78	1.00	78.77	1.26	98.87	0.170	No	No	0.53
918	61.93	312.34	1.82	0.60	1.00	88.02	1.18	103.69	0.184	No	No	0.57
919	61.98	357.76	1.73	0.50	1.00	100.92	1.00	100.92	0.176	No	No	0.55
920	62.04	405.56	1.68	0.50	1.00	114.48	1.00	114.48	0.220	No	No	0.69
921	62.09	451.78	1.64	0.49	1.00	127.59	1.00	127.59	0.273	No	No	0.86
922	62.14	481.91	1.62	0.49	1.00	136.10	1.00	136.10	0.314	No	No	0.98
923	62.19	499.12	1.60	0.47	1.00	140.93	1.00	140.93	0.340	No	No	1.07
924	62.24	508.93	1.59	0.47	1.00	143.65	1.00	143.65	0.356	No	No	1.11
925	62.26	519.32	1.58	0.47	1.00	146.58	1.00	146.58	0.373	No	No	1.17
926	62.29	519.05	1.58	0.47	1.00	146.46	1.00	146.46	0.372	No	No	1.17
927	62.38	515.71	1.60	0.51	1.00	145.37	1.00	145.37	0.366	No	No	1.15
928	62.44	490.28	1.65	0.57	1.00	138.07	1.00	138.07	0.325	No	No	1.02
929	62.46	469.07	1.69	0.62	1.00	132.02	1.00	132.02	0.294	No	No	0.92
930	62.47	448.15	1.70	0.62	1.00	126.07	1.00	126.07	0.266	No	No	0.84
931	62.51	453.68	1.69	0.61	1.00	127.59	1.00	127.59	0.273	No	No	0.86
932	62.56	463.98	1.69	0.61	1.00	130.45	1.00	130.45	0.286	No	No	0.90
933	62.60	477.62	1.68	0.62	1.00	134.26	1.00	134.26	0.305	No	No	0.96
934	62.65	481.73	1.68	0.62	1.00	135.35	1.00	135.35	0.311	No	No	0.97
935	62.70	482.34	1.66	0.58	1.00	135.46	1.00	135.46	0.311	No	No	0.98
936	62.75	483.05	1.65	0.56	1.00	135.59	1.00	135.59	0.312	No	No	0.98
937	62.80	494.83	1.64	0.55	1.00	138.85	1.00	138.85	0.329	No	No	1.03
938	62.85	525.29	1.60	0.52	1.00	147.40	1.00	147.40	0.378	No	No	1.19
939	62.89	569.18	1.56	0.50	1.00	159.73	1.00	159.73	0.459	No	No	1.44
940	62.97	619.66	1.54	0.51	1.00	173.86	1.00	173.86	0.569	No	No	1.79
941	63.04	667.84	1.52	0.52	1.00	187.32	1.00	187.32	0.691	No	No	2.00
942	63.09	703.12	1.50	0.52	1.00	197.18	1.00	197.18	0.793	No	No	2.00
943	63.13	715.51	1.51	0.54	1.00	200.57	1.00	200.57	4.000	No	No	2.00
944	63.19	716.52	1.54	0.60	1.00	200.74	1.00	200.74	4.000	No	No	2.00
945	63.23	720.23	1.57	0.67	1.00	201.69	1.00	201.69	4.000	No	No	2.00
946	63.28	726.78	1.59	0.73	1.00	203.42	1.00	203.42	4.000	No	No	2.00
947	63.32	729.18	1.57	0.68	1.00	204.02	1.00	204.02	4.000	No	No	2.00
948	63.38	725.67	1.49	0.51	1.00	202.89	1.00	202.89	4.000	No	No	2.00
949	63.44	726.68	1.43	0.41	1.00	203.06	1.00	203.06	4.000	No	No	2.00
950	63.52	715.48	1.43	0.40	1.00	199.75	1.00	199.75	0.821	No	No	2.00
951	63.57	697.37	1.49	0.49	1.00	194.57	1.00	194.57	0.765	No	No	2.00
952	63.66	659.58	1.52	0.51	1.00	183.79	1.00	183.79	0.657	No	No	2.00
953	63.73	534.95	1.63	0.58	1.00	148.76	1.00	148.76	0.386	No	No	1.22
954	63.76	455.61	1.72	0.67	1.00	126.50	1.03	130.54	0.287	No	No	0.90
955	63.76	411.85	1.77	0.71	1.00	114.24	1.12	127.66	0.274	No	No	0.86
956	63.78	471.87	1.70	0.64	1.00	131.02	1.00	131.02	0.289	No	No	0.91
957	63.81	512.86	1.67	0.65	1.00	142.46	1.00	142.46	0.349	No	No	1.10
958	63.85	526.43	1.68	0.68	1.00	146.19	1.00	146.19	0.371	No	No	1.17
959	63.86	522.58	1.70	0.74	1.00	145.10	1.00	145.10	0.364	No	No	1.15
960	63.91	497.92	1.74	0.81	1.00	138.14	1.07	148.35	0.384	No	No	1.21

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	63.94	483.78	1.77	0.87	1.00	134.14	1.12	150.35	0.396	No	No	1.25
962	63.95	480.34	1.79	0.90	1.00	133.15	1.14	151.38	0.403	No	No	1.27
963	64.00	476.26	1.79	0.91	1.00	131.94	1.14	150.67	0.398	No	No	1.26
964	64.02	473.22	1.79	0.89	1.00	131.08	1.14	149.37	0.390	No	No	1.23
965	64.05	475.78	1.78	0.86	1.00	131.75	1.12	148.02	0.382	No	No	1.20
966	64.09	478.18	1.77	0.83	1.00	132.36	1.11	146.64	0.373	No	No	1.18
967	64.11	480.07	1.75	0.80	1.00	132.86	1.09	144.77	0.362	No	No	1.14
968	64.15	482.26	1.74	0.77	1.00	133.43	1.07	142.44	0.349	No	No	1.10
969	64.20	494.31	1.72	0.74	1.00	136.71	1.03	141.24	0.342	No	No	1.08
970	64.25	512.59	1.70	0.72	1.00	141.74	1.00	141.74	0.345	No	No	1.09
971	64.29	535.70	1.68	0.70	1.00	148.11	1.00	148.11	0.382	No	No	1.21
972	64.34	570.38	1.64	0.65	1.00	157.68	1.00	157.68	0.445	No	No	1.40
973	64.43	605.81	1.60	0.60	1.00	167.40	1.00	167.40	0.516	No	No	1.63
974	64.48	630.95	1.56	0.56	1.00	174.30	1.00	174.30	0.572	No	No	1.81
975	64.53	642.69	1.53	0.51	1.00	177.47	1.00	177.47	0.600	No	No	1.90
976	64.58	655.07	1.52	0.49	1.00	180.82	1.00	180.82	0.630	No	No	1.99
977	64.63	680.65	1.51	0.49	1.00	187.83	1.00	187.83	0.696	No	No	2.00
978	64.68	709.63	1.52	0.55	1.00	195.77	1.00	195.77	0.778	No	No	2.00
979	64.73	718.74	1.53	0.57	1.00	198.20	1.00	198.20	0.804	No	No	2.00
980	64.77	735.60	1.51	0.56	1.00	202.79	1.00	202.79	4.000	No	No	2.00
981	64.82	751.19	1.48	0.51	1.00	207.01	1.00	207.01	4.000	No	No	2.00
982	64.87	732.64	1.49	0.51	1.00	201.76	1.00	201.76	4.000	No	No	2.00
983	64.89	713.98	1.50	0.52	1.00	196.56	1.00	196.56	0.786	No	No	2.00
984	64.93	689.59	1.53	0.54	1.00	189.73	1.00	189.73	0.715	No	No	2.00
985	64.94	715.81	1.51	0.53	1.00	196.96	1.00	196.96	0.791	No	No	2.00
986	64.98	725.69	1.50	0.53	1.00	199.62	1.00	199.62	0.820	No	No	2.00
987	64.99	734.03	1.50	0.52	1.00	201.90	1.00	201.90	4.000	No	No	2.00
988	65.03	732.37	1.50	0.52	1.00	201.35	1.00	201.35	4.000	No	No	2.00
989	65.08	727.04	1.49	0.50	1.00	199.79	1.00	199.79	0.822	No	No	2.00
990	65.13	715.51	1.48	0.47	1.00	196.50	1.00	196.50	0.786	No	No	2.00
991	65.17	703.60	1.46	0.43	1.00	193.13	1.00	193.13	0.750	No	No	2.00
992	65.22	689.29	1.45	0.41	1.00	189.08	1.00	189.08	0.709	No	No	2.00
993	65.23	681.55	1.45	0.40	1.00	186.93	1.00	186.93	0.687	No	No	2.00
994	65.28	679.28	1.46	0.40	1.00	186.22	1.00	186.22	0.681	No	No	2.00
995	65.32	679.65	1.47	0.43	1.00	186.24	1.00	186.24	0.681	No	No	2.00
996	65.37	680.17	1.49	0.45	1.00	186.30	1.00	186.30	0.681	No	No	2.00
997	65.42	684.61	1.50	0.48	1.00	187.42	1.00	187.42	0.692	No	No	2.00
998	65.47	671.65	1.50	0.48	1.00	183.76	1.00	183.76	0.657	No	No	2.00
999	65.48	657.21	1.52	0.49	1.00	179.77	1.00	179.77	0.620	No	No	1.97
1000	65.49	638.86	1.52	0.48	1.00	174.70	1.00	174.70	0.576	No	No	1.83
1001	65.52	636.56	1.52	0.47	1.00	174.01	1.00	174.01	0.570	No	No	1.81
1002	65.57	645.67	1.41	0.30	1.00	176.43	1.00	176.43	0.591	No	No	1.88
1003	65.62	661.16	1.28	0.15	1.00	180.61	1.00	180.61	0.628	No	No	1.99
1004	65.67	682.44	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1005	65.69	697.23	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1006	65.72	719.02	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1007	65.77	752.26	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1008	65.82	790.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	65.86	811.97	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1010	65.86	833.63	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1011	65.91	854.04	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1012	65.96	878.41	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.01	2.00	0.00	0.00	0.03	0.00	0.04	2.00	0.00	0.00	0.03	0.00
0.08	2.00	0.00	0.00	0.04	0.00	0.10	2.00	0.00	0.00	0.02	0.00
0.13	2.00	0.00	0.00	0.03	0.00	0.18	2.00	0.00	0.00	0.04	0.00
0.22	2.00	0.00	0.00	0.05	0.00	0.27	2.00	0.00	0.00	0.05	0.00
0.33	2.00	0.00	0.00	0.05	0.00	0.36	2.00	0.00	0.00	0.03	0.00
0.37	2.00	0.00	0.00	0.01	0.00	0.38	2.00	0.00	0.00	0.01	0.00
0.42	2.00	0.00	0.00	0.04	0.00	0.44	2.00	0.00	0.00	0.03	0.00
0.47	2.00	0.00	0.00	0.02	0.00	0.47	2.00	0.00	0.00	0.01	0.00
0.52	2.00	0.00	0.00	0.04	0.00	0.56	2.00	0.00	0.00	0.05	0.00
0.58	2.00	0.00	0.00	0.01	0.00	0.61	2.00	0.00	0.00	0.03	0.00
0.66	2.00	0.00	0.00	0.05	0.00	0.76	2.00	0.00	0.00	0.09	0.00
0.80	2.00	0.00	0.00	0.05	0.00	0.81	2.00	0.00	0.00	0.01	0.00
0.85	2.00	0.00	0.00	0.04	0.00	0.86	2.00	0.00	0.00	0.01	0.00
0.90	2.00	0.00	0.00	0.04	0.00	0.95	2.00	0.00	0.00	0.04	0.00
1.00	2.00	0.00	0.00	0.05	0.00	1.05	2.00	0.00	0.00	0.06	0.00
1.14	2.00	0.00	0.00	0.09	0.00	1.24	2.00	0.00	0.00	0.09	0.00
1.31	2.00	0.00	0.00	0.08	0.00	1.36	2.00	0.00	0.00	0.05	0.00
1.37	2.00	0.00	0.00	0.01	0.00	1.39	2.00	0.00	0.00	0.02	0.00
1.43	2.00	0.00	0.00	0.04	0.00	1.44	2.00	0.00	0.00	0.01	0.00
1.49	2.00	0.00	0.00	0.06	0.00	1.53	2.00	0.00	0.00	0.04	0.00
1.58	2.00	0.00	0.00	0.05	0.00	1.63	2.00	0.00	0.00	0.05	0.00
1.68	2.00	0.00	0.00	0.05	0.00	1.72	2.00	0.00	0.00	0.05	0.00
1.77	2.00	0.00	0.00	0.05	0.00	1.82	2.00	0.00	0.00	0.05	0.00
1.86	2.00	0.00	0.00	0.04	0.00	1.92	2.00	0.00	0.00	0.05	0.00
1.97	2.00	0.00	0.00	0.05	0.00	2.01	2.00	0.00	0.00	0.05	0.00
2.09	2.00	0.00	0.00	0.07	0.00	2.16	2.00	0.00	0.00	0.07	0.00
2.20	2.00	0.00	0.00	0.04	0.00	2.25	2.00	0.00	0.00	0.05	0.00
2.31	2.00	0.00	0.00	0.06	0.00	2.37	2.00	0.00	0.00	0.06	0.00
2.40	2.00	0.00	0.00	0.03	0.00	2.46	2.00	0.00	0.00	0.06	0.00
2.54	2.00	0.00	0.00	0.08	0.00	2.59	2.00	0.00	0.00	0.05	0.00
2.69	2.00	0.00	0.00	0.10	0.00	2.74	2.00	0.00	0.00	0.05	0.00
2.83	2.00	0.00	0.00	0.10	0.00	2.88	2.00	0.00	0.00	0.05	0.00
2.98	2.00	0.00	0.00	0.10	0.00	3.03	2.00	0.00	0.00	0.05	0.00
3.12	2.00	0.00	0.00	0.08	0.00	3.21	2.00	0.00	0.00	0.09	0.00
3.27	2.00	0.00	0.00	0.06	0.00	3.34	2.00	0.00	0.00	0.08	0.00
3.41	2.00	0.00	0.00	0.07	0.00	3.51	2.00	0.00	0.00	0.10	0.00
3.55	2.00	0.00	0.00	0.05	0.00	3.65	2.00	0.00	0.00	0.10	0.00
3.75	2.00	0.00	0.00	0.10	0.00	3.83	2.00	0.00	0.00	0.09	0.00
3.94	2.00	0.00	0.00	0.10	0.00	4.04	2.00	0.00	0.00	0.10	0.00
4.13	2.00	0.00	0.00	0.09	0.00	4.24	2.00	0.00	0.00	0.11	0.00
4.38	2.00	0.00	0.00	0.13	0.00	4.50	2.00	0.00	0.00	0.12	0.00
4.62	2.00	0.00	0.00	0.12	0.00	4.71	2.00	0.00	0.00	0.10	0.00
4.75	2.00	0.00	0.00	0.04	0.00	4.84	2.00	0.00	0.00	0.08	0.00
4.89	2.00	0.00	0.00	0.05	0.00	4.94	2.00	0.00	0.00	0.05	0.00
4.98	2.00	0.00	0.00	0.04	0.00	5.07	2.00	0.00	0.00	0.09	0.00
5.13	2.00	0.00	0.00	0.05	0.00	5.17	2.00	0.00	0.00	0.05	0.00
5.27	2.00	0.00	0.00	0.09	0.00	5.32	2.00	0.00	0.00	0.05	0.00
5.42	2.00	0.00	0.00	0.10	0.00	5.46	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
5.56	2.00	0.00	0.00	0.10	0.00	5.61	2.00	0.00	0.00	0.05	0.00
5.71	2.00	0.00	0.00	0.09	0.00	5.78	2.00	0.00	0.00	0.08	0.00
5.85	2.00	0.00	0.00	0.07	0.00	5.95	2.00	0.00	0.00	0.10	0.00
6.00	2.00	0.00	0.00	0.05	0.00	6.09	2.00	0.00	0.00	0.10	0.00
6.14	2.00	0.00	0.00	0.05	0.00	6.24	2.00	0.00	0.00	0.09	0.00
6.30	2.00	0.00	0.00	0.06	0.00	6.38	2.00	0.00	0.00	0.09	0.00
6.46	2.00	0.00	0.00	0.08	0.00	6.50	2.00	0.00	0.00	0.04	0.00
6.56	2.00	0.00	0.00	0.07	0.00	6.63	2.00	0.00	0.00	0.06	0.00
6.68	2.00	0.00	0.00	0.05	0.00	6.76	2.00	0.00	0.00	0.08	0.00
6.82	2.00	0.00	0.00	0.06	0.00	6.88	2.00	0.00	0.00	0.06	0.00
6.96	2.00	0.00	0.00	0.08	0.00	7.03	2.00	0.00	0.00	0.07	0.00
7.11	2.00	0.00	0.00	0.08	0.00	7.16	2.00	0.00	0.00	0.05	0.00
7.26	2.00	0.00	0.00	0.10	0.00	7.31	2.00	0.00	0.00	0.05	0.00
7.40	2.00	0.00	0.00	0.09	0.00	7.45	2.00	0.00	0.00	0.05	0.00
7.54	2.00	0.00	0.00	0.09	0.00	7.60	2.00	0.00	0.00	0.06	0.00
7.68	2.00	0.00	0.00	0.09	0.00	7.74	2.00	0.00	0.00	0.05	0.00
7.83	2.00	0.00	0.00	0.09	0.00	7.90	2.00	0.00	0.00	0.07	0.00
7.98	2.00	0.00	0.00	0.08	0.00	8.05	2.00	0.00	0.00	0.07	0.00
8.12	2.00	0.00	0.00	0.08	0.00	8.19	2.00	0.00	0.00	0.07	0.00
8.27	2.00	0.00	0.00	0.07	0.00	8.36	2.00	0.00	0.00	0.10	0.00
8.41	2.00	0.00	0.00	0.05	0.00	8.50	2.00	0.00	0.00	0.09	0.00
8.60	2.00	0.00	0.00	0.10	0.00	8.70	2.00	0.00	0.00	0.09	0.00
8.74	2.00	0.00	0.00	0.05	0.00	8.78	2.00	0.00	0.00	0.03	0.00
8.81	2.00	0.00	0.00	0.03	0.00	8.86	2.00	0.00	0.00	0.05	0.00
8.91	2.00	0.00	0.00	0.04	0.00	8.94	2.00	0.00	0.00	0.04	0.00
9.02	2.00	0.00	0.00	0.08	0.00	9.10	2.00	0.00	0.00	0.07	0.00
9.17	2.00	0.00	0.00	0.07	0.00	9.22	2.00	0.00	0.00	0.05	0.00
9.31	2.00	0.00	0.00	0.09	0.00	9.37	2.00	0.00	0.00	0.06	0.00
9.42	2.00	0.00	0.00	0.05	0.00	9.52	2.00	0.00	0.00	0.10	0.00
9.60	2.00	0.00	0.00	0.08	0.00	9.66	2.00	0.00	0.00	0.06	0.00
9.74	2.00	0.00	0.00	0.08	0.00	9.81	2.00	0.00	0.00	0.07	0.00
9.89	2.00	0.00	0.00	0.08	0.00	9.98	2.00	0.00	0.00	0.09	0.00
10.03	2.00	0.00	0.00	0.06	0.00	10.13	2.00	0.00	0.00	0.09	0.00
10.23	2.00	0.00	0.00	0.10	0.00	10.32	2.00	0.00	0.00	0.09	0.00
10.38	2.00	0.00	0.00	0.06	0.00	10.47	2.00	0.00	0.00	0.09	0.00
10.57	2.00	0.00	0.00	0.10	0.00	10.66	2.00	0.00	0.00	0.09	0.00
10.76	2.00	0.00	0.00	0.10	0.00	10.85	2.00	0.00	0.00	0.10	0.00
10.92	2.00	0.00	0.00	0.07	0.00	11.00	2.00	0.00	0.00	0.08	0.00
11.07	2.00	0.00	0.00	0.06	0.00	11.10	2.00	0.00	0.00	0.03	0.00
11.15	2.00	0.00	0.00	0.05	0.00	11.19	2.00	0.00	0.00	0.04	0.00
11.24	2.00	0.00	0.00	0.05	0.00	11.29	2.00	0.00	0.00	0.05	0.00
11.34	2.00	0.00	0.00	0.05	0.00	11.40	2.00	0.00	0.00	0.07	0.00
11.47	2.00	0.00	0.00	0.06	0.00	11.53	2.00	0.00	0.00	0.06	0.00
11.58	2.00	0.00	0.00	0.04	0.00	11.65	2.00	0.00	0.00	0.07	0.00
11.72	2.00	0.00	0.00	0.07	0.00	11.77	2.00	0.00	0.00	0.05	0.00
11.82	2.00	0.00	0.00	0.05	0.00	11.88	2.00	0.00	0.00	0.06	0.00
11.97	2.00	0.00	0.00	0.09	0.00	12.02	2.00	0.00	0.00	0.05	0.00
12.06	2.00	0.00	0.00	0.05	0.00	12.11	2.00	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
12.21	2.00	0.00	0.00	0.10	0.00	12.25	2.00	0.00	0.00	0.04	0.00
12.30	2.00	0.00	0.00	0.05	0.00	12.31	2.00	0.00	0.00	0.01	0.00
12.32	2.00	0.00	0.00	0.01	0.00	12.35	2.00	0.00	0.00	0.03	0.00
12.40	2.00	0.00	0.00	0.05	0.00	12.45	2.00	0.00	0.00	0.05	0.00
12.52	2.00	0.00	0.00	0.08	0.00	12.56	2.00	0.00	0.00	0.04	0.00
12.62	2.00	0.00	0.00	0.06	0.00	12.65	2.00	0.00	0.00	0.04	0.00
12.71	2.00	0.00	0.00	0.05	0.00	12.76	2.00	0.00	0.00	0.05	0.00
12.83	2.00	0.00	0.00	0.07	0.00	12.88	2.00	0.00	0.00	0.05	0.00
12.93	2.00	0.00	0.00	0.05	0.00	12.98	2.00	0.00	0.00	0.05	0.00
13.03	2.00	0.00	0.00	0.05	0.00	13.04	2.00	0.00	0.00	0.01	0.00
13.07	2.00	0.00	0.00	0.04	0.00	13.13	2.00	0.00	0.00	0.05	0.00
13.17	2.00	0.00	0.00	0.04	0.00	13.22	2.00	0.00	0.00	0.05	0.00
13.27	2.00	0.00	0.00	0.05	0.00	13.32	2.00	0.00	0.00	0.04	0.00
13.37	2.00	0.00	0.00	0.05	0.00	13.41	2.00	0.00	0.00	0.04	0.00
13.46	2.00	0.00	0.00	0.05	0.00	13.51	2.00	0.00	0.00	0.04	0.00
13.56	2.00	0.00	0.00	0.05	0.00	13.60	2.00	0.00	0.00	0.04	0.00
13.66	2.00	0.00	0.00	0.06	0.00	13.75	2.00	0.00	0.00	0.09	0.00
13.80	2.00	0.00	0.00	0.05	0.00	13.89	2.00	0.00	0.00	0.09	0.00
13.94	2.00	0.00	0.00	0.05	0.00	13.99	2.00	0.00	0.00	0.05	0.00
14.09	2.00	0.00	0.00	0.09	0.00	14.14	2.00	0.00	0.00	0.06	0.00
14.23	2.00	0.00	0.00	0.09	0.00	14.28	2.00	0.00	0.00	0.05	0.00
14.38	2.00	0.00	0.00	0.10	0.00	14.42	2.00	0.00	0.00	0.04	0.00
14.52	2.00	0.00	0.00	0.10	0.00	14.57	2.00	0.00	0.00	0.05	0.00
14.67	2.00	0.00	0.00	0.10	0.00	14.68	2.00	0.00	0.00	0.01	0.00
14.70	2.00	0.00	0.00	0.02	0.00	14.75	2.00	0.00	0.00	0.05	0.00
14.80	2.00	0.00	0.00	0.04	0.00	14.89	2.00	0.00	0.00	0.10	0.00
14.94	2.00	0.00	0.00	0.05	0.00	15.04	2.00	0.00	0.00	0.10	0.00
15.13	2.00	0.00	0.00	0.09	0.00	15.21	2.00	0.00	0.00	0.08	0.00
15.28	2.00	0.00	0.00	0.07	0.00	15.38	2.00	0.00	0.00	0.10	0.00
15.47	2.00	0.00	0.00	0.09	0.00	15.57	2.00	0.00	0.00	0.10	0.00
15.67	2.00	0.00	0.00	0.09	0.00	15.77	2.00	0.00	0.00	0.10	0.00
15.86	2.00	0.00	0.00	0.10	0.00	15.96	2.00	0.00	0.00	0.09	0.00
16.05	2.00	0.00	0.00	0.10	0.00	16.15	2.00	0.00	0.00	0.09	0.00
16.25	2.00	0.00	0.00	0.10	0.00	16.31	2.00	0.00	0.00	0.06	0.00
16.39	2.00	0.00	0.00	0.08	0.00	16.48	2.00	0.00	0.00	0.10	0.00
16.59	2.00	0.00	0.00	0.10	0.00	16.68	2.00	0.00	0.00	0.09	0.00
16.76	2.00	0.00	0.00	0.08	0.00	16.86	2.00	0.00	0.00	0.10	0.00
16.92	2.00	0.00	0.00	0.06	0.00	17.02	2.00	0.00	0.00	0.09	0.00
17.11	2.00	0.00	0.00	0.10	0.00	17.22	2.00	0.00	0.00	0.11	0.00
17.35	2.00	0.00	0.00	0.13	0.00	17.45	2.00	0.00	0.00	0.10	0.00
17.55	2.00	0.00	0.00	0.10	0.00	17.61	2.00	0.00	0.00	0.07	0.00
17.64	2.00	0.00	0.00	0.03	0.00	17.70	2.00	0.00	0.00	0.06	0.00
17.75	2.00	0.00	0.00	0.04	0.00	17.80	2.00	0.00	0.00	0.05	0.00
17.85	2.00	0.00	0.00	0.05	0.00	17.94	2.00	0.00	0.00	0.10	0.00
17.99	2.00	0.00	0.00	0.04	0.00	18.09	2.00	0.00	0.00	0.10	0.00
18.15	2.00	0.00	0.00	0.06	0.00	18.23	2.00	0.00	0.00	0.08	0.00
18.33	2.00	0.00	0.00	0.10	0.00	18.43	2.00	0.00	0.00	0.10	0.00
18.52	2.00	0.00	0.00	0.10	0.00	18.59	2.00	0.00	0.00	0.07	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
18.72	2.00	0.00	0.00	0.13	0.00	18.81	2.00	0.00	0.00	0.09	0.00
18.87	2.00	0.00	0.00	0.06	0.00	18.95	2.00	0.00	0.00	0.08	0.00
19.05	2.00	0.00	0.00	0.10	0.00	19.14	2.00	0.00	0.00	0.09	0.00
19.22	2.00	0.00	0.00	0.07	0.00	19.29	2.00	0.00	0.00	0.08	0.00
19.38	2.00	0.00	0.00	0.09	0.00	19.44	2.00	0.00	0.00	0.06	0.00
19.53	2.00	0.00	0.00	0.09	0.00	19.62	2.00	0.00	0.00	0.09	0.00
19.69	2.00	0.00	0.00	0.07	0.00	19.79	2.00	0.00	0.00	0.10	0.00
19.86	2.00	0.00	0.00	0.07	0.00	19.97	2.00	0.00	0.00	0.10	0.00
20.07	2.00	0.00	0.00	0.10	0.00	20.16	2.00	0.00	0.00	0.09	0.00
20.26	2.00	0.00	0.00	0.10	0.00	20.34	2.00	0.00	0.00	0.08	0.00
20.43	2.00	0.00	0.00	0.09	0.00	20.50	2.00	0.00	0.00	0.07	0.00
20.60	2.00	0.00	0.00	0.10	0.00	20.62	2.00	0.00	0.00	0.02	0.00
20.63	2.00	0.00	0.00	0.01	0.00	20.68	2.00	0.00	0.00	0.05	0.00
20.73	2.00	0.00	0.00	0.05	0.00	20.82	2.00	0.00	0.00	0.09	0.00
20.87	2.00	0.00	0.00	0.05	0.00	20.91	2.00	0.00	0.00	0.05	0.00
20.96	2.00	0.00	0.00	0.05	0.00	21.05	2.00	0.00	0.00	0.09	0.00
21.11	2.00	0.00	0.00	0.06	0.00	21.17	2.00	0.00	0.00	0.06	0.00
21.25	2.00	0.00	0.00	0.08	0.00	21.30	2.00	0.00	0.00	0.06	0.00
21.37	2.00	0.00	0.00	0.06	0.00	21.45	2.00	0.00	0.00	0.08	0.00
21.49	2.00	0.00	0.00	0.05	0.00	21.58	2.00	0.00	0.00	0.09	0.00
21.64	2.00	0.00	0.00	0.06	0.00	21.69	2.00	0.00	0.00	0.05	0.00
21.78	2.00	0.00	0.00	0.09	0.00	21.83	2.00	0.00	0.00	0.05	0.00
21.89	2.00	0.00	0.00	0.06	0.00	21.98	2.00	0.00	0.00	0.09	0.00
22.03	2.00	0.00	0.00	0.05	0.00	22.12	2.00	0.00	0.00	0.09	0.00
22.22	2.00	0.00	0.00	0.10	0.00	22.26	2.00	0.00	0.00	0.05	0.00
22.36	2.00	0.00	0.00	0.09	0.00	22.41	2.00	0.00	0.00	0.05	0.00
22.51	2.00	0.00	0.00	0.10	0.00	22.60	2.00	0.00	0.00	0.09	0.00
22.70	2.00	0.00	0.00	0.10	0.00	22.75	2.00	0.00	0.00	0.05	0.00
22.84	2.00	0.00	0.00	0.10	0.00	22.89	2.00	0.00	0.00	0.05	0.00
22.90	2.00	0.00	0.00	0.01	0.00	22.94	2.00	0.00	0.00	0.04	0.00
23.00	2.00	0.00	0.00	0.06	0.00	23.08	2.00	0.00	0.00	0.08	0.00
23.13	2.00	0.00	0.00	0.05	0.00	23.20	2.00	0.00	0.00	0.07	0.00
23.27	2.00	0.00	0.00	0.07	0.00	23.33	2.00	0.00	0.00	0.06	0.00
23.42	2.00	0.00	0.00	0.09	0.00	23.48	2.00	0.00	0.00	0.06	0.00
23.57	2.00	0.00	0.00	0.09	0.00	23.61	2.00	0.00	0.00	0.04	0.00
23.66	2.00	0.00	0.00	0.05	0.00	23.73	2.00	0.00	0.00	0.07	0.00
23.80	2.00	0.00	0.00	0.07	0.00	23.85	2.00	0.00	0.00	0.05	0.00
23.94	2.00	0.00	0.00	0.09	0.00	24.00	2.00	0.00	0.00	0.05	0.00
24.09	2.00	0.00	0.00	0.09	0.00	24.16	2.00	0.00	0.00	0.07	0.00
24.24	2.00	0.00	0.00	0.07	0.00	24.33	2.00	0.00	0.00	0.10	0.00
24.43	2.00	0.00	0.00	0.10	0.00	24.52	2.00	0.00	0.00	0.09	0.00
24.58	2.00	0.00	0.00	0.06	0.00	24.59	2.00	0.00	0.00	0.01	0.00
24.63	2.00	0.00	0.00	0.04	0.00	24.68	2.00	0.00	0.00	0.05	0.00
24.77	2.00	0.00	0.00	0.10	0.00	24.82	2.00	0.00	0.00	0.05	0.00
24.92	2.00	0.00	0.00	0.10	0.00	25.01	2.00	0.00	0.00	0.09	0.00
25.06	2.00	0.00	0.00	0.06	0.00	25.16	2.00	0.00	0.00	0.09	0.00
25.25	2.00	0.00	0.00	0.09	0.00	25.30	2.00	0.00	0.00	0.05	0.00
25.41	2.00	0.00	0.00	0.11	0.00	25.49	2.00	0.00	0.00	0.09	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
25.55	2.00	0.00	0.00	0.05	0.00	25.64	2.00	0.00	0.00	0.09	0.00
25.70	2.00	0.00	0.00	0.06	0.00	25.79	2.00	0.00	0.00	0.09	0.00
25.89	2.00	0.00	0.00	0.10	0.00	25.94	2.00	0.00	0.00	0.06	0.00
26.02	2.00	0.00	0.00	0.08	0.00	26.12	2.00	0.00	0.00	0.09	0.00
26.17	2.00	0.00	0.00	0.05	0.00	26.28	2.00	0.00	0.00	0.11	0.00
26.36	2.00	0.00	0.00	0.09	0.00	26.45	2.00	0.00	0.00	0.09	0.00
26.50	2.00	0.00	0.00	0.05	0.00	26.61	2.00	0.00	0.00	0.11	0.00
26.70	2.00	0.00	0.00	0.09	0.00	26.77	2.00	0.00	0.00	0.07	0.00
26.85	2.00	0.00	0.00	0.08	0.00	26.94	2.00	0.00	0.00	0.09	0.00
27.04	2.00	0.00	0.00	0.09	0.00	27.14	2.00	0.00	0.00	0.10	0.00
27.23	2.00	0.00	0.00	0.09	0.00	27.28	2.00	0.00	0.00	0.05	0.00
27.29	2.00	0.00	0.00	0.01	0.00	27.38	2.00	0.00	0.00	0.09	0.00
27.48	2.00	0.00	0.00	0.10	0.00	27.57	2.00	0.00	0.00	0.09	0.00
27.64	2.00	0.00	0.00	0.07	0.00	27.65	2.00	0.00	0.00	0.01	0.00
27.74	2.00	0.00	0.00	0.09	0.00	27.80	2.00	0.00	0.00	0.06	0.00
27.90	2.00	0.00	0.00	0.10	0.00	27.99	2.00	0.00	0.00	0.09	0.00
28.07	2.00	0.00	0.00	0.08	0.00	28.16	2.00	0.00	0.00	0.09	0.00
28.25	2.00	0.00	0.00	0.09	0.00	28.34	2.00	0.00	0.00	0.09	0.00
28.44	2.00	0.00	0.00	0.10	0.00	28.53	2.00	0.00	0.00	0.09	0.00
28.62	2.00	0.00	0.00	0.09	0.00	28.76	2.00	0.00	0.00	0.14	0.00
28.86	2.00	0.00	0.00	0.10	0.00	28.96	2.00	0.00	0.00	0.10	0.00
29.08	2.00	0.00	0.00	0.11	0.00	29.19	2.00	0.00	0.00	0.12	0.00
29.29	2.00	0.00	0.00	0.10	0.00	29.39	2.00	0.00	0.00	0.09	0.00
29.50	2.00	0.00	0.00	0.11	0.00	29.63	2.00	0.00	0.00	0.13	0.00
29.65	2.00	0.00	0.00	0.02	0.00	29.66	2.00	0.00	0.00	0.01	0.00
29.72	2.00	0.00	0.00	0.06	0.00	29.80	2.00	0.00	0.00	0.09	0.00
29.85	2.00	0.00	0.00	0.05	0.00	29.94	2.00	0.00	0.00	0.09	0.00
30.00	2.00	0.00	0.00	0.06	0.00	30.05	2.00	0.00	0.00	0.05	0.00
30.14	2.00	0.00	0.00	0.09	0.00	30.19	2.00	0.00	0.00	0.05	0.00
30.24	2.00	0.00	0.00	0.05	0.00	30.29	1.14	0.00	0.00	0.05	0.00
30.38	1.12	0.00	0.00	0.09	0.00	30.43	1.09	0.00	0.00	0.05	0.00
30.48	1.05	0.00	0.00	0.05	0.00	30.54	1.02	0.00	0.00	0.06	0.00
30.62	1.00	0.00	0.00	0.08	0.00	30.67	0.99	0.01	90006887.17	0.05	0.00
30.72	0.99	0.01	161806562 5614.33	0.05	0.00	30.76	1.00	0.00	811703898	0.04	0.00
30.86	1.01	0.00	0.00	0.10	0.00	30.91	1.03	0.00	0.00	0.05	0.00
30.95	1.06	0.00	0.00	0.05	0.00	31.03	1.09	0.00	0.00	0.07	0.00
31.10	1.12	0.00	0.00	0.07	0.00	31.15	1.15	0.00	0.00	0.05	0.00
31.20	1.19	0.00	0.00	0.05	0.00	31.26	1.22	0.00	0.00	0.06	0.00
31.34	1.21	0.00	0.00	0.08	0.00	31.37	1.20	0.00	0.00	0.02	0.00
31.38	1.18	0.00	0.00	0.01	0.00	31.43	1.19	0.00	0.00	0.05	0.00
31.47	1.13	0.00	0.00	0.05	0.00	31.55	1.06	0.00	0.00	0.07	0.00
31.59	0.95	0.05	66.65	0.05	0.00	31.66	0.83	0.17	2.22	0.06	0.02
31.73	0.73	0.27	1.05	0.08	0.03	31.78	0.65	0.35	0.76	0.05	0.03
31.84	0.61	0.39	0.65	0.06	0.04	31.93	0.60	0.40	0.62	0.09	0.06
31.98	0.61	0.39	0.64	0.05	0.03	32.02	0.64	0.36	0.71	0.05	0.03
32.09	0.67	0.33	0.80	0.07	0.03	32.16	0.69	0.31	0.87	0.07	0.03
32.22	0.70	0.30	0.90	0.05	0.03	32.27	0.70	0.30	0.90	0.05	0.02
32.34	0.69	0.31	0.89	0.07	0.03	32.42	0.69	0.31	0.88	0.08	0.04

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
32.46	0.68	0.32	0.86	0.04	0.02	32.54	0.68	0.32	0.84	0.09	0.04
32.60	0.66	0.34	0.79	0.06	0.03	32.67	0.66	0.34	0.77	0.07	0.03
32.75	0.66	0.34	0.78	0.08	0.04	32.81	0.68	0.32	0.86	0.06	0.03
32.89	0.71	0.29	0.96	0.08	0.04	32.94	0.69	0.31	0.89	0.05	0.02
32.95	0.71	0.29	0.95	0.01	0.00	33.00	0.72	0.28	1.04	0.05	0.02
33.06	0.79	0.21	1.49	0.06	0.02	33.11	0.80	0.20	1.68	0.05	0.01
33.20	0.80	0.20	1.65	0.09	0.03	33.25	0.79	0.21	1.56	0.05	0.02
33.34	0.78	0.22	1.47	0.09	0.03	33.38	0.79	0.21	1.49	0.04	0.01
33.48	0.80	0.20	1.65	0.10	0.03	33.58	0.83	0.17	2.07	0.10	0.03
33.63	0.87	0.13	3.40	0.04	0.01	33.73	0.92	0.08	9.37	0.10	0.01
33.82	0.98	0.02	7362.55	0.09	0.00	33.87	1.05	0.00	0.00	0.05	0.00
33.96	1.13	0.00	0.00	0.09	0.00	34.02	1.23	0.00	0.00	0.06	0.00
34.11	1.37	0.00	0.00	0.09	0.00	34.18	1.54	0.00	0.00	0.07	0.00
34.26	1.72	0.00	0.00	0.08	0.00	34.35	1.91	0.00	0.00	0.09	0.00
34.44	2.00	0.00	0.00	0.09	0.00	34.49	2.00	0.00	0.00	0.05	0.00
34.59	2.00	0.00	0.00	0.10	0.00	34.69	2.00	0.00	0.00	0.09	0.00
34.76	2.00	0.00	0.00	0.07	0.00	34.83	2.00	0.00	0.00	0.08	0.00
34.93	2.00	0.00	0.00	0.10	0.00	35.02	2.00	0.00	0.00	0.09	0.00
35.12	2.00	0.00	0.00	0.10	0.00	35.22	1.94	0.00	0.00	0.10	0.00
35.30	1.83	0.00	0.00	0.08	0.00	35.38	1.60	0.00	0.00	0.08	0.00
35.43	1.44	0.00	0.00	0.04	0.00	35.46	1.32	0.00	0.00	0.04	0.00
35.51	2.00	0.00	0.00	0.05	0.00	35.56	2.00	0.00	0.00	0.04	0.00
35.66	2.00	0.00	0.00	0.10	0.00	35.70	2.00	0.00	0.00	0.05	0.00
35.80	2.00	0.00	0.00	0.10	0.00	35.89	2.00	0.00	0.00	0.09	0.00
35.96	2.00	0.00	0.00	0.07	0.00	36.04	2.00	0.00	0.00	0.08	0.00
36.14	2.00	0.00	0.00	0.10	0.00	36.19	2.00	0.00	0.00	0.05	0.00
36.28	2.00	0.00	0.00	0.09	0.00	36.33	2.00	0.00	0.00	0.04	0.00
36.42	2.00	0.00	0.00	0.09	0.00	36.48	2.00	0.00	0.00	0.05	0.00
36.52	2.00	0.00	0.00	0.05	0.00	36.62	2.00	0.00	0.00	0.10	0.00
36.68	2.00	0.00	0.00	0.06	0.00	36.77	2.00	0.00	0.00	0.09	0.00
36.86	2.00	0.00	0.00	0.09	0.00	36.90	2.00	0.00	0.00	0.05	0.00
37.00	2.00	0.00	0.00	0.10	0.00	37.10	2.00	0.00	0.00	0.10	0.00
37.20	2.00	0.00	0.00	0.10	0.00	37.29	2.00	0.00	0.00	0.09	0.00
37.39	2.00	0.00	0.00	0.10	0.00	37.49	1.28	0.00	0.00	0.10	0.00
37.53	1.39	0.00	0.00	0.05	0.00	37.58	1.51	0.00	0.00	0.04	0.00
37.62	1.60	0.00	0.00	0.05	0.00	37.69	1.74	0.00	0.00	0.07	0.00
37.77	1.86	0.00	0.00	0.08	0.00	37.82	1.96	0.00	0.00	0.05	0.00
37.87	2.00	0.00	0.00	0.05	0.00	37.91	2.00	0.00	0.00	0.05	0.00
37.97	1.95	0.00	0.00	0.06	0.00	38.06	1.85	0.00	0.00	0.09	0.00
38.10	1.75	0.00	0.00	0.04	0.00	38.17	1.67	0.00	0.00	0.07	0.00
38.25	1.60	0.00	0.00	0.08	0.00	38.35	1.54	0.00	0.00	0.09	0.00
38.40	1.48	0.00	0.00	0.05	0.00	38.46	1.45	0.00	0.00	0.06	0.00
38.54	1.43	0.00	0.00	0.08	0.00	38.60	1.41	0.00	0.00	0.06	0.00
38.69	1.41	0.00	0.00	0.08	0.00	38.74	1.43	0.00	0.00	0.05	0.00
38.83	1.46	0.00	0.00	0.09	0.00	38.88	1.45	0.00	0.00	0.05	0.00
38.97	1.43	0.00	0.00	0.09	0.00	39.02	1.38	0.00	0.00	0.05	0.00
39.11	1.34	0.00	0.00	0.09	0.00	39.16	1.27	0.00	0.00	0.06	0.00
39.23	1.14	0.00	0.00	0.06	0.00	39.24	1.08	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
39.28	1.05	0.00	0.00	0.04	0.00	39.32	1.07	0.00	0.00	0.05	0.00
39.39	2.00	0.00	0.00	0.06	0.00	39.47	2.00	0.00	0.00	0.08	0.00
39.54	2.00	0.00	0.00	0.07	0.00	39.62	2.00	0.00	0.00	0.08	0.00
39.71	2.00	0.00	0.00	0.09	0.00	39.76	2.00	0.00	0.00	0.05	0.00
39.85	2.00	0.00	0.00	0.09	0.00	39.90	2.00	0.00	0.00	0.06	0.00
40.00	2.00	0.00	0.00	0.10	0.00	40.06	2.00	0.00	0.00	0.06	0.00
40.15	2.00	0.00	0.00	0.09	0.00	40.21	2.00	0.00	0.00	0.06	0.00
40.29	2.00	0.00	0.00	0.08	0.00	40.35	2.00	0.00	0.00	0.06	0.00
40.43	2.00	0.00	0.00	0.08	0.00	40.52	2.00	0.00	0.00	0.09	0.00
40.58	2.00	0.00	0.00	0.05	0.00	40.67	2.00	0.00	0.00	0.10	0.00
40.77	2.00	0.00	0.00	0.09	0.00	40.84	2.00	0.00	0.00	0.07	0.00
40.89	2.00	0.00	0.00	0.05	0.00	40.94	2.00	0.00	0.00	0.05	0.00
41.03	2.00	0.00	0.00	0.10	0.00	41.08	2.00	0.00	0.00	0.05	0.00
41.14	2.00	0.00	0.00	0.06	0.00	41.22	2.00	0.00	0.00	0.08	0.00
41.28	0.45	0.55	0.42	0.06	0.03	41.33	0.46	0.54	0.44	0.05	0.03
41.42	0.49	0.51	0.46	0.09	0.05	41.47	0.52	0.48	0.50	0.05	0.03
41.52	0.55	0.45	0.54	0.06	0.03	41.62	0.58	0.42	0.60	0.09	0.04
41.67	0.63	0.37	0.70	0.05	0.02	41.76	0.69	0.31	0.88	0.09	0.03
41.82	0.76	0.24	1.23	0.06	0.02	41.90	0.81	0.19	1.83	0.08	0.02
41.99	0.85	0.15	2.80	0.09	0.01	42.05	0.88	0.12	3.80	0.06	0.01
42.15	0.88	0.12	3.96	0.10	0.01	42.23	0.87	0.13	3.38	0.09	0.01
42.30	0.85	0.15	2.55	0.07	0.01	42.38	0.81	0.19	1.79	0.08	0.02
42.48	0.75	0.25	1.21	0.10	0.03	42.57	0.70	0.30	0.92	0.09	0.03
42.64	0.66	0.34	0.76	0.07	0.02	42.72	0.62	0.38	0.67	0.08	0.03
42.82	0.58	0.42	0.60	0.10	0.04	42.90	0.56	0.44	0.55	0.08	0.04
42.97	0.55	0.45	0.54	0.07	0.03	43.06	0.55	0.45	0.54	0.09	0.04
43.15	0.53	0.47	0.52	0.09	0.05	43.20	0.51	0.49	0.49	0.05	0.03
43.30	0.48	0.52	0.45	0.10	0.05	43.40	0.49	0.51	0.46	0.10	0.05
43.48	0.52	0.48	0.50	0.08	0.04	43.51	0.54	0.46	0.53	0.03	0.02
43.52	0.57	0.43	0.58	0.01	0.00	43.56	0.64	0.36	0.73	0.04	0.01
43.61	0.77	0.23	1.32	0.05	0.01	43.67	0.88	0.12	4.39	0.06	0.01
43.72	1.00	0.00	797274697	0.05	0.00	43.80	1.09	0.00	0.00	0.08	0.00
43.85	1.16	0.00	0.00	0.05	0.00	43.90	1.21	0.00	0.00	0.05	0.00
43.94	1.24	0.00	0.00	0.05	0.00	43.99	1.26	0.00	0.00	0.05	0.00
44.08	1.27	0.00	0.00	0.09	0.00	44.14	1.28	0.00	0.00	0.06	0.00
44.22	1.30	0.00	0.00	0.08	0.00	44.28	1.30	0.00	0.00	0.05	0.00
44.33	1.29	0.00	0.00	0.05	0.00	44.40	1.27	0.00	0.00	0.07	0.00
44.48	1.27	0.00	0.00	0.08	0.00	44.52	1.26	0.00	0.00	0.05	0.00
44.61	1.27	0.00	0.00	0.09	0.00	44.72	1.29	0.00	0.00	0.11	0.00
44.77	1.34	0.00	0.00	0.05	0.00	44.91	1.36	0.00	0.00	0.14	0.00
44.95	1.29	0.00	0.00	0.05	0.00	45.02	1.24	0.00	0.00	0.07	0.00
45.04	0.96	0.04	168.59	0.02	0.00	45.06	1.00	0.00	814329101	0.02	0.00
45.11	1.04	0.00	0.00	0.05	0.00	45.15	1.37	0.00	0.00	0.05	0.00
45.21	1.44	0.00	0.00	0.05	0.00	45.25	1.50	0.00	0.00	0.04	0.00
45.30	1.54	0.00	0.00	0.05	0.00	45.35	1.57	0.00	0.00	0.05	0.00
45.41	1.57	0.00	0.00	0.06	0.00	45.49	1.55	0.00	0.00	0.08	0.00
45.55	1.52	0.00	0.00	0.05	0.00	45.63	1.46	0.00	0.00	0.09	0.00
45.69	1.38	0.00	0.00	0.05	0.00	45.78	1.29	0.00	0.00	0.09	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
45.84	1.19	0.00	0.00	0.06	0.00	45.93	1.07	0.00	0.00	0.09	0.00
46.02	2.00	0.00	0.00	0.09	0.00	46.08	2.00	0.00	0.00	0.05	0.00
46.16	2.00	0.00	0.00	0.09	0.00	46.24	2.00	0.00	0.00	0.07	0.00
46.31	2.00	0.00	0.00	0.07	0.00	46.41	2.00	0.00	0.00	0.10	0.00
46.48	2.00	0.00	0.00	0.06	0.00	46.56	2.00	0.00	0.00	0.09	0.00
46.65	2.00	0.00	0.00	0.09	0.00	46.75	2.00	0.00	0.00	0.10	0.00
46.84	2.00	0.00	0.00	0.09	0.00	46.94	2.00	0.00	0.00	0.09	0.00
47.02	2.00	0.00	0.00	0.08	0.00	47.08	2.00	0.00	0.00	0.06	0.00
47.12	2.00	0.00	0.00	0.04	0.00	47.16	2.00	0.00	0.00	0.04	0.00
47.21	2.00	0.00	0.00	0.05	0.00	47.27	2.00	0.00	0.00	0.06	0.00
47.35	2.00	0.00	0.00	0.08	0.00	47.40	2.00	0.00	0.00	0.05	0.00
47.50	2.00	0.00	0.00	0.10	0.00	47.55	2.00	0.00	0.00	0.05	0.00
47.61	2.00	0.00	0.00	0.06	0.00	47.69	2.00	0.00	0.00	0.08	0.00
47.76	2.00	0.00	0.00	0.08	0.00	47.83	2.00	0.00	0.00	0.07	0.00
47.93	2.00	0.00	0.00	0.10	0.00	48.02	2.00	0.00	0.00	0.09	0.00
48.09	2.00	0.00	0.00	0.07	0.00	48.18	2.00	0.00	0.00	0.09	0.00
48.27	2.00	0.00	0.00	0.09	0.00	48.37	2.00	0.00	0.00	0.10	0.00
48.46	2.00	0.00	0.00	0.09	0.00	48.52	2.00	0.00	0.00	0.07	0.00
48.60	2.00	0.00	0.00	0.08	0.00	48.70	2.00	0.00	0.00	0.10	0.00
48.79	2.00	0.00	0.00	0.09	0.00	48.85	2.00	0.00	0.00	0.06	0.00
48.94	2.00	0.00	0.00	0.09	0.00	49.04	2.00	0.00	0.00	0.09	0.00
49.13	2.00	0.00	0.00	0.09	0.00	49.23	2.00	0.00	0.00	0.10	0.00
49.33	2.00	0.00	0.00	0.09	0.00	49.38	2.00	0.00	0.00	0.05	0.00
49.42	2.00	0.00	0.00	0.04	0.00	49.48	2.00	0.00	0.00	0.06	0.00
49.53	2.00	0.00	0.00	0.04	0.00	49.58	2.00	0.00	0.00	0.05	0.00
49.63	2.00	0.00	0.00	0.05	0.00	49.72	2.00	0.00	0.00	0.10	0.00
49.77	2.00	0.00	0.00	0.05	0.00	49.83	2.00	0.00	0.00	0.05	0.00
49.92	2.00	0.00	0.00	0.09	0.00	49.97	2.00	0.00	0.00	0.05	0.00
50.04	2.00	0.00	0.00	0.07	0.00	50.11	2.00	0.00	0.00	0.07	0.00
50.20	2.00	0.00	0.00	0.09	0.00	50.27	2.00	0.00	0.00	0.07	0.00
50.34	2.00	0.00	0.00	0.07	0.00	50.45	2.00	0.00	0.00	0.10	0.00
50.54	2.00	0.00	0.00	0.09	0.00	50.59	2.00	0.00	0.00	0.05	0.00
50.68	2.00	0.00	0.00	0.09	0.00	50.79	2.00	0.00	0.00	0.10	0.00
50.88	2.00	0.00	0.00	0.09	0.00	50.98	2.00	0.00	0.00	0.10	0.00
51.07	2.00	0.00	0.00	0.09	0.00	51.17	2.00	0.00	0.00	0.10	0.00
51.24	2.00	0.00	0.00	0.07	0.00	51.33	2.00	0.00	0.00	0.09	0.00
51.46	2.00	0.00	0.00	0.13	0.00	51.46	2.00	0.00	0.00	0.00	0.00
51.51	2.00	0.00	0.00	0.05	0.00	51.56	2.00	0.00	0.00	0.05	0.00
51.65	2.00	0.00	0.00	0.09	0.00	51.71	2.00	0.00	0.00	0.06	0.00
51.79	2.00	0.00	0.00	0.09	0.00	51.85	2.00	0.00	0.00	0.05	0.00
51.94	2.00	0.00	0.00	0.09	0.00	51.99	2.00	0.00	0.00	0.05	0.00
52.09	2.00	0.00	0.00	0.10	0.00	52.19	2.00	0.00	0.00	0.10	0.00
52.28	2.00	0.00	0.00	0.09	0.00	52.35	2.00	0.00	0.00	0.07	0.00
52.43	2.00	0.00	0.00	0.08	0.00	52.52	2.00	0.00	0.00	0.09	0.00
52.62	2.00	0.00	0.00	0.11	0.00	52.72	2.00	0.00	0.00	0.09	0.00
52.81	2.00	0.00	0.00	0.09	0.00	52.91	2.00	0.00	0.00	0.10	0.00
53.00	2.00	0.00	0.00	0.09	0.00	53.10	2.00	0.00	0.00	0.10	0.00
53.20	2.00	0.00	0.00	0.09	0.00	53.29	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
53.38	2.00	0.00	0.00	0.09	0.00	53.46	2.00	0.00	0.00	0.08	0.00
53.53	2.00	0.00	0.00	0.07	0.00	53.63	2.00	0.00	0.00	0.10	0.00
53.73	2.00	0.00	0.00	0.10	0.00	53.82	2.00	0.00	0.00	0.09	0.00
53.92	2.00	0.00	0.00	0.10	0.00	53.94	0.98	0.02	70981.95	0.02	0.00
53.96	0.88	0.12	3.79	0.02	0.00	53.97	0.92	0.08	10.21	0.01	0.00
54.05	1.03	0.00	0.00	0.08	0.00	54.08	1.19	0.00	0.00	0.02	0.00
54.13	1.28	0.00	0.00	0.05	0.00	54.19	1.38	0.00	0.00	0.06	0.00
54.25	1.46	0.00	0.00	0.06	0.00	54.28	1.54	0.00	0.00	0.03	0.00
54.29	1.49	0.00	0.00	0.02	0.00	54.34	1.49	0.00	0.00	0.05	0.00
54.35	1.50	0.00	0.00	0.01	0.00	54.40	1.52	0.00	0.00	0.05	0.00
54.44	1.54	0.00	0.00	0.04	0.00	54.49	1.53	0.00	0.00	0.05	0.00
54.53	1.56	0.00	0.00	0.04	0.00	54.57	1.65	0.00	0.00	0.03	0.00
54.58	1.72	0.00	0.00	0.02	0.00	54.63	1.72	0.00	0.00	0.04	0.00
54.68	1.80	0.00	0.00	0.05	0.00	54.73	1.75	0.00	0.00	0.05	0.00
54.78	1.71	0.00	0.00	0.05	0.00	54.83	1.70	0.00	0.00	0.05	0.00
54.88	1.75	0.00	0.00	0.05	0.00	54.92	1.84	0.00	0.00	0.05	0.00
54.97	1.91	0.00	0.00	0.05	0.00	55.02	1.93	0.00	0.00	0.05	0.00
55.12	1.83	0.00	0.00	0.09	0.00	55.17	1.64	0.00	0.00	0.05	0.00
55.25	1.41	0.00	0.00	0.08	0.00	55.31	1.28	0.00	0.00	0.06	0.00
55.36	1.17	0.00	0.00	0.05	0.00	55.45	1.08	0.00	0.00	0.09	0.00
55.50	0.98	0.02	192664.19	0.05	0.00	55.60	0.92	0.08	11.38	0.10	0.00
55.65	0.84	0.16	2.35	0.05	0.00	55.71	0.79	0.21	1.51	0.06	0.01
55.75	0.75	0.25	1.17	0.04	0.00	55.79	0.76	0.24	1.23	0.04	0.00
55.84	0.78	0.22	1.43	0.05	0.01	55.89	0.80	0.20	1.68	0.05	0.00
55.90	0.81	0.19	1.83	0.01	0.00	55.94	0.80	0.20	1.61	0.03	0.00
55.99	0.77	0.23	1.33	0.05	0.01	56.03	0.74	0.26	1.11	0.05	0.01
56.08	0.72	0.28	0.99	0.05	0.01	56.14	0.69	0.31	0.90	0.06	0.01
56.22	0.67	0.33	0.81	0.08	0.01	56.28	0.65	0.35	0.75	0.05	0.01
56.33	0.65	0.35	0.74	0.05	0.01	56.38	0.65	0.35	0.74	0.05	0.01
56.45	0.67	0.33	0.80	0.07	0.01	56.52	0.70	0.30	0.91	0.07	0.01
56.62	0.74	0.26	1.11	0.10	0.01	56.66	0.77	0.23	1.37	0.05	0.00
56.73	0.82	0.18	1.99	0.07	0.01	56.81	0.86	0.14	3.17	0.08	0.00
56.95	0.91	0.09	7.48	0.14	0.01	57.00	0.96	0.04	95.74	0.04	0.00
57.09	0.97	0.03	549.52	0.10	0.00	57.19	0.96	0.04	115.26	0.10	0.00
57.27	0.89	0.11	5.10	0.08	0.00	57.35	0.87	0.13	3.70	0.07	0.00
57.44	0.83	0.17	2.25	0.09	0.01	57.50	0.83	0.17	2.17	0.07	0.00
57.52	0.90	0.10	5.94	0.02	0.00	57.58	1.06	0.00	0.00	0.05	0.00
57.63	1.19	0.00	0.00	0.05	0.00	57.72	1.23	0.00	0.00	0.09	0.00
57.77	1.18	0.00	0.00	0.04	0.00	57.82	1.09	0.00	0.00	0.05	0.00
57.91	0.98	0.02	45128.57	0.09	0.00	57.96	0.88	0.12	4.13	0.05	0.00
58.02	0.95	0.05	55.89	0.05	0.00	58.09	1.00	0.00	176603202	0.08	0.00
58.16	1.08	0.00	0.00	0.06	0.00	58.25	1.11	0.00	0.00	0.10	0.00
58.30	1.09	0.00	0.00	0.05	0.00	58.40	1.04	0.00	0.00	0.10	0.00
58.50	1.03	0.00	0.00	0.10	0.00	58.56	1.01	0.00	0.00	0.06	0.00
58.64	1.04	0.00	0.00	0.08	0.00	58.73	1.12	0.00	0.00	0.09	0.00
58.78	1.14	0.00	0.00	0.05	0.00	58.88	1.18	0.00	0.00	0.09	0.00
58.97	1.20	0.00	0.00	0.09	0.00	59.07	1.17	0.00	0.00	0.10	0.00
59.13	1.10	0.00	0.00	0.05	0.00	59.23	1.05	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
59.31	0.95	0.05	67.96	0.09	0.00	59.38	0.89	0.11	4.90	0.07	0.00
59.41	0.84	0.16	2.46	0.03	0.00	59.46	0.86	0.14	3.03	0.05	0.00
59.51	0.86	0.14	3.00	0.05	0.00	59.57	0.89	0.11	5.27	0.05	0.00
59.66	0.98	0.02	7667.36	0.09	0.00	59.75	1.08	0.00	0.00	0.09	0.00
59.80	1.18	0.00	0.00	0.05	0.00	59.85	1.36	0.00	0.00	0.05	0.00
59.91	1.39	0.00	0.00	0.06	0.00	59.99	1.42	0.00	0.00	0.08	0.00
60.05	1.47	0.00	0.00	0.05	0.00	60.09	1.44	0.00	0.00	0.04	0.00
60.14	1.35	0.00	0.00	0.05	0.00	60.19	1.29	0.00	0.00	0.05	0.00
60.22	1.25	0.00	0.00	0.03	0.00	60.28	1.15	0.00	0.00	0.06	0.00
60.33	1.00	0.00	370871701	0.05	0.00	60.38	0.84	0.16	2.34	0.05	0.00
60.42	0.74	0.26	1.15	0.04	0.00	60.48	0.64	0.36	0.73	0.06	0.01
60.57	0.55	0.45	0.55	0.09	0.01	60.66	0.47	0.53	0.45	0.09	0.01
60.68	0.43	0.57	0.41	0.03	0.00	60.69	0.41	0.59	0.40	0.01	0.00
60.74	0.40	0.60	0.38	0.05	0.01	60.79	0.38	0.62	0.37	0.05	0.01
60.84	0.36	0.64	0.36	0.05	0.01	60.89	0.34	0.66	0.35	0.05	0.01
60.98	0.33	0.67	0.34	0.09	0.01	61.03	0.35	0.65	0.35	0.04	0.01
61.08	0.40	0.60	0.38	0.06	0.01	61.18	0.46	0.54	0.44	0.09	0.01
61.23	0.54	0.46	0.53	0.06	0.01	61.31	0.49	0.51	0.47	0.08	0.01
61.42	0.49	0.51	0.47	0.10	0.01	61.47	0.55	0.45	0.54	0.05	0.00
61.51	0.61	0.39	0.65	0.05	0.00	61.54	0.62	0.38	0.68	0.02	0.00
61.57	0.66	0.34	0.78	0.03	0.00	61.58	0.74	0.26	1.10	0.02	0.00
61.61	0.65	0.35	0.76	0.03	0.00	61.63	0.61	0.39	0.64	0.01	0.00
61.63	0.47	0.53	0.45	0.01	0.00	61.66	0.39	0.61	0.38	0.02	0.00
61.67	0.43	0.57	0.41	0.01	0.00	61.70	0.42	0.58	0.40	0.03	0.00
61.71	0.43	0.57	0.41	0.01	0.00	61.76	0.44	0.56	0.42	0.04	0.00
61.80	0.47	0.53	0.45	0.05	0.00	61.84	0.49	0.51	0.47	0.04	0.00
61.86	0.53	0.47	0.52	0.02	0.00	61.93	0.57	0.43	0.58	0.07	0.01
61.98	0.55	0.45	0.54	0.05	0.00	62.04	0.69	0.31	0.87	0.06	0.00
62.09	0.86	0.14	2.85	0.05	0.00	62.14	0.98	0.02	303039.98	0.05	0.00
62.19	1.07	0.00	0.00	0.05	0.00	62.24	1.11	0.00	0.00	0.05	0.00
62.26	1.17	0.00	0.00	0.02	0.00	62.29	1.17	0.00	0.00	0.03	0.00
62.38	1.15	0.00	0.00	0.09	0.00	62.44	1.02	0.00	0.00	0.06	0.00
62.46	0.92	0.08	11.18	0.02	0.00	62.47	0.84	0.16	2.27	0.01	0.00
62.51	0.86	0.14	2.91	0.04	0.00	62.56	0.90	0.10	5.86	0.05	0.00
62.60	0.96	0.04	92.83	0.04	0.00	62.65	0.97	0.03	2178.99	0.05	0.00
62.70	0.98	0.02	4021.39	0.05	0.00	62.75	0.98	0.02	10362.26	0.05	0.00
62.80	1.03	0.00	0.00	0.05	0.00	62.85	1.19	0.00	0.00	0.05	0.00
62.89	1.44	0.00	0.00	0.05	0.00	62.97	1.79	0.00	0.00	0.07	0.00
63.04	2.00	0.00	0.00	0.07	0.00	63.09	2.00	0.00	0.00	0.05	0.00
63.13	2.00	0.00	0.00	0.05	0.00	63.19	2.00	0.00	0.00	0.05	0.00
63.23	2.00	0.00	0.00	0.04	0.00	63.28	2.00	0.00	0.00	0.05	0.00
63.32	2.00	0.00	0.00	0.04	0.00	63.38	2.00	0.00	0.00	0.06	0.00
63.44	2.00	0.00	0.00	0.06	0.00	63.52	2.00	0.00	0.00	0.08	0.00
63.57	2.00	0.00	0.00	0.05	0.00	63.66	2.00	0.00	0.00	0.09	0.00
63.73	1.22	0.00	0.00	0.06	0.00	63.76	0.90	0.10	6.71	0.03	0.00
63.76	0.86	0.14	3.13	0.01	0.00	63.78	0.91	0.09	8.14	0.02	0.00
63.81	1.10	0.00	0.00	0.03	0.00	63.85	1.17	0.00	0.00	0.04	0.00
63.86	1.15	0.00	0.00	0.01	0.00	63.91	1.21	0.00	0.00	0.05	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
63.94	1.25	0.00	0.00	0.03	0.00	63.95	1.27	0.00	0.00	0.02	0.00
64.00	1.26	0.00	0.00	0.05	0.00	64.02	1.23	0.00	0.00	0.01	0.00
64.05	1.20	0.00	0.00	0.03	0.00	64.09	1.18	0.00	0.00	0.04	0.00
64.11	1.14	0.00	0.00	0.02	0.00	64.15	1.10	0.00	0.00	0.04	0.00
64.20	1.08	0.00	0.00	0.05	0.00	64.25	1.09	0.00	0.00	0.05	0.00
64.29	1.21	0.00	0.00	0.04	0.00	64.34	1.40	0.00	0.00	0.05	0.00
64.43	1.63	0.00	0.00	0.08	0.00	64.48	1.81	0.00	0.00	0.05	0.00
64.53	1.90	0.00	0.00	0.05	0.00	64.58	1.99	0.00	0.00	0.05	0.00
64.63	2.00	0.00	0.00	0.05	0.00	64.68	2.00	0.00	0.00	0.05	0.00
64.73	2.00	0.00	0.00	0.05	0.00	64.77	2.00	0.00	0.00	0.05	0.00
64.82	2.00	0.00	0.00	0.04	0.00	64.87	2.00	0.00	0.00	0.05	0.00
64.89	2.00	0.00	0.00	0.02	0.00	64.93	2.00	0.00	0.00	0.04	0.00
64.94	2.00	0.00	0.00	0.01	0.00	64.98	2.00	0.00	0.00	0.04	0.00
64.99	2.00	0.00	0.00	0.01	0.00	65.03	2.00	0.00	0.00	0.05	0.00
65.08	2.00	0.00	0.00	0.05	0.00	65.13	2.00	0.00	0.00	0.05	0.00
65.17	2.00	0.00	0.00	0.04	0.00	65.22	2.00	0.00	0.00	0.05	0.00
65.23	2.00	0.00	0.00	0.01	0.00	65.28	2.00	0.00	0.00	0.05	0.00
65.32	2.00	0.00	0.00	0.04	0.00	65.37	2.00	0.00	0.00	0.05	0.00
65.42	2.00	0.00	0.00	0.05	0.00	65.47	2.00	0.00	0.00	0.05	0.00
65.48	1.97	0.00	0.00	0.01	0.00	65.49	1.83	0.00	0.00	0.01	0.00
65.52	1.81	0.00	0.00	0.03	0.00	65.57	1.88	0.00	0.00	0.05	0.00
65.62	1.99	0.00	0.00	0.05	0.00	65.67	2.00	0.00	0.00	0.05	0.00
65.69	2.00	0.00	0.00	0.01	0.00	65.72	2.00	0.00	0.00	0.03	0.00
65.77	2.00	0.00	0.00	0.05	0.00	65.82	2.00	0.00	0.00	0.05	0.00
65.86	2.00	0.00	0.00	0.04	0.00	65.86	2.00	0.00	0.00	0.01	0.00
65.91	2.00	0.00	0.00	0.05	0.00	65.96	2.00	0.00	0.00	0.04	0.00

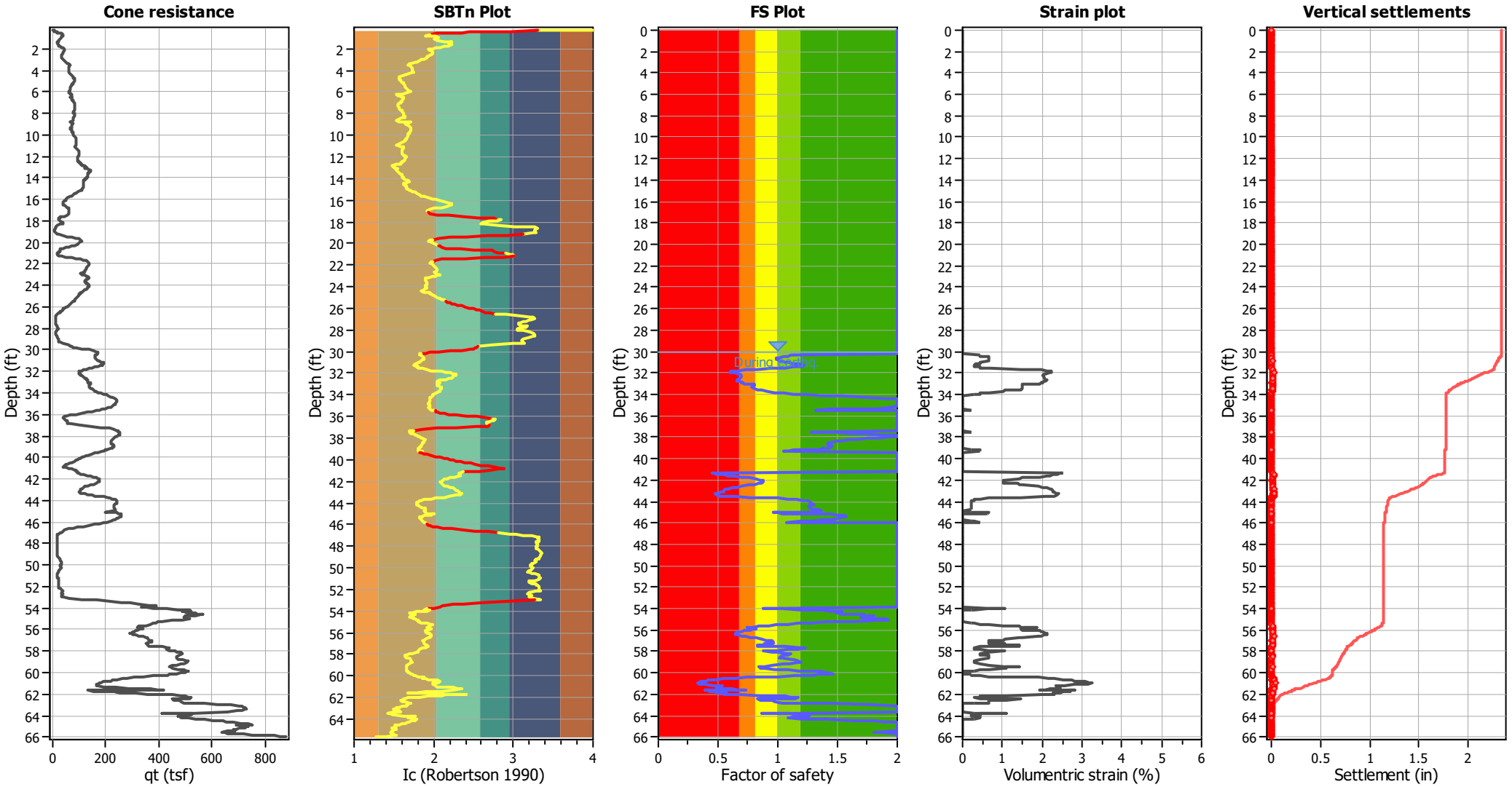
Overall liquefaction potential: 2.18

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.05	136.43	2.00	0.00	1.00	0.00	30.14	140.95	2.00	0.00	1.00	0.00
30.19	142.08	2.00	0.00	1.00	0.00	30.24	142.19	2.00	0.00	1.00	0.00
30.29	142.38	1.14	0.44	1.00	0.00	30.38	141.39	1.12	0.44	1.00	0.00
30.43	139.76	1.09	0.44	1.00	0.00	30.48	137.67	1.05	0.66	1.00	0.00
30.54	135.86	1.02	0.66	1.00	0.00	30.62	134.98	1.00	0.67	1.00	0.01
30.67	134.34	0.99	0.67	1.00	0.00	30.72	134.61	0.99	0.67	1.00	0.00
30.76	134.89	1.00	0.67	1.00	0.00	30.86	135.92	1.01	0.66	1.00	0.01
30.91	137.26	1.03	0.66	1.00	0.00	30.95	138.94	1.06	0.45	1.00	0.00
31.03	140.71	1.09	0.44	1.00	0.00	31.10	142.33	1.12	0.44	1.00	0.00
31.15	144.07	1.15	0.31	1.00	0.00	31.20	146.05	1.19	0.31	1.00	0.00
31.26	147.81	1.22	0.31	1.00	0.00	31.34	147.23	1.21	0.31	1.00	0.00
31.37	146.99	1.20	0.31	1.00	0.00	31.38	145.70	1.18	0.31	1.00	0.00
31.43	146.17	1.19	0.31	1.00	0.00	31.47	143.44	1.13	0.44	1.00	0.00
31.55	139.35	1.06	0.44	1.00	0.00	31.59	132.93	0.95	0.68	1.00	0.00
31.66	124.83	0.83	1.47	1.00	0.01	31.73	116.80	0.73	1.97	1.00	0.02
31.78	110.36	0.65	2.14	1.00	0.01	31.84	106.34	0.61	2.22	1.00	0.02
31.93	104.84	0.60	2.25	1.00	0.02	31.98	106.04	0.61	2.23	1.00	0.01
32.02	108.88	0.64	2.18	1.00	0.01	32.09	111.87	0.67	2.10	1.00	0.02
32.16	113.86	0.69	2.04	1.00	0.02	32.22	114.52	0.70	2.03	1.00	0.01
32.27	114.53	0.70	2.03	1.00	0.01	32.34	114.38	0.69	2.03	1.00	0.02
32.42	114.11	0.69	2.04	1.00	0.02	32.46	113.62	0.68	2.05	1.00	0.01
32.54	113.25	0.68	2.06	1.00	0.02	32.60	112.00	0.66	2.09	1.00	0.02
32.67	111.53	0.66	2.11	1.00	0.02	32.75	111.85	0.66	2.10	1.00	0.02
32.81	113.95	0.68	2.04	1.00	0.01	32.89	116.21	0.71	1.99	1.00	0.02
32.94	114.84	0.69	2.02	1.00	0.01	32.95	116.07	0.71	1.99	1.00	0.00
33.00	117.56	0.72	1.95	1.00	0.01	33.06	122.40	0.79	1.51	1.00	0.01
33.11	123.66	0.80	1.49	1.00	0.01	33.20	123.53	0.80	1.49	1.00	0.02
33.25	123.06	0.79	1.50	1.00	0.01	33.34	122.48	0.78	1.51	1.00	0.02
33.38	122.68	0.79	1.51	1.00	0.01	33.48	123.78	0.80	1.49	1.00	0.02
33.58	125.79	0.83	1.45	1.00	0.02	33.63	128.81	0.87	1.08	1.00	0.01
33.73	132.15	0.92	1.04	1.00	0.01	33.82	136.16	0.98	0.66	1.00	0.01
33.87	140.58	1.05	0.44	1.00	0.00	33.96	145.13	1.13	0.43	1.00	0.00
34.02	150.66	1.23	0.30	1.00	0.00	34.11	157.32	1.37	0.00	1.00	0.00
34.18	164.99	1.54	0.00	1.00	0.00	34.26	172.52	1.72	0.00	1.00	0.00
34.35	179.50	1.91	0.00	1.00	0.00	34.44	185.53	2.00	0.00	1.00	0.00
34.49	190.23	2.00	0.00	1.00	0.00	34.59	192.83	2.00	0.00	1.00	0.00
34.69	194.12	2.00	0.00	1.00	0.00	34.76	194.53	2.00	0.00	1.00	0.00
34.83	194.02	2.00	0.00	1.00	0.00	34.93	191.54	2.00	0.00	1.00	0.00
35.02	188.08	2.00	0.00	1.00	0.00	35.12	184.23	2.00	0.00	1.00	0.00
35.22	181.13	1.94	0.00	1.00	0.00	35.30	177.46	1.83	0.00	1.00	0.00
35.38	168.21	1.60	0.00	1.00	0.00	35.43	161.35	1.44	0.00	1.00	0.00
35.46	155.80	1.32	0.21	1.00	0.00	35.51	153.78	2.00	0.00	1.00	0.00
35.56	146.76	2.00	0.00	1.00	0.00	35.66	138.53	2.00	0.00	1.00	0.00
35.70	130.03	2.00	0.00	1.00	0.00	35.80	123.66	2.00	0.00	1.00	0.00
35.89	119.95	2.00	0.00	1.00	0.00	35.96	120.81	2.00	0.00	1.00	0.00
36.04	120.37	2.00	0.00	1.00	0.00	36.14	117.01	2.00	0.00	1.00	0.00
36.19	110.69	2.00	0.00	1.00	0.00	36.28	110.05	2.00	0.00	1.00	0.00
36.33	108.32	2.00	0.00	1.00	0.00	36.42	108.08	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
36.48	107.27	2.00	0.00	1.00	0.00	36.52	112.95	2.00	0.00	1.00	0.00
36.62	119.67	2.00	0.00	1.00	0.00	36.68	126.59	2.00	0.00	1.00	0.00
36.77	128.11	2.00	0.00	1.00	0.00	36.86	126.60	2.00	0.00	1.00	0.00
36.90	115.19	2.00	0.00	1.00	0.00	37.00	103.13	2.00	0.00	1.00	0.00
37.10	112.56	2.00	0.00	1.00	0.00	37.20	136.84	2.00	0.00	1.00	0.00
37.29	147.30	2.00	0.00	1.00	0.00	37.39	149.01	2.00	0.00	1.00	0.00
37.49	155.00	1.28	0.21	1.00	0.00	37.53	160.20	1.39	0.00	1.00	0.00
37.58	165.44	1.51	0.00	1.00	0.00	37.62	169.66	1.60	0.00	1.00	0.00
37.69	175.10	1.74	0.00	1.00	0.00	37.77	179.78	1.86	0.00	1.00	0.00
37.82	183.39	1.96	0.00	1.00	0.00	37.87	184.85	2.00	0.00	1.00	0.00
37.91	184.82	2.00	0.00	1.00	0.00	37.97	183.06	1.95	0.00	1.00	0.00
38.06	179.59	1.85	0.00	1.00	0.00	38.10	175.74	1.75	0.00	1.00	0.00
38.17	172.34	1.67	0.00	1.00	0.00	38.25	169.66	1.60	0.00	1.00	0.00
38.35	167.11	1.54	0.00	1.00	0.00	38.40	164.83	1.48	0.00	1.00	0.00
38.46	163.21	1.45	0.00	1.00	0.00	38.54	162.26	1.43	0.00	1.00	0.00
38.60	161.69	1.41	0.00	1.00	0.00	38.69	161.77	1.41	0.00	1.00	0.00
38.74	162.53	1.43	0.00	1.00	0.00	38.83	163.73	1.46	0.00	1.00	0.00
38.88	163.54	1.45	0.00	1.00	0.00	38.97	162.47	1.43	0.00	1.00	0.00
39.02	160.45	1.38	0.00	1.00	0.00	39.11	158.54	1.34	0.21	1.00	0.00
39.16	154.99	1.27	0.21	1.00	0.00	39.23	148.10	1.14	0.43	1.00	0.00
39.24	145.08	1.08	0.43	1.00	0.00	39.28	143.39	1.05	0.44	1.00	0.00
39.32	144.08	1.07	0.43	1.00	0.00	39.39	139.67	2.00	0.00	1.00	0.00
39.47	133.48	2.00	0.00	1.00	0.00	39.54	125.99	2.00	0.00	1.00	0.00
39.62	117.99	2.00	0.00	1.00	0.00	39.71	110.70	2.00	0.00	1.00	0.00
39.76	105.08	2.00	0.00	1.00	0.00	39.85	101.34	2.00	0.00	1.00	0.00
39.90	98.95	2.00	0.00	1.00	0.00	40.00	97.53	2.00	0.00	1.00	0.00
40.06	96.96	2.00	0.00	1.00	0.00	40.15	97.18	2.00	0.00	1.00	0.00
40.21	98.86	2.00	0.00	1.00	0.00	40.29	102.19	2.00	0.00	1.00	0.00
40.35	108.27	2.00	0.00	1.00	0.00	40.43	111.81	2.00	0.00	1.00	0.00
40.52	114.58	2.00	0.00	1.00	0.00	40.58	115.00	2.00	0.00	1.00	0.00
40.67	116.83	2.00	0.00	1.00	0.00	40.77	117.65	2.00	0.00	1.00	0.00
40.84	117.99	2.00	0.00	1.00	0.00	40.89	116.25	2.00	0.00	1.00	0.00
40.94	111.31	2.00	0.00	1.00	0.00	41.03	103.18	2.00	0.00	1.00	0.00
41.08	96.47	2.00	0.00	1.00	0.00	41.14	92.51	2.00	0.00	1.00	0.00
41.22	90.97	2.00	0.00	1.00	0.00	41.28	91.29	0.45	2.52	1.00	0.02
41.33	93.52	0.46	2.47	1.00	0.01	41.42	97.02	0.49	2.40	1.00	0.03
41.47	100.81	0.52	2.32	1.00	0.01	41.52	104.48	0.55	2.25	1.00	0.02
41.62	107.92	0.58	2.20	1.00	0.02	41.67	112.91	0.63	2.12	1.00	0.01
41.76	118.23	0.69	1.94	1.00	0.02	41.82	123.75	0.76	1.49	1.00	0.01
41.90	128.02	0.81	1.42	1.00	0.01	41.99	131.05	0.85	1.05	1.00	0.01
42.05	132.58	0.88	1.03	1.00	0.01	42.15	132.77	0.88	1.03	1.00	0.01
42.23	132.06	0.87	1.04	1.00	0.01	42.30	130.51	0.85	1.38	1.00	0.01
42.38	127.88	0.81	1.42	1.00	0.01	42.48	123.60	0.75	1.49	1.00	0.02
42.57	119.15	0.70	1.92	1.00	0.02	42.64	115.28	0.66	2.01	1.00	0.02
42.72	111.72	0.62	2.13	1.00	0.02	42.82	108.24	0.58	2.19	1.00	0.03
42.90	105.42	0.56	2.24	1.00	0.02	42.97	104.32	0.55	2.26	1.00	0.02
43.06	104.69	0.55	2.25	1.00	0.02	43.15	102.43	0.53	2.29	1.00	0.03
43.20	99.54	0.51	2.35	1.00	0.01	43.30	95.67	0.48	2.42	1.00	0.03

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
43.40	97.12	0.49	2.39	1.00	0.03	43.48	100.97	0.52	2.32	1.00	0.02
43.51	103.89	0.54	2.26	1.00	0.01	43.52	107.23	0.57	2.21	1.00	0.00
43.56	114.20	0.64	2.10	1.00	0.01	43.61	124.81	0.77	1.47	1.00	0.01
43.67	133.29	0.88	1.02	1.00	0.01	43.72	140.56	1.00	0.64	1.00	0.00
43.80	145.95	1.09	0.43	1.00	0.00	43.85	149.84	1.16	0.31	1.00	0.00
43.90	152.56	1.21	0.30	1.00	0.00	43.94	154.37	1.24	0.30	1.00	0.00
43.99	155.28	1.26	0.21	1.00	0.00	44.08	155.65	1.27	0.21	1.00	0.00
44.14	156.49	1.28	0.21	1.00	0.00	44.22	157.19	1.30	0.21	1.00	0.00
44.28	157.37	1.30	0.21	1.00	0.00	44.33	156.78	1.29	0.21	1.00	0.00
44.40	155.80	1.27	0.21	1.00	0.00	44.48	155.90	1.27	0.21	1.00	0.00
44.52	155.24	1.26	0.21	1.00	0.00	44.61	155.88	1.27	0.21	1.00	0.00
44.72	156.70	1.29	0.21	1.00	0.00	44.77	159.04	1.34	0.21	1.00	0.00
44.91	160.27	1.36	0.00	1.00	0.00	44.95	156.88	1.29	0.21	1.00	0.00
45.02	154.33	1.24	0.30	1.00	0.00	45.04	138.44	0.96	0.65	1.00	0.00
45.06	140.63	1.00	0.64	1.00	0.00	45.11	143.03	1.04	0.63	1.00	0.00
45.15	160.49	1.37	0.00	1.00	0.00	45.21	163.81	1.44	0.00	1.00	0.00
45.25	166.43	1.50	0.00	1.00	0.00	45.30	168.34	1.54	0.00	1.00	0.00
45.35	169.35	1.57	0.00	1.00	0.00	45.41	169.64	1.57	0.00	1.00	0.00
45.49	168.87	1.55	0.00	1.00	0.00	45.55	167.24	1.52	0.00	1.00	0.00
45.63	164.52	1.46	0.00	1.00	0.00	45.69	161.09	1.38	0.00	1.00	0.00
45.78	156.88	1.29	0.21	1.00	0.00	45.84	151.68	1.19	0.30	1.00	0.00
45.93	145.18	1.07	0.43	1.00	0.00	46.02	137.24	2.00	0.00	1.00	0.00
46.08	128.00	2.00	0.00	1.00	0.00	46.16	118.20	2.00	0.00	1.00	0.00
46.24	108.31	2.00	0.00	1.00	0.00	46.31	99.54	2.00	0.00	1.00	0.00
46.41	94.32	2.00	0.00	1.00	0.00	46.48	95.41	2.00	0.00	1.00	0.00
46.56	101.49	2.00	0.00	1.00	0.00	46.65	106.39	2.00	0.00	1.00	0.00
46.75	104.92	2.00	0.00	1.00	0.00	46.84	96.75	2.00	0.00	1.00	0.00
46.94	92.20	2.00	0.00	1.00	0.00	47.02	89.65	2.00	0.00	1.00	0.00
47.08	87.68	2.00	0.00	1.00	0.00	47.12	86.24	2.00	0.00	1.00	0.00
47.16	84.67	2.00	0.00	1.00	0.00	47.21	82.35	2.00	0.00	1.00	0.00
47.27	79.44	2.00	0.00	1.00	0.00	47.35	76.72	2.00	0.00	1.00	0.00
47.40	72.71	2.00	0.00	1.00	0.00	47.50	68.97	2.00	0.00	1.00	0.00
47.55	65.28	2.00	0.00	1.00	0.00	47.61	63.67	2.00	0.00	1.00	0.00
47.69	62.57	2.00	0.00	1.00	0.00	47.76	61.71	2.00	0.00	1.00	0.00
47.83	60.22	2.00	0.00	1.00	0.00	47.93	58.40	2.00	0.00	1.00	0.00
48.02	57.34	2.00	0.00	1.00	0.00	48.09	56.35	2.00	0.00	1.00	0.00
48.18	57.05	2.00	0.00	1.00	0.00	48.27	58.44	2.00	0.00	1.00	0.00
48.37	61.09	2.00	0.00	1.00	0.00	48.46	62.98	2.00	0.00	1.00	0.00
48.52	64.25	2.00	0.00	1.00	0.00	48.60	65.23	2.00	0.00	1.00	0.00
48.70	65.99	2.00	0.00	1.00	0.00	48.79	66.70	2.00	0.00	1.00	0.00
48.85	68.42	2.00	0.00	1.00	0.00	48.94	71.44	2.00	0.00	1.00	0.00
49.04	73.34	2.00	0.00	1.00	0.00	49.13	82.09	2.00	0.00	1.00	0.00
49.23	92.00	2.00	0.00	1.00	0.00	49.33	102.80	2.00	0.00	1.00	0.00
49.38	109.60	2.00	0.00	1.00	0.00	49.42	114.80	2.00	0.00	1.00	0.00
49.48	118.93	2.00	0.00	1.00	0.00	49.53	121.43	2.00	0.00	1.00	0.00
49.58	123.62	2.00	0.00	1.00	0.00	49.63	125.52	2.00	0.00	1.00	0.00
49.72	126.23	2.00	0.00	1.00	0.00	49.77	125.98	2.00	0.00	1.00	0.00
49.83	125.40	2.00	0.00	1.00	0.00	49.92	124.67	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
49.97	123.55	2.00	0.00	1.00	0.00	50.04	122.65	2.00	0.00	1.00	0.00
50.11	122.33	2.00	0.00	1.00	0.00	50.20	120.55	2.00	0.00	1.00	0.00
50.27	116.01	2.00	0.00	1.00	0.00	50.34	107.79	2.00	0.00	1.00	0.00
50.45	99.22	2.00	0.00	1.00	0.00	50.54	92.39	2.00	0.00	1.00	0.00
50.59	87.71	2.00	0.00	1.00	0.00	50.68	83.78	2.00	0.00	1.00	0.00
50.79	80.17	2.00	0.00	1.00	0.00	50.88	78.18	2.00	0.00	1.00	0.00
50.98	77.89	2.00	0.00	1.00	0.00	51.07	76.09	2.00	0.00	1.00	0.00
51.17	71.67	2.00	0.00	1.00	0.00	51.24	68.77	2.00	0.00	1.00	0.00
51.33	70.43	2.00	0.00	1.00	0.00	51.46	74.75	2.00	0.00	1.00	0.00
51.46	78.20	2.00	0.00	1.00	0.00	51.51	79.60	2.00	0.00	1.00	0.00
51.56	82.02	2.00	0.00	1.00	0.00	51.65	84.26	2.00	0.00	1.00	0.00
51.71	86.89	2.00	0.00	1.00	0.00	51.79	88.80	2.00	0.00	1.00	0.00
51.85	92.19	2.00	0.00	1.00	0.00	51.94	96.33	2.00	0.00	1.00	0.00
51.99	102.62	2.00	0.00	1.00	0.00	52.09	109.52	2.00	0.00	1.00	0.00
52.19	116.81	2.00	0.00	1.00	0.00	52.28	122.63	2.00	0.00	1.00	0.00
52.35	128.41	2.00	0.00	1.00	0.00	52.43	132.82	2.00	0.00	1.00	0.00
52.52	136.28	2.00	0.00	1.00	0.00	52.62	135.93	2.00	0.00	1.00	0.00
52.72	133.92	2.00	0.00	1.00	0.00	52.81	135.53	2.00	0.00	1.00	0.00
52.91	146.31	2.00	0.00	1.00	0.00	53.00	154.70	2.00	0.00	1.00	0.00
53.10	148.13	2.00	0.00	1.00	0.00	53.20	129.79	2.00	0.00	1.00	0.00
53.29	114.61	2.00	0.00	1.00	0.00	53.38	114.09	2.00	0.00	1.00	0.00
53.46	119.81	2.00	0.00	1.00	0.00	53.53	130.93	2.00	0.00	1.00	0.00
53.63	139.93	2.00	0.00	1.00	0.00	53.73	146.92	2.00	0.00	1.00	0.00
53.82	150.03	2.00	0.00	1.00	0.00	53.92	146.54	2.00	0.00	1.00	0.00
53.94	138.23	0.98	0.65	1.00	0.00	53.96	131.20	0.88	1.05	1.00	0.00
53.97	134.16	0.92	1.01	1.00	0.00	54.05	141.00	1.03	0.64	1.00	0.01
54.08	150.15	1.19	0.31	1.00	0.00	54.13	154.41	1.28	0.21	1.00	0.00
54.19	159.56	1.38	0.00	1.00	0.00	54.25	162.94	1.46	0.00	1.00	0.00
54.28	166.66	1.54	0.00	1.00	0.00	54.29	164.40	1.49	0.00	1.00	0.00
54.34	164.35	1.49	0.00	1.00	0.00	54.35	164.72	1.50	0.00	1.00	0.00
54.40	165.62	1.52	0.00	1.00	0.00	54.44	166.45	1.54	0.00	1.00	0.00
54.49	165.88	1.53	0.00	1.00	0.00	54.53	167.39	1.56	0.00	1.00	0.00
54.57	171.02	1.65	0.00	1.00	0.00	54.58	173.92	1.72	0.00	1.00	0.00
54.63	173.90	1.72	0.00	1.00	0.00	54.68	176.93	1.80	0.00	1.00	0.00
54.73	175.12	1.75	0.00	1.00	0.00	54.78	173.29	1.71	0.00	1.00	0.00
54.83	172.82	1.70	0.00	1.00	0.00	54.88	175.08	1.75	0.00	1.00	0.00
54.92	178.37	1.84	0.00	1.00	0.00	54.97	180.73	1.91	0.00	1.00	0.00
55.02	181.62	1.93	0.00	1.00	0.00	55.12	178.01	1.83	0.00	1.00	0.00
55.17	170.63	1.64	0.00	1.00	0.00	55.25	160.49	1.41	0.00	1.00	0.00
55.31	154.46	1.28	0.21	1.00	0.00	55.36	148.87	1.17	0.31	1.00	0.00
55.45	143.68	1.08	0.44	1.00	0.00	55.50	137.89	0.98	0.66	1.00	0.00
55.60	133.93	0.92	1.02	1.00	0.01	55.65	128.15	0.84	1.41	1.00	0.01
55.71	124.39	0.79	1.48	1.00	0.01	55.75	121.19	0.75	1.87	1.00	0.01
55.79	121.90	0.76	1.52	1.00	0.01	55.84	123.76	0.78	1.49	1.00	0.01
55.89	125.39	0.80	1.46	1.00	0.01	55.90	126.17	0.81	1.45	1.00	0.00
55.94	124.98	0.80	1.47	1.00	0.01	55.99	122.89	0.77	1.50	1.00	0.01
56.03	120.41	0.74	1.89	1.00	0.01	56.08	118.54	0.72	1.93	1.00	0.01
56.14	116.74	0.69	1.97	1.00	0.01	56.22	114.65	0.67	2.02	1.00	0.02

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
56.28	112.90	0.65	2.07	1.00	0.01	56.33	112.38	0.65	2.12	1.00	0.01
56.38	112.46	0.65	2.12	1.00	0.01	56.45	114.23	0.67	2.04	1.00	0.02
56.52	117.01	0.70	1.97	1.00	0.02	56.62	120.21	0.74	1.89	1.00	0.02
56.66	123.02	0.77	1.50	1.00	0.01	56.73	126.65	0.82	1.44	1.00	0.01
56.81	129.59	0.86	1.07	1.00	0.01	56.95	132.64	0.91	1.03	1.00	0.02
57.00	135.80	0.96	0.66	1.00	0.00	57.09	136.52	0.97	0.66	1.00	0.01
57.19	135.85	0.96	0.66	1.00	0.01	57.27	131.44	0.89	1.05	1.00	0.01
57.35	130.16	0.87	1.06	1.00	0.01	57.44	127.36	0.83	1.43	1.00	0.02
57.50	127.07	0.83	1.43	1.00	0.01	57.52	131.85	0.90	1.04	1.00	0.00
57.58	141.73	1.06	0.44	1.00	0.00	57.63	149.17	1.19	0.31	1.00	0.00
57.72	151.31	1.23	0.30	1.00	0.00	57.77	148.26	1.18	0.31	1.00	0.00
57.82	143.29	1.09	0.44	1.00	0.00	57.91	137.09	0.98	0.66	1.00	0.01
57.96	130.46	0.88	1.06	1.00	0.01	58.02	135.16	0.95	0.67	1.00	0.00
58.09	138.12	1.00	0.65	1.00	0.01	58.16	142.65	1.08	0.44	1.00	0.00
58.25	144.36	1.11	0.43	1.00	0.01	58.30	143.26	1.09	0.44	1.00	0.00
58.40	140.74	1.04	0.64	1.00	0.01	58.50	139.77	1.03	0.65	1.00	0.01
58.56	138.70	1.01	0.65	1.00	0.00	58.64	140.28	1.04	0.64	1.00	0.01
58.73	145.16	1.12	0.43	1.00	0.00	58.78	145.87	1.14	0.43	1.00	0.00
58.88	147.98	1.18	0.31	1.00	0.00	58.97	149.10	1.20	0.31	1.00	0.00
59.07	147.53	1.17	0.31	1.00	0.00	59.13	143.73	1.10	0.44	1.00	0.00
59.23	140.99	1.05	0.44	1.00	0.01	59.31	134.94	0.95	0.67	1.00	0.01
59.38	130.71	0.89	1.05	1.00	0.01	59.41	127.40	0.84	1.43	1.00	0.01
59.46	128.62	0.86	1.08	1.00	0.01	59.51	128.55	0.86	1.08	1.00	0.01
59.57	130.91	0.89	1.05	1.00	0.01	59.66	136.37	0.98	0.66	1.00	0.01
59.75	142.44	1.08	0.44	1.00	0.00	59.80	147.84	1.18	0.31	1.00	0.00
59.85	156.99	1.36	0.00	1.00	0.00	59.91	158.02	1.39	0.00	1.00	0.00
59.99	159.53	1.42	0.00	1.00	0.00	60.05	161.59	1.47	0.00	1.00	0.00
60.09	160.52	1.44	0.00	1.00	0.00	60.14	156.08	1.35	0.21	1.00	0.00
60.19	153.23	1.29	0.21	1.00	0.00	60.22	151.55	1.25	0.22	1.00	0.00
60.28	145.94	1.15	0.43	1.00	0.00	60.33	137.48	1.00	0.66	1.00	0.00
60.38	126.83	0.84	1.44	1.00	0.01	60.42	119.65	0.74	1.91	1.00	0.01
60.48	111.02	0.64	2.14	1.00	0.02	60.57	101.50	0.55	2.31	1.00	0.02
60.66	91.67	0.47	2.51	1.00	0.03	60.68	85.85	0.43	2.65	1.00	0.01
60.69	82.84	0.41	2.73	1.00	0.00	60.74	80.07	0.40	2.80	1.00	0.02
60.79	76.18	0.38	2.92	1.00	0.02	60.84	71.82	0.36	3.07	1.00	0.02
60.89	68.64	0.34	3.18	1.00	0.02	60.98	66.57	0.33	3.26	1.00	0.04
61.03	69.19	0.35	3.16	1.00	0.02	61.08	79.69	0.40	2.81	1.00	0.02
61.18	90.12	0.46	2.54	1.00	0.03	61.23	100.04	0.54	2.34	1.00	0.02
61.31	94.03	0.49	2.46	1.00	0.02	61.42	94.11	0.49	2.46	1.00	0.03
61.47	100.64	0.55	2.32	1.00	0.01	61.51	107.25	0.61	2.21	1.00	0.01
61.54	108.54	0.62	2.18	1.00	0.01	61.57	112.23	0.66	2.09	1.00	0.01
61.58	118.74	0.74	1.93	1.00	0.00	61.61	111.49	0.65	2.11	1.00	0.01
61.63	107.07	0.61	2.21	1.00	0.00	61.63	91.77	0.47	2.51	1.00	0.00
61.66	79.27	0.39	2.83	1.00	0.01	61.67	85.35	0.43	2.66	1.00	0.00
61.70	83.80	0.42	2.70	1.00	0.01	61.71	84.55	0.43	2.68	1.00	0.00
61.76	87.45	0.44	2.61	1.00	0.01	61.80	91.10	0.47	2.52	1.00	0.01
61.84	94.04	0.49	2.46	1.00	0.01	61.86	98.87	0.53	2.36	1.00	0.01
61.93	103.69	0.57	2.27	1.00	0.02	61.98	100.92	0.55	2.32	1.00	0.01

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
62.04	114.48	0.69	2.03	1.00	0.01	62.09	127.59	0.86	1.09	1.00	0.01
62.14	136.10	0.98	0.66	1.00	0.00	62.19	140.93	1.07	0.44	1.00	0.00
62.24	143.65	1.11	0.44	1.00	0.00	62.26	146.58	1.17	0.31	1.00	0.00
62.29	146.46	1.17	0.31	1.00	0.00	62.38	145.37	1.15	0.43	1.00	0.00
62.44	138.07	1.02	0.65	1.00	0.00	62.46	132.02	0.92	1.04	1.00	0.00
62.47	126.07	0.84	1.45	1.00	0.00	62.51	127.59	0.86	1.09	1.00	0.01
62.56	130.45	0.90	1.06	1.00	0.01	62.60	134.26	0.96	0.67	1.00	0.00
62.65	135.35	0.97	0.67	1.00	0.00	62.70	135.46	0.98	0.67	1.00	0.00
62.75	135.59	0.98	0.67	1.00	0.00	62.80	138.85	1.03	0.65	1.00	0.00
62.85	147.40	1.19	0.31	1.00	0.00	62.89	159.73	1.44	0.00	1.00	0.00
62.97	173.86	1.79	0.00	1.00	0.00	63.04	187.32	2.00	0.00	1.00	0.00
63.09	197.18	2.00	0.00	1.00	0.00	63.13	200.57	2.00	0.00	1.00	0.00
63.19	200.74	2.00	0.00	1.00	0.00	63.23	201.69	2.00	0.00	1.00	0.00
63.28	203.42	2.00	0.00	1.00	0.00	63.32	204.02	2.00	0.00	1.00	0.00
63.38	202.89	2.00	0.00	1.00	0.00	63.44	203.06	2.00	0.00	1.00	0.00
63.52	199.75	2.00	0.00	1.00	0.00	63.57	194.57	2.00	0.00	1.00	0.00
63.66	183.79	2.00	0.00	1.00	0.00	63.73	148.76	1.22	0.31	1.00	0.00
63.76	130.54	0.90	1.06	1.00	0.00	63.76	127.66	0.86	1.09	1.00	0.00
63.78	131.02	0.91	1.05	1.00	0.00	63.81	142.46	1.10	0.44	1.00	0.00
63.85	146.19	1.17	0.31	1.00	0.00	63.86	145.10	1.15	0.43	1.00	0.00
63.91	148.35	1.21	0.31	1.00	0.00	63.94	150.35	1.25	0.31	1.00	0.00
63.95	151.38	1.27	0.22	1.00	0.00	64.00	150.67	1.26	0.22	1.00	0.00
64.02	149.37	1.23	0.31	1.00	0.00	64.05	148.02	1.20	0.31	1.00	0.00
64.09	146.64	1.18	0.31	1.00	0.00	64.11	144.77	1.14	0.43	1.00	0.00
64.15	142.44	1.10	0.44	1.00	0.00	64.20	141.24	1.08	0.44	1.00	0.00
64.25	141.74	1.09	0.44	1.00	0.00	64.29	148.11	1.21	0.31	1.00	0.00
64.34	157.68	1.40	0.00	1.00	0.00	64.43	167.40	1.63	0.00	1.00	0.00
64.48	174.30	1.81	0.00	1.00	0.00	64.53	177.47	1.90	0.00	1.00	0.00
64.58	180.82	1.99	0.00	1.00	0.00	64.63	187.83	2.00	0.00	1.00	0.00
64.68	195.77	2.00	0.00	1.00	0.00	64.73	198.20	2.00	0.00	1.00	0.00
64.77	202.79	2.00	0.00	1.00	0.00	64.82	207.01	2.00	0.00	1.00	0.00
64.87	201.76	2.00	0.00	1.00	0.00	64.89	196.56	2.00	0.00	1.00	0.00
64.93	189.73	2.00	0.00	1.00	0.00	64.94	196.96	2.00	0.00	1.00	0.00
64.98	199.62	2.00	0.00	1.00	0.00	64.99	201.90	2.00	0.00	1.00	0.00
65.03	201.35	2.00	0.00	1.00	0.00	65.08	199.79	2.00	0.00	1.00	0.00
65.13	196.50	2.00	0.00	1.00	0.00	65.17	193.13	2.00	0.00	1.00	0.00
65.22	189.08	2.00	0.00	1.00	0.00	65.23	186.93	2.00	0.00	1.00	0.00
65.28	186.22	2.00	0.00	1.00	0.00	65.32	186.24	2.00	0.00	1.00	0.00
65.37	186.30	2.00	0.00	1.00	0.00	65.42	187.42	2.00	0.00	1.00	0.00
65.47	183.76	2.00	0.00	1.00	0.00	65.48	179.77	1.97	0.00	1.00	0.00
65.49	174.70	1.83	0.00	1.00	0.00	65.52	174.01	1.81	0.00	1.00	0.00
65.57	176.43	1.88	0.00	1.00	0.00	65.62	180.61	1.99	0.00	1.00	0.00
65.67	-1.00	2.00	0.00	1.00	0.00	65.69	-1.00	2.00	0.00	1.00	0.00
65.72	-1.00	2.00	0.00	1.00	0.00	65.77	-1.00	2.00	0.00	1.00	0.00
65.82	-1.00	2.00	0.00	1.00	0.00	65.86	-1.00	2.00	0.00	1.00	0.00
65.86	-1.00	2.00	0.00	1.00	0.00	65.91	-1.00	2.00	0.00	1.00	0.00
65.96	-1.00	2.00	0.00	1.00	0.00						

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)

Total estimated settlement: 2.34

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.01	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.04	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.08	-0.07	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.10	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.13	-0.03	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.18	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.22	0.00	-1.00	1.00	-1.00	-1.00	0.00	0.00
0.27	0.81	1.28	50.14	63.98	4.01	4.89	3.60
0.33	2.77	4.42	15.47	68.30	3.31	5.08	10.70
0.36	5.16	8.26	7.99	66.07	2.95	0.18	0.67
0.37	7.12	11.41	5.40	61.61	2.76	0.13	0.66
0.38	8.20	13.14	4.58	60.15	2.69	0.11	0.66
0.42	9.38	15.03	3.98	59.88	2.63	0.11	0.66
0.44	10.59	16.98	3.58	60.79	2.58	0.12	0.66
0.47	12.18	19.53	3.09	60.26	2.52	0.12	0.66
0.47	14.24	22.83	2.61	59.51	2.44	0.11	0.66
0.52	17.00	27.27	2.14	58.39	2.35	0.10	0.65
0.56	20.48	32.85	1.78	58.60	2.26	0.10	0.65
0.58	24.93	40.00	1.52	60.77	2.16	0.12	0.66
0.61	30.70	49.27	1.35	66.61	2.05	0.19	0.67
0.66	36.94	59.30	1.27	75.22	1.95	0.39	0.70
0.76	40.79	65.47	1.23	80.72	1.89	0.62	0.71
0.80	38.66	62.05	1.25	77.85	1.93	0.49	0.70
0.81	35.49	56.95	1.29	73.41	1.98	0.34	0.69
0.85	32.42	52.02	1.33	69.37	2.03	0.24	0.68
0.86	32.79	52.62	1.33	69.99	2.03	0.25	0.68
0.90	32.22	51.69	1.35	70.01	2.05	0.25	0.68
0.95	31.82	51.04	1.38	70.34	2.07	0.26	0.68
1.00	30.53	48.97	1.37	67.09	2.06	0.20	0.68
1.05	28.88	46.31	1.34	62.22	2.04	0.14	0.66
1.14	26.55	42.56	1.00	42.56	2.01	0.03	0.62
1.24	24.29	38.92	1.00	38.92	2.04	0.03	0.62
1.31	20.51	32.85	1.00	32.85	2.14	0.02	0.62
1.36	17.93	28.70	1.67	48.03	2.22	0.05	0.62
1.37	17.77	28.44	1.71	48.50	2.23	0.05	0.62
1.39	18.54	29.68	1.64	48.64	2.21	0.05	0.62
1.43	19.03	30.46	1.60	48.73	2.19	0.05	0.62
1.44	18.05	28.88	1.68	48.54	2.23	0.05	0.62
1.49	18.35	29.36	1.67	49.05	2.22	0.05	0.62
1.53	18.89	30.23	1.66	50.30	2.22	0.05	0.63
1.58	19.67	31.47	1.66	52.29	2.22	0.06	0.63
1.63	20.62	32.99	1.66	54.77	2.22	0.08	0.64
1.68	21.70	34.72	1.65	57.36	2.21	0.09	0.65
1.72	23.31	37.31	1.61	60.04	2.20	0.11	0.66
1.77	25.48	40.78	1.54	62.93	2.17	0.14	0.66
1.82	28.31	45.33	1.46	66.36	2.13	0.19	0.67
1.86	31.52	50.48	1.40	70.45	2.08	0.26	0.68
1.92	35.09	56.22	1.34	75.14	2.03	0.39	0.70

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
1.97	38.67	61.96	1.29	80.21	1.98	0.59	0.71
2.01	41.61	66.68	1.27	84.88	1.95	0.72	0.72
2.09	43.22	69.27	1.26	87.55	1.94	0.72	0.72
2.16	43.05	68.99	1.27	87.53	1.95	0.72	0.72
2.20	41.47	66.43	1.28	85.02	1.96	0.72	0.72
2.25	39.85	63.83	1.29	82.39	1.98	0.71	0.71
2.31	38.60	61.82	1.30	80.09	1.99	0.59	0.71
2.37	37.79	60.52	1.29	78.32	1.98	0.51	0.70
2.40	36.88	59.05	1.30	76.51	1.99	0.44	0.70
2.46	35.97	57.57	1.29	74.55	1.98	0.37	0.69
2.54	35.36	56.59	1.29	72.87	1.97	0.32	0.69
2.59	34.69	55.51	1.00	55.51	1.96	0.08	0.64
2.69	34.25	54.80	1.00	54.80	1.94	0.08	0.64
2.74	33.95	54.31	1.00	54.31	1.92	0.07	0.64
2.83	33.88	54.19	1.00	54.19	1.92	0.07	0.64
2.88	34.35	54.94	1.00	54.94	1.91	0.08	0.64
2.98	35.70	57.10	1.00	57.10	1.89	0.09	0.65
3.03	38.57	61.71	1.00	61.71	1.85	0.13	0.66
3.12	42.31	67.72	1.00	67.72	1.82	0.21	0.68
3.21	46.83	74.97	1.00	74.97	1.79	0.38	0.70
3.27	51.66	82.72	1.00	82.72	1.76	0.71	0.71
3.34	57.05	91.38	1.00	91.38	1.72	0.73	0.73
3.41	61.91	99.18	1.00	99.18	1.69	0.75	0.75
3.51	64.20	102.85	1.00	102.85	1.68	0.75	0.75
3.55	63.63	101.93	1.00	101.93	1.70	0.75	0.75
3.65	62.42	99.97	1.00	99.97	1.72	0.75	0.75
3.75	61.71	98.83	1.00	98.83	1.73	0.75	0.75
3.83	61.44	98.39	1.00	98.39	1.73	0.75	0.75
3.94	61.11	97.84	1.00	97.84	1.73	0.74	0.74
4.04	60.30	96.53	1.00	96.53	1.73	0.74	0.74
4.13	60.63	97.06	1.08	104.72	1.75	0.76	0.76
4.24	61.68	98.73	1.00	98.73	1.74	0.75	0.75
4.38	65.15	104.30	1.00	104.30	1.68	0.76	0.76
4.50	68.93	110.36	1.00	110.36	1.62	0.77	0.77
4.62	74.13	118.70	1.00	118.70	1.57	0.78	0.78
4.71	77.89	124.73	1.00	124.73	1.57	0.79	0.79
4.75	80.93	129.61	1.00	129.61	1.57	0.80	0.80
4.84	82.11	131.50	1.00	131.50	1.58	0.80	0.80
4.89	82.93	132.82	1.00	132.82	1.58	0.80	0.80
4.94	82.93	132.82	1.00	132.82	1.58	0.80	0.80
4.98	81.72	130.87	1.00	130.87	1.59	0.80	0.80
5.07	80.10	128.25	1.00	128.25	1.60	0.80	0.80
5.13	78.48	125.65	1.00	125.65	1.61	0.79	0.79
5.17	76.79	122.93	1.00	122.93	1.61	0.79	0.79
5.27	74.77	119.67	1.00	119.67	1.62	0.78	0.78
5.32	72.75	116.42	1.00	116.42	1.63	0.78	0.78
5.42	70.86	113.37	1.00	113.37	1.64	0.77	0.77
5.46	69.34	110.93	1.00	110.93	1.64	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
5.56	68.02	108.80	1.00	108.80	1.65	0.76	0.76
5.61	66.87	106.96	1.00	106.96	1.66	0.76	0.76
5.71	65.86	105.32	1.00	105.32	1.66	0.76	0.76
5.78	64.92	103.80	1.00	103.80	1.67	0.76	0.76
5.85	63.84	102.06	1.00	102.06	1.68	0.75	0.75
5.95	62.83	100.42	1.00	100.42	1.69	0.75	0.75
6.00	62.32	99.61	1.00	99.61	1.71	0.75	0.75
6.09	62.93	100.57	1.00	100.57	1.66	0.75	0.75
6.14	64.75	103.50	1.00	103.50	1.60	0.75	0.75
6.24	67.52	107.94	1.00	107.94	1.53	0.76	0.76
6.30	70.42	112.60	1.00	112.60	1.54	0.77	0.77
6.38	71.40	114.16	1.00	114.16	1.56	0.77	0.77
6.46	69.58	111.22	1.00	111.22	1.60	0.77	0.77
6.50	68.43	109.38	1.00	109.38	1.62	0.77	0.77
6.56	68.84	110.02	1.00	110.02	1.63	0.77	0.77
6.63	71.30	113.98	1.00	113.98	1.61	0.77	0.77
6.68	72.51	115.92	1.00	115.92	1.61	0.78	0.78
6.76	73.49	117.34	1.00	117.34	1.61	0.78	0.78
6.82	74.54	118.51	1.00	118.51	1.60	0.78	0.78
6.88	76.19	120.59	1.00	120.59	1.59	0.78	0.78
6.96	78.38	123.33	1.00	123.33	1.58	0.79	0.79
7.03	80.54	126.09	1.00	126.09	1.56	0.79	0.79
7.11	82.06	127.75	1.00	127.75	1.55	0.80	0.80
7.16	83.04	128.83	1.00	128.83	1.55	0.80	0.80
7.26	83.82	129.11	1.00	129.11	1.55	0.80	0.80
7.31	84.43	129.55	1.00	129.55	1.56	0.80	0.80
7.40	84.63	129.06	1.00	129.06	1.56	0.80	0.80
7.45	84.52	128.43	1.00	128.43	1.56	0.80	0.80
7.54	83.95	126.75	1.00	126.75	1.57	0.79	0.79
7.60	82.84	124.58	1.00	124.58	1.58	0.79	0.79
7.68	81.22	121.42	1.00	121.42	1.59	0.79	0.79
7.74	79.70	118.70	1.00	118.70	1.60	0.78	0.78
7.83	78.55	116.27	1.00	116.27	1.61	0.78	0.78
7.90	78.35	115.47	1.00	115.47	1.61	0.78	0.78
7.98	79.10	115.95	1.00	115.95	1.62	0.78	0.78
8.05	80.62	117.66	1.00	117.66	1.62	0.78	0.78
8.12	81.69	118.66	1.00	118.66	1.62	0.78	0.78
8.19	81.66	118.08	1.00	118.08	1.62	0.78	0.78
8.27	80.48	115.81	1.00	115.81	1.64	0.78	0.78
8.36	79.13	113.39	1.00	113.39	1.65	0.77	0.77
8.41	78.35	111.75	1.00	111.75	1.61	0.77	0.77
8.50	78.42	111.21	1.00	111.21	1.57	0.77	0.77
8.60	78.79	111.10	1.00	111.10	1.54	0.77	0.77
8.70	78.76	110.43	1.00	110.43	1.56	0.77	0.77
8.74	70.97	99.16	1.00	99.16	1.64	0.75	0.75
8.78	65.57	92.36	1.00	92.36	1.68	0.73	0.73
8.81	63.58	89.84	1.00	89.84	1.71	0.73	0.73
8.86	69.75	97.38	1.00	97.38	1.66	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
8.91	73.77	102.14	1.00	102.14	1.64	0.75	0.75
8.94	74.34	102.81	1.00	102.81	1.64	0.75	0.75
9.02	73.80	101.95	1.00	101.95	1.66	0.75	0.75
9.10	72.52	100.12	1.00	100.12	1.68	0.75	0.75
9.17	71.17	98.18	1.00	98.18	1.69	0.74	0.74
9.22	69.95	96.47	1.00	96.47	1.70	0.74	0.74
9.31	69.01	94.84	1.00	94.84	1.71	0.74	0.74
9.37	68.50	93.92	1.00	93.92	1.72	0.74	0.74
9.42	68.60	93.81	1.00	93.81	1.72	0.74	0.74
9.52	69.18	94.01	1.00	94.01	1.72	0.74	0.74
9.60	70.19	94.84	1.00	94.84	1.71	0.74	0.74
9.66	71.54	96.20	1.00	96.20	1.70	0.74	0.74
9.74	73.13	97.75	1.00	97.75	1.69	0.74	0.74
9.81	74.58	99.20	1.00	99.20	1.69	0.75	0.75
9.89	75.79	100.34	1.00	100.34	1.68	0.75	0.75
9.98	77.04	101.50	1.00	101.50	1.68	0.75	0.75
10.03	78.79	103.47	1.00	103.47	1.68	0.75	0.75
10.13	81.26	106.04	1.00	106.04	1.67	0.76	0.76
10.23	84.06	108.97	1.00	108.97	1.66	0.76	0.76
10.32	86.45	111.33	1.00	111.33	1.65	0.77	0.77
10.38	88.11	112.97	1.00	112.97	1.65	0.77	0.77
10.47	88.68	113.17	1.00	113.17	1.65	0.77	0.77
10.57	88.44	112.36	1.00	112.36	1.65	0.77	0.77
10.66	87.94	111.05	1.00	111.05	1.61	0.77	0.77
10.76	87.67	110.18	1.00	110.18	1.57	0.77	0.77
10.85	88.00	110.11	1.00	110.11	1.53	0.77	0.77
10.92	88.54	110.44	1.00	110.44	1.55	0.77	0.77
11.00	85.17	105.80	1.00	105.80	1.58	0.76	0.76
11.07	82.17	101.74	1.00	101.74	1.61	0.75	0.75
11.10	80.21	99.18	1.00	99.18	1.63	0.75	0.75
11.15	82.81	102.16	1.00	102.16	1.62	0.75	0.75
11.19	85.41	105.18	1.00	105.18	1.61	0.76	0.76
11.24	87.43	107.45	1.00	107.45	1.61	0.76	0.76
11.29	89.66	109.95	1.00	109.95	1.61	0.77	0.77
11.34	92.29	112.96	1.00	112.96	1.60	0.77	0.77
11.40	94.89	115.81	1.00	115.81	1.60	0.78	0.78
11.47	96.81	117.83	1.00	117.83	1.60	0.78	0.78
11.53	97.72	118.60	1.00	118.60	1.60	0.78	0.78
11.58	98.23	118.97	1.00	118.97	1.60	0.78	0.78
11.65	98.70	119.16	1.00	119.16	1.61	0.78	0.78
11.72	99.17	119.34	1.00	119.34	1.61	0.78	0.78
11.77	99.00	118.88	1.00	118.88	1.61	0.78	0.78
11.82	98.36	117.83	1.00	117.83	1.62	0.78	0.78
11.88	97.25	116.19	1.00	116.19	1.64	0.78	0.78
11.97	96.10	114.49	1.00	114.49	1.65	0.77	0.77
12.02	94.75	112.75	1.00	112.75	1.65	0.77	0.77
12.06	93.54	110.95	1.00	110.95	1.65	0.77	0.77
12.11	93.03	110.11	1.00	110.11	1.65	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
12.21	92.63	109.15	1.00	109.15	1.65	0.76	0.76
12.25	92.93	109.21	1.00	109.21	1.64	0.76	0.76
12.30	93.00	109.05	1.00	109.05	1.64	0.76	0.76
12.31	93.44	109.51	1.00	109.51	1.63	0.77	0.77
12.32	93.64	109.72	1.00	109.72	1.63	0.77	0.77
12.35	94.21	110.25	1.00	110.25	1.62	0.77	0.77
12.40	95.26	111.26	1.00	111.26	1.61	0.77	0.77
12.45	96.78	112.82	1.00	112.82	1.60	0.77	0.77
12.52	98.43	114.40	1.00	114.40	1.60	0.77	0.77
12.56	100.32	116.43	1.00	116.43	1.59	0.78	0.78
12.62	102.04	118.16	1.00	118.16	1.59	0.78	0.78
12.65	103.69	119.90	1.00	119.90	1.56	0.78	0.78
12.71	105.14	121.32	1.00	121.32	1.53	0.78	0.78
12.76	107.34	123.61	1.00	123.61	1.48	0.79	0.79
12.83	110.34	126.74	1.00	126.74	1.48	0.79	0.79
12.88	114.29	131.03	1.00	131.03	1.50	0.80	0.80
12.93	118.94	136.14	1.00	136.14	1.50	0.81	0.81
12.98	121.44	138.73	1.00	138.73	1.52	0.81	0.81
13.03	123.77	141.10	1.00	141.10	1.52	0.81	0.81
13.04	120.16	136.93	1.00	136.93	1.54	0.81	0.81
13.07	122.72	139.66	1.00	139.66	1.54	0.81	0.81
13.13	125.66	142.70	1.00	142.70	1.55	0.82	0.82
13.17	134.36	152.37	1.00	152.37	1.53	0.83	0.83
13.22	137.87	156.08	1.00	156.08	1.53	0.84	0.84
13.27	140.13	158.31	1.00	158.31	1.54	0.84	0.84
13.32	141.11	159.12	1.00	159.12	1.54	0.84	0.84
13.37	141.28	159.00	1.00	159.00	1.55	0.84	0.84
13.41	140.67	158.02	1.00	158.02	1.55	0.84	0.84
13.46	139.05	155.85	1.00	155.85	1.56	0.83	0.83
13.51	137.63	153.98	1.00	153.98	1.57	0.83	0.83
13.56	135.98	151.81	1.00	151.81	1.58	0.83	0.83
13.60	134.29	149.65	1.00	149.65	1.59	0.83	0.83
13.66	132.81	147.65	1.00	147.65	1.60	0.82	0.82
13.75	131.80	145.98	1.00	145.98	1.60	0.82	0.82
13.80	131.19	145.02	1.00	145.02	1.60	0.82	0.82
13.89	130.75	144.01	1.00	144.01	1.61	0.82	0.82
13.94	129.81	142.69	1.00	142.69	1.61	0.82	0.82
13.99	128.19	140.62	1.00	140.62	1.63	0.81	0.81
14.09	125.39	137.21	1.00	137.21	1.65	0.81	0.81
14.14	122.28	133.79	1.00	133.79	1.68	0.80	0.80
14.23	119.38	130.35	1.00	130.35	1.70	0.80	0.80
14.28	117.19	127.54	1.00	127.54	1.68	0.79	0.79
14.38	116.43	125.95	1.00	125.95	1.66	0.79	0.79
14.42	115.35	124.40	1.00	124.40	1.63	0.79	0.79
14.52	115.79	124.40	1.00	124.40	1.63	0.79	0.79
14.57	116.75	125.23	1.00	125.23	1.64	0.79	0.79
14.67	117.53	125.60	1.00	125.60	1.64	0.79	0.79
14.68	117.83	125.93	1.00	125.93	1.64	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
14.70	116.41	124.39	1.00	124.39	1.65	0.79	0.79
14.75	116.58	124.38	1.00	124.38	1.66	0.79	0.79
14.80	116.18	123.80	1.00	123.80	1.66	0.79	0.79
14.89	116.21	123.45	1.00	123.45	1.67	0.79	0.79
14.94	114.76	121.75	1.00	121.75	1.68	0.79	0.79
15.04	111.83	118.29	1.00	118.29	1.69	0.78	0.78
15.13	107.24	113.18	1.01	114.51	1.71	0.77	0.77
15.21	101.74	107.19	1.06	113.68	1.74	0.77	0.77
15.28	95.87	100.87	1.10	111.36	1.76	0.77	0.77
15.38	90.00	94.46	1.14	107.63	1.79	0.76	0.76
15.47	83.86	87.79	1.17	102.77	1.82	0.75	0.75
15.57	77.55	80.97	1.20	97.12	1.85	0.74	0.74
15.67	70.76	73.71	1.23	90.52	1.89	0.73	0.73
15.77	63.91	66.40	1.26	83.47	1.93	0.71	0.71
15.86	57.27	59.33	1.29	76.63	1.98	0.44	0.70
15.96	51.73	53.45	1.34	71.45	2.03	0.29	0.69
16.05	47.31	48.75	1.40	68.25	2.09	0.22	0.68
16.15	43.60	44.83	1.51	67.79	2.15	0.21	0.68
16.25	41.11	42.13	1.63	68.47	2.20	0.22	0.68
16.31	39.86	40.76	1.71	69.57	2.23	0.25	0.68
16.39	39.72	40.48	1.70	68.78	2.23	0.23	0.68
16.48	40.50	41.08	1.65	67.59	2.21	0.21	0.68
16.59	43.06	43.47	1.53	66.70	2.17	0.19	0.67
16.68	47.95	48.20	1.40	67.68	2.09	0.21	0.68
16.76	53.89	53.96	1.31	70.90	2.01	0.27	0.69
16.86	58.72	58.53	1.27	74.31	1.95	0.36	0.69
16.92	61.25	60.90	1.25	76.25	1.92	0.43	0.70
17.02	61.65	61.10	1.25	76.36	1.92	0.43	0.70
17.11	61.14	60.41	1.26	76.12	1.94	0.42	0.70
17.22	60.40	59.48	1.28	75.94	1.96	0.42	0.70
17.35	58.51	57.44	1.34	77.19	2.04	0.46	0.70
17.45	53.15	52.07	1.57	81.76	2.18	0.68	0.71
17.55	43.40	42.36	2.26	95.58	2.38	0.74	0.74
17.61	33.92	32.93	3.48	114.42	2.57	0.77	0.77
17.64	27.41	26.45	4.70	124.38	2.70	0.79	0.79
17.70	24.84	23.84	5.27	125.58	2.75	0.79	0.79
17.75	23.12	22.09	5.71	126.01	2.79	0.79	0.79
17.80	22.04	20.96	6.07	127.17	2.82	0.79	0.79
17.85	21.57	20.45	6.49	132.79	2.85	0.80	0.80
17.94	24.37	23.10	5.83	134.72	2.80	0.81	0.81
17.99	29.74	28.29	4.75	134.51	2.70	0.81	0.81
18.09	36.42	34.65	3.76	130.35	2.60	0.80	0.80
18.15	38.34	36.42	3.61	131.44	2.58	0.80	0.80
18.23	36.08	34.09	3.99	135.89	2.63	0.81	0.81
18.33	27.03	25.22	5.88	148.20	2.80	0.82	0.82
18.43	18.43	16.85	8.99	151.54	3.01	1.12	1.20
18.52	11.28	9.87	14.46	142.66	3.27	0.79	0.70
18.59	9.25	7.88	15.23	120.07	3.30	0.54	0.56

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
18.72	8.44	7.05	14.48	102.14	3.27	0.33	0.50
18.81	7.87	6.47	14.17	91.69	3.26	0.29	0.46
18.87	7.73	6.32	14.34	90.62	3.27	0.28	0.45
18.95	7.94	6.48	14.76	95.67	3.28	0.31	0.46
19.05	8.95	7.39	13.77	101.75	3.24	0.40	0.53
19.14	11.32	9.56	10.96	104.74	3.12	0.45	0.68
19.22	15.43	13.37	7.56	101.14	2.92	0.75	0.75
19.29	23.29	20.64	4.44	91.70	2.67	0.73	0.73
19.38	36.79	33.12	2.43	80.52	2.41	0.61	0.71
19.44	54.77	49.78	1.63	81.04	2.21	0.64	0.71
19.53	73.63	67.13	1.37	92.11	2.06	0.73	0.73
19.62	89.35	81.50	1.30	105.61	1.99	0.76	0.76
19.69	100.62	91.73	1.27	116.28	1.95	0.78	0.78
19.79	106.79	97.11	1.26	122.62	1.94	0.79	0.79
19.86	108.17	98.11	1.28	125.15	1.96	0.79	0.79
19.97	105.91	95.65	1.30	124.06	1.99	0.79	0.79
20.07	101.09	90.89	1.33	120.48	2.02	0.78	0.78
20.16	94.14	84.23	1.37	115.28	2.06	0.78	0.78
20.26	84.49	75.23	1.38	103.79	2.07	0.76	0.76
20.34	72.68	64.34	1.43	91.71	2.10	0.73	0.73
20.43	59.83	52.55	1.52	80.02	2.16	0.58	0.71
20.50	47.95	41.63	2.03	84.51	2.33	0.72	0.72
20.60	37.70	32.23	3.01	96.91	2.50	0.74	0.74
20.62	30.48	25.73	4.28	110.02	2.66	0.77	0.77
20.63	28.08	23.58	4.89	115.31	2.72	0.78	0.78
20.68	27.74	23.22	5.10	118.43	2.74	0.78	0.78
20.73	27.64	23.06	5.32	122.67	2.76	0.79	0.79
20.82	25.48	21.06	6.08	128.12	2.82	0.80	0.80
20.87	23.45	19.23	6.78	130.45	2.87	0.80	0.80
20.91	21.57	17.54	7.32	128.42	2.91	0.80	0.80
20.96	19.58	15.59	7.98	124.40	2.95	0.79	0.79
21.05	17.59	13.84	8.82	122.12	3.00	0.63	0.99
21.11	16.98	13.29	9.07	120.49	3.02	0.63	0.95
21.17	17.11	13.36	9.02	120.44	3.01	0.63	0.95
21.25	21.23	17.01	6.86	116.62	2.88	0.78	0.78
21.30	31.25	25.68	4.13	106.03	2.64	0.76	0.76
21.37	48.56	40.77	2.31	94.37	2.39	0.74	0.74
21.45	68.84	58.49	1.62	94.86	2.20	0.74	0.74
21.49	87.80	75.10	1.41	105.59	2.09	0.76	0.76
21.58	103.45	88.68	1.33	117.80	2.02	0.78	0.78
21.64	115.70	99.28	1.29	128.46	1.98	0.80	0.80
21.69	124.50	106.86	1.28	136.49	1.96	0.81	0.81
21.78	130.41	111.69	1.27	142.03	1.95	0.82	0.82
21.83	133.78	114.42	1.27	145.79	1.96	0.82	0.82
21.89	135.43	115.57	1.28	148.03	1.97	0.82	0.82
21.98	136.01	115.67	1.29	149.32	1.98	0.83	0.83
22.03	135.90	115.31	1.30	150.06	1.99	0.83	0.83
22.12	134.89	114.06	1.31	149.60	2.01	0.83	0.83

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
22.22	133.20	112.20	1.32	148.31	2.02	0.82	0.82
22.26	130.88	110.01	1.33	146.45	2.03	0.82	0.82
22.36	128.38	107.52	1.34	144.21	2.04	0.82	0.82
22.41	125.79	105.07	1.36	142.38	2.05	0.82	0.82
22.51	123.53	102.88	1.35	138.65	2.04	0.81	0.81
22.60	121.33	100.82	1.34	134.71	2.03	0.81	0.81
22.70	119.34	98.95	1.32	130.43	2.01	0.80	0.80
22.75	116.88	96.72	1.32	127.90	2.02	0.80	0.80
22.84	109.32	89.92	1.36	122.31	2.05	0.79	0.79
22.89	107.14	87.93	1.37	120.57	2.06	0.78	0.78
22.90	104.88	85.98	1.38	118.82	2.07	0.78	0.78
22.94	110.11	90.42	1.34	121.26	2.04	0.78	0.78
23.00	112.36	92.21	1.32	122.07	2.02	0.79	0.79
23.08	118.94	97.70	1.29	126.15	1.98	0.79	0.79
23.13	127.04	104.57	1.26	131.91	1.94	0.80	0.80
23.20	134.05	110.43	1.24	136.83	1.90	0.81	0.81
23.27	137.05	112.81	1.23	138.66	1.89	0.81	0.81
23.33	135.57	111.40	1.23	136.90	1.89	0.81	0.81
23.42	131.55	107.76	1.23	132.83	1.89	0.80	0.80
23.48	126.94	103.73	1.24	128.30	1.90	0.80	0.80
23.57	123.16	100.30	1.24	124.68	1.91	0.79	0.79
23.61	121.20	98.52	1.25	122.97	1.92	0.79	0.79
23.66	121.50	98.62	1.25	123.25	1.92	0.79	0.79
23.73	124.04	100.52	1.25	125.44	1.92	0.79	0.79
23.80	127.95	103.59	1.24	128.73	1.91	0.80	0.80
23.85	131.96	106.79	1.24	132.25	1.90	0.80	0.80
23.94	134.80	108.87	1.24	134.50	1.90	0.81	0.81
24.00	135.88	109.59	1.24	135.41	1.90	0.81	0.81
24.09	135.37	108.86	1.24	134.81	1.90	0.81	0.81
24.16	133.34	106.93	1.24	133.09	1.91	0.80	0.80
24.24	130.04	104.25	1.23	128.02	1.89	0.80	0.80
24.33	125.79	100.75	1.21	122.05	1.86	0.79	0.79
24.43	121.10	96.90	1.19	115.53	1.84	0.78	0.78
24.52	114.28	90.85	1.23	111.31	1.88	0.77	0.77
24.58	108.90	86.13	1.25	107.54	1.92	0.76	0.76
24.59	104.52	82.40	1.27	104.41	1.95	0.76	0.76
24.63	104.21	82.05	1.27	104.24	1.95	0.76	0.76
24.68	103.45	81.24	1.28	103.96	1.96	0.76	0.76
24.77	102.47	80.14	1.29	103.52	1.98	0.75	0.75
24.82	100.31	78.15	1.31	102.59	2.01	0.75	0.75
24.92	97.85	75.83	1.34	101.32	2.03	0.75	0.75
25.01	95.22	73.42	1.36	100.09	2.06	0.75	0.75
25.06	92.38	70.94	1.39	98.75	2.08	0.75	0.75
25.16	89.48	68.36	1.42	97.29	2.10	0.74	0.74
25.25	86.51	65.75	1.46	95.92	2.13	0.74	0.74
25.30	83.55	63.24	1.50	94.77	2.15	0.74	0.74
25.41	80.44	60.52	1.55	93.81	2.17	0.74	0.74
25.49	77.27	57.80	1.61	93.24	2.20	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
25.55	73.97	55.02	1.70	93.42	2.23	0.74	0.74
25.64	70.59	52.13	1.81	94.24	2.27	0.74	0.74
25.70	67.02	49.15	1.95	95.94	2.31	0.74	0.74
25.79	63.24	46.00	2.13	97.75	2.35	0.74	0.74
25.89	58.92	42.45	2.35	99.94	2.40	0.75	0.75
25.94	54.26	38.75	2.63	101.97	2.45	0.75	0.75
26.02	49.37	34.89	2.95	102.81	2.50	0.75	0.75
26.12	45.05	31.51	3.23	101.92	2.54	0.75	0.75
26.17	40.83	28.31	3.52	99.58	2.57	0.75	0.75
26.28	37.02	25.37	3.84	97.30	2.61	0.74	0.74
26.36	33.31	22.57	4.17	94.10	2.65	0.74	0.74
26.45	29.43	19.65	4.69	92.22	2.70	0.73	0.73
26.50	24.94	16.31	5.63	91.86	2.78	0.73	0.73
26.61	20.15	12.75	7.37	93.95	2.91	0.74	0.74
26.70	15.97	9.43	10.10	95.23	3.07	0.35	0.67
26.77	12.97	7.45	12.95	96.46	3.21	0.35	0.53
26.85	11.85	6.70	14.12	94.58	3.26	0.34	0.48
26.94	11.45	6.41	14.29	91.60	3.27	0.29	0.46
27.04	11.95	6.71	13.15	88.25	3.22	0.28	0.48
27.14	12.22	6.86	12.68	86.95	3.20	0.27	0.49
27.23	12.90	7.27	11.66	84.75	3.15	0.26	0.52
27.28	13.22	7.46	11.13	83.02	3.13	0.24	0.53
27.29	13.29	7.50	10.38	77.81	3.09	0.24	0.54
27.38	13.29	7.47	9.96	74.44	3.07	0.16	0.53
27.48	13.27	7.43	9.89	73.48	3.06	0.18	0.53
27.57	13.27	7.41	10.67	79.00	3.10	0.22	0.53
27.64	13.30	7.41	11.31	83.76	3.13	0.26	0.53
27.65	13.44	7.49	12.08	90.43	3.17	0.27	0.53
27.74	14.52	8.14	11.82	96.17	3.16	0.36	0.58
27.80	16.91	9.63	10.69	102.90	3.10	0.41	0.69
27.90	19.17	11.00	9.59	105.58	3.05	0.48	0.79
27.99	19.34	11.07	9.67	106.99	3.05	0.48	0.79
28.07	17.12	9.65	10.91	105.31	3.11	0.45	0.69
28.16	14.45	7.96	12.63	100.58	3.20	0.39	0.57
28.25	12.53	6.75	13.86	93.48	3.25	0.31	0.48
28.34	11.52	6.10	14.13	86.20	3.26	0.25	0.44
28.44	11.01	5.76	14.19	81.77	3.26	0.21	0.41
28.53	10.84	5.64	14.27	80.51	3.26	0.21	0.40
28.62	11.75	6.17	14.04	86.70	3.26	0.23	0.44
28.76	14.21	7.64	12.54	95.81	3.19	0.35	0.55
28.86	17.65	9.69	11.11	107.72	3.12	0.45	0.69
28.96	20.32	11.26	10.51	118.36	3.09	0.58	0.80
29.08	21.30	11.80	11.10	130.98	3.12	0.70	0.84
29.19	22.07	12.21	11.60	141.58	3.15	0.86	0.87
29.29	27.50	15.40	8.64	133.06	2.99	0.80	0.80
29.39	40.70	25.08	5.15	129.21	2.74	0.80	0.80
29.50	57.67	36.81	3.37	124.06	2.55	0.79	0.79
29.63	66.88	42.86	3.19	136.79	2.53	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
29.65	70.22	45.09	3.13	141.18	2.52	0.81	0.81
29.66	71.00	45.61	3.10	141.50	2.52	0.82	0.82
29.72	73.53	47.34	2.95	139.57	2.50	0.81	0.81
29.80	77.81	50.31	2.70	135.94	2.46	0.81	0.81
29.85	89.49	58.79	2.17	127.49	2.36	0.79	0.79
29.94	111.58	75.08	1.62	121.89	2.20	0.79	0.79
30.00	135.50	93.20	1.37	127.60	2.06	0.79	0.79
30.05	152.98	106.83	1.28	136.43	1.96	0.81	0.81
30.14	162.60	114.57	1.23	140.95	1.89	0.81	0.81
30.19	167.56	118.78	1.20	142.08	1.84	0.82	0.82
30.24	169.61	120.45	1.18	142.19	1.83	0.82	0.82
30.29	169.68	120.31	1.18	142.38	1.83	0.82	0.82
30.38	167.72	118.51	1.19	141.39	1.84	0.82	0.82
30.43	164.79	116.05	1.20	139.76	1.85	0.81	0.81
30.48	161.62	113.47	1.21	137.67	1.87	0.81	0.81
30.54	159.16	111.46	1.22	135.86	1.87	0.81	0.81
30.62	158.35	110.69	1.22	134.98	1.87	0.81	0.81
30.67	157.77	110.16	1.22	134.34	1.87	0.80	0.80
30.72	158.55	110.67	1.22	134.61	1.87	0.81	0.81
30.76	159.46	111.32	1.21	134.89	1.86	0.81	0.81
30.86	162.06	113.16	1.20	135.92	1.85	0.81	0.81
30.91	165.09	115.46	1.19	137.26	1.84	0.81	0.81
30.95	168.94	118.37	1.17	138.94	1.82	0.81	0.81
31.03	173.83	122.03	1.15	140.71	1.80	0.81	0.81
31.10	179.36	126.19	1.13	142.33	1.78	0.82	0.82
31.15	185.03	130.44	1.10	144.07	1.76	0.82	0.82
31.20	189.66	133.76	1.09	146.05	1.75	0.82	0.82
31.26	192.52	135.69	1.09	147.81	1.75	0.82	0.82
31.34	186.22	130.42	1.13	147.23	1.78	0.82	0.82
31.37	184.63	129.08	1.14	146.99	1.79	0.82	0.82
31.38	181.39	126.56	1.15	145.70	1.80	0.82	0.82
31.43	184.63	129.02	1.13	146.17	1.78	0.82	0.82
31.47	179.33	124.92	1.15	143.44	1.80	0.82	0.82
31.55	171.64	118.91	1.17	139.35	1.82	0.81	0.81
31.59	160.34	110.19	1.21	132.93	1.86	0.80	0.80
31.66	147.76	100.47	1.24	124.83	1.91	0.79	0.79
31.73	135.75	91.20	1.28	116.80	1.97	0.78	0.78
31.78	125.08	83.04	1.33	110.36	2.02	0.77	0.77
31.84	115.64	75.76	1.40	106.34	2.09	0.76	0.76
31.93	107.23	69.27	1.51	104.84	2.16	0.76	0.76
31.98	100.42	64.06	1.66	106.04	2.22	0.76	0.76
32.02	98.18	62.19	1.75	108.88	2.25	0.76	0.76
32.09	97.00	61.07	1.83	111.87	2.27	0.77	0.77
32.16	98.89	62.18	1.83	113.86	2.27	0.77	0.77
32.22	100.29	63.04	1.82	114.52	2.27	0.77	0.77
32.27	103.49	65.22	1.76	114.53	2.25	0.77	0.77
32.34	106.02	66.91	1.71	114.38	2.24	0.77	0.77
32.42	108.89	68.85	1.66	114.11	2.22	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
32.46	113.04	71.82	1.58	113.62	2.19	0.77	0.77
32.54	117.73	75.15	1.51	113.25	2.15	0.77	0.77
32.60	121.74	78.23	1.43	112.00	2.11	0.77	0.77
32.67	124.81	80.60	1.38	111.53	2.07	0.77	0.77
32.75	127.51	82.59	1.35	111.85	2.05	0.77	0.77
32.81	130.38	84.43	1.35	113.95	2.05	0.77	0.77
32.89	133.38	86.29	1.35	116.21	2.04	0.78	0.78
32.94	129.47	83.21	1.38	114.84	2.07	0.77	0.77
32.95	131.02	84.23	1.38	116.07	2.07	0.78	0.78
33.00	132.88	85.36	1.38	117.56	2.07	0.78	0.78
33.06	141.08	91.06	1.34	122.40	2.04	0.79	0.79
33.11	142.26	91.66	1.35	123.66	2.04	0.79	0.79
33.20	141.21	90.60	1.36	123.53	2.06	0.79	0.79
33.25	139.02	88.78	1.39	123.06	2.08	0.79	0.79
33.34	137.03	87.07	1.41	122.48	2.09	0.79	0.79
33.38	136.69	86.68	1.42	122.68	2.10	0.79	0.79
33.48	138.41	87.63	1.41	123.78	2.10	0.79	0.79
33.58	141.92	89.83	1.40	125.79	2.09	0.79	0.79
33.63	146.74	93.05	1.38	128.81	2.07	0.80	0.80
33.73	152.41	96.75	1.37	132.15	2.06	0.80	0.80
33.82	158.96	101.09	1.35	136.16	2.04	0.81	0.81
33.87	165.74	105.66	1.33	140.58	2.03	0.81	0.81
33.96	172.72	110.29	1.32	145.13	2.01	0.82	0.82
34.02	180.58	115.54	1.30	150.66	2.00	0.83	0.83
34.11	190.03	121.77	1.29	157.32	1.98	0.84	0.84
34.18	200.49	128.68	1.28	164.99	1.97	0.85	0.85
34.26	210.44	135.11	1.28	172.52	1.96	0.86	0.86
34.35	219.45	140.77	1.28	179.50	1.96	0.86	0.86
34.44	227.51	145.83	1.27	185.53	1.95	0.87	0.87
34.49	233.96	150.02	1.27	190.23	1.95	0.88	0.88
34.59	237.94	152.42	1.27	192.83	1.94	0.88	0.88
34.69	240.00	153.47	1.26	194.12	1.94	0.88	0.88
34.76	240.94	153.92	1.26	194.53	1.94	0.88	0.88
34.83	240.60	153.43	1.26	194.02	1.94	0.88	0.88
34.93	237.97	151.43	1.26	191.54	1.94	0.88	0.88
35.02	233.82	148.39	1.27	188.08	1.95	0.87	0.87
35.12	229.78	145.60	1.27	184.23	1.94	0.87	0.87
35.22	226.47	143.26	1.26	181.13	1.94	0.87	0.87
35.30	222.22	140.29	1.26	177.46	1.94	0.86	0.86
35.38	208.55	130.48	1.29	168.21	1.98	0.85	0.85
35.43	198.10	123.09	1.31	161.35	2.00	0.84	0.84
35.46	189.40	116.99	1.33	155.80	2.03	0.83	0.83
35.51	187.20	115.53	1.33	153.78	2.03	0.83	0.83
35.56	176.78	108.45	1.35	146.76	2.05	0.82	0.82
35.66	163.52	99.31	1.39	138.53	2.08	0.81	0.81
35.70	148.20	89.01	1.46	130.03	2.13	0.80	0.80
35.80	131.87	77.90	1.59	123.66	2.19	0.79	0.79
35.89	111.32	64.17	1.87	119.95	2.28	0.78	0.78

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
35.96	89.09	49.72	2.43	120.81	2.41	0.78	0.78
36.04	68.24	36.73	3.28	120.37	2.54	0.78	0.78
36.14	52.15	27.04	4.33	117.01	2.66	0.78	0.78
36.19	43.48	22.01	5.03	110.69	2.73	0.77	0.77
36.28	40.51	20.23	5.44	110.05	2.77	0.77	0.77
36.33	40.51	20.24	5.35	108.32	2.76	0.76	0.76
36.42	42.30	21.24	5.09	108.08	2.74	0.76	0.76
36.48	45.97	23.38	4.59	107.27	2.69	0.76	0.76
36.52	51.03	26.20	4.31	112.95	2.66	0.77	0.77
36.62	54.10	27.78	4.31	119.67	2.66	0.78	0.78
36.68	54.07	27.55	4.59	126.59	2.69	0.79	0.79
36.77	52.82	26.73	4.79	128.11	2.71	0.80	0.80
36.86	54.64	27.76	4.56	126.60	2.69	0.79	0.79
36.90	67.67	35.75	3.22	115.19	2.53	0.77	0.77
37.00	98.14	55.13	1.87	103.13	2.29	0.75	0.75
37.10	140.34	83.45	1.35	112.56	2.04	0.77	0.77
37.20	182.54	113.15	1.21	136.84	1.86	0.81	0.81
37.29	213.04	135.23	1.09	147.30	1.75	0.82	0.82
37.39	232.34	149.01	1.00	149.01	1.70	0.83	0.83
37.49	241.91	155.00	1.00	155.00	1.70	0.83	0.83
37.53	245.57	156.74	1.02	160.20	1.72	0.84	0.84
37.58	246.07	156.33	1.06	165.44	1.73	0.85	0.85
37.62	247.84	156.88	1.08	169.66	1.75	0.85	0.85
37.69	250.56	157.82	1.11	175.10	1.77	0.86	0.86
37.77	253.53	158.95	1.13	179.78	1.78	0.86	0.86
37.82	254.98	159.10	1.15	183.39	1.80	0.87	0.87
37.87	254.84	158.42	1.17	184.85	1.81	0.87	0.87
37.91	252.72	156.44	1.18	184.82	1.83	0.87	0.87
37.97	248.23	152.87	1.20	183.06	1.85	0.87	0.87
38.06	241.92	148.07	1.21	179.59	1.87	0.86	0.86
38.10	235.58	143.53	1.22	175.74	1.88	0.86	0.86
38.17	230.89	140.30	1.23	172.34	1.89	0.86	0.86
38.25	228.09	138.57	1.22	169.66	1.88	0.85	0.85
38.35	225.79	137.24	1.22	167.11	1.87	0.85	0.85
38.40	223.43	135.86	1.21	164.83	1.87	0.85	0.85
38.46	221.65	134.68	1.21	163.21	1.86	0.84	0.84
38.54	220.87	134.09	1.21	162.26	1.86	0.84	0.84
38.60	220.87	134.14	1.21	161.69	1.86	0.84	0.84
38.69	222.22	135.09	1.20	161.77	1.85	0.84	0.84
38.74	224.92	137.05	1.19	162.53	1.83	0.84	0.84
38.83	227.85	138.91	1.18	163.73	1.82	0.84	0.84
38.88	229.20	139.97	1.17	163.54	1.81	0.84	0.84
38.97	228.76	139.65	1.16	162.47	1.81	0.84	0.84
39.02	227.25	138.83	1.16	160.45	1.80	0.84	0.84
39.11	224.44	136.82	1.16	158.54	1.81	0.84	0.84
39.16	218.51	132.80	1.17	154.99	1.81	0.83	0.83
39.23	205.48	123.73	1.20	148.10	1.85	0.82	0.82
39.24	200.81	120.69	1.20	145.08	1.85	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
39.28	198.62	119.29	1.20	143.39	1.85	0.82	0.82
39.32	201.93	121.86	1.18	144.08	1.83	0.82	0.82
39.39	194.55	116.84	1.20	139.67	1.84	0.81	0.81
39.47	183.96	109.44	1.22	133.48	1.88	0.80	0.80
39.54	171.48	100.68	1.25	125.99	1.92	0.79	0.79
39.62	158.42	91.63	1.29	117.99	1.98	0.78	0.78
39.71	145.73	82.95	1.33	110.70	2.03	0.77	0.77
39.76	134.50	75.46	1.39	105.08	2.08	0.76	0.76
39.85	125.32	69.36	1.46	101.34	2.13	0.75	0.75
39.90	117.87	64.48	1.53	98.95	2.17	0.75	0.75
40.00	111.05	60.00	1.63	97.53	2.20	0.74	0.74
40.06	104.71	55.91	1.73	96.96	2.24	0.74	0.74
40.15	98.67	52.00	1.87	97.18	2.28	0.74	0.74
40.21	92.83	48.24	2.05	98.86	2.33	0.75	0.75
40.29	86.59	44.24	2.31	102.19	2.39	0.75	0.75
40.35	79.68	39.85	2.72	108.27	2.46	0.76	0.76
40.43	72.22	35.37	3.16	111.81	2.53	0.77	0.77
40.52	63.85	30.51	3.76	114.58	2.60	0.77	0.77
40.58	55.21	25.70	4.47	115.00	2.68	0.77	0.77
40.67	46.88	21.09	5.54	116.83	2.77	0.78	0.78
40.77	41.63	18.24	6.45	117.65	2.85	0.78	0.78
40.84	39.14	16.87	6.99	117.99	2.89	0.78	0.78
40.89	42.28	18.55	6.27	116.25	2.83	0.78	0.78
40.94	49.75	22.62	4.92	111.31	2.72	0.77	0.77
41.03	61.46	29.20	3.53	103.18	2.57	0.75	0.75
41.08	73.03	35.94	2.68	96.47	2.45	0.74	0.74
41.14	82.03	41.30	2.24	92.51	2.37	0.73	0.73
41.22	87.70	44.68	2.04	90.97	2.33	0.73	0.73
41.28	90.43	46.24	1.97	91.29	2.31	0.73	0.73
41.33	91.99	46.96	1.99	93.52	2.32	0.74	0.74
41.42	93.64	47.61	2.04	97.02	2.33	0.74	0.74
41.47	97.01	49.31	2.04	100.81	2.33	0.75	0.75
41.52	104.03	53.17	1.96	104.48	2.31	0.76	0.76
41.62	115.47	59.72	1.81	107.92	2.27	0.76	0.76
41.67	130.01	68.21	1.66	112.91	2.22	0.77	0.77
41.76	144.45	76.74	1.54	118.23	2.17	0.78	0.78
41.82	156.39	83.80	1.48	123.75	2.14	0.79	0.79
41.90	165.43	89.14	1.44	128.02	2.11	0.80	0.80
41.99	171.57	92.73	1.41	131.05	2.10	0.80	0.80
42.05	174.81	94.61	1.40	132.58	2.09	0.80	0.80
42.15	175.22	94.64	1.40	132.77	2.09	0.80	0.80
42.23	173.33	93.24	1.42	132.06	2.10	0.80	0.80
42.30	169.55	90.73	1.44	130.51	2.11	0.80	0.80
42.38	163.64	86.97	1.47	127.88	2.13	0.80	0.80
42.48	153.79	80.87	1.53	123.60	2.16	0.79	0.79
42.57	141.98	73.69	1.62	119.15	2.20	0.78	0.78
42.64	129.97	66.53	1.73	115.28	2.24	0.78	0.78
42.72	121.20	61.42	1.82	111.72	2.27	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.82	114.72	57.72	1.88	108.24	2.29	0.76	0.76
42.90	110.03	55.08	1.91	105.42	2.30	0.76	0.76
42.97	106.05	52.74	1.98	104.32	2.31	0.76	0.76
43.06	102.31	50.43	2.08	104.69	2.34	0.76	0.76
43.15	98.76	48.44	2.11	102.43	2.35	0.75	0.75
43.20	97.75	48.00	2.07	99.54	2.34	0.75	0.75
43.30	104.19	51.99	1.84	95.67	2.28	0.74	0.74
43.40	119.88	61.38	1.58	97.12	2.19	0.74	0.74
43.48	132.43	68.91	1.47	100.97	2.13	0.75	0.75
43.51	139.11	72.90	1.43	103.89	2.10	0.76	0.76
43.52	146.23	77.22	1.39	107.23	2.08	0.76	0.76
43.56	160.13	85.83	1.33	114.20	2.03	0.77	0.77
43.61	178.86	97.60	1.28	124.81	1.96	0.79	0.79
43.67	193.23	106.74	1.25	133.29	1.92	0.80	0.80
43.72	206.01	115.04	1.22	140.56	1.88	0.81	0.81
43.80	216.51	121.88	1.20	145.95	1.85	0.82	0.82
43.85	224.74	127.26	1.18	149.84	1.82	0.83	0.83
43.90	231.25	131.51	1.16	152.56	1.81	0.83	0.83
43.94	236.38	134.87	1.14	154.37	1.79	0.83	0.83
43.99	239.82	137.13	1.13	155.28	1.78	0.83	0.83
44.08	241.54	138.11	1.13	155.65	1.78	0.83	0.83
44.14	241.51	137.71	1.14	156.49	1.79	0.84	0.84
44.22	240.40	136.41	1.15	157.19	1.80	0.84	0.84
44.28	238.31	134.50	1.17	157.37	1.82	0.84	0.84
44.33	235.67	132.35	1.18	156.78	1.83	0.84	0.84
44.40	232.27	129.52	1.20	155.80	1.85	0.83	0.83
44.48	231.30	128.25	1.22	155.90	1.87	0.83	0.83
44.52	228.57	125.64	1.24	155.24	1.90	0.83	0.83
44.61	230.02	126.41	1.23	155.88	1.89	0.83	0.83
44.72	231.52	127.03	1.23	156.70	1.90	0.84	0.84
44.77	236.14	130.05	1.22	159.04	1.88	0.84	0.84
44.91	237.86	130.46	1.23	160.27	1.89	0.84	0.84
44.95	231.69	126.16	1.24	156.88	1.91	0.84	0.84
45.02	227.41	123.19	1.25	154.33	1.92	0.83	0.83
45.04	198.97	104.88	1.32	138.44	2.01	0.81	0.81
45.06	203.49	107.81	1.30	140.63	2.00	0.81	0.81
45.11	208.45	111.04	1.29	143.03	1.98	0.82	0.82
45.15	239.96	131.64	1.22	160.49	1.87	0.84	0.84
45.21	246.91	136.23	1.20	163.81	1.85	0.84	0.84
45.25	252.44	139.80	1.19	166.43	1.84	0.85	0.85
45.30	256.29	142.11	1.18	168.34	1.83	0.85	0.85
45.35	258.04	143.02	1.18	169.35	1.83	0.85	0.85
45.41	258.42	143.02	1.19	169.64	1.83	0.85	0.85
45.49	257.00	141.89	1.19	168.87	1.84	0.85	0.85
45.55	254.13	139.97	1.19	167.24	1.84	0.85	0.85
45.63	249.51	136.90	1.20	164.52	1.85	0.85	0.85
45.69	243.67	133.19	1.21	161.09	1.86	0.84	0.84
45.78	236.62	128.61	1.22	156.88	1.88	0.84	0.84

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
45.84	228.05	123.25	1.23	151.68	1.89	0.83	0.83
45.93	217.69	116.85	1.24	145.18	1.91	0.82	0.82
46.02	205.11	109.16	1.26	137.24	1.93	0.81	0.81
46.08	190.40	100.37	1.28	128.00	1.96	0.80	0.80
46.16	174.41	90.73	1.30	118.20	1.99	0.78	0.78
46.24	157.13	80.39	1.35	108.31	2.04	0.76	0.76
46.31	138.07	68.91	1.44	99.54	2.12	0.75	0.75
46.41	117.36	56.54	1.67	94.32	2.22	0.74	0.74
46.48	95.77	44.06	2.17	95.41	2.36	0.74	0.74
46.56	75.72	32.98	3.08	101.49	2.51	0.75	0.75
46.65	58.08	23.81	4.47	106.39	2.68	0.76	0.76
46.75	45.43	17.64	5.95	104.92	2.81	0.76	0.76
46.84	36.62	12.08	8.01	96.75	2.95	0.74	0.74
46.94	30.75	9.96	9.25	92.20	3.03	0.42	0.71
47.02	25.79	8.18	10.96	89.65	3.12	0.36	0.58
47.08	21.37	6.60	13.29	87.68	3.22	0.33	0.47
47.12	18.76	5.66	15.23	86.24	3.30	0.32	0.40
47.16	17.85	5.33	15.88	84.67	3.33	0.30	0.38
47.21	17.81	5.32	15.49	82.35	3.31	0.28	0.38
47.27	17.46	5.18	15.33	79.44	3.31	0.26	0.37
47.35	16.42	4.80	15.97	76.72	3.33	0.23	0.34
47.40	15.74	4.56	15.95	72.71	3.33	0.22	0.33
47.50	15.37	4.42	15.62	68.97	3.32	0.17	0.32
47.55	15.16	4.34	15.04	65.28	3.29	0.16	0.31
47.61	15.00	4.27	14.89	63.67	3.29	0.14	0.31
47.69	14.73	4.17	15.00	62.57	3.29	0.14	0.30
47.76	14.39	4.05	15.25	61.71	3.30	0.13	0.29
47.83	14.02	3.91	15.40	60.22	3.31	0.13	0.28
47.93	13.85	3.84	15.20	58.40	3.30	0.11	0.27
48.02	13.82	3.82	15.00	57.34	3.29	0.10	0.27
48.09	13.88	3.84	14.67	56.35	3.28	0.11	0.27
48.18	13.85	3.82	14.94	57.05	3.29	0.10	0.27
48.27	13.88	3.82	15.29	58.44	3.30	0.12	0.27
48.37	13.98	3.85	15.87	61.09	3.33	0.13	0.27
48.46	14.12	3.89	16.20	62.98	3.34	0.14	0.28
48.52	14.18	3.90	16.46	64.25	3.35	0.15	0.28
48.60	14.25	3.92	16.64	65.23	3.35	0.16	0.28
48.70	14.38	3.96	16.68	65.99	3.35	0.16	0.28
48.79	14.65	4.04	16.50	66.70	3.35	0.16	0.29
48.85	15.06	4.18	16.39	68.42	3.34	0.17	0.30
48.94	15.74	4.40	16.24	71.44	3.34	0.20	0.31
49.04	16.68	4.71	15.57	73.34	3.31	0.23	0.34
49.13	18.30	5.25	15.62	82.09	3.32	0.22	0.38
49.23	21.13	6.21	14.82	92.00	3.29	0.41	0.44
49.33	24.04	7.18	14.31	102.80	3.27	0.51	0.51
49.38	24.88	7.46	14.69	109.60	3.28	0.57	0.53
49.42	25.93	7.81	14.70	114.80	3.28	0.64	0.56
49.48	26.70	8.06	14.75	118.93	3.28	0.70	0.58

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
49.53	28.79	8.76	13.86	121.43	3.25	0.73	0.63
49.58	29.43	8.97	13.78	123.62	3.24	0.76	0.64
49.63	30.10	9.19	13.66	125.52	3.24	0.79	0.66
49.72	30.91	9.44	13.37	126.23	3.23	0.81	0.67
49.77	31.42	9.60	13.13	125.98	3.22	0.80	0.69
49.83	31.42	9.59	13.08	125.40	3.22	0.79	0.68
49.92	30.71	9.33	13.37	124.67	3.23	0.79	0.67
49.97	30.39	9.21	13.41	123.55	3.23	0.76	0.66
50.04	29.48	8.89	13.80	122.65	3.25	0.74	0.64
50.11	29.82	8.99	13.61	122.33	3.24	0.74	0.64
50.20	30.21	9.10	13.25	120.55	3.22	0.76	0.65
50.27	30.78	9.28	12.51	116.01	3.19	0.68	0.66
50.34	29.50	8.83	12.20	107.79	3.18	0.58	0.63
50.45	26.76	7.90	12.55	99.22	3.19	0.45	0.56
50.54	23.73	6.88	13.43	92.39	3.23	0.38	0.49
50.59	21.13	6.01	14.59	87.71	3.28	0.35	0.43
50.68	19.24	5.37	15.59	83.78	3.32	0.30	0.38
50.79	18.13	4.99	16.06	80.17	3.33	0.26	0.36
50.88	17.81	4.88	16.03	78.18	3.33	0.25	0.35
50.98	17.64	4.81	16.19	77.89	3.34	0.25	0.34
51.07	17.81	4.86	15.67	76.09	3.32	0.25	0.35
51.17	18.43	5.05	14.19	71.67	3.26	0.21	0.36
51.24	19.51	5.40	12.74	68.77	3.20	0.16	0.39
51.33	20.19	5.61	12.56	70.43	3.19	0.20	0.40
51.46	20.09	5.56	13.45	74.75	3.23	0.25	0.40
51.46	19.80	5.46	14.31	78.20	3.27	0.25	0.39
51.51	19.77	5.45	14.62	79.60	3.28	0.28	0.39
51.56	19.87	5.47	14.98	82.02	3.29	0.28	0.39
51.65	19.95	5.49	15.35	84.26	3.31	0.31	0.39
51.71	20.09	5.53	15.72	86.89	3.32	0.33	0.39
51.79	20.49	5.65	15.73	88.80	3.32	0.35	0.40
51.85	21.23	5.88	15.68	92.19	3.32	0.37	0.42
51.94	22.11	6.15	15.66	96.33	3.32	0.43	0.44
51.99	23.22	6.51	15.77	102.62	3.32	0.48	0.46
52.09	24.17	6.80	16.12	109.52	3.33	0.57	0.49
52.19	27.74	7.93	14.73	116.81	3.28	0.67	0.57
52.28	33.34	9.72	12.62	122.63	3.20	0.78	0.69
52.35	36.42	10.69	12.02	128.41	3.17	0.87	0.76
52.43	37.06	10.87	12.22	132.82	3.18	0.95	0.78
52.52	35.17	10.25	13.30	136.28	3.22	0.97	0.73
52.62	35.61	10.37	13.11	135.93	3.22	0.98	0.74
52.72	35.98	10.46	12.80	133.92	3.20	0.94	0.75
52.81	34.26	9.89	13.70	135.53	3.24	0.89	0.71
52.91	31.32	8.94	16.37	146.31	3.34	1.03	0.64
53.00	37.23	10.79	14.34	154.70	3.27	1.38	0.77
53.10	62.36	18.71	7.92	148.13	2.95	0.82	0.82
53.20	108.21	33.14	3.92	129.79	2.62	0.80	0.80
53.29	163.78	50.57	2.27	114.61	2.38	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.38	213.88	66.21	1.72	114.09	2.24	0.77	0.77
53.46	260.07	80.59	1.49	119.81	2.14	0.78	0.78
53.53	292.05	90.48	1.45	130.93	2.12	0.80	0.80
53.63	323.19	100.02	1.40	139.93	2.09	0.81	0.81
53.73	361.79	111.85	1.31	146.92	2.01	0.82	0.82
53.82	388.35	119.89	1.25	150.03	1.92	0.83	0.83
53.92	387.71	119.45	1.23	146.54	1.89	0.82	0.82
53.94	360.18	110.85	1.25	138.23	1.92	0.81	0.81
53.96	336.26	103.38	1.27	131.20	1.95	0.80	0.80
53.97	349.08	107.34	1.25	134.16	1.92	0.80	0.80
54.05	377.59	116.04	1.22	141.00	1.87	0.81	0.81
54.08	426.28	131.09	1.15	150.15	1.79	0.83	0.83
54.13	473.21	145.55	1.06	154.41	1.74	0.83	0.83
54.19	518.79	159.56	1.00	159.56	1.70	0.84	0.84
54.25	524.22	161.12	1.01	162.94	1.71	0.84	0.84
54.28	510.87	156.95	1.06	166.66	1.74	0.85	0.85
54.29	486.82	149.48	1.10	164.40	1.76	0.85	0.85
54.34	486.89	149.42	1.10	164.35	1.76	0.85	0.85
54.35	492.20	151.05	1.09	164.72	1.75	0.85	0.85
54.40	504.89	154.89	1.07	165.62	1.74	0.85	0.85
54.44	522.30	160.18	1.04	166.45	1.72	0.85	0.85
54.49	535.62	164.19	1.01	165.88	1.71	0.85	0.85
54.53	546.25	167.39	1.00	167.39	1.70	0.85	0.85
54.57	558.27	171.02	1.00	171.02	1.69	0.85	0.85
54.58	567.78	173.92	1.00	173.92	1.70	0.86	0.86
54.63	560.90	171.71	1.01	173.90	1.71	0.86	0.86
54.68	536.31	164.04	1.08	176.93	1.75	0.86	0.86
54.73	510.50	156.00	1.12	175.12	1.78	0.86	0.86
54.78	499.67	152.59	1.14	173.29	1.79	0.86	0.86
54.83	493.63	150.64	1.15	172.82	1.80	0.86	0.86
54.88	497.14	151.64	1.15	175.08	1.80	0.86	0.86
54.92	500.68	152.65	1.17	178.37	1.81	0.86	0.86
54.97	510.81	155.66	1.16	180.73	1.81	0.87	0.87
55.02	513.44	156.38	1.16	181.62	1.81	0.87	0.87
55.12	487.90	148.39	1.20	178.01	1.85	0.86	0.86
55.17	449.17	136.44	1.25	170.63	1.92	0.85	0.85
55.25	410.54	124.51	1.29	160.49	1.98	0.84	0.84
55.31	394.21	119.43	1.29	154.46	1.98	0.83	0.83
55.36	388.18	117.52	1.27	148.87	1.95	0.83	0.83
55.45	381.09	115.23	1.25	143.68	1.91	0.82	0.82
55.50	365.91	110.54	1.25	137.89	1.92	0.81	0.81
55.60	351.24	105.95	1.26	133.93	1.94	0.80	0.80
55.65	332.24	100.11	1.28	128.15	1.96	0.80	0.80
55.71	324.14	97.58	1.27	124.39	1.96	0.79	0.79
55.75	320.40	96.40	1.26	121.19	1.93	0.78	0.78
55.79	325.12	97.79	1.25	121.90	1.91	0.79	0.79
55.84	332.47	99.97	1.24	123.76	1.90	0.79	0.79
55.89	338.01	101.60	1.23	125.39	1.90	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.90	341.15	102.54	1.23	126.17	1.89	0.79	0.79
55.94	336.26	101.02	1.24	124.98	1.90	0.79	0.79
55.99	327.63	98.34	1.25	122.89	1.92	0.79	0.79
56.03	317.88	95.34	1.26	120.41	1.94	0.78	0.78
56.08	311.67	93.40	1.27	118.54	1.95	0.78	0.78
56.14	306.37	91.74	1.27	116.74	1.95	0.78	0.78
56.22	299.89	89.70	1.28	114.65	1.96	0.77	0.77
56.28	294.29	87.95	1.28	112.90	1.97	0.77	0.77
56.33	292.57	87.39	1.29	112.38	1.97	0.77	0.77
56.38	294.06	87.79	1.28	112.46	1.97	0.77	0.77
56.45	301.34	89.92	1.27	114.23	1.95	0.77	0.77
56.52	312.58	93.24	1.25	117.01	1.93	0.78	0.78
56.62	325.19	96.94	1.24	120.21	1.90	0.78	0.78
56.66	338.42	100.88	1.22	123.02	1.87	0.79	0.79
56.73	350.06	104.30	1.21	126.65	1.87	0.79	0.79
56.81	357.11	106.33	1.22	129.59	1.87	0.80	0.80
56.95	363.42	108.06	1.23	132.64	1.89	0.80	0.80
57.00	372.46	110.72	1.23	135.80	1.88	0.81	0.81
57.09	373.11	110.80	1.23	136.52	1.89	0.81	0.81
57.19	368.58	109.32	1.24	135.85	1.91	0.81	0.81
57.27	354.04	104.88	1.25	131.44	1.92	0.80	0.80
57.35	357.65	105.87	1.23	130.16	1.89	0.80	0.80
57.44	356.17	105.33	1.21	127.36	1.86	0.79	0.79
57.50	364.37	107.70	1.18	127.07	1.83	0.79	0.79
57.52	378.10	111.77	1.18	131.85	1.83	0.80	0.80
57.58	409.37	121.03	1.17	141.73	1.82	0.82	0.82
57.63	432.08	127.73	1.17	149.17	1.81	0.83	0.83
57.72	439.00	129.66	1.17	151.31	1.81	0.83	0.83
57.77	433.73	128.03	1.16	148.26	1.80	0.82	0.82
57.82	429.55	126.71	1.13	143.29	1.78	0.82	0.82
57.91	436.73	128.72	1.06	137.09	1.74	0.81	0.81
57.96	442.84	130.46	1.00	130.46	1.69	0.80	0.80
58.02	458.90	135.16	1.00	135.16	1.66	0.81	0.81
58.09	469.26	138.12	1.00	138.12	1.65	0.81	0.81
58.16	484.88	142.65	1.00	142.65	1.63	0.82	0.82
58.25	491.12	144.36	1.00	144.36	1.64	0.82	0.82
58.30	487.65	143.26	1.00	143.26	1.66	0.82	0.82
58.40	479.62	140.74	1.00	140.74	1.69	0.81	0.81
58.50	468.52	137.31	1.02	139.77	1.71	0.81	0.81
58.56	467.50	136.92	1.01	138.70	1.71	0.81	0.81
58.64	464.81	136.01	1.03	140.28	1.72	0.81	0.81
58.73	474.79	138.81	1.05	145.16	1.73	0.82	0.82
58.78	488.15	142.67	1.02	145.87	1.72	0.82	0.82
58.88	506.71	147.98	1.00	147.98	1.69	0.82	0.82
58.97	511.03	149.10	1.00	149.10	1.66	0.83	0.83
59.07	506.24	147.53	1.00	147.53	1.66	0.82	0.82
59.13	493.59	143.73	1.00	143.73	1.65	0.82	0.82
59.23	484.71	140.99	1.00	140.99	1.65	0.81	0.81

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
59.31	464.47	134.94	1.00	134.94	1.65	0.81	0.81
59.38	450.35	130.71	1.00	130.71	1.65	0.80	0.80
59.41	439.19	127.40	1.00	127.40	1.66	0.79	0.79
59.46	443.57	128.62	1.00	128.62	1.65	0.80	0.80
59.51	443.56	128.55	1.00	128.55	1.65	0.80	0.80
59.57	451.89	130.91	1.00	130.91	1.67	0.80	0.80
59.66	471.05	136.37	1.00	136.37	1.67	0.81	0.81
59.75	492.31	142.44	1.00	142.44	1.70	0.82	0.82
59.80	506.48	146.48	1.01	147.84	1.71	0.82	0.82
59.85	508.64	147.04	1.07	156.99	1.74	0.84	0.84
59.91	504.22	145.65	1.08	158.02	1.75	0.84	0.84
59.99	498.85	143.96	1.11	159.53	1.77	0.84	0.84
60.05	480.97	138.68	1.17	161.59	1.81	0.84	0.84
60.09	464.78	133.92	1.20	160.52	1.85	0.84	0.84
60.14	444.43	127.94	1.22	156.08	1.88	0.84	0.84
60.19	437.86	125.96	1.22	153.23	1.87	0.83	0.83
60.22	434.25	124.88	1.21	151.55	1.87	0.83	0.83
60.28	412.99	118.63	1.23	145.94	1.89	0.82	0.82
60.33	381.24	109.36	1.26	137.48	1.93	0.81	0.81
60.38	338.97	97.07	1.31	126.83	2.00	0.79	0.79
60.42	309.75	88.57	1.35	119.65	2.05	0.78	0.78
60.48	282.02	80.50	1.38	111.02	2.07	0.77	0.77
60.57	262.48	74.78	1.36	101.50	2.05	0.75	0.75
60.66	243.89	69.35	1.32	91.67	2.02	0.73	0.73
60.68	232.16	65.95	1.30	85.85	1.99	0.72	0.72
60.69	225.51	64.02	1.29	82.84	1.98	0.71	0.71
60.74	217.75	61.75	1.30	80.07	1.99	0.59	0.71
60.79	206.27	58.41	1.30	76.18	2.00	0.42	0.70
60.84	192.16	54.32	1.32	71.82	2.02	0.30	0.69
60.89	182.35	51.47	1.33	68.64	2.03	0.23	0.68
60.98	174.35	49.12	1.36	66.57	2.05	0.19	0.67
61.03	168.07	47.30	1.46	69.19	2.13	0.24	0.68
61.08	164.86	46.35	1.72	79.69	2.24	0.57	0.71
61.18	164.63	46.24	1.95	90.12	2.31	0.73	0.73
61.23	168.20	47.23	2.12	100.04	2.35	0.75	0.75
61.31	194.08	54.62	1.72	94.03	2.24	0.74	0.74
61.42	236.42	66.70	1.41	94.11	2.09	0.74	0.74
61.47	287.17	81.21	1.24	100.64	1.90	0.75	0.75
61.51	331.30	93.81	1.14	107.25	1.79	0.76	0.76
61.54	366.14	103.76	1.05	108.54	1.73	0.76	0.76
61.57	395.83	112.23	1.00	112.23	1.70	0.77	0.77
61.58	418.64	118.74	1.00	118.74	1.67	0.78	0.78
61.61	393.43	111.49	1.00	111.49	1.70	0.77	0.77
61.63	367.65	104.10	1.03	107.07	1.72	0.76	0.76
61.63	257.89	72.70	1.26	91.77	1.94	0.73	0.73
61.66	191.36	53.66	1.48	79.27	2.14	0.55	0.71
61.67	129.55	35.97	2.37	85.35	2.40	0.72	0.72
61.70	152.96	42.66	1.96	83.80	2.31	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
61.71	180.90	50.64	1.67	84.55	2.22	0.72	0.72
61.76	206.41	57.90	1.51	87.45	2.15	0.72	0.72
61.80	228.84	64.28	1.42	91.10	2.10	0.73	0.73
61.84	250.40	70.41	1.34	94.04	2.03	0.74	0.74
61.86	279.75	78.77	1.26	98.87	1.93	0.75	0.75
61.93	312.34	88.02	1.18	103.69	1.82	0.75	0.75
61.98	357.76	100.92	1.00	100.92	1.73	0.75	0.75
62.04	405.56	114.48	1.00	114.48	1.68	0.77	0.77
62.09	451.78	127.59	1.00	127.59	1.64	0.79	0.79
62.14	481.91	136.10	1.00	136.10	1.62	0.81	0.81
62.19	499.12	140.93	1.00	140.93	1.60	0.81	0.81
62.24	508.93	143.65	1.00	143.65	1.59	0.82	0.82
62.26	519.32	146.58	1.00	146.58	1.58	0.82	0.82
62.29	519.05	146.46	1.00	146.46	1.58	0.82	0.82
62.38	515.71	145.37	1.00	145.37	1.60	0.82	0.82
62.44	490.28	138.07	1.00	138.07	1.65	0.81	0.81
62.46	469.07	132.02	1.00	132.02	1.69	0.80	0.80
62.47	448.15	126.07	1.00	126.07	1.70	0.79	0.79
62.51	453.68	127.59	1.00	127.59	1.69	0.79	0.79
62.56	463.98	130.45	1.00	130.45	1.69	0.80	0.80
62.60	477.62	134.26	1.00	134.26	1.68	0.80	0.80
62.65	481.73	135.35	1.00	135.35	1.68	0.81	0.81
62.70	482.34	135.46	1.00	135.46	1.66	0.81	0.81
62.75	483.05	135.59	1.00	135.59	1.65	0.81	0.81
62.80	494.83	138.85	1.00	138.85	1.64	0.81	0.81
62.85	525.29	147.40	1.00	147.40	1.60	0.82	0.82
62.89	569.18	159.73	1.00	159.73	1.56	0.84	0.84
62.97	619.66	173.86	1.00	173.86	1.54	0.86	0.86
63.04	667.84	187.32	1.00	187.32	1.52	0.87	0.87
63.09	703.12	197.18	1.00	197.18	1.50	0.88	0.88
63.13	715.51	200.57	1.00	200.57	1.51	0.89	0.89
63.19	716.52	200.74	1.00	200.74	1.54	0.89	0.89
63.23	720.23	201.69	1.00	201.69	1.57	0.89	0.89
63.28	726.78	203.42	1.00	203.42	1.59	0.89	0.89
63.32	729.18	204.02	1.00	204.02	1.57	0.89	0.89
63.38	725.67	202.89	1.00	202.89	1.49	0.89	0.89
63.44	726.68	203.06	1.00	203.06	1.43	0.89	0.89
63.52	715.48	199.75	1.00	199.75	1.43	0.89	0.89
63.57	697.37	194.57	1.00	194.57	1.49	0.88	0.88
63.66	659.58	183.79	1.00	183.79	1.52	0.87	0.87
63.73	534.95	148.76	1.00	148.76	1.63	0.83	0.83
63.76	455.61	126.50	1.03	130.54	1.72	0.80	0.80
63.76	411.85	114.24	1.12	127.66	1.77	0.79	0.79
63.78	471.87	131.02	1.00	131.02	1.70	0.80	0.80
63.81	512.86	142.46	1.00	142.46	1.67	0.82	0.82
63.85	526.43	146.19	1.00	146.19	1.68	0.82	0.82
63.86	522.58	145.10	1.00	145.10	1.70	0.82	0.82
63.91	497.92	138.14	1.07	148.35	1.74	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
63.94	483.78	134.14	1.12	150.35	1.77	0.83	0.83
63.95	480.34	133.15	1.14	151.38	1.79	0.83	0.83
64.00	476.26	131.94	1.14	150.67	1.79	0.83	0.83
64.02	473.22	131.08	1.14	149.37	1.79	0.83	0.83
64.05	475.78	131.75	1.12	148.02	1.78	0.82	0.82
64.09	478.18	132.36	1.11	146.64	1.77	0.82	0.82
64.11	480.07	132.86	1.09	144.77	1.75	0.82	0.82
64.15	482.26	133.43	1.07	142.44	1.74	0.82	0.82
64.20	494.31	136.71	1.03	141.24	1.72	0.81	0.81
64.25	512.59	141.74	1.00	141.74	1.70	0.82	0.82
64.29	535.70	148.11	1.00	148.11	1.68	0.82	0.82
64.34	570.38	157.68	1.00	157.68	1.64	0.84	0.84
64.43	605.81	167.40	1.00	167.40	1.60	0.85	0.85
64.48	630.95	174.30	1.00	174.30	1.56	0.86	0.86
64.53	642.69	177.47	1.00	177.47	1.53	0.86	0.86
64.58	655.07	180.82	1.00	180.82	1.52	0.87	0.87
64.63	680.65	187.83	1.00	187.83	1.51	0.87	0.87
64.68	709.63	195.77	1.00	195.77	1.52	0.88	0.88
64.73	718.74	198.20	1.00	198.20	1.53	0.88	0.88
64.77	735.60	202.79	1.00	202.79	1.51	0.89	0.89
64.82	751.19	207.01	1.00	207.01	1.48	0.89	0.89
64.87	732.64	201.76	1.00	201.76	1.49	0.89	0.89
64.89	713.98	196.56	1.00	196.56	1.50	0.88	0.88
64.93	689.59	189.73	1.00	189.73	1.53	0.88	0.88
64.94	715.81	196.96	1.00	196.96	1.51	0.88	0.88
64.98	725.69	199.62	1.00	199.62	1.50	0.89	0.89
64.99	734.03	201.90	1.00	201.90	1.50	0.89	0.89
65.03	732.37	201.35	1.00	201.35	1.50	0.89	0.89
65.08	727.04	199.79	1.00	199.79	1.49	0.89	0.89
65.13	715.51	196.50	1.00	196.50	1.48	0.88	0.88
65.17	703.60	193.13	1.00	193.13	1.46	0.88	0.88
65.22	689.29	189.08	1.00	189.08	1.45	0.87	0.87
65.23	681.55	186.93	1.00	186.93	1.45	0.87	0.87
65.28	679.28	186.22	1.00	186.22	1.46	0.87	0.87
65.32	679.65	186.24	1.00	186.24	1.47	0.87	0.87
65.37	680.17	186.30	1.00	186.30	1.49	0.87	0.87
65.42	684.61	187.42	1.00	187.42	1.50	0.87	0.87
65.47	671.65	183.76	1.00	183.76	1.50	0.87	0.87
65.48	657.21	179.77	1.00	179.77	1.52	0.86	0.86
65.49	638.86	174.70	1.00	174.70	1.52	0.86	0.86
65.52	636.56	174.01	1.00	174.01	1.52	0.86	0.86
65.57	645.67	176.43	1.00	176.43	1.41	0.86	0.86
65.62	661.16	180.61	1.00	180.61	1.28	0.87	0.87
65.67	682.44	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.69	697.23	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.72	719.02	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.77	752.26	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.82	790.78	-1.00	1.00	-1.00	-1.00	0.00	0.00

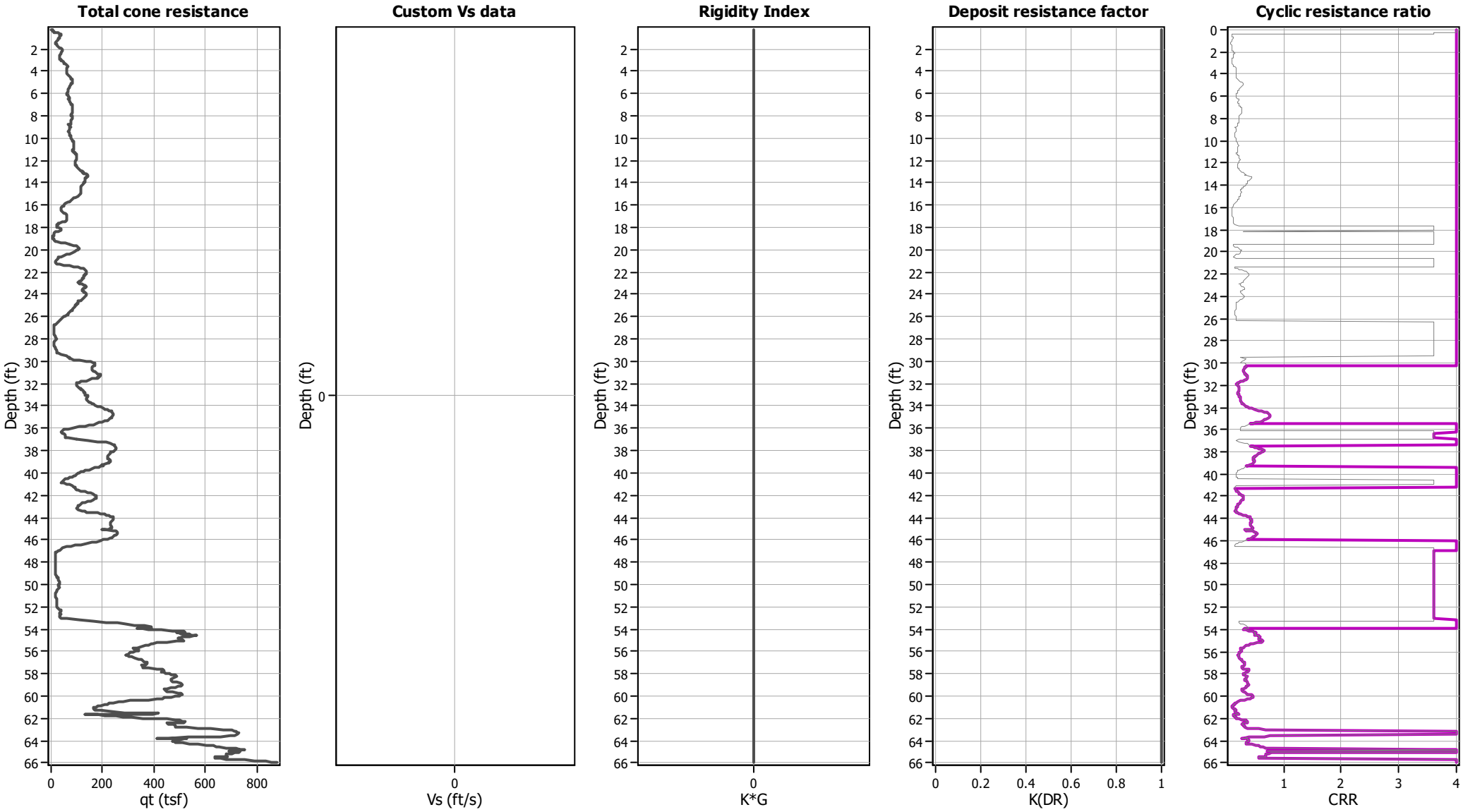
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
65.86	811.97	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.86	833.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.91	854.04	-1.00	1.00	-1.00	-1.00	0.00	0.00
65.96	878.41	-1.00	1.00	-1.00	-1.00	0.00	0.00

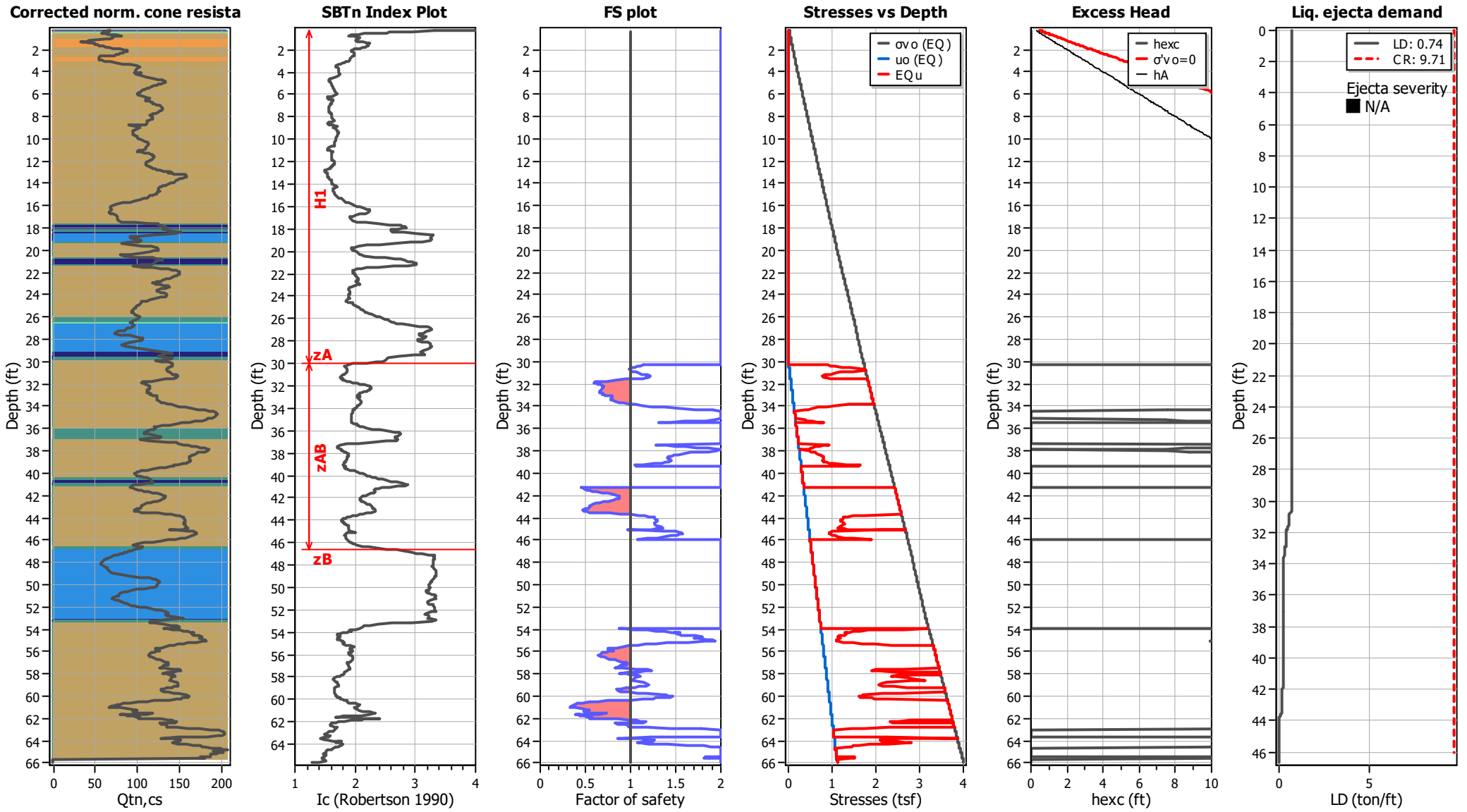
Abbreviations

q_t: Total cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Adjusted and corrected cone resistance due to fines
I_c: Soil behavior type index
$S_{u(liq)}/\sigma'_v$: Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$: Calculated peak undrained strength ratio

Aging Calculation Estimation



Ejecta Severity Estimation



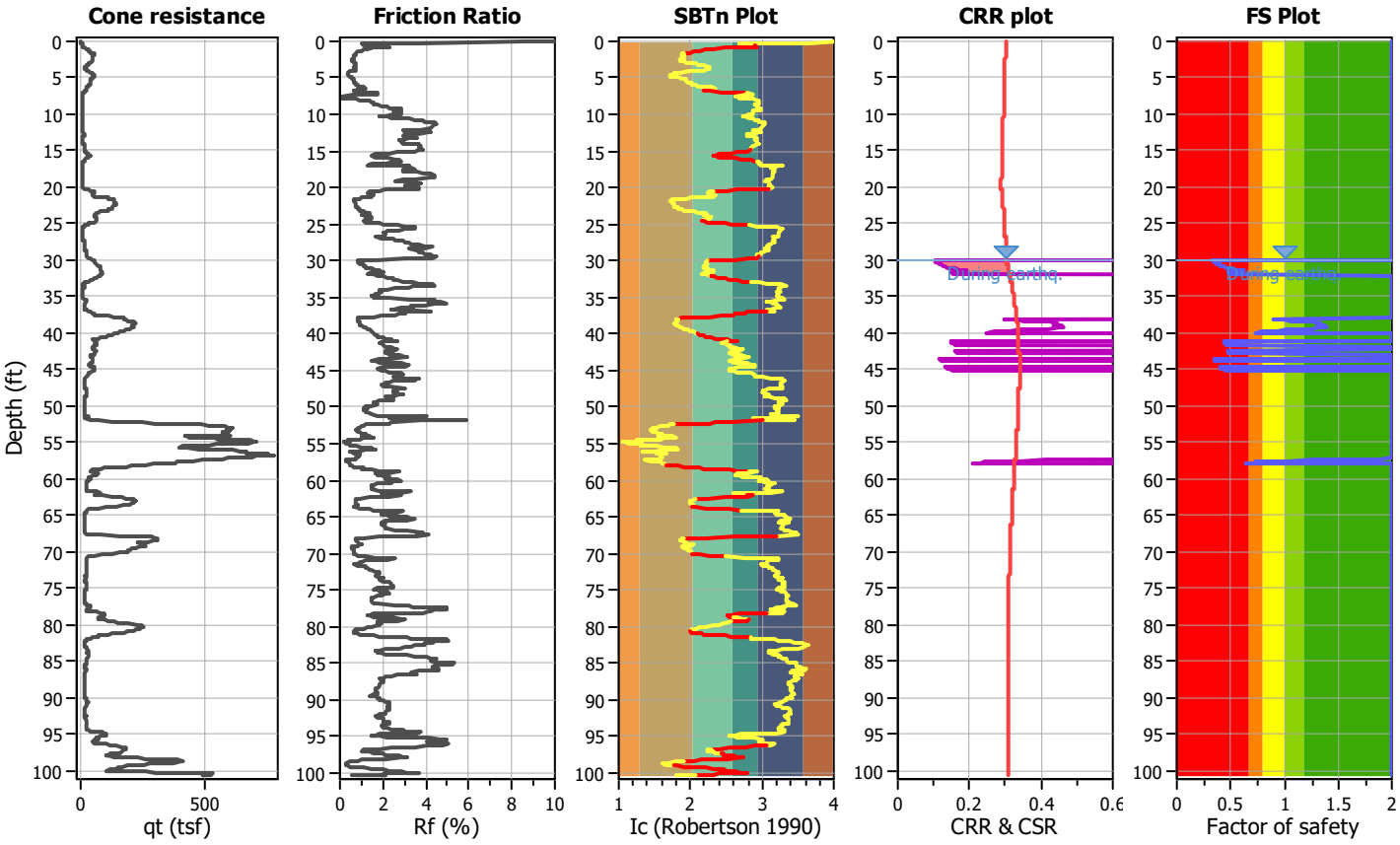
LIQUEFACTION ANALYSIS REPORT

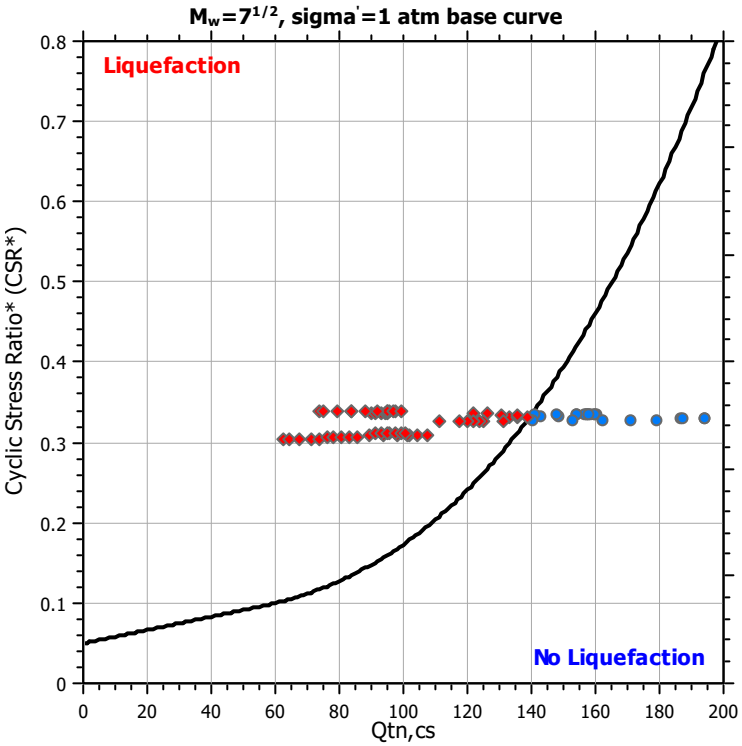
Project title : W1857-88-01 **Location : 331 The City Drive S**

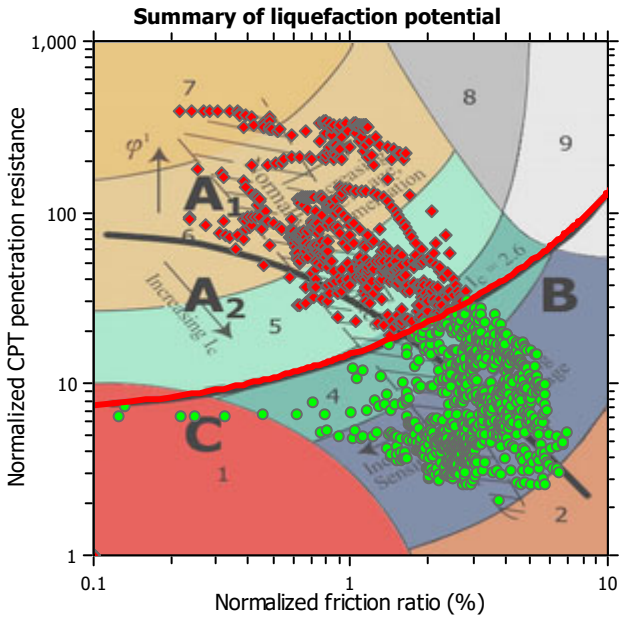
CPT file : CPT-3

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	54.00 ft	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	30.00 ft	Fill height:	N/A	Limit depth applied:	Yes
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	62.00 ft
Earthquake magnitude M_w:	6.65	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.63	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

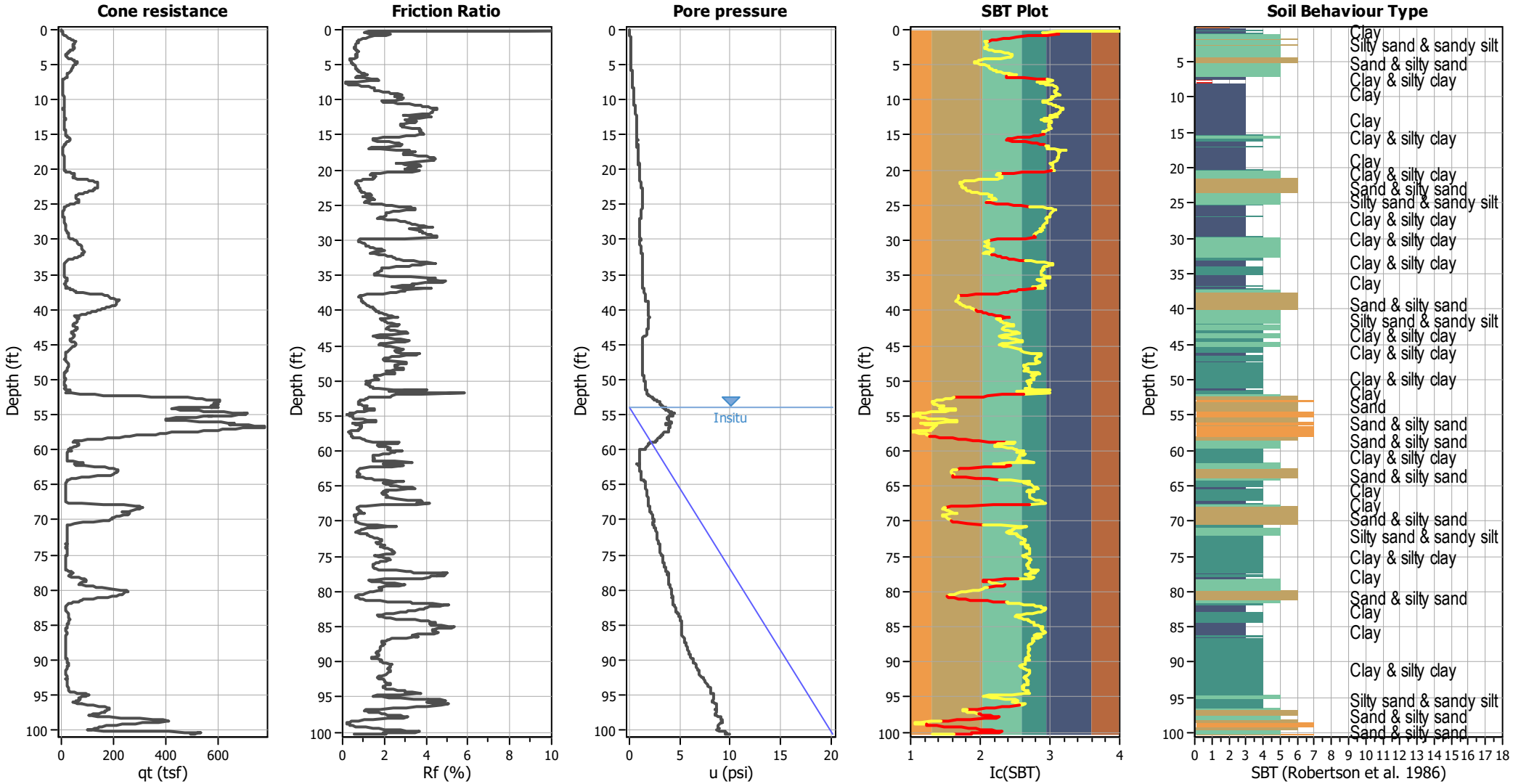






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



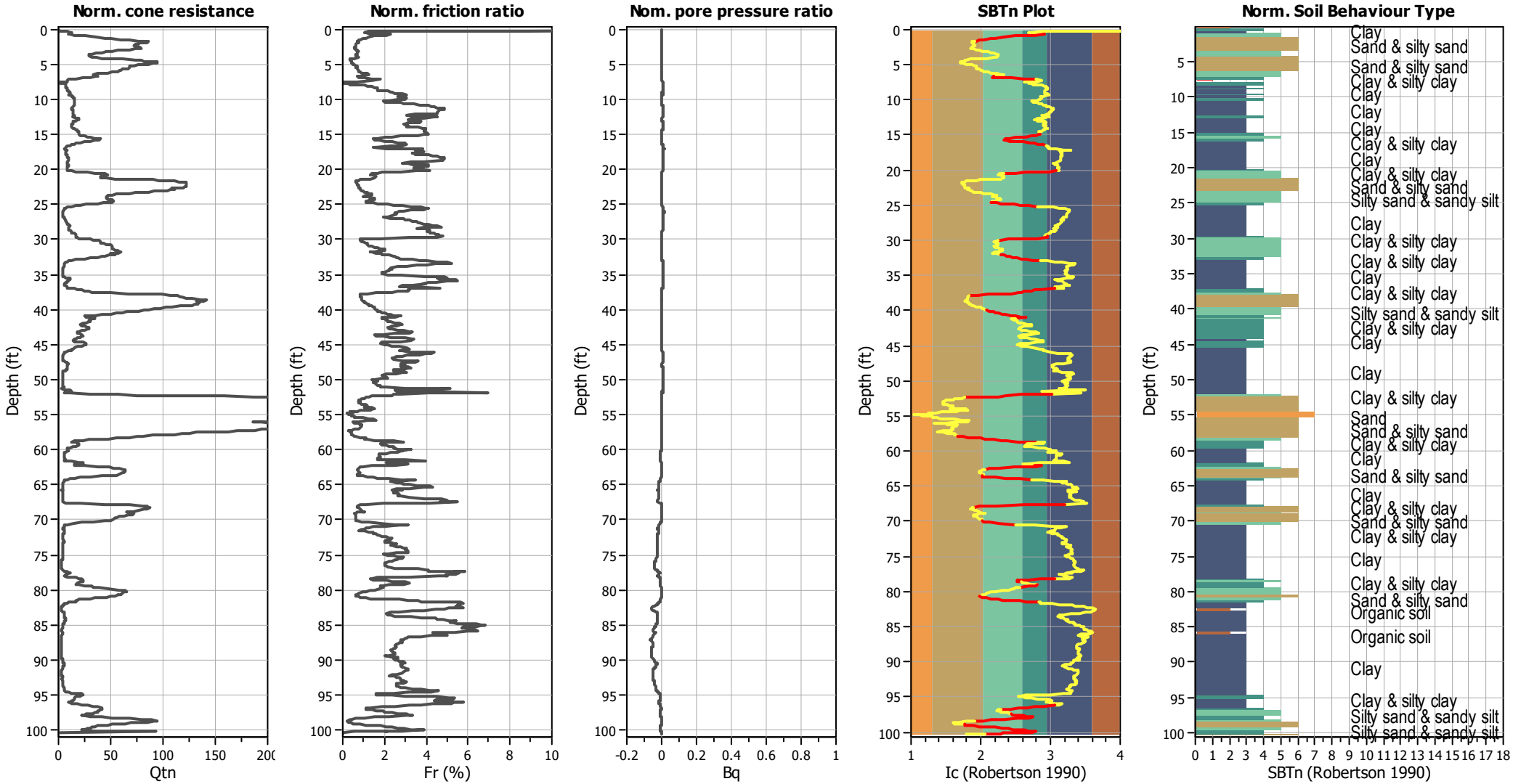
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



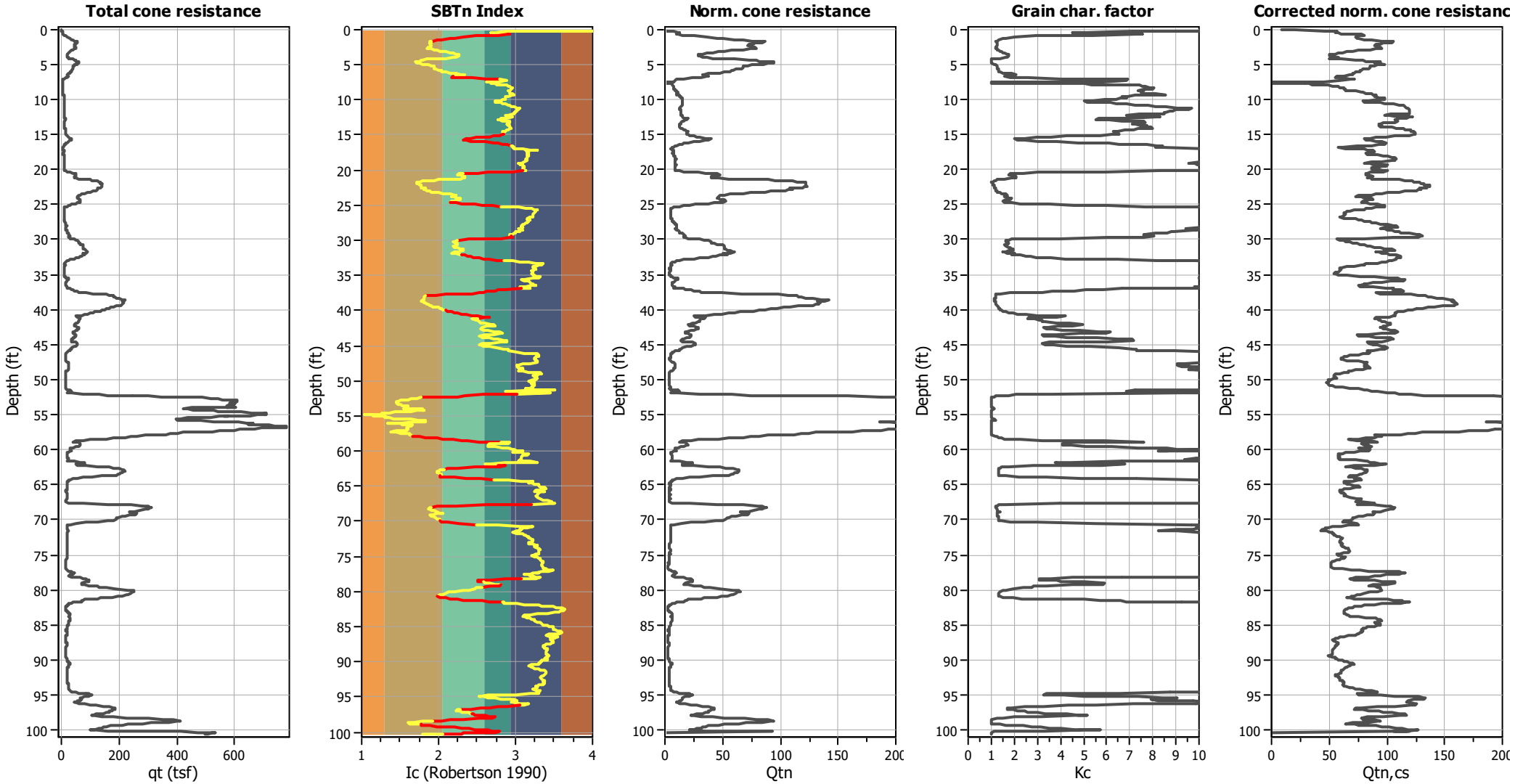
Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

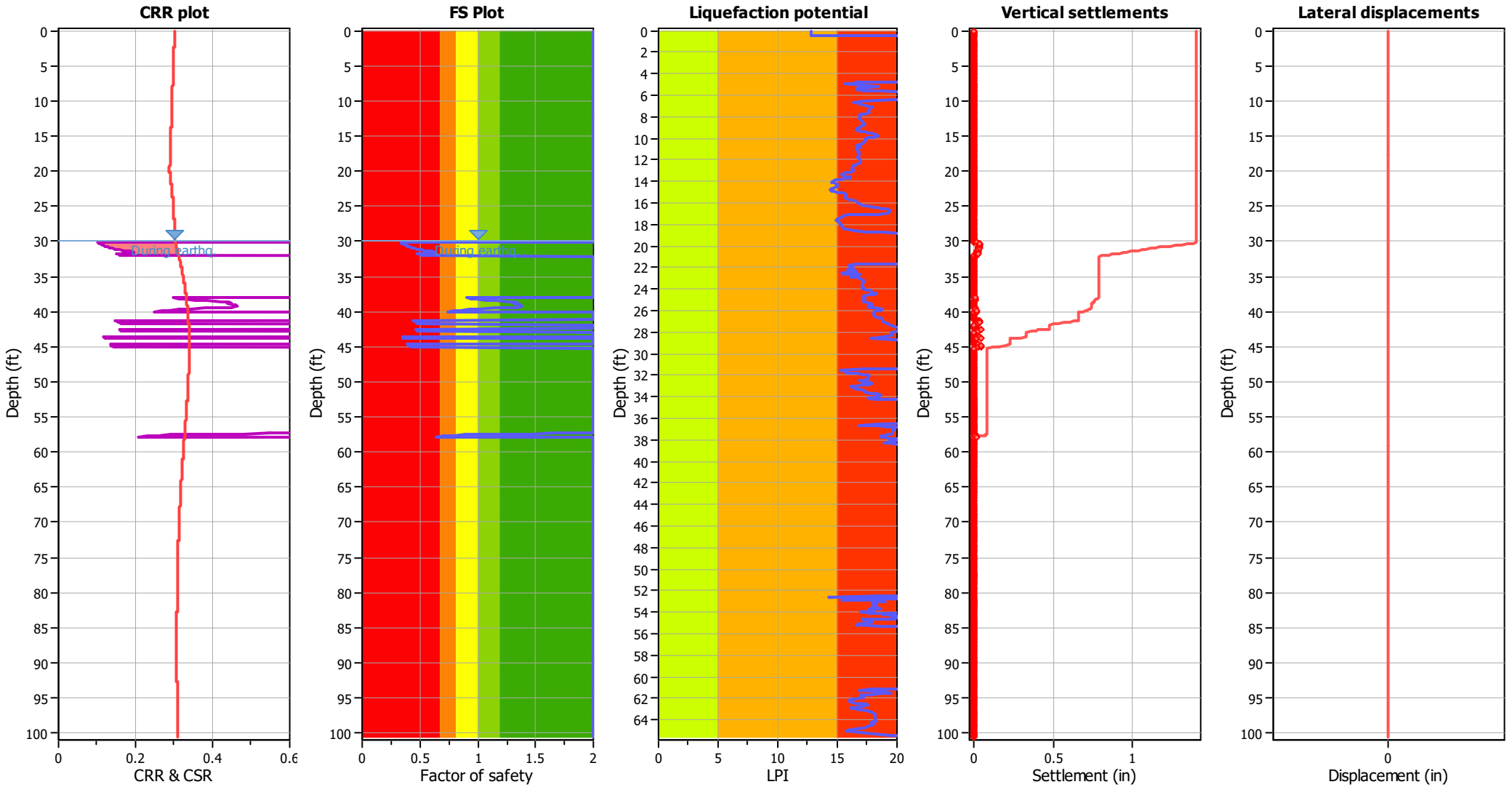
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

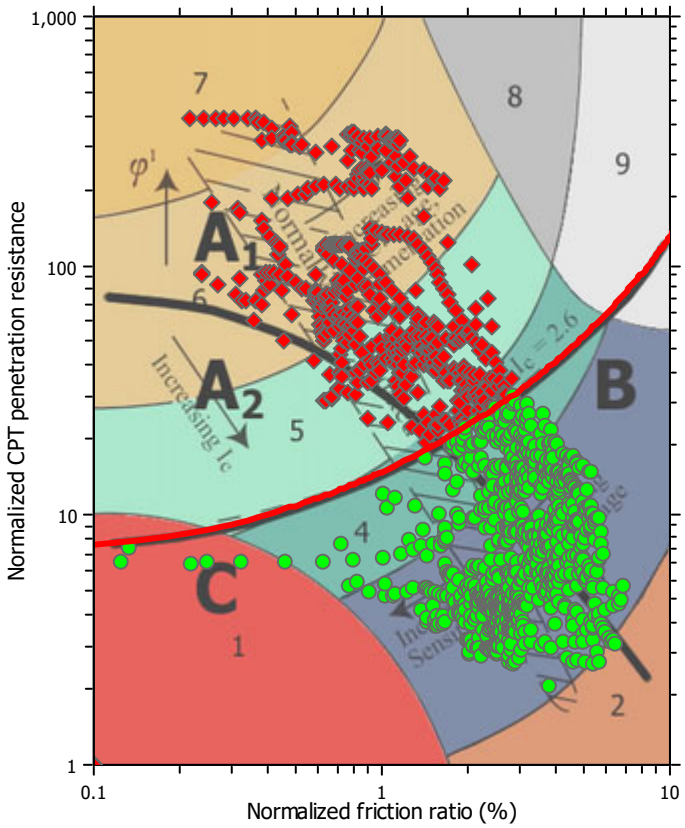
F.S. color scheme

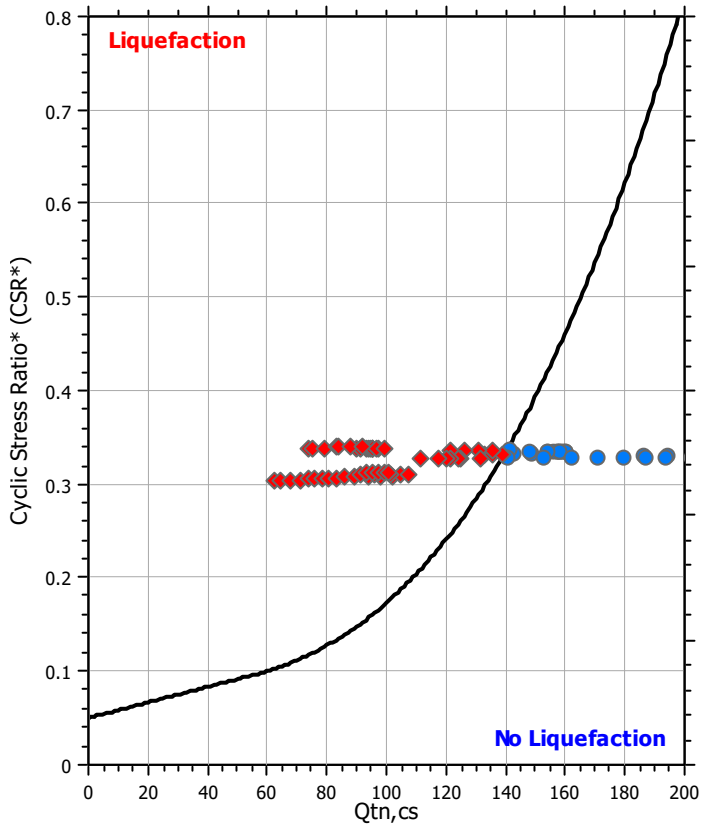
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

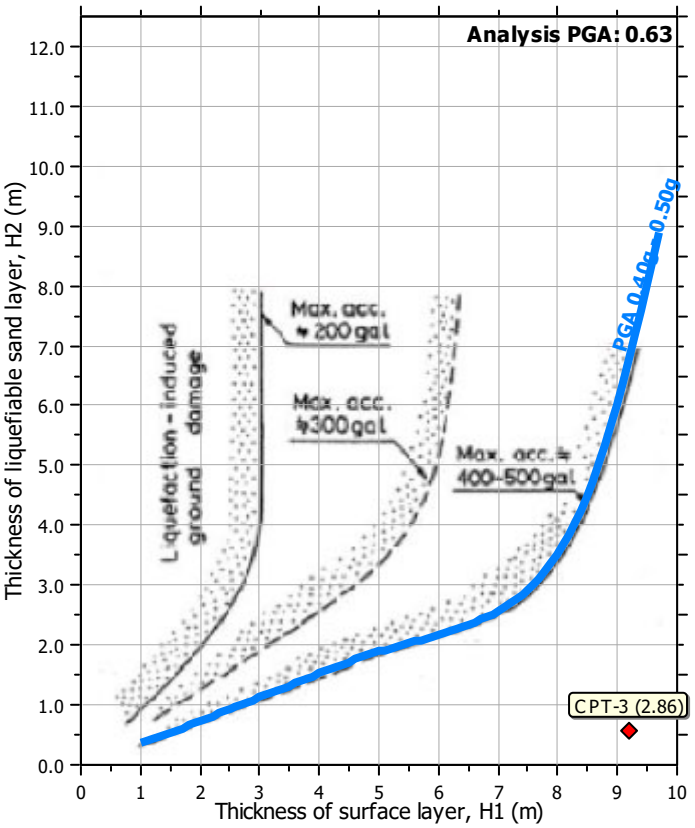
LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis summary plots



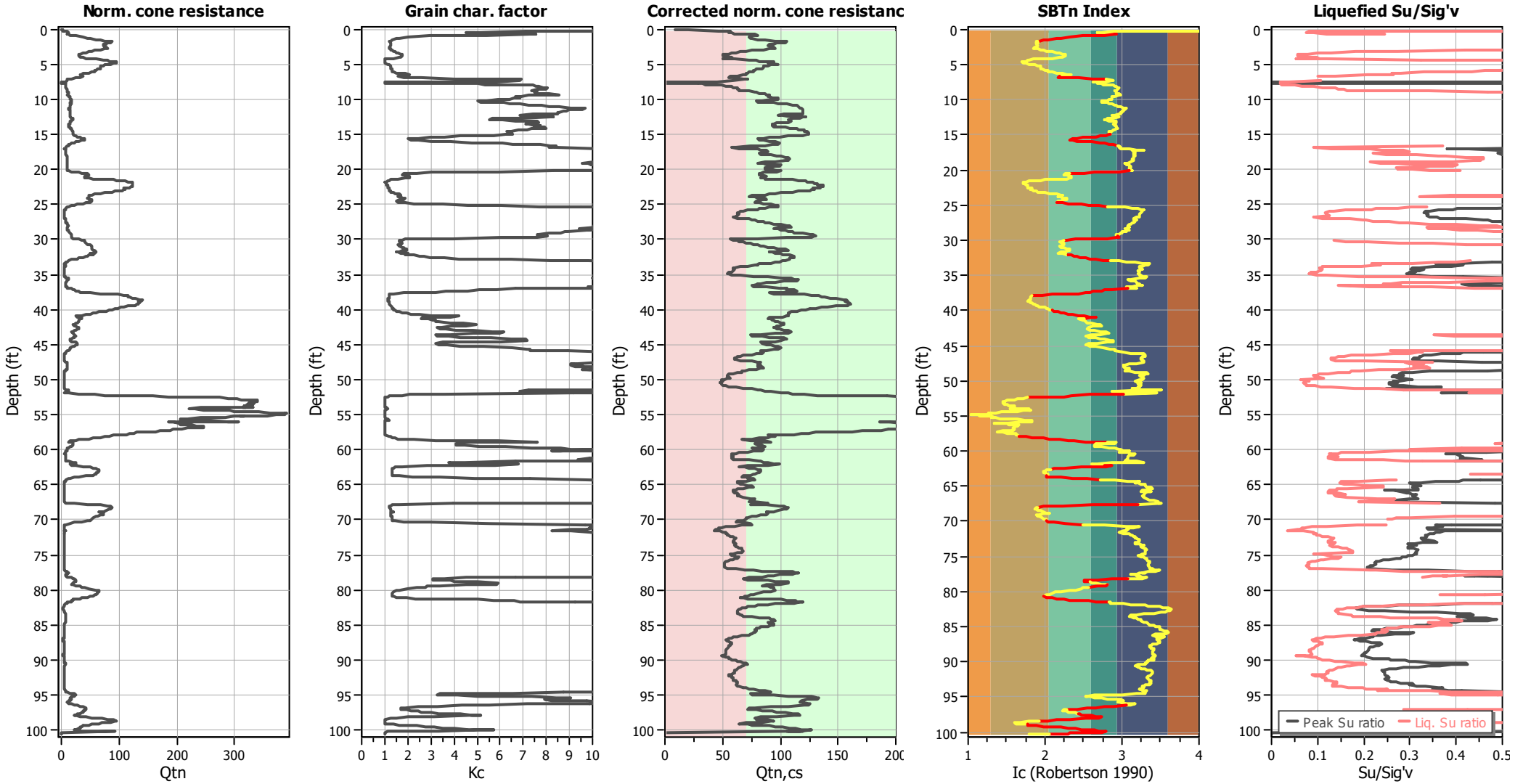




Input parameters and analysis data

Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

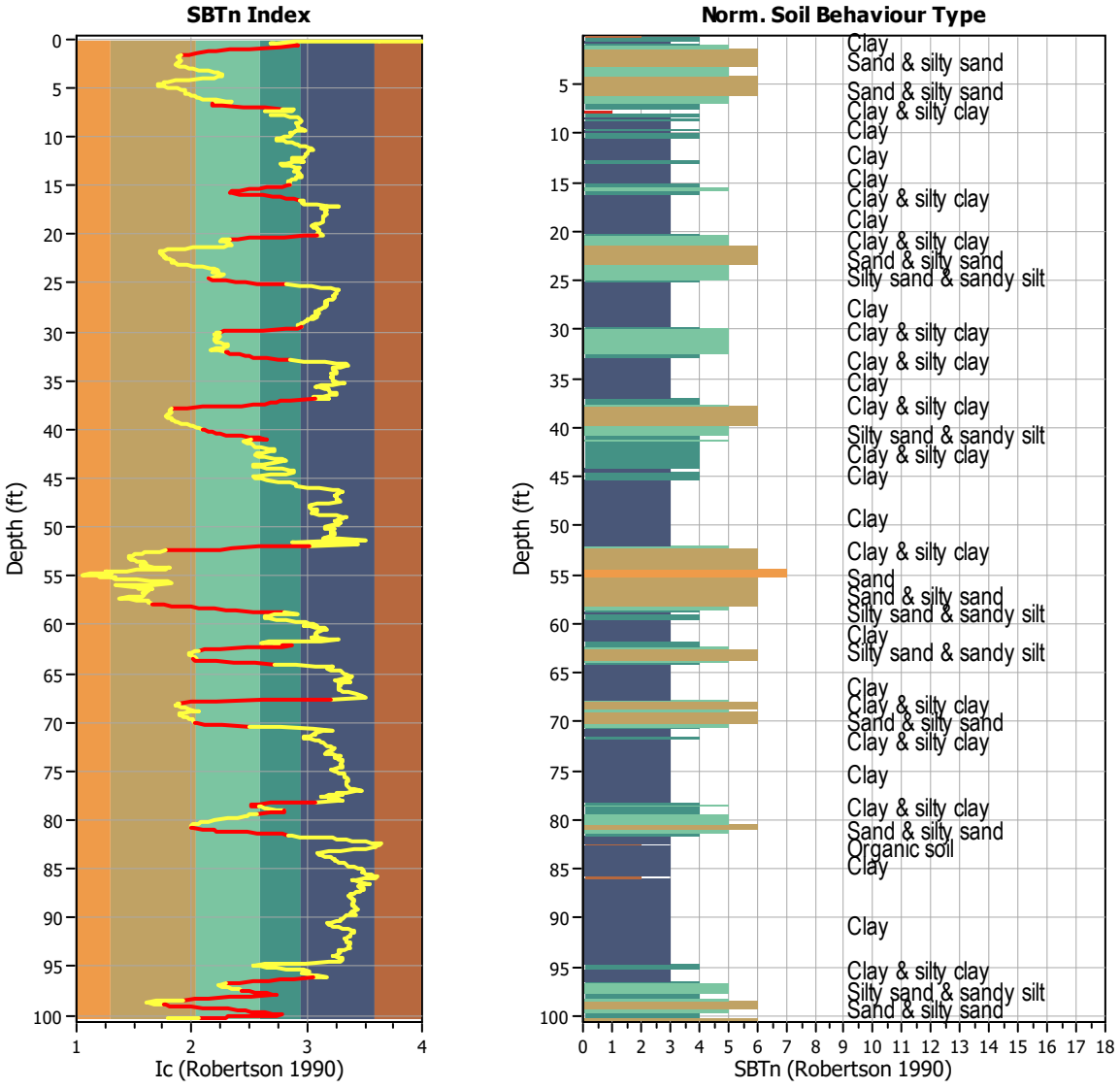
Analysis method:	NCEER (1998)	Depth to water table (erthq.):	30.00 ft	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.65	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.63	Use fill:	No	Limit depth applied:	Yes
Depth to water table (insitu):	54.00 ft	Fill height:	N/A	Limit depth:	62.00 ft

TRANSITION LAYER DETECTION ALGORITHM REPORT
Summary Details & Plots

Short description

The software will delete data when the cone is in transition from either clay to sand or vise-versa. To do this the software requires a range of I_c values over which the transition will be defined (typically somewhere between 1.80 < I_c < 3.0) and a rate of change of I_c. Transitions typically occur when the rate of change of I_c is fast (i.e. delta I_c is small).

The SBT_n plot below, displays in red the detected transition layers based on the parameters listed below the graphs.



Transition layer algorithm properties

I_c minimum check value:	1.70
I_c maximum check value:	3.00
I_c change ratio value:	0.0250
Minimum number of points in layer:	4

General statistics

Total points in CPT file:	1376
Total points excluded:	224
Exclusion percentage:	16.28%
Number of layers detected:	26

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 1	12	Start depth: 0.72 (ft)	3	Clay
		End depth: 1.74 (ft)	6	Sand & silty sand
Transition layer 2	6	Start depth: 6.76 (ft)	5	Silty sand & sandy silt
		End depth: 7.19 (ft)	4	Clay & silty clay
Transition layer 3	9	Start depth: 14.99 (ft)	3	Clay
		End depth: 15.67 (ft)	5	Silty sand & sandy silt
Transition layer 4	11	Start depth: 15.76 (ft)	5	Silty sand & sandy silt
		End depth: 16.58 (ft)	3	Clay
Transition layer 5	7	Start depth: 20.21 (ft)	3	Clay
		End depth: 20.60 (ft)	5	Silty sand & sandy silt
Transition layer 6	9	Start depth: 24.64 (ft)	5	Silty sand & sandy silt
		End depth: 25.27 (ft)	3	Clay
Transition layer 7	8	Start depth: 29.55 (ft)	3	Clay
		End depth: 30.13 (ft)	5	Silty sand & sandy silt
Transition layer 8	12	Start depth: 32.12 (ft)	5	Silty sand & sandy silt
		End depth: 32.98 (ft)	3	Clay
Transition layer 9	15	Start depth: 36.97 (ft)	3	Clay
		End depth: 37.97 (ft)	6	Sand & silty sand
Transition layer 10	12	Start depth: 40.09 (ft)	5	Silty sand & sandy silt
		End depth: 40.97 (ft)	4	Clay & silty clay
Transition layer 11	4	Start depth: 40.97 (ft)	4	Clay & silty clay
		End depth: 41.15 (ft)	5	Silty sand & sandy silt
Transition layer 12	8	Start depth: 52.01 (ft)	4	Clay & silty clay
		End depth: 52.45 (ft)	6	Sand & silty sand
Transition layer 13	14	Start depth: 57.92 (ft)	6	Sand & silty sand
		End depth: 58.84 (ft)	3	Clay
Transition layer 14	7	Start depth: 62.10 (ft)	3	Clay
		End depth: 62.74 (ft)	6	Sand & silty sand
Transition layer 15	7	Start depth: 63.61 (ft)	6	Sand & silty sand
		End depth: 64.15 (ft)	3	Clay
Transition layer 16	5	Start depth: 67.68 (ft)	4	Clay & silty clay
		End depth: 68.07 (ft)	6	Sand & silty sand
Transition layer 17	5	Start depth: 70.08 (ft)	6	Sand & silty sand
		End depth: 70.54 (ft)	4	Clay & silty clay
Transition layer 18	4	Start depth: 78.24 (ft)	4	Clay & silty clay
		End depth: 78.47 (ft)	5	Silty sand & sandy silt
Transition layer 19	4	Start depth: 78.53 (ft)	5	Silty sand & sandy silt
		End depth: 78.69 (ft)	4	Clay & silty clay
Transition layer 20	4	Start depth: 79.16 (ft)	4	Clay & silty clay
		End depth: 79.45 (ft)	5	Silty sand & sandy silt
Transition layer 21	15	Start depth: 80.83 (ft)	6	Sand & silty sand
		End depth: 81.56 (ft)	3	Clay
Transition layer 22	7	Start depth: 96.30 (ft)	3	Clay
		End depth: 96.87 (ft)	5	Silty sand & sandy silt
Transition layer 23	8	Start depth: 97.45 (ft)	5	Silty sand & sandy silt
		End depth: 97.88 (ft)	4	Clay & silty clay

Transition layer No	Number of points	Depth	SBT_n number	SBT_n description
Transition layer 24	8	Start depth: 97.88 (ft)	4	Clay & silty clay
		End depth: 98.47 (ft)	6	Sand & silty sand
Transition layer 25	14	Start depth: 98.98 (ft)	6	Sand & silty sand
		End depth: 99.95 (ft)	3	Clay
Transition layer 26	9	Start depth: 99.95 (ft)	3	Clay
		End depth: 100.28 (ft)	6	Sand & silty sand

Start depth: Depth where the transition layer begins
End depth: Depth where the transition layer ends

:: Field input data ::

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1	0.04	0.10	0.03	0.00	100.00	87.36
2	0.10	0.10	0.04	0.00	100.00	87.36
3	0.11	0.20	0.05	0.00	100.00	87.36
4	0.16	0.40	0.05	0.00	100.00	87.36
5	0.19	1.01	0.05	0.00	100.00	88.74
6	0.24	2.43	0.05	0.00	71.90	91.34
7	0.31	5.06	0.06	0.00	51.48	93.80
8	0.38	7.29	0.07	0.00	42.56	95.48
9	0.43	7.69	0.08	0.00	39.63	96.43
10	0.49	7.69	0.08	0.00	41.35	96.84
11	0.58	6.58	0.09	0.00	44.64	97.26
12	0.63	6.17	0.10	0.00	49.07	97.85
13	0.67	5.97	0.11	0.00	51.93	98.72
14	0.72	6.02	0.13	0.00	53.54	99.42
15	0.72	6.07	0.13	0.00	52.47	101.17
16	0.84	8.00	0.20	0.00	44.02	103.62
17	0.96	13.76	0.25	0.00	30.61	106.61
18	1.06	25.71	0.28	0.10	23.44	108.76
19	1.24	28.44	0.33	0.10	19.50	109.81
20	1.30	29.76	0.31	0.10	17.10	110.05
21	1.48	36.23	0.28	0.10	14.00	110.41
22	1.59	45.85	0.33	0.10	12.36	111.13
23	1.69	44.33	0.37	0.10	11.12	112.10
24	1.69	52.02	0.37	0.10	10.74	112.65
25	1.74	53.04	0.39	0.10	9.92	112.99
26	1.79	54.66	0.40	0.10	9.87	113.14
27	1.84	53.64	0.39	0.10	10.04	113.01
28	1.88	50.40	0.38	0.10	10.26	112.64
29	1.93	49.70	0.35	0.10	10.40	112.09
30	1.99	48.28	0.32	0.10	10.27	111.60
31	2.03	48.08	0.31	0.10	10.19	111.23
32	2.08	47.87	0.31	0.10	10.14	110.98
33	2.13	47.06	0.29	0.10	10.28	110.80
34	2.22	45.65	0.30	0.10	10.49	110.61
35	2.27	44.84	0.29	0.10	10.68	110.44
36	2.33	44.43	0.28	0.10	10.61	110.26
37	2.42	45.04	0.28	0.10	10.34	110.23
38	2.48	46.86	0.28	0.10	9.95	110.30
39	2.56	48.28	0.28	0.10	9.56	110.53
40	2.65	50.10	0.29	0.10	9.36	110.70
41	2.72	49.90	0.29	0.10	9.62	110.74
42	2.80	46.15	0.29	0.10	10.31	110.44
43	2.89	42.00	0.28	0.10	11.29	109.97
44	2.94	39.17	0.26	0.10	12.40	109.53
45	3.04	35.93	0.26	0.10	13.48	109.00
46	3.14	32.59	0.24	0.10	14.78	108.19
47	3.23	28.44	0.21	0.10	15.91	107.05
48	3.31	26.01	0.18	0.10	17.31	105.88

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
49	3.37	22.77	0.17	0.10	18.64	104.75
50	3.48	20.34	0.15	0.10	20.16	103.47
51	3.57	18.02	0.12	0.10	20.83	102.23
52	3.65	18.02	0.11	0.10	20.99	101.38
53	3.71	18.02	0.11	0.10	20.91	101.29
54	3.82	18.02	0.11	0.10	20.93	102.11
55	3.91	19.84	0.15	0.10	20.16	103.21
56	4.00	22.67	0.16	0.10	18.85	104.71
57	4.10	25.91	0.19	0.10	15.53	104.42
58	4.19	30.57	0.11	0.10	5.00	104.40
59	4.26	37.15	0.13	0.10	5.00	104.51
60	4.35	46.05	0.17	0.10	5.00	106.46
61	4.44	53.64	0.20	0.19	5.00	107.75
62	4.52	49.70	0.21	0.19	5.00	108.36
63	4.53	50.81	0.21	0.19	5.00	108.59
64	4.58	56.27	0.21	0.19	5.00	108.81
65	4.63	58.00	0.22	0.19	5.00	109.16
66	4.68	59.01	0.23	0.19	5.00	109.49
67	4.72	59.51	0.24	0.19	5.00	109.83
68	4.77	59.31	0.25	0.19	5.00	110.07
69	4.82	58.40	0.26	0.19	5.00	110.22
70	4.88	56.48	0.26	0.19	5.00	110.30
71	4.96	53.74	0.27	0.19	7.94	110.33
72	5.01	50.61	0.27	0.19	8.80	110.33
73	5.08	47.27	0.28	0.19	9.75	110.30
74	5.16	44.43	0.28	0.19	10.61	110.22
75	5.21	42.71	0.28	0.19	11.15	110.15
76	5.30	42.66	0.28	0.19	11.35	110.11
77	5.37	42.66	0.28	0.19	11.37	110.11
78	5.45	42.61	0.28	0.19	11.35	110.10
79	5.52	42.81	0.28	0.19	11.43	110.08
80	5.59	41.90	0.28	0.19	11.67	109.99
81	5.65	40.38	0.27	0.19	12.17	109.79
82	5.74	38.16	0.27	0.19	12.78	109.59
83	5.83	36.84	0.27	0.19	13.36	109.47
84	5.89	36.23	0.27	0.29	13.78	109.49
85	5.97	35.83	0.27	0.29	14.10	109.46
86	6.07	34.92	0.27	0.29	14.65	109.36
87	6.12	32.79	0.27	0.29	15.67	109.20
88	6.22	29.96	0.27	0.29	17.39	109.00
89	6.28	26.52	0.27	0.29	19.71	108.75
90	6.36	23.18	0.27	0.29	22.24	108.30
91	6.46	20.65	0.26	0.29	24.09	107.75
92	6.52	20.04	0.24	0.29	23.83	106.97
93	6.60	21.46	0.20	0.29	21.15	106.06
94	6.70	24.70	0.16	0.29	18.41	104.86
95	6.76	24.49	0.14	0.29	18.15	104.05
96	6.84	19.84	0.15	0.29	21.31	103.55

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
97	6.94	14.57	0.15	0.29	28.13	103.13
98	7.03	10.32	0.15	0.29	36.85	102.17
99	7.13	7.69	0.14	0.29	45.33	101.02
100	7.19	6.68	0.13	0.29	50.80	99.02
101	7.32	5.47	0.08	0.29	50.53	95.58
102	7.42	5.16	0.02	0.29	46.05	89.63
103	7.49	4.86	0.01	0.29	36.85	87.36
104	7.57	4.76	-0.01	0.29	N/A	87.36
105	7.66	4.55	0.00	0.29	N/A	87.36
106	7.76	4.35	0.01	0.29	39.30	87.36
107	7.77	4.40	0.01	0.29	41.66	87.36
108	7.78	4.40	0.01	0.29	42.16	87.36
109	7.82	4.45	0.01	0.29	43.69	87.36
110	7.87	4.45	0.02	0.29	46.05	87.36
111	7.92	4.45	0.03	0.29	48.69	87.36
112	7.97	4.45	0.03	0.29	50.96	88.91
113	8.01	4.55	0.04	0.29	52.87	90.83
114	8.06	4.76	0.05	0.29	53.56	92.24
115	8.11	4.96	0.06	0.29	53.89	93.35
116	8.20	5.06	0.06	0.29	54.02	94.10
117	8.26	5.16	0.07	0.29	54.67	94.95
118	8.35	5.26	0.08	0.29	55.25	95.57
119	8.40	5.26	0.08	0.38	55.42	95.96
120	8.49	5.36	0.08	0.38	55.15	96.13
121	8.54	5.47	0.08	0.38	54.56	96.42
122	8.64	5.67	0.09	0.38	53.58	96.77
123	8.69	5.97	0.09	0.38	52.70	97.12
124	8.79	6.07	0.09	0.38	53.07	98.37
125	8.84	6.48	0.14	0.38	53.64	99.77
126	8.93	6.88	0.15	0.38	53.23	100.93
127	9.03	7.29	0.15	0.38	53.10	101.61
128	9.08	7.19	0.17	0.38	53.34	101.99
129	9.11	7.14	0.18	0.38	54.44	102.35
130	9.12	7.14	0.18	0.38	54.87	102.44
131	9.17	7.08	0.18	0.38	55.46	102.54
132	9.22	6.98	0.19	0.38	55.68	102.79
133	9.31	7.29	0.19	0.38	57.60	103.02
134	9.36	6.48	0.20	0.38	56.84	103.40
135	9.40	7.69	0.21	0.38	55.49	103.68
136	9.46	8.20	0.21	0.38	52.20	104.01
137	9.51	8.50	0.21	0.38	50.78	104.20
138	9.55	8.70	0.22	0.48	49.80	104.47
139	9.61	9.11	0.23	0.48	49.60	104.86
140	9.69	9.11	0.24	0.48	49.93	105.32
141	9.74	9.11	0.26	0.38	50.53	105.75
142	9.81	9.31	0.27	0.48	50.47	106.17
143	9.89	9.72	0.28	0.38	49.47	106.49
144	9.94	10.22	0.29	0.48	48.57	106.69

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
145	10.03	10.22	0.28	0.48	47.95	106.73
146	10.08	10.22	0.28	0.48	46.27	105.91
147	10.18	10.22	0.19	0.48	43.86	104.66
148	10.23	10.22	0.16	0.48	42.16	103.72
149	10.33	10.22	0.21	0.48	42.78	104.06
150	10.40	10.22	0.22	0.48	44.53	104.99
151	10.47	10.22	0.24	0.48	46.24	105.54
152	10.51	9.77	0.26	0.48	47.48	106.12
153	10.56	10.17	0.28	0.48	48.53	106.55
154	10.61	10.12	0.29	0.48	48.96	107.12
155	10.67	10.32	0.32	0.48	50.59	107.76
156	10.75	10.02	0.37	0.48	52.01	108.32
157	10.80	10.02	0.37	0.48	53.26	108.59
158	10.85	9.92	0.37	0.48	53.79	108.61
159	10.90	9.72	0.37	0.57	54.58	108.60
160	11.00	9.51	0.38	0.57	55.86	108.56
161	11.05	9.11	0.37	0.57	57.54	108.36
162	11.14	8.50	0.36	0.57	59.49	108.14
163	11.21	8.20	0.36	0.57	61.41	108.08
164	11.29	8.10	0.38	0.57	61.90	108.18
165	11.38	8.40	0.37	0.57	61.40	108.38
166	11.46	8.70	0.39	0.57	60.04	108.48
167	11.52	8.91	0.38	0.57	59.20	108.60
168	11.60	9.01	0.38	0.57	58.74	108.64
169	11.67	9.01	0.39	0.57	58.51	108.69
170	11.72	9.11	0.39	0.57	58.33	108.76
171	11.81	9.21	0.39	0.57	57.50	108.86
172	11.86	9.62	0.39	0.57	57.42	108.90
173	11.96	9.21	0.39	0.57	57.28	108.93
174	12.01	9.41	0.40	0.57	57.36	108.99
175	12.10	9.72	0.40	0.57	56.33	108.48
176	12.16	9.92	0.30	0.57	52.86	107.67
177	12.24	10.53	0.27	0.67	50.46	107.26
178	12.32	10.93	0.34	0.67	50.49	108.00
179	12.39	11.13	0.39	0.67	51.82	109.13
180	12.48	11.44	0.42	0.67	55.21	109.56
181	12.50	9.31	0.43	0.67	56.54	109.82
182	12.54	9.92	0.45	0.67	56.14	110.10
183	12.64	12.95	0.45	0.67	51.14	110.63
184	12.68	14.17	0.46	0.67	46.74	111.06
185	12.77	14.98	0.47	0.67	45.02	111.08
186	12.82	14.98	0.44	0.67	44.58	110.87
187	12.89	14.27	0.42	0.67	45.32	110.45
188	12.97	13.36	0.41	0.67	47.27	110.13
189	13.03	12.45	0.41	0.67	49.63	109.86
190	13.12	11.64	0.40	0.67	52.08	109.64
191	13.16	11.03	0.40	0.67	53.60	109.40
192	13.26	10.93	0.39	0.67	54.00	108.95

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
193	13.34	10.73	0.34	0.67	53.03	108.33
194	13.41	10.83	0.31	0.67	51.87	107.54
195	13.50	10.63	0.28	0.67	51.53	107.03
196	13.60	10.32	0.28	0.67	52.24	106.75
197	13.65	10.02	0.28	0.67	53.22	106.76
198	13.75	10.02	0.29	0.67	54.12	106.90
199	13.80	10.02	0.30	0.67	53.54	106.72
200	13.89	10.22	0.26	0.67	53.46	106.90
201	13.94	10.42	0.31	0.76	53.08	107.50
202	14.03	11.23	0.37	0.76	54.97	108.63
203	14.11	10.73	0.41	0.76	55.24	109.48
204	14.13	11.69	0.42	0.76	55.28	110.03
205	14.18	12.15	0.45	0.76	53.47	110.47
206	14.22	12.95	0.46	0.76	52.62	110.95
207	14.28	13.36	0.49	0.76	51.87	111.50
208	14.37	13.97	0.53	0.76	51.36	112.04
209	14.44	14.68	0.56	0.76	50.25	112.56
210	14.51	15.69	0.58	0.76	48.93	112.99
211	14.60	16.50	0.60	0.76	48.02	113.34
212	14.65	16.70	0.62	0.76	47.94	113.59
213	14.75	16.50	0.63	0.76	48.44	113.74
214	14.85	16.45	0.64	0.76	48.93	113.80
215	14.91	16.45	0.63	0.76	49.08	113.80
216	14.99	16.40	0.63	0.76	47.80	113.81
217	15.09	18.12	0.62	0.76	45.25	113.98
218	15.18	20.34	0.63	0.76	41.64	114.15
219	15.25	22.37	0.61	0.76	38.13	114.10
220	15.33	24.09	0.55	0.76	34.47	113.87
221	15.43	27.02	0.52	0.76	30.57	113.72
222	15.51	31.38	0.52	0.76	26.98	113.86
223	15.59	35.53	0.52	0.76	24.54	114.07
224	15.67	36.94	0.52	0.76	23.56	114.17
225	15.76	36.03	0.51	0.86	24.48	114.23
226	15.86	32.39	0.54	0.76	26.98	114.13
227	15.95	27.63	0.54	0.76	31.02	113.82
228	16.05	22.87	0.53	0.76	35.88	113.11
229	16.14	18.72	0.48	0.76	40.89	112.24
230	16.20	16.30	0.45	0.76	44.59	111.36
231	16.28	15.49	0.42	0.76	47.26	110.71
232	16.34	14.17	0.41	0.76	49.02	109.97
233	16.44	12.95	0.36	0.76	51.62	109.16
234	16.50	11.64	0.33	0.86	54.21	108.05
235	16.58	10.22	0.29	0.76	56.10	106.16
236	16.73	8.60	0.17	0.86	57.07	103.07
237	16.82	7.39	0.09	0.76	55.90	98.94
238	16.92	6.78	0.07	0.86	56.73	97.37
239	17.01	6.98	0.12	0.86	64.41	99.23
240	17.11	5.87	0.17	0.86	72.33	101.23

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
241	17.12	5.72	0.19	0.86	79.64	102.14
242	17.14	5.57	0.19	0.86	75.40	102.95
243	17.19	7.69	0.22	0.86	70.99	103.97
244	17.28	8.10	0.25	0.86	67.48	104.99
245	17.33	8.00	0.26	0.86	68.61	105.59
246	17.43	7.89	0.28	0.86	70.20	105.75
247	17.47	7.69	0.27	0.86	70.55	105.46
248	17.57	7.59	0.24	0.86	70.29	104.78
249	17.65	7.39	0.21	0.86	69.39	104.05
250	17.72	7.39	0.21	0.86	69.90	104.00
251	17.81	7.39	0.23	0.86	69.98	104.48
252	17.86	7.89	0.25	0.86	70.40	105.52
253	17.95	8.30	0.30	0.86	70.27	106.61
254	18.05	8.70	0.35	0.86	69.77	107.59
255	18.10	9.31	0.36	0.86	69.28	108.43
256	18.20	9.62	0.41	0.86	68.75	109.17
257	18.30	10.02	0.44	0.86	69.06	109.74
258	18.39	10.02	0.45	0.86	68.69	110.03
259	18.48	10.32	0.45	0.86	68.26	110.09
260	18.58	10.42	0.45	0.86	68.26	110.10
261	18.66	10.12	0.45	0.86	68.67	110.00
262	18.74	10.02	0.43	0.86	68.65	109.66
263	18.87	10.02	0.39	0.86	65.89	108.15
264	18.97	9.62	0.22	0.86	63.51	106.58
265	19.06	9.31	0.24	0.96	61.57	105.45
266	19.16	9.72	0.27	0.86	62.59	106.45
267	19.25	10.42	0.32	0.96	62.93	107.21
268	19.27	10.22	0.32	0.86	63.88	107.82
269	19.30	10.02	0.35	0.96	64.63	108.39
270	19.34	10.83	0.39	0.96	65.30	109.05
271	19.39	10.83	0.41	0.96	65.04	109.46
272	19.49	10.83	0.41	0.96	65.33	109.38
273	19.55	10.63	0.38	0.96	65.79	108.98
274	19.63	10.02	0.36	0.96	66.38	108.45
275	19.68	9.82	0.34	0.96	66.57	107.82
276	19.74	9.72	0.30	0.96	65.75	107.23
277	19.83	9.72	0.28	0.96	65.45	106.97
278	19.87	9.72	0.31	0.96	65.22	106.85
279	19.94	9.72	0.29	0.96	66.15	107.18
280	20.02	9.72	0.33	0.96	67.03	107.64
281	20.07	9.92	0.36	0.96	67.92	108.78
282	20.17	10.83	0.44	0.96	64.62	109.94
283	20.21	13.46	0.47	0.96	56.54	111.19
284	20.28	18.22	0.50	0.96	46.28	112.30
285	20.36	24.49	0.52	1.05	37.36	113.43
286	20.41	31.88	0.56	1.05	30.98	114.57
287	20.48	38.76	0.62	1.05	26.57	115.62
288	20.55	45.24	0.66	1.05	23.46	116.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
289	20.60	50.91	0.67	1.05	21.46	116.95
290	20.70	53.44	0.69	1.05	20.55	117.24
291	20.74	53.24	0.71	1.05	20.71	117.40
292	20.79	51.32	0.72	1.05	21.66	117.54
293	20.89	48.89	0.76	1.05	23.50	117.89
294	20.96	45.85	0.85	0.96	23.80	117.32
295	21.04	45.80	0.57	0.96	24.10	117.07
296	21.13	45.80	0.70	0.96	23.70	116.74
297	21.22	45.75	0.76	0.96	23.00	117.62
298	21.29	56.07	0.78	1.05	21.86	118.10
299	21.35	56.27	0.79	1.05	18.50	118.64
300	21.37	73.99	0.80	1.05	15.90	119.09
301	21.42	83.80	0.82	1.05	13.13	119.55
302	21.47	93.32	0.82	1.05	11.52	119.85
303	21.48	101.01	0.82	1.05	10.27	120.06
304	21.52	107.59	0.82	1.05	9.34	120.20
305	21.57	113.46	0.81	1.05	8.57	120.29
306	21.62	118.62	0.80	1.05	7.91	120.35
307	21.66	124.29	0.80	1.05	7.35	120.43
308	21.71	129.05	0.81	1.15	6.92	120.56
309	21.76	132.99	0.82	1.15	6.65	120.75
310	21.81	135.83	0.84	1.15	6.55	120.99
311	21.85	137.14	0.87	1.15	6.57	121.25
312	21.91	137.95	0.90	1.15	6.66	121.49
313	21.95	138.26	0.92	1.15	6.78	121.69
314	22.00	138.06	0.94	1.15	6.89	121.84
315	22.05	138.36	0.96	1.15	6.99	121.96
316	22.10	138.06	0.97	1.15	7.07	122.06
317	22.15	138.26	0.98	1.15	7.14	122.15
318	22.19	138.56	0.99	1.15	7.18	122.24
319	22.24	139.17	1.00	1.15	7.38	122.59
320	22.29	139.98	1.12	1.15	7.48	122.79
321	22.34	140.38	1.07	1.15	7.53	122.89
322	22.39	140.18	1.04	1.15	7.42	122.71
323	22.43	139.57	1.04	1.15	7.44	122.63
324	22.48	138.46	1.05	1.15	7.57	122.64
325	22.55	136.94	1.06	1.15	7.77	122.66
326	22.62	134.92	1.06	1.15	8.48	122.57
327	22.63	118.32	1.06	1.24	8.67	122.48
328	22.72	130.57	1.04	1.24	8.87	122.34
329	22.77	127.73	1.02	1.24	8.53	122.30
330	22.83	125.91	1.02	1.24	8.81	122.33
331	22.91	124.70	1.06	1.24	9.13	122.40
332	22.96	121.96	1.07	1.24	9.51	122.45
333	23.02	118.52	1.06	1.24	9.95	122.36
334	23.10	114.07	1.06	1.24	10.51	122.24
335	23.16	108.91	1.05	1.24	11.23	122.08
336	23.20	102.23	1.04	1.24	12.12	121.86

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
337	23.26	95.44	1.03	1.24	13.14	121.54
338	23.35	88.66	0.99	1.24	14.37	121.28
339	23.39	81.88	1.01	1.24	15.74	120.92
340	23.48	74.39	0.96	1.24	17.51	120.69
341	23.54	67.71	0.98	1.24	19.01	120.18
342	23.63	62.85	0.89	1.24	19.95	119.45
343	23.69	59.72	0.76	1.24	19.23	117.77
344	23.78	57.59	0.48	1.24	18.61	116.63
345	23.87	57.74	0.60	1.24	18.21	116.01
346	23.88	57.74	0.61	1.24	19.03	116.77
347	23.93	57.89	0.67	1.34	19.95	117.38
348	24.02	56.58	0.77	1.34	20.80	117.95
349	24.04	57.13	0.78	1.34	21.46	118.37
350	24.05	57.13	0.80	1.34	21.78	118.73
351	24.15	57.69	0.89	1.34	21.95	119.14
352	24.20	59.92	0.91	1.34	21.72	119.56
353	24.30	62.65	0.93	1.34	20.63	119.52
354	24.40	65.28	0.83	1.34	19.19	119.11
355	24.46	67.21	0.74	1.34	17.84	118.42
356	24.54	67.21	0.69	1.34	17.34	117.92
357	24.64	64.78	0.69	1.34	18.05	117.78
358	24.73	60.22	0.72	1.34	19.84	117.90
359	24.78	54.76	0.77	1.34	22.46	118.05
360	24.88	48.89	0.80	1.34	25.68	117.95
361	24.94	42.00	0.78	1.24	29.51	117.49
362	25.02	34.82	0.73	1.24	34.04	116.54
363	25.12	28.14	0.65	1.24	39.88	115.47
364	25.17	22.27	0.62	1.24	46.77	114.38
365	25.27	18.12	0.59	1.24	54.06	113.10
366	25.36	14.78	0.46	1.24	61.30	111.68
367	25.43	12.45	0.42	1.24	67.46	110.12
368	25.50	10.53	0.38	1.24	73.11	108.95
369	25.60	9.62	0.33	1.24	77.33	107.97
370	25.64	9.11	0.32	1.24	78.94	107.28
371	25.67	9.01	0.30	1.15	79.14	106.81
372	25.71	9.01	0.28	1.15	78.50	105.99
373	25.79	8.50	0.23	1.15	78.06	104.81
374	25.93	8.00	0.19	1.15	77.81	103.60
375	26.03	8.00	0.18	1.15	77.15	102.74
376	26.13	8.00	0.16	1.15	76.38	102.36
377	26.24	8.00	0.16	1.15	75.73	102.24
378	26.37	8.20	0.17	1.15	75.53	102.41
379	26.47	8.30	0.17	1.15	75.71	102.64
380	26.60	8.20	0.18	1.15	74.72	102.14
381	26.71	8.20	0.14	1.15	72.50	101.53
382	26.85	8.70	0.13	1.15	69.69	101.34
383	26.95	9.31	0.16	1.15	71.29	102.63
384	27.04	8.81	0.22	1.15	71.21	104.34

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
385	27.09	10.63	0.25	1.05	71.61	105.86
386	27.19	10.93	0.29	1.05	69.63	106.85
387	27.23	11.23	0.30	1.05	70.05	107.52
388	27.33	11.34	0.32	1.05	70.38	108.10
389	27.40	11.64	0.36	1.05	70.26	108.70
390	27.47	12.25	0.38	1.05	69.48	109.39
391	27.57	12.95	0.41	1.05	68.12	110.02
392	27.66	13.66	0.44	1.05	66.86	110.95
393	27.77	14.88	0.52	1.05	65.56	112.10
394	27.86	16.30	0.60	1.05	64.27	113.38
395	27.96	17.61	0.69	1.05	63.40	114.40
396	28.06	18.22	0.74	1.05	64.03	115.00
397	28.15	17.31	0.77	1.05	65.56	115.03
398	28.25	16.30	0.72	1.05	64.37	114.22
399	28.34	17.46	0.52	1.05	63.64	113.20
400	28.44	15.69	0.53	1.05	61.14	112.70
401	28.54	17.61	0.59	1.05	64.86	113.09
402	28.62	14.98	0.63	1.05	62.81	113.97
403	28.71	19.74	0.70	1.05	62.14	114.69
404	28.77	20.24	0.75	1.05	59.04	115.50
405	28.86	20.75	0.80	1.05	59.06	115.95
406	28.91	21.15	0.82	1.05	58.48	116.29
407	28.97	22.06	0.84	1.05	57.87	116.68
408	29.04	22.87	0.91	1.05	57.17	117.16
409	29.10	23.78	0.96	1.05	56.38	117.71
410	29.15	25.20	1.01	1.05	55.66	118.36
411	29.25	26.42	1.13	1.05	54.03	119.02
412	29.34	27.53	1.19	1.05	53.66	119.56
413	29.38	28.14	1.22	1.05	53.77	119.85
414	29.48	27.53	1.26	1.05	55.21	119.97
415	29.55	27.43	1.26	1.05	55.61	119.94
416	29.63	27.43	1.21	1.05	53.71	119.51
417	29.72	27.33	1.04	1.05	46.70	117.24
418	29.82	30.47	0.29	1.15	36.62	114.29
419	29.88	36.84	0.31	1.15	26.07	110.63
420	29.96	43.12	0.35	1.15	21.97	111.98
421	30.06	55.67	0.40	1.15	20.66	113.06
422	30.13	50.91	0.44	1.05	19.28	113.85
423	30.18	57.39	0.44	1.05	19.21	114.32
424	30.28	59.72	0.48	1.05	18.92	115.08
425	30.37	59.01	0.56	1.05	19.74	116.07
426	30.47	59.82	0.65	1.05	20.55	117.07
427	30.57	62.65	0.72	1.05	20.45	117.89
428	30.66	67.31	0.76	1.05	19.78	118.59
429	30.74	71.76	0.82	1.05	19.08	119.20
430	30.82	74.90	0.87	1.05	18.72	119.77
431	30.90	76.82	0.92	1.15	18.90	120.37
432	31.01	77.12	1.02	1.15	19.54	121.00

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
433	31.10	76.72	1.12	1.15	20.53	121.75
434	31.19	77.18	1.25	1.15	21.62	122.52
435	31.28	77.23	1.39	1.15	22.44	123.19
436	31.35	78.24	1.47	1.15	22.96	123.75
437	31.43	80.06	1.56	1.15	23.03	124.24
438	31.53	83.20	1.66	1.15	22.94	124.75
439	31.60	86.03	1.75	1.15	21.03	124.07
440	31.67	88.46	1.07	1.15	19.28	123.27
441	31.77	89.68	1.16	1.15	17.72	122.34
442	31.84	90.18	1.26	1.15	18.27	122.84
443	31.91	89.68	1.32	1.15	19.80	123.18
444	31.98	78.64	1.39	1.15	22.19	123.23
445	31.98	68.93	1.40	1.15	23.12	123.39
446	32.04	84.01	1.44	1.24	23.03	123.69
447	32.12	83.20	1.54	1.24	22.36	124.14
448	32.16	80.77	1.60	1.24	23.73	124.42
449	32.27	76.11	1.67	1.24	25.51	124.47
450	32.33	70.04	1.66	1.24	27.40	124.34
451	32.41	66.09	1.63	1.24	28.95	124.00
452	32.50	62.75	1.55	1.24	30.35	123.44
453	32.58	56.48	1.41	1.24	31.97	122.68
454	32.66	50.71	1.29	1.24	34.45	121.67
455	32.74	43.42	1.16	1.24	37.91	120.54
456	32.84	35.73	1.02	1.24	42.91	119.34
457	32.90	29.15	0.95	1.24	48.72	118.12
458	32.98	24.70	0.85	1.24	56.09	116.92
459	33.08	20.85	0.75	1.24	62.41	115.68
460	33.14	16.70	0.69	1.24	70.22	114.44
461	33.22	13.56	0.63	1.24	78.27	113.16
462	33.32	12.04	0.53	1.24	84.25	111.85
463	33.37	10.93	0.46	1.24	85.46	110.42
464	33.47	10.83	0.38	1.24	84.74	109.62
465	33.56	11.34	0.39	1.24	80.65	109.42
466	33.63	12.75	0.41	1.24	77.37	109.72
467	33.71	13.16	0.40	1.24	75.48	109.42
468	33.81	12.04	0.34	1.24	74.83	107.78
469	33.90	10.73	0.19	1.24	75.10	105.75
470	33.95	10.32	0.19	1.24	75.13	103.88
471	34.04	9.82	0.19	1.24	76.22	103.67
472	34.14	10.02	0.18	1.34	77.27	103.52
473	34.17	9.72	0.19	1.24	77.76	103.53
474	34.20	9.62	0.19	1.24	76.51	103.73
475	34.26	10.83	0.19	1.24	75.12	103.91
476	34.35	10.63	0.19	1.24	73.88	103.93
477	34.43	10.32	0.19	1.24	74.71	103.73
478	34.49	10.22	0.18	1.24	74.86	103.40
479	34.59	10.22	0.17	1.24	74.51	102.92
480	34.69	10.02	0.15	1.24	74.15	102.43

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
481	34.73	9.92	0.15	1.24	74.31	102.00
482	34.83	9.72	0.15	1.24	74.57	101.78
483	34.90	9.72	0.14	1.24	75.16	101.82
484	34.98	9.72	0.15	1.24	75.52	102.24
485	35.07	10.02	0.17	1.24	76.19	103.35
486	35.16	10.63	0.21	1.24	78.83	105.56
487	35.26	11.03	0.33	1.24	83.16	108.85
488	35.33	12.15	0.55	1.24	81.79	112.16
489	35.40	16.50	0.76	1.34	74.84	114.98
490	35.50	21.56	0.92	1.34	67.00	116.75
491	35.57	24.39	0.97	1.34	63.27	117.70
492	35.65	24.09	1.01	1.34	63.57	118.14
493	35.71	22.77	1.08	1.34	66.27	118.34
494	35.79	21.66	1.09	1.34	69.18	118.25
495	35.85	20.45	1.03	1.34	71.21	117.70
496	35.94	18.93	0.91	1.34	72.32	116.92
497	35.99	18.42	0.83	1.34	72.47	115.84
498	36.08	17.51	0.69	1.34	72.38	114.36
499	36.17	15.49	0.51	1.34	73.86	112.64
500	36.24	13.56	0.46	1.34	75.60	111.22
501	36.33	13.56	0.44	1.34	77.26	110.71
502	36.42	13.56	0.44	1.34	77.95	110.94
503	36.52	13.56	0.50	1.34	73.49	110.01
504	36.61	14.98	0.26	1.34	67.87	109.88
505	36.70	17.61	0.38	1.34	62.71	110.97
506	36.78	20.55	0.63	1.34	62.56	113.90
507	36.85	22.47	0.80	1.34	71.90	115.26
508	36.87	11.64	0.83	1.34	69.07	116.41
509	36.91	26.42	0.92	1.34	63.50	117.24
510	36.97	31.58	0.97	1.43	49.63	118.44
511	37.06	36.13	1.01	1.43	46.01	119.19
512	37.12	37.96	1.11	1.43	43.96	120.10
513	37.20	41.70	1.28	1.43	42.39	121.21
514	37.27	47.47	1.45	1.43	39.71	122.19
515	37.35	53.44	1.50	1.43	36.91	122.63
516	37.44	55.67	1.40	1.43	34.70	122.58
517	37.49	56.48	1.34	1.43	32.26	122.38
518	37.59	63.06	1.30	1.43	27.80	122.53
519	37.64	81.98	1.30	1.43	21.40	123.10
520	37.70	111.84	1.32	1.53	15.68	123.77
521	37.78	139.98	1.32	1.53	11.92	124.31
522	37.83	157.89	1.32	1.53	9.84	124.68
523	37.92	169.13	1.35	1.53	8.83	124.96
524	37.97	175.50	1.38	1.53	8.44	125.29
525	38.07	179.05	1.45	1.53	8.35	125.63
526	38.14	181.78	1.51	1.53	8.44	126.04
527	38.22	184.61	1.60	1.53	8.51	126.51
528	38.31	190.69	1.72	1.53	8.57	127.15

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
529	38.41	199.80	1.90	1.62	8.22	127.66
530	38.52	213.56	1.89	1.62	7.81	128.17
531	38.64	224.49	2.02	1.62	7.45	128.44
532	38.74	225.00	2.04	1.62	7.89	128.67
533	38.80	204.05	2.10	1.62	8.30	128.80
534	38.89	213.46	2.16	1.82	8.75	128.95
535	38.94	213.66	2.21	1.82	8.74	129.21
536	39.03	213.76	2.31	1.82	9.04	129.51
537	39.13	213.26	2.44	1.82	9.44	129.87
538	39.23	212.65	2.56	1.91	9.96	130.20
539	39.35	208.10	2.67	1.91	10.48	130.39
540	39.42	202.73	2.68	1.91	11.13	130.39
541	39.51	192.20	2.66	1.91	11.86	130.23
542	39.60	181.27	2.62	1.91	12.73	129.97
543	39.70	170.95	2.55	1.91	13.46	129.70
544	39.78	166.19	2.50	1.91	14.13	129.38
545	39.90	156.68	2.40	1.91	14.77	129.07
546	39.99	149.09	2.35	1.91	15.57	128.71
547	40.09	141.29	2.28	1.91	16.39	128.37
548	40.18	133.80	2.21	1.91	17.30	128.04
549	40.23	126.21	2.16	1.91	18.29	127.67
550	40.33	118.02	2.08	1.91	19.50	127.30
551	40.43	109.72	2.03	1.91	20.84	126.92
552	40.52	102.53	1.98	1.91	22.74	126.70
553	40.61	93.22	2.06	1.91	24.63	126.07
554	40.69	81.48	1.71	1.91	27.65	125.27
555	40.80	67.00	1.63	1.91	31.04	124.10
556	40.87	57.39	1.51	1.91	34.44	123.25
557	40.95	55.26	1.38	1.91	37.39	122.50
558	40.97	47.67	1.35	1.91	38.04	122.03
559	41.01	51.11	1.30	2.01	35.69	121.95
560	41.07	64.07	1.26	2.01	31.09	122.03
561	41.15	70.14	1.23	2.01	28.20	122.06
562	41.26	67.91	1.21	1.91	28.17	121.94
563	41.35	63.26	1.21	1.91	29.96	121.73
564	41.47	57.89	1.20	1.91	31.46	121.66
565	41.59	59.61	1.23	1.91	31.96	121.71
566	41.69	61.44	1.24	1.91	31.98	121.95
567	41.78	60.12	1.30	1.91	33.05	122.10
568	41.88	55.87	1.33	1.82	35.75	121.95
569	41.98	48.18	1.27	1.82	39.01	121.52
570	42.08	44.23	1.21	1.82	41.72	120.96
571	42.16	42.91	1.16	1.82	41.89	120.65
572	42.24	45.75	1.14	1.82	39.57	120.77
573	42.31	52.63	1.19	1.91	36.25	121.19
574	42.45	58.30	1.23	1.82	33.81	121.60
575	42.55	59.82	1.24	1.82	32.69	121.82
576	42.60	59.92	1.25	1.82	32.61	121.90

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
577	42.70	59.51	1.27	1.82	33.18	122.03
578	42.81	58.50	1.32	1.72	34.70	122.15
579	42.89	54.05	1.36	1.72	37.37	122.12
580	42.98	48.08	1.34	1.72	41.13	121.83
581	43.08	42.61	1.30	1.72	45.23	121.41
582	43.17	38.66	1.28	1.72	47.51	121.07
583	43.27	39.98	1.25	1.72	46.42	120.88
584	43.37	44.43	1.19	1.72	41.14	119.79
585	43.50	46.96	0.69	1.72	35.96	118.51
586	43.61	48.99	0.69	1.72	32.32	117.19
587	43.74	49.59	0.74	1.62	32.41	117.56
588	43.79	49.29	0.79	1.62	33.54	118.20
589	43.86	48.99	0.89	1.43	35.58	118.96
590	43.94	47.06	1.02	1.34	38.25	119.71
591	44.00	45.04	1.11	1.34	41.55	120.34
592	44.08	42.51	1.22	1.34	44.91	120.67
593	44.17	39.37	1.23	1.34	48.70	120.54
594	44.27	34.61	1.15	1.34	51.70	119.87
595	44.42	32.29	1.00	1.34	51.75	119.10
596	44.52	35.53	0.93	1.34	46.94	118.74
597	44.61	43.42	0.93	1.34	39.36	118.80
598	44.71	53.44	0.86	1.34	33.96	119.33
599	44.85	58.80	0.98	1.34	32.04	120.04
600	44.95	57.69	1.13	1.34	32.93	120.75
601	45.09	55.36	1.15	1.34	35.03	121.01
602	45.19	51.82	1.14	1.34	38.27	120.75
603	45.33	43.02	1.11	1.34	43.45	120.27
604	45.42	35.42	1.09	1.34	49.18	119.55
605	45.57	33.00	0.99	1.34	51.89	118.90
606	45.68	34.11	0.92	1.34	52.37	118.05
607	45.81	30.57	0.81	1.34	52.39	116.56
608	45.92	26.62	0.54	1.34	59.16	115.42
609	46.05	22.37	0.69	1.34	66.42	114.50
610	46.16	17.81	0.67	1.24	75.25	114.63
611	46.17	17.71	0.67	1.24	79.56	114.21
612	46.23	17.61	0.63	1.24	79.66	113.87
613	46.29	17.00	0.59	1.24	80.53	113.32
614	46.34	15.89	0.55	1.24	81.48	112.46
615	46.42	15.18	0.46	1.24	81.87	111.41
616	46.48	14.78	0.40	1.24	80.78	110.31
617	46.52	14.68	0.36	1.24	79.61	109.48
618	46.60	14.57	0.33	1.24	78.79	108.88
619	46.67	14.37	0.32	1.24	78.01	108.41
620	46.74	14.47	0.30	1.24	77.35	108.06
621	46.82	14.47	0.29	1.24	76.73	107.71
622	46.88	14.27	0.28	1.34	77.13	107.41
623	46.96	13.76	0.27	1.34	77.21	107.25
624	47.06	14.22	0.27	1.34	77.78	107.20

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
625	47.15	13.87	0.27	1.34	77.74	107.41
626	47.24	14.17	0.29	1.34	79.57	108.74
627	47.35	15.18	0.43	1.34	80.06	111.84
628	47.49	19.13	0.74	1.34	72.80	113.76
629	47.58	24.70	0.62	1.34	64.43	115.05
630	47.73	28.44	0.64	1.34	60.58	115.11
631	47.83	24.90	0.71	1.34	59.52	115.49
632	47.87	27.78	0.69	1.34	61.47	115.59
633	47.89	25.81	0.69	1.34	59.88	115.52
634	47.94	27.13	0.67	1.34	60.12	115.37
635	48.02	26.92	0.66	1.34	59.63	115.28
636	48.07	26.32	0.66	1.34	60.36	115.24
637	48.12	25.91	0.67	1.34	61.69	115.43
638	48.18	25.61	0.72	1.34	63.36	115.65
639	48.26	24.70	0.74	1.34	64.74	115.83
640	48.31	24.65	0.73	1.34	65.22	115.64
641	48.38	24.39	0.68	1.34	64.33	115.21
642	48.46	24.59	0.62	1.34	62.61	114.59
643	48.52	25.10	0.57	1.34	61.59	113.83
644	48.60	23.48	0.50	1.34	62.06	112.77
645	48.68	20.85	0.41	1.34	65.40	111.58
646	48.74	17.91	0.39	1.34	70.58	110.53
647	48.82	15.79	0.38	1.34	77.29	109.90
648	48.89	14.07	0.36	1.34	82.02	109.37
649	48.99	13.76	0.34	1.34	84.26	108.81
650	49.05	13.56	0.31	1.34	83.16	108.02
651	49.12	13.56	0.26	1.34	81.66	107.12
652	49.18	13.36	0.24	1.34	79.51	106.27
653	49.27	13.66	0.22	1.34	77.50	105.79
654	49.32	14.17	0.21	1.34	75.79	105.36
655	49.42	13.87	0.20	1.43	76.97	105.08
656	49.48	12.55	0.20	1.43	78.75	104.88
657	49.56	12.85	0.21	1.43	79.72	105.05
658	49.66	13.56	0.21	1.43	79.61	105.56
659	49.76	13.36	0.25	1.43	78.83	106.06
660	49.85	14.07	0.25	1.43	75.45	105.30
661	49.99	14.68	0.14	1.43	70.32	104.44
662	50.09	15.79	0.17	1.43	70.12	103.40
663	50.21	12.75	0.18	1.43	73.69	103.83
664	50.24	12.85	0.18	1.53	76.33	103.72
665	50.29	13.97	0.17	1.53	74.08	103.47
666	50.38	13.87	0.15	1.53	73.00	103.13
667	50.47	13.16	0.15	1.53	73.91	102.86
668	50.52	13.06	0.15	1.62	75.96	102.88
669	50.62	12.65	0.16	1.62	76.35	103.11
670	50.66	13.26	0.17	1.62	76.26	103.37
671	50.76	13.46	0.17	1.62	76.25	103.65
672	50.83	13.06	0.18	1.62	73.88	104.35

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
673	50.91	15.79	0.21	1.62	75.06	105.23
674	51.00	13.97	0.24	1.62	71.94	106.28
675	51.06	17.00	0.25	1.62	67.88	107.32
676	51.15	21.05	0.29	1.62	69.95	108.74
677	51.24	14.88	0.40	1.62	78.64	110.36
678	51.31	13.06	0.52	1.62	100.00	111.65
679	51.39	10.63	0.63	1.62	79.74	113.89
680	51.48	31.88	0.71	1.72	52.10	116.37
681	51.58	53.85	0.83	1.72	50.39	117.73
682	51.68	20.34	1.00	1.72	65.78	117.82
683	51.77	9.21	0.95	1.72	93.85	117.60
684	51.90	23.89	1.17	1.72	59.97	121.42
685	52.01	77.23	2.02	1.72	34.57	125.62
686	52.11	122.06	2.62	1.82	24.20	130.24
687	52.26	186.13	4.47	1.91	20.87	132.32
688	52.30	177.33	4.12	1.91	16.50	133.89
689	52.33	263.97	4.17	2.01	12.89	134.16
690	52.35	303.94	4.21	2.01	9.58	134.71
691	52.40	340.79	4.23	2.10	7.60	135.11
692	52.45	397.77	4.28	2.10	6.58	135.59
693	52.50	405.87	4.66	2.10	5.88	136.22
694	52.55	443.01	5.01	2.20	5.51	137.00
695	52.60	493.01	5.46	2.29	4.93	137.28
696	52.65	523.48	5.64	2.29	4.29	137.28
697	52.71	531.47	4.88	2.29	3.82	137.28
698	52.77	538.36	4.91	2.39	3.33	137.17
699	52.82	555.56	4.74	2.48	2.92	137.04
700	52.88	581.47	4.49	2.48	2.56	137.02
701	52.93	597.26	4.71	2.48	2.35	137.05
702	52.98	597.36	4.69	2.68	2.26	137.26
703	53.03	622.36	4.79	2.77	2.29	137.28
704	53.08	606.07	4.93	2.77	2.33	137.28
705	53.12	596.25	4.80	2.87	2.35	137.28
706	53.17	600.60	4.53	2.96	2.30	137.12
707	53.23	597.67	4.62	2.96	2.17	136.97
708	53.28	603.74	4.51	2.96	2.36	137.15
709	53.37	587.14	4.91	2.96	2.61	137.28
710	53.42	574.49	5.08	2.96	2.84	137.28
711	53.46	590.58	5.02	3.06	3.06	137.28
712	53.53	595.24	5.73	3.06	3.30	137.28
713	53.61	611.13	6.49	3.15	3.78	137.28
714	53.62	585.52	6.56	3.15	4.29	137.28
715	53.65	550.00	6.65	3.15	4.43	137.28
716	53.67	586.48	6.45	3.15	4.49	137.28
717	53.70	577.42	6.61	3.15	4.24	137.28
718	53.74	587.44	6.53	3.25	4.32	137.28
719	53.76	583.50	6.67	3.25	4.30	137.28
720	53.80	580.36	6.60	3.35	4.27	137.28

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
721	53.84	579.25	6.26	3.35	4.16	137.28
722	53.90	573.68	6.10	3.54	4.02	137.28
723	53.91	581.62	6.13	3.54	4.14	137.28
724	53.95	555.16	6.20	3.35	4.11	137.28
725	53.96	584.00	6.20	3.54	4.03	137.28
726	53.98	600.50	6.20	3.35	3.69	137.28
727	53.99	618.52	6.20	3.54	3.66	137.28
728	54.01	589.67	6.20	3.54	3.83	137.28
729	54.02	568.11	6.20	3.54	4.04	137.28
730	54.03	580.06	6.20	3.44	4.51	137.28
731	54.04	511.13	6.23	3.44	5.55	137.28
732	54.05	423.17	6.26	3.44	7.02	137.28
733	54.09	422.06	6.38	3.44	8.01	137.28
734	54.10	422.52	6.39	3.44	8.11	137.28
735	54.13	420.04	6.40	3.44	8.10	137.28
736	54.14	422.97	6.38	3.54	8.17	137.28
737	54.19	419.73	6.47	3.54	8.19	137.28
738	54.19	425.60	6.59	3.54	8.13	137.28
739	54.24	440.89	6.74	3.54	7.58	137.28
740	54.29	451.01	5.95	3.63	6.38	137.28
741	54.33	478.84	4.90	3.63	4.97	137.18
742	54.38	492.30	4.37	3.73	3.90	136.44
743	54.39	513.56	4.28	3.73	3.34	136.18
744	54.43	532.08	4.28	3.82	3.17	136.44
745	54.48	541.59	4.69	3.92	2.05	135.02
746	54.52	555.46	1.86	4.01	1.07	133.52
747	54.58	572.77	2.20	4.01	0.00	131.47
748	54.62	593.21	2.48	4.01	0.17	132.34
749	54.65	595.24	2.63	4.11	0.34	133.29
750	54.67	624.69	3.14	4.21	0.41	134.02
751	54.71	649.89	3.25	4.30	0.23	134.52
752	54.77	699.69	3.10	4.30	0.00	132.94
753	54.81	688.25	1.22	4.40	0.00	131.29
754	54.85	720.84	1.65	4.49	0.00	129.34
755	54.86	702.93	1.70	4.49	0.00	130.17
756	54.87	703.44	1.76	4.01	0.00	130.82
757	54.91	703.44	2.13	4.01	0.00	131.80
758	54.96	703.94	2.50	4.11	0.00	132.67
759	55.00	713.86	2.56	4.21	0.00	133.08
760	55.01	691.59	2.56	4.30	0.00	133.14
761	55.05	681.88	2.60	4.30	0.00	133.23
762	55.10	663.66	2.72	4.30	0.00	133.31
763	55.12	607.48	2.75	4.30	0.35	133.29
764	55.13	539.98	2.77	3.82	0.72	133.17
765	55.14	565.28	2.75	3.82	0.76	133.02
766	55.19	583.90	2.62	3.92	0.54	132.92
767	55.20	581.37	2.60	3.92	0.51	132.84
768	55.25	563.36	2.67	3.92	0.76	132.97

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
769	55.29	541.49	2.82	3.92	1.13	133.28
770	55.33	533.19	3.02	3.82	1.75	133.67
771	55.38	484.21	3.29	3.82	3.14	134.78
772	55.48	425.91	4.60	3.73	4.92	135.85
773	55.57	407.69	5.12	3.82	6.63	136.68
774	55.63	400.40	5.18	3.73	8.12	137.28
775	55.72	386.03	6.83	3.82	8.85	137.28
776	55.80	419.53	7.09	3.92	8.57	137.28
777	55.86	487.55	7.03	3.92	5.58	137.28
778	55.97	534.41	2.93	4.01	2.94	135.99
779	56.01	561.43	2.52	4.11	0.84	133.07
780	56.06	585.62	2.75	4.11	2.80	133.29
781	56.11	616.29	3.05	4.21	2.89	134.29
782	56.15	637.24	3.61	4.21	2.94	135.21
783	56.20	668.42	3.85	4.21	3.11	136.08
784	56.27	676.92	4.26	4.21	3.34	136.55
785	56.27	643.97	4.36	3.54	3.72	137.19
786	56.30	671.45	5.00	3.63	4.59	137.28
787	56.33	611.03	5.86	3.63	4.98	137.28
788	56.35	665.99	5.93	3.73	5.33	137.28
789	56.40	665.78	6.04	3.73	5.05	137.28
790	56.41	671.65	6.02	3.73	5.04	137.28
791	56.44	670.44	5.96	3.73	4.83	137.28
792	56.49	702.32	5.96	4.01	4.63	137.28
793	56.54	712.65	6.04	4.01	4.51	137.28
794	56.58	737.34	6.69	4.01	4.47	137.28
795	56.59	761.53	6.82	4.01	4.50	137.28
796	56.64	751.51	6.82	4.11	4.44	137.28
797	56.69	758.80	6.82	4.11	4.36	137.28
798	56.73	783.90	6.89	4.11	4.18	137.28
799	56.78	791.59	6.79	4.01	4.03	137.28
800	56.83	760.01	6.22	3.92	4.01	137.28
801	56.88	726.82	5.89	3.92	4.11	137.28
802	56.89	708.40	5.80	3.92	4.29	137.28
803	56.95	691.29	5.71	3.92	4.27	137.28
804	57.01	677.73	5.02	3.92	4.25	137.28
805	57.07	634.81	4.55	3.92	4.06	137.16
806	57.11	625.10	4.12	3.92	3.10	134.76
807	57.17	598.27	1.33	3.92	2.28	132.45
808	57.26	572.36	1.93	3.92	1.15	128.54
809	57.31	551.41	1.12	3.82	1.89	129.56
810	57.37	517.20	2.07	3.92	2.19	129.21
811	57.45	491.70	1.77	3.82	3.04	129.89
812	57.51	461.74	1.72	3.92	3.56	129.21
813	57.53	400.30	1.71	3.44	4.16	128.95
814	57.59	402.43	1.70	3.35	4.63	128.80
815	57.63	401.31	1.70	3.35	4.68	128.76
816	57.68	393.01	1.70	3.35	4.88	128.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
817	57.73	380.06	1.70	3.35	5.00	128.66
818	57.78	386.23	1.69	3.25	5.00	128.45
819	57.86	370.64	1.59	3.25	5.00	127.83
820	57.92	322.87	1.37	3.25	5.00	127.38
821	57.98	285.32	1.55	3.15	5.00	126.34
822	58.06	264.17	1.14	3.15	8.62	126.17
823	58.12	240.38	1.42	3.06	10.36	126.82
824	58.21	224.09	2.06	3.06	12.69	127.74
825	58.26	202.63	1.92	2.96	14.68	128.10
826	58.35	186.44	1.85	2.87	16.91	127.69
827	58.41	151.92	1.98	2.77	18.65	126.15
828	58.50	126.31	1.07	2.77	22.32	124.42
829	58.56	90.18	1.13	2.68	25.70	122.30
830	58.64	77.93	1.17	2.68	32.24	121.95
831	58.73	65.49	1.17	2.58	38.56	121.50
832	58.80	47.47	1.15	2.58	46.17	120.90
833	58.84	40.28	1.14	2.58	53.64	120.39
834	58.85	38.87	1.15	2.10	52.29	120.54
835	58.93	52.12	1.18	2.10	46.67	120.88
836	58.98	60.42	1.13	2.10	41.28	121.05
837	59.02	61.74	1.07	2.01	38.75	120.92
838	59.12	63.06	1.05	2.01	37.78	120.90
839	59.17	65.28	1.10	1.91	37.23	121.24
840	59.27	67.81	1.19	1.91	37.05	121.75
841	59.31	68.83	1.26	1.82	37.57	122.15
842	59.41	66.19	1.29	1.82	39.18	122.16
843	59.46	59.41	1.25	1.72	42.47	121.59
844	59.55	48.28	1.11	1.72	47.58	120.51
845	59.65	38.56	0.98	1.62	52.69	118.45
846	59.70	32.08	0.61	1.62	56.48	116.90
847	59.80	32.03	0.70	1.62	57.81	115.98
848	59.89	32.03	0.75	1.62	59.47	116.71
849	59.94	31.98	0.83	1.53	62.29	117.23
850	60.01	29.05	0.89	1.53	64.42	117.61
851	60.02	29.96	0.90	1.05	61.57	118.05
852	60.08	38.87	0.92	1.05	57.81	118.31
853	60.12	37.75	0.91	1.05	56.24	118.23
854	60.17	33.00	0.85	1.05	59.45	117.26
855	60.27	27.83	0.68	0.96	63.29	115.67
856	60.31	24.80	0.53	0.96	66.90	113.84
857	60.37	21.76	0.47	0.96	69.47	112.16
858	60.46	20.04	0.38	0.96	70.56	111.08
859	60.51	20.95	0.36	0.96	68.92	110.12
860	60.61	21.25	0.32	0.96	66.37	109.76
861	60.65	22.06	0.32	0.96	64.85	109.53
862	60.75	22.17	0.33	0.96	64.20	109.61
863	60.81	22.27	0.33	0.96	64.08	109.63
864	60.89	22.27	0.33	0.96	63.94	109.50

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
865	60.94	22.06	0.31	0.96	63.62	109.62
866	61.03	22.98	0.34	0.96	63.91	109.95
867	61.09	22.77	0.37	0.96	64.04	110.05
868	61.19	22.17	0.32	0.96	64.33	109.85
869	61.24	22.17	0.32	0.96	62.81	109.78
870	61.33	24.49	0.35	0.96	60.69	110.44
871	61.38	26.82	0.39	0.96	65.07	112.24
872	61.47	21.25	0.62	0.96	71.67	113.99
873	61.53	21.36	0.74	0.96	79.17	115.51
874	61.62	22.98	0.84	0.96	67.75	116.60
875	61.70	38.46	0.78	0.96	49.71	119.32
876	61.77	71.96	1.30	0.96	39.07	122.50
877	61.86	89.98	1.86	1.05	35.53	124.72
878	61.95	83.91	1.82	0.96	37.04	125.34
879	61.97	69.13	1.75	0.96	40.15	124.80
880	62.01	64.78	1.66	0.76	44.89	124.10
881	62.10	53.14	1.59	0.96	50.12	122.90
882	62.24	38.56	1.26	0.86	45.56	121.95
883	62.34	74.49	1.03	0.96	29.67	122.37
884	62.49	150.00	1.24	1.05	20.54	123.30
885	62.54	158.20	1.26	1.05	16.26	124.73
886	62.66	185.32	1.44	1.05	14.83	125.34
887	62.74	200.61	1.45	1.05	13.53	125.96
888	62.87	213.05	1.49	1.05	12.71	126.26
889	62.92	221.25	1.54	1.05	12.47	126.53
890	63.03	217.20	1.57	1.05	12.52	126.76
891	63.15	219.03	1.63	1.15	12.78	126.94
892	63.26	217.91	1.66	1.15	13.29	127.02
893	63.37	202.33	1.66	1.15	13.86	126.99
894	63.45	199.80	1.66	1.15	13.98	126.43
895	63.54	198.28	1.34	1.15	13.43	125.53
896	63.61	194.63	1.14	1.15	13.55	124.83
897	63.69	177.93	1.33	1.15	15.16	124.41
898	63.79	143.52	1.25	1.15	19.52	124.50
899	63.89	103.64	1.44	1.15	24.98	122.85
900	63.98	71.25	0.85	1.15	33.14	121.18
901	64.07	50.71	0.88	1.15	41.48	118.58
902	64.15	37.45	0.76	1.15	52.38	117.41
903	64.23	29.15	0.71	1.15	63.17	116.21
904	64.26	23.28	0.70	1.15	71.64	115.56
905	64.29	22.98	0.70	1.43	74.94	115.28
906	64.33	24.39	0.67	1.43	73.52	114.50
907	64.43	22.67	0.50	1.43	71.96	113.44
908	64.47	21.86	0.45	1.53	70.64	112.07
909	64.53	22.27	0.41	1.53	70.50	111.44
910	64.62	21.25	0.40	1.53	73.02	110.99
911	64.72	18.22	0.40	1.53	77.07	110.67
912	64.78	17.81	0.39	1.53	81.00	110.63

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
913	64.86	17.91	0.41	1.53	81.31	111.04
914	64.96	18.83	0.47	1.62	81.88	112.08
915	65.06	19.53	0.57	1.62	82.82	113.03
916	65.11	19.23	0.60	1.62	84.86	113.77
917	65.21	18.83	0.64	1.62	87.03	114.04
918	65.31	18.42	0.64	1.62	88.72	114.06
919	65.40	18.02	0.62	1.62	86.96	113.18
920	65.50	18.32	0.43	1.62	82.58	111.98
921	65.58	19.33	0.38	1.62	77.73	110.66
922	65.68	19.33	0.38	1.72	76.23	110.07
923	65.78	18.42	0.34	1.72	80.14	109.58
924	65.84	15.18	0.33	1.72	84.20	109.11
925	65.86	15.54	0.33	1.72	87.64	108.93
926	65.87	15.89	0.33	1.72	83.53	109.02
927	65.98	18.02	0.33	1.72	80.56	109.07
928	66.10	17.81	0.33	1.72	79.47	109.53
929	66.21	17.61	0.38	1.72	79.99	110.29
930	66.34	19.13	0.43	1.72	79.70	110.56
931	66.48	18.62	0.36	1.72	78.52	110.82
932	66.62	19.18	0.42	1.72	79.48	110.40
933	66.68	17.51	0.38	1.72	80.06	110.93
934	66.87	19.23	0.44	1.82	82.16	112.09
935	66.96	19.94	0.62	1.82	85.60	113.68
936	67.11	18.22	0.72	1.82	91.78	114.55
937	67.21	16.50	0.70	1.82	96.41	113.97
938	67.35	15.69	0.52	1.82	96.63	113.04
939	67.45	16.40	0.51	1.82	100.00	114.17
940	67.59	16.30	0.99	1.82	74.11	118.15
941	67.68	49.49	1.42	1.82	36.45	123.51
942	67.83	166.29	1.89	1.91	19.64	126.78
943	67.92	263.46	1.98	1.91	12.65	128.48
944	68.02	293.92	1.94	1.91	10.42	129.17
945	68.07	292.10	2.13	2.01	9.92	129.67
946	68.16	310.93	2.28	2.01	9.66	129.78
947	68.26	313.97	1.99	2.01	9.50	129.92
948	68.35	307.79	2.22	2.01	9.90	130.20
949	68.45	301.41	2.56	2.01	10.63	130.56
950	68.55	290.58	2.39	2.01	11.31	130.75
951	68.65	282.39	2.48	2.01	12.31	130.45
952	68.78	242.10	2.43	2.01	13.49	130.30
953	68.78	236.18	2.41	2.01	14.48	130.04
954	68.79	236.18	2.38	2.01	14.61	129.83
955	68.83	230.26	2.26	2.10	13.84	129.35
956	68.93	246.56	1.93	2.20	12.61	128.54
957	68.98	254.15	1.63	2.20	11.06	127.54
958	69.04	259.82	1.45	2.20	10.24	126.83
959	69.12	259.31	1.45	2.20	10.05	126.69
960	69.22	258.60	1.54	2.29	10.33	126.73

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
961	69.28	248.07	1.50	2.29	10.73	126.58
962	69.36	236.43	1.40	2.29	11.11	126.14
963	69.45	227.63	1.34	2.29	11.72	125.57
964	69.60	206.58	1.26	2.29	12.39	125.02
965	69.70	196.05	1.19	2.29	13.09	124.55
966	69.80	191.80	1.17	2.29	13.36	124.31
967	69.89	192.31	1.17	2.29	13.46	124.27
968	69.98	192.00	1.18	2.39	13.63	124.23
969	70.08	186.03	1.17	2.39	14.12	123.79
970	70.18	167.51	1.02	2.39	16.36	123.38
971	70.32	125.81	1.13	2.39	21.31	122.57
972	70.42	79.55	1.08	2.29	30.56	121.25
973	70.54	47.47	0.86	2.29	44.49	118.96
974	70.66	28.34	0.70	2.29	62.02	116.28
975	70.75	19.64	0.59	2.29	75.05	114.30
976	70.80	22.47	0.52	2.48	75.37	112.45
977	70.89	23.18	0.33	2.48	68.76	110.56
978	70.99	22.17	0.25	2.48	64.60	108.11
979	71.08	21.56	0.21	2.48	63.51	106.54
980	71.17	21.05	0.19	2.58	62.68	105.76
981	71.23	21.56	0.19	2.58	63.23	105.32
982	71.33	20.04	0.18	2.58	62.20	104.96
983	71.42	21.56	0.16	2.58	59.64	104.34
984	71.52	23.48	0.14	2.58	56.37	103.78
985	71.58	23.28	0.14	2.58	56.41	104.37
986	71.67	22.77	0.19	2.58	59.63	105.94
987	71.81	22.47	0.26	2.68	62.96	107.28
988	71.82	22.06	0.26	2.68	64.77	107.94
989	71.86	22.06	0.26	2.68	65.57	107.99
990	71.91	21.66	0.26	2.68	65.98	108.01
991	71.97	21.66	0.26	2.68	66.78	108.09
992	72.05	21.36	0.27	2.68	67.69	108.22
993	72.10	20.95	0.28	2.68	68.75	108.41
994	72.20	20.95	0.29	2.68	69.45	108.55
995	72.25	20.95	0.29	2.77	70.00	108.81
996	72.34	20.95	0.31	2.77	70.88	109.34
997	72.44	21.25	0.35	2.77	72.30	109.98
998	72.53	20.95	0.38	2.77	74.03	110.47
999	72.63	20.34	0.39	2.77	74.87	110.69
1000	72.69	20.95	0.39	2.77	75.74	110.64
1001	72.82	20.04	0.38	2.77	75.05	110.60
1002	72.92	20.95	0.38	2.77	73.32	110.41
1003	73.06	22.27	0.35	2.87	70.40	110.34
1004	73.16	22.98	0.35	2.87	70.10	110.49
1005	73.30	21.66	0.39	2.87	74.63	110.57
1006	73.35	17.81	0.39	2.87	78.07	110.69
1007	73.38	20.04	0.39	2.87	79.92	110.48
1008	73.47	19.64	0.37	2.87	77.08	110.44

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1009	73.53	20.24	0.37	2.96	76.55	110.30
1010	73.62	20.24	0.36	2.96	76.12	110.24
1011	73.71	19.94	0.36	2.96	77.10	110.31
1012	73.77	19.53	0.38	2.96	79.03	110.64
1013	73.86	19.23	0.42	3.06	81.15	111.10
1014	73.96	19.13	0.45	3.06	82.23	111.57
1015	74.06	19.64	0.47	3.06	82.36	111.89
1016	74.13	19.84	0.48	3.06	81.49	112.15
1017	74.24	20.45	0.48	3.06	80.85	112.33
1018	74.34	20.65	0.50	3.06	80.73	112.54
1019	74.44	20.45	0.51	3.06	81.57	112.67
1020	74.58	20.04	0.51	3.06	81.41	112.52
1021	74.68	20.50	0.47	3.06	78.40	111.21
1022	74.80	20.24	0.27	3.15	74.93	109.94
1023	74.92	20.55	0.31	3.15	73.80	109.11
1024	75.07	19.84	0.36	3.15	75.92	109.75
1025	75.08	19.64	0.36	3.15	77.59	110.03
1026	75.11	19.64	0.36	3.25	78.16	110.07
1027	75.16	19.43	0.37	3.25	78.98	110.30
1028	75.25	19.43	0.39	3.25	80.91	110.74
1029	75.32	18.93	0.43	3.35	82.63	111.17
1030	75.40	18.93	0.44	3.35	83.61	111.30
1031	75.50	18.93	0.42	3.35	83.49	110.99
1032	75.59	18.42	0.38	3.35	83.68	110.27
1033	75.69	17.41	0.34	3.35	84.66	109.43
1034	75.78	16.70	0.31	3.35	85.61	108.57
1035	75.88	16.30	0.28	3.35	85.84	107.84
1036	75.96	16.09	0.26	3.35	85.52	107.10
1037	76.05	15.79	0.24	3.35	84.67	106.59
1038	76.14	16.09	0.23	3.44	84.37	106.31
1039	76.26	15.89	0.23	3.44	84.09	106.37
1040	76.36	16.09	0.24	3.44	84.42	106.50
1041	76.41	16.09	0.24	3.44	84.56	106.55
1042	76.51	15.89	0.23	3.44	85.32	106.38
1043	76.65	15.38	0.23	3.44	86.78	106.27
1044	76.72	15.08	0.24	3.44	88.00	106.27
1045	76.79	15.18	0.24	3.54	88.79	106.37
1046	76.89	15.08	0.24	3.54	90.66	107.25
1047	76.98	15.28	0.33	3.54	97.45	110.24
1048	77.08	15.89	0.64	3.54	92.62	112.89
1049	77.18	22.67	0.68	3.54	84.18	115.44
1050	77.28	27.83	0.85	3.54	77.43	117.59
1051	77.37	29.55	1.20	3.63	80.05	119.52
1052	77.42	26.11	1.45	3.63	81.77	120.82
1053	77.42	30.47	1.49	3.73	80.76	121.59
1054	77.44	33.91	1.59	3.73	75.56	122.42
1055	77.48	37.45	1.79	3.73	72.09	123.26
1056	77.52	40.69	1.91	3.82	69.21	123.98

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1057	77.54	43.52	1.97	3.82	67.19	124.41
1058	77.57	44.43	2.03	3.82	67.13	124.60
1059	77.62	42.00	2.05	3.82	68.46	124.53
1060	77.65	40.18	1.97	3.82	70.82	124.28
1061	77.67	37.96	1.92	3.82	71.65	123.83
1062	77.71	37.85	1.76	3.82	71.90	123.46
1063	77.71	37.75	1.73	3.73	71.69	122.88
1064	77.76	35.32	1.55	3.82	73.39	122.11
1065	77.81	31.07	1.35	3.73	75.70	120.92
1066	77.90	28.74	1.16	3.82	78.54	119.86
1067	77.95	27.13	1.11	3.82	80.91	119.27
1068	78.01	25.91	1.14	3.82	82.45	118.93
1069	78.10	25.81	1.05	3.82	78.83	118.74
1070	78.16	30.87	0.98	3.82	63.10	119.02
1071	78.24	52.02	0.97	3.92	49.66	119.64
1072	78.29	63.76	1.00	3.92	39.63	120.51
1073	78.39	78.54	1.05	3.92	34.27	121.15
1074	78.47	89.78	1.06	3.92	31.50	121.96
1075	78.53	93.42	1.23	3.92	31.16	123.05
1076	78.62	94.84	1.51	3.92	32.43	124.23
1077	78.68	94.33	1.70	3.92	34.74	124.97
1078	78.69	84.31	1.76	3.92	35.67	125.92
1079	78.78	100.10	2.16	3.92	36.75	126.73
1080	78.81	97.27	2.34	3.92	38.10	127.66
1081	78.92	87.04	2.58	3.92	41.97	127.53
1082	79.03	71.36	2.29	3.92	46.36	126.48
1083	79.16	59.92	1.72	3.92	46.07	125.04
1084	79.26	73.78	1.52	4.01	39.53	124.49
1085	79.35	101.31	1.66	4.01	33.43	125.47
1086	79.45	116.80	2.02	4.01	30.53	126.98
1087	79.54	125.00	2.38	4.01	29.73	128.12
1088	79.64	130.77	2.50	4.01	29.16	128.84
1089	79.74	137.75	2.60	4.11	26.56	130.21
1090	79.88	191.60	3.45	4.21	23.02	131.59
1091	79.98	231.27	3.61	4.21	19.11	132.52
1092	80.12	263.76	3.19	4.21	17.02	132.38
1093	80.22	251.11	2.99	4.21	15.38	131.25
1094	80.36	244.53	2.16	4.21	14.66	129.87
1095	80.46	238.56	1.83	4.21	13.44	128.07
1096	80.60	233.20	1.51	4.21	12.69	126.55
1097	80.70	223.58	1.18	4.21	12.64	125.70
1098	80.83	214.78	1.39	4.30	13.47	125.59
1099	80.94	200.81	1.51	4.30	15.55	125.88
1100	81.01	167.71	1.47	4.21	17.35	125.78
1101	81.04	165.18	1.46	4.40	18.79	125.42
1102	81.09	159.61	1.41	4.40	19.43	125.22
1103	81.13	150.30	1.41	4.40	20.68	125.10
1104	81.18	138.66	1.47	4.40	23.02	125.16

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1105	81.23	121.46	1.58	4.40	26.12	125.34
1106	81.28	109.61	1.68	4.40	29.84	125.42
1107	81.33	96.96	1.71	4.40	33.69	125.60
1108	81.37	87.75	1.89	4.40	38.07	125.99
1109	81.42	80.57	2.17	4.40	42.18	126.42
1110	81.47	75.20	2.23	4.40	45.53	126.65
1111	81.52	71.36	2.25	4.40	47.80	126.68
1112	81.56	69.23	2.31	4.40	48.75	126.82
1113	81.61	72.17	2.40	4.40	49.37	126.98
1114	81.64	70.14	2.41	4.40	50.62	127.02
1115	81.70	63.87	2.40	4.40	54.71	126.72
1116	81.75	52.33	2.36	4.40	60.30	126.26
1117	81.79	46.76	2.28	4.40	66.56	125.58
1118	81.82	41.40	2.11	4.40	70.87	124.78
1119	81.86	37.35	1.89	4.40	74.63	123.79
1120	81.91	33.91	1.69	4.40	77.94	122.73
1121	81.95	30.57	1.50	4.40	81.32	121.53
1122	82.00	27.23	1.28	4.40	84.85	120.08
1123	82.09	23.99	1.02	4.40	88.86	118.54
1124	82.15	21.36	0.91	4.40	93.55	117.24
1125	82.19	19.43	0.86	4.49	97.46	116.22
1126	82.26	18.52	0.73	4.49	100.00	115.23
1127	82.34	17.00	0.65	4.49	100.00	114.22
1128	82.39	15.28	0.62	4.49	100.00	113.42
1129	82.48	14.47	0.58	4.59	100.00	112.80
1130	82.58	14.37	0.53	4.59	100.00	112.31
1131	82.62	14.88	0.51	4.59	100.00	111.87
1132	82.70	14.78	0.48	4.59	100.00	111.60
1133	82.77	14.78	0.47	4.59	100.00	111.26
1134	82.87	14.68	0.45	4.59	100.00	111.18
1135	82.96	15.59	0.46	4.68	100.00	111.16
1136	83.06	18.22	0.44	4.68	90.71	111.46
1137	83.16	20.65	0.45	4.68	79.92	111.87
1138	83.25	25.10	0.46	4.78	72.16	112.31
1139	83.34	27.43	0.46	4.78	66.55	112.65
1140	83.44	28.85	0.46	4.87	65.23	113.13
1141	83.54	28.54	0.53	4.87	65.41	113.57
1142	83.64	28.64	0.54	4.87	66.63	114.00
1143	83.73	28.44	0.56	4.87	69.35	114.34
1144	83.83	25.81	0.63	4.87	71.50	114.84
1145	83.85	27.33	0.67	5.07	74.13	115.50
1146	83.89	27.13	0.74	5.07	74.39	116.20
1147	83.94	27.73	0.82	5.07	76.21	117.47
1148	84.04	29.25	1.08	5.07	76.59	118.57
1149	84.09	30.57	1.13	5.07	76.69	119.51
1150	84.13	31.17	1.19	5.07	76.09	119.96
1151	84.18	31.88	1.26	5.07	76.24	120.30
1152	84.25	31.78	1.29	5.07	77.16	120.50

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1153	84.33	30.67	1.30	5.07	79.11	120.53
1154	84.37	29.25	1.31	5.07	81.52	120.45
1155	84.46	28.24	1.30	5.16	83.35	120.16
1156	84.52	27.33	1.20	5.16	84.37	119.78
1157	84.57	26.72	1.15	5.16	84.59	119.32
1158	84.67	26.42	1.10	5.16	84.79	119.04
1159	84.71	26.21	1.08	5.16	85.52	118.94
1160	84.81	25.61	1.12	5.16	87.61	119.09
1161	84.86	24.70	1.19	5.16	90.53	119.33
1162	84.91	23.99	1.23	5.16	93.50	119.49
1163	85.00	23.28	1.24	5.16	95.77	119.52
1164	85.05	22.77	1.24	5.16	97.25	119.32
1165	85.15	22.17	1.16	5.16	97.82	118.97
1166	85.19	21.86	1.09	5.16	97.66	118.30
1167	85.29	21.15	0.96	5.16	97.29	117.62
1168	85.35	20.75	0.90	5.16	97.56	116.95
1169	85.42	20.04	0.86	5.16	98.84	116.52
1170	85.48	19.23	0.83	5.16	100.00	116.19
1171	85.55	18.72	0.81	5.26	100.00	115.89
1172	85.63	18.12	0.79	5.26	100.00	115.64
1173	85.68	17.51	0.78	5.26	100.00	115.45
1174	85.77	17.00	0.77	5.26	100.00	115.34
1175	85.82	16.80	0.77	5.26	100.00	115.39
1176	85.89	17.10	0.80	5.26	100.00	115.55
1177	85.96	18.12	0.81	5.26	100.00	115.74
1178	86.03	19.53	0.79	5.26	98.42	115.81
1179	86.11	21.25	0.76	5.26	92.88	115.75
1180	86.16	22.17	0.74	5.26	88.74	115.62
1181	86.25	22.67	0.72	5.26	89.87	115.47
1182	86.36	19.94	0.73	5.26	94.60	114.88
1183	86.50	17.10	0.62	5.26	100.00	114.26
1184	86.51	17.21	0.61	5.26	100.00	113.63
1185	86.52	17.21	0.60	5.26	100.00	113.28
1186	86.57	17.31	0.54	5.26	100.00	112.52
1187	86.65	17.31	0.44	5.35	96.58	111.56
1188	86.71	17.31	0.41	5.35	94.30	110.68
1189	86.80	17.21	0.38	5.35	94.07	110.11
1190	86.90	16.50	0.35	5.45	95.37	109.44
1191	86.99	15.49	0.32	5.45	97.33	108.73
1192	87.04	15.08	0.30	5.45	98.63	108.13
1193	87.14	14.98	0.28	5.45	98.41	107.81
1194	87.19	15.18	0.28	5.45	97.17	107.78
1195	87.28	15.69	0.29	5.54	95.63	108.26
1196	87.38	16.50	0.33	5.54	93.79	108.83
1197	87.43	17.10	0.34	5.54	91.88	109.36
1198	87.52	17.71	0.35	5.54	89.95	109.63
1199	87.61	18.22	0.36	5.64	88.28	109.78
1200	87.66	18.52	0.36	5.64	87.04	109.79

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1201	87.76	18.62	0.35	5.64	86.65	109.67
1202	87.84	18.32	0.34	5.64	86.71	109.46
1203	87.91	18.12	0.33	5.64	87.47	109.24
1204	88.00	17.71	0.32	5.64	88.37	109.00
1205	88.11	17.31	0.31	5.73	89.54	108.84
1206	88.19	17.10	0.31	5.73	90.39	108.72
1207	88.25	17.00	0.31	5.73	90.81	108.62
1208	88.34	16.90	0.30	5.73	90.64	108.42
1209	88.44	16.90	0.29	5.83	90.17	108.15
1210	88.54	16.90	0.28	5.83	89.58	107.90
1211	88.64	16.90	0.27	5.83	89.37	107.73
1212	88.72	16.80	0.27	5.93	89.61	107.69
1213	88.82	16.70	0.28	5.93	90.07	107.73
1214	88.91	16.70	0.28	5.93	90.83	107.82
1215	89.01	16.50	0.28	5.93	91.58	107.90
1216	89.10	16.40	0.29	5.93	92.45	107.97
1217	89.19	16.30	0.29	6.02	93.00	107.82
1218	89.30	15.99	0.27	6.02	91.00	106.79
1219	89.39	16.09	0.18	6.12	89.02	106.17
1220	89.49	16.60	0.23	6.12	88.22	106.44
1221	89.59	16.90	0.29	6.12	90.32	107.86
1222	89.69	16.95	0.32	6.12	91.89	108.72
1223	89.73	17.00	0.33	6.21	90.02	109.17
1224	89.78	18.83	0.34	6.31	87.19	109.42
1225	89.83	19.33	0.34	6.31	84.28	109.67
1226	89.88	19.64	0.35	6.31	83.80	109.89
1227	89.93	19.64	0.36	6.31	83.63	110.18
1228	90.00	20.04	0.38	6.40	83.30	110.59
1229	90.07	20.75	0.41	6.40	82.14	111.03
1230	90.12	21.56	0.42	6.40	81.06	111.60
1231	90.22	22.27	0.46	6.40	80.51	112.20
1232	90.27	22.67	0.50	6.40	80.53	113.17
1233	90.36	23.89	0.60	6.40	77.53	114.19
1234	90.46	28.14	0.65	6.50	73.54	115.05
1235	90.50	30.06	0.66	6.50	70.62	115.50
1236	90.61	29.35	0.68	6.59	70.53	115.62
1237	90.66	28.74	0.68	6.59	71.78	115.45
1238	90.75	27.73	0.63	6.59	73.00	114.95
1239	90.84	26.11	0.57	6.59	74.84	114.27
1240	90.89	24.39	0.54	6.59	76.93	113.58
1241	90.99	23.38	0.50	6.59	79.28	113.09
1242	91.04	22.37	0.49	6.69	81.25	112.68
1243	91.14	21.46	0.48	6.69	83.54	112.40
1244	91.22	20.65	0.47	6.79	85.84	112.13
1245	91.28	19.84	0.46	6.79	88.45	111.80
1246	91.37	18.72	0.44	6.79	89.92	111.48
1247	91.47	18.93	0.42	6.88	90.14	111.12
1248	91.61	19.03	0.40	6.88	88.70	110.98

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1249	91.71	19.53	0.41	6.88	88.08	110.93
1250	91.81	19.33	0.41	6.88	87.81	110.97
1251	91.87	19.33	0.41	6.98	88.02	110.84
1252	92.00	19.13	0.39	6.98	86.12	110.10
1253	92.10	19.38	0.29	6.98	84.52	109.49
1254	92.20	19.43	0.32	7.07	83.14	109.22
1255	92.33	19.74	0.35	7.07	83.97	109.76
1256	92.38	19.79	0.37	7.07	84.45	110.16
1257	92.43	19.84	0.37	7.26	84.47	110.37
1258	92.48	20.14	0.38	7.26	85.19	110.58
1259	92.56	19.64	0.40	7.36	86.02	110.74
1260	92.63	19.53	0.40	7.36	87.16	110.82
1261	92.67	19.43	0.40	7.36	87.45	110.81
1262	92.72	19.43	0.40	7.36	87.55	110.79
1263	92.77	19.43	0.40	7.36	87.20	110.81
1264	92.86	19.74	0.40	7.46	86.63	110.88
1265	92.92	20.04	0.41	7.46	86.16	111.05
1266	92.97	20.14	0.42	7.55	86.69	111.44
1267	93.05	20.14	0.46	7.55	87.17	111.82
1268	93.10	20.45	0.47	7.55	87.05	112.15
1269	93.16	20.95	0.48	7.55	85.70	112.28
1270	93.25	21.56	0.48	7.65	83.79	112.35
1271	93.35	22.27	0.47	7.65	80.44	112.40
1272	93.40	24.19	0.47	7.65	78.94	112.28
1273	93.49	22.77	0.45	7.74	78.47	112.15
1274	93.56	22.47	0.45	7.74	79.73	111.99
1275	93.64	22.57	0.45	7.74	79.38	112.05
1276	93.73	23.28	0.46	7.74	78.34	112.52
1277	93.83	24.70	0.52	7.84	76.63	113.28
1278	93.88	26.42	0.57	8.03	75.40	114.39
1279	93.97	27.83	0.67	8.03	75.84	115.13
1280	94.07	26.42	0.70	8.03	78.80	115.71
1281	94.17	24.70	0.75	8.03	82.08	116.26
1282	94.26	25.81	0.86	8.03	80.59	116.63
1283	94.36	29.25	0.79	8.03	81.16	117.93
1284	94.45	28.24	1.17	8.03	80.92	119.20
1285	94.55	30.57	1.33	8.12	72.58	120.82
1286	94.64	48.48	1.34	8.12	58.20	121.86
1287	94.72	65.99	1.33	8.03	49.16	122.39
1288	94.74	64.98	1.34	8.03	41.37	122.92
1289	94.77	90.28	1.36	8.31	37.18	123.45
1290	94.85	97.87	1.44	8.31	33.27	124.10
1291	94.90	103.54	1.52	8.31	32.34	124.67
1292	94.95	106.48	1.62	8.31	32.54	125.32
1293	95.01	105.57	1.83	8.31	34.52	126.41
1294	95.09	101.62	2.33	8.31	37.59	127.40
1295	95.14	94.94	2.54	8.31	42.18	128.49
1296	95.23	86.54	3.07	8.31	47.11	129.05

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1297	95.29	77.43	3.22	8.31	52.64	129.44
1298	95.38	69.84	3.34	8.31	57.15	129.42
1299	95.43	65.69	3.35	8.31	59.57	129.33
1300	95.52	66.70	3.28	8.31	59.18	129.26
1301	95.57	70.75	3.23	8.31	56.95	129.08
1302	95.67	72.87	2.99	8.31	55.03	128.58
1303	95.77	69.74	2.61	8.22	56.22	127.67
1304	95.86	56.58	2.39	8.22	62.27	126.89
1305	95.95	44.23	2.56	8.22	64.67	126.27
1306	96.03	57.64	2.16	8.22	71.02	125.95
1307	96.11	37.96	2.38	8.31	66.58	126.41
1308	96.20	58.70	2.78	8.51	62.59	127.77
1309	96.30	80.57	3.26	8.60	51.74	129.50
1310	96.39	100.81	3.60	8.60	44.40	130.84
1311	96.50	122.37	3.84	8.70	38.62	131.75
1312	96.59	145.34	3.92	8.60	32.42	131.58
1313	96.69	166.80	2.74	8.60	26.91	130.69
1314	96.78	182.08	2.25	8.60	22.17	129.05
1315	96.87	191.29	1.93	8.60	20.37	128.23
1316	96.98	184.11	1.94	8.60	20.02	127.84
1317	97.02	180.06	1.94	8.51	21.02	127.82
1318	97.06	168.82	2.00	8.70	21.61	128.14
1319	97.12	179.96	2.21	8.70	22.39	128.67
1320	97.16	177.63	2.41	8.70	23.05	129.34
1321	97.21	172.97	2.61	8.70	24.45	129.98
1322	97.27	170.04	2.93	8.60	25.91	130.63
1323	97.33	168.12	3.21	8.60	27.09	131.15
1324	97.40	166.09	3.29	8.60	27.88	131.39
1325	97.45	163.36	3.29	8.60	28.36	131.45
1326	97.50	161.94	3.32	8.60	29.21	131.67
1327	97.58	158.50	3.65	8.60	30.75	131.92
1328	97.65	146.66	3.76	8.51	32.97	132.07
1329	97.69	135.32	3.76	8.51	35.59	131.79
1330	97.74	120.95	3.57	8.51	38.21	131.25
1331	97.81	108.60	3.32	8.51	40.74	130.65
1332	97.88	101.62	3.24	8.51	42.61	130.19
1333	97.93	98.68	3.18	8.60	40.27	130.07
1334	98.03	125.30	2.99	8.79	31.75	130.21
1335	98.15	191.80	2.67	9.08	23.53	130.24
1336	98.21	230.36	2.44	9.08	17.43	129.79
1337	98.32	262.75	1.96	9.08	13.84	129.24
1338	98.42	299.09	1.85	9.08	10.93	128.66
1339	98.47	343.32	1.71	9.08	5.00	127.75
1340	98.57	405.97	1.08	9.18	5.00	126.30
1341	98.70	416.60	0.89	9.18	4.53	124.66
1342	98.78	412.55	0.91	9.27	4.67	124.49
1343	98.85	382.49	1.03	9.27	5.00	124.66
1344	98.86	321.86	1.03	9.08	5.00	124.72

:: Field input data :: (continued)

Point ID	Depth (ft)	q_c (tsf)	f_s (tsf)	u (tsf)	Fines content (%)	Unit weight (pcf)
1345	98.92	308.60	1.04	9.08	5.00	124.62
1346	98.98	337.35	1.04	9.18	5.00	124.75
1347	99.03	309.11	1.10	9.08	5.00	125.36
1348	99.11	281.37	1.35	8.98	5.00	126.14
1349	99.18	254.05	1.55	8.98	12.62	127.01
1350	99.23	230.16	1.76	8.89	15.59	128.18
1351	99.32	209.41	2.34	8.79	19.03	129.37
1352	99.37	189.57	2.77	8.79	22.90	130.41
1353	99.45	168.82	3.08	8.79	26.41	130.81
1354	99.56	152.93	3.11	8.79	29.20	131.00
1355	99.64	149.59	3.27	8.79	31.66	131.22
1356	99.71	139.27	3.58	8.79	34.06	131.59
1357	99.75	130.87	3.81	8.89	36.97	131.47
1358	99.90	114.27	3.39	8.79	40.25	131.23
1359	99.95	103.44	3.58	8.70	45.52	131.15
1360	100.04	87.25	4.17	8.70	42.09	132.11
1361	100.14	157.89	4.41	8.98	32.87	133.35
1362	100.14	232.39	4.40	8.98	26.10	134.08
1363	100.15	224.29	4.36	9.08	23.29	134.83
1364	100.19	250.30	5.18	9.18	22.57	136.06
1365	100.21	301.41	6.43	9.27	21.06	137.28
1366	100.24	342.10	7.12	9.27	14.70	135.60
1367	100.28	411.74	0.00	9.46	8.11	131.27
1368	100.31	477.42	0.00	9.56	N/A	87.36
1369	100.33	523.38	0.00	9.56	N/A	87.36
1370	100.38	524.49	0.00	9.56	N/A	87.36
1371	100.39	525.60	0.00	9.56	N/A	87.36
1372	100.43	529.15	0.00	9.65	N/A	87.36
1373	100.48	540.18	0.00	9.65	N/A	87.36
1374	100.53	496.96	0.00	9.56	N/A	87.36
1375	100.57	490.58	0.00	9.65	N/A	87.36
1376	100.60	500.40	0.00	9.94	N/A	87.36

Abbreviations

Depth:	Depth from free surface, at which CPT was performed (ft)
q_c:	Measured cone resistance (tsf)
f_s:	Sleeve friction resistance (tsf)
u:	Pore pressure (tsf)
Fines content:	Percentage of fines in soil (%)
Unit weight:	Bulk soil unit weight (pcf)

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data ::

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1	0.04	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
2	0.10	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
3	0.11	0.00	0.00	0.00	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
4	0.16	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
5	0.19	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
6	0.24	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
7	0.31	0.01	0.00	0.01	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
8	0.38	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
9	0.43	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
10	0.49	0.02	0.00	0.02	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
11	0.58	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
12	0.63	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
13	0.67	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	No
14	0.72	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
15	0.72	0.03	0.00	0.03	1.00	0.410	1.36	0.301	1.00	1.00	2.000	Yes
16	0.84	0.04	0.00	0.04	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
17	0.96	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
18	1.06	0.05	0.00	0.05	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
19	1.24	0.06	0.00	0.06	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
20	1.30	0.07	0.00	0.07	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
21	1.48	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
22	1.59	0.08	0.00	0.08	1.00	0.409	1.36	0.301	1.00	1.00	2.000	Yes
23	1.69	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	Yes
24	1.69	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	Yes
25	1.74	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	Yes
26	1.79	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
27	1.84	0.09	0.00	0.09	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
28	1.88	0.10	0.00	0.10	1.00	0.409	1.36	0.300	1.00	1.00	2.000	No
29	1.93	0.10	0.00	0.10	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
30	1.99	0.10	0.00	0.10	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
31	2.03	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
32	2.08	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
33	2.13	0.11	0.00	0.11	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
34	2.22	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
35	2.27	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
36	2.33	0.12	0.00	0.12	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
37	2.42	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
38	2.48	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
39	2.56	0.13	0.00	0.13	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
40	2.65	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
41	2.72	0.14	0.00	0.14	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
42	2.80	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
43	2.89	0.15	0.00	0.15	1.00	0.408	1.36	0.300	1.00	1.00	2.000	No
44	2.94	0.16	0.00	0.16	1.00	0.407	1.36	0.300	1.00	1.00	2.000	No
45	3.04	0.16	0.00	0.16	0.99	0.407	1.36	0.300	1.00	1.00	2.000	No
46	3.14	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
47	3.23	0.17	0.00	0.17	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
48	3.31	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
49	3.37	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
50	3.48	0.18	0.00	0.18	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
51	3.57	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
52	3.65	0.19	0.00	0.19	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
53	3.71	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
54	3.82	0.20	0.00	0.20	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
55	3.91	0.21	0.00	0.21	0.99	0.407	1.36	0.299	1.00	1.00	2.000	No
56	4.00	0.21	0.00	0.21	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
57	4.10	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
58	4.19	0.22	0.00	0.22	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
59	4.26	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
60	4.35	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
61	4.44	0.23	0.00	0.23	0.99	0.406	1.36	0.299	1.00	1.00	2.000	No
62	4.52	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
63	4.53	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
64	4.58	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
65	4.63	0.24	0.00	0.24	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
66	4.68	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
67	4.72	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
68	4.77	0.25	0.00	0.25	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
69	4.82	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
70	4.88	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
71	4.96	0.26	0.00	0.26	0.99	0.406	1.36	0.298	1.00	1.00	2.000	No
72	5.01	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
73	5.08	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
74	5.16	0.27	0.00	0.27	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
75	5.21	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
76	5.30	0.28	0.00	0.28	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
77	5.37	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
78	5.45	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
79	5.52	0.29	0.00	0.29	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
80	5.59	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
81	5.65	0.30	0.00	0.30	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
82	5.74	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
83	5.83	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
84	5.89	0.31	0.00	0.31	0.99	0.405	1.36	0.298	1.00	1.00	2.000	No
85	5.97	0.32	0.00	0.32	0.99	0.405	1.36	0.297	1.00	1.00	2.000	No
86	6.07	0.32	0.00	0.32	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
87	6.12	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
88	6.22	0.33	0.00	0.33	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
89	6.28	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
90	6.36	0.34	0.00	0.34	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
91	6.46	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
92	6.52	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
93	6.60	0.35	0.00	0.35	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
94	6.70	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	No
95	6.76	0.36	0.00	0.36	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
96	6.84	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
97	6.94	0.37	0.00	0.37	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
98	7.03	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
99	7.13	0.38	0.00	0.38	0.99	0.404	1.36	0.297	1.00	1.00	2.000	Yes
100	7.19	0.38	0.00	0.38	0.99	0.403	1.36	0.297	1.00	1.00	2.000	Yes
101	7.32	0.39	0.00	0.39	0.98	0.403	1.36	0.297	1.00	1.00	2.000	No
102	7.42	0.39	0.00	0.39	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
103	7.49	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
104	7.57	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
105	7.66	0.40	0.00	0.40	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
106	7.76	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
107	7.77	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
108	7.78	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
109	7.82	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
110	7.87	0.41	0.00	0.41	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
111	7.92	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
112	7.97	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
113	8.01	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
114	8.06	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
115	8.11	0.42	0.00	0.42	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
116	8.20	0.43	0.00	0.43	0.98	0.403	1.36	0.296	1.00	1.00	2.000	No
117	8.26	0.43	0.00	0.43	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
118	8.35	0.44	0.00	0.44	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
119	8.40	0.44	0.00	0.44	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
120	8.49	0.44	0.00	0.44	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
121	8.54	0.44	0.00	0.44	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
122	8.64	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
123	8.69	0.45	0.00	0.45	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
124	8.79	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
125	8.84	0.46	0.00	0.46	0.98	0.402	1.36	0.296	1.00	1.00	2.000	No
126	8.93	0.46	0.00	0.46	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
127	9.03	0.47	0.00	0.47	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
128	9.08	0.47	0.00	0.47	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
129	9.11	0.47	0.00	0.47	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
130	9.12	0.47	0.00	0.47	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
131	9.17	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
132	9.22	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
133	9.31	0.48	0.00	0.48	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
134	9.36	0.49	0.00	0.49	0.98	0.402	1.36	0.295	1.00	1.00	2.000	No
135	9.40	0.49	0.00	0.49	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
136	9.46	0.49	0.00	0.49	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
137	9.51	0.49	0.00	0.49	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
138	9.55	0.50	0.00	0.50	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
139	9.61	0.50	0.00	0.50	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
140	9.69	0.50	0.00	0.50	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
141	9.74	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
142	9.81	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
143	9.89	0.51	0.00	0.51	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
144	9.94	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
145	10.03	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
146	10.08	0.52	0.00	0.52	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
147	10.18	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
148	10.23	0.53	0.00	0.53	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
149	10.33	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
150	10.40	0.54	0.00	0.54	0.98	0.401	1.36	0.295	1.00	1.00	2.000	No
151	10.47	0.54	0.00	0.54	0.98	0.401	1.36	0.294	1.00	1.00	2.000	No
152	10.51	0.55	0.00	0.55	0.98	0.401	1.36	0.294	1.00	1.00	2.000	No
153	10.56	0.55	0.00	0.55	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
154	10.61	0.55	0.00	0.55	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
155	10.67	0.55	0.00	0.55	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
156	10.75	0.56	0.00	0.56	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
157	10.80	0.56	0.00	0.56	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
158	10.85	0.56	0.00	0.56	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
159	10.90	0.57	0.00	0.57	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
160	11.00	0.57	0.00	0.57	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
161	11.05	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
162	11.14	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
163	11.21	0.58	0.00	0.58	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
164	11.29	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
165	11.38	0.59	0.00	0.59	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
166	11.46	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
167	11.52	0.60	0.00	0.60	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
168	11.60	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
169	11.67	0.61	0.00	0.61	0.98	0.400	1.36	0.294	1.00	1.00	2.000	No
170	11.72	0.61	0.00	0.61	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
171	11.81	0.62	0.00	0.62	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
172	11.86	0.62	0.00	0.62	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
173	11.96	0.63	0.00	0.63	0.98	0.399	1.36	0.294	1.00	1.00	2.000	No
174	12.01	0.63	0.00	0.63	0.97	0.399	1.36	0.294	1.00	1.00	2.000	No
175	12.10	0.63	0.00	0.63	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
176	12.16	0.64	0.00	0.64	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
177	12.24	0.64	0.00	0.64	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
178	12.32	0.64	0.00	0.64	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
179	12.39	0.65	0.00	0.65	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
180	12.48	0.65	0.00	0.65	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
181	12.50	0.65	0.00	0.65	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
182	12.54	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
183	12.64	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
184	12.68	0.66	0.00	0.66	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
185	12.77	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
186	12.82	0.67	0.00	0.67	0.97	0.399	1.36	0.293	1.00	1.00	2.000	No
187	12.89	0.68	0.00	0.68	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
188	12.97	0.68	0.00	0.68	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
189	13.03	0.68	0.00	0.68	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
190	13.12	0.69	0.00	0.69	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
191	13.16	0.69	0.00	0.69	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
192	13.26	0.70	0.00	0.70	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
193	13.34	0.70	0.00	0.70	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
194	13.41	0.70	0.00	0.70	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
195	13.50	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
196	13.60	0.71	0.00	0.71	0.97	0.398	1.36	0.293	1.00	1.00	2.000	No
197	13.65	0.72	0.00	0.72	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
198	13.75	0.72	0.00	0.72	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
199	13.80	0.73	0.00	0.73	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
200	13.89	0.73	0.00	0.73	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
201	13.94	0.73	0.00	0.73	0.97	0.398	1.36	0.292	1.00	1.00	2.000	No
202	14.03	0.74	0.00	0.74	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
203	14.11	0.74	0.00	0.74	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
204	14.13	0.74	0.00	0.74	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
205	14.18	0.75	0.00	0.75	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
206	14.22	0.75	0.00	0.75	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
207	14.28	0.75	0.00	0.75	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
208	14.37	0.76	0.00	0.76	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
209	14.44	0.76	0.00	0.76	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
210	14.51	0.76	0.00	0.76	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
211	14.60	0.77	0.00	0.77	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
212	14.65	0.77	0.00	0.77	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
213	14.75	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
214	14.85	0.78	0.00	0.78	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
215	14.91	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	No
216	14.99	0.79	0.00	0.79	0.97	0.397	1.36	0.292	1.00	1.00	2.000	Yes
217	15.09	0.80	0.00	0.80	0.97	0.397	1.36	0.292	1.00	1.00	2.000	Yes
218	15.18	0.80	0.00	0.80	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
219	15.25	0.81	0.00	0.81	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
220	15.33	0.81	0.00	0.81	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
221	15.43	0.82	0.00	0.82	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
222	15.51	0.82	0.00	0.82	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
223	15.59	0.83	0.00	0.83	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
224	15.67	0.83	0.00	0.83	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
225	15.76	0.84	0.00	0.84	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
226	15.86	0.84	0.00	0.84	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
227	15.95	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
228	16.05	0.85	0.00	0.85	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
229	16.14	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
230	16.20	0.86	0.00	0.86	0.97	0.396	1.36	0.291	1.00	1.00	2.000	Yes
231	16.28	0.87	0.00	0.87	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
232	16.34	0.87	0.00	0.87	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
233	16.44	0.87	0.00	0.87	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
234	16.50	0.88	0.00	0.88	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
235	16.58	0.88	0.00	0.88	0.97	0.395	1.36	0.291	1.00	1.00	2.000	Yes
236	16.73	0.89	0.00	0.89	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
237	16.82	0.89	0.00	0.89	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
238	16.92	0.90	0.00	0.90	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
239	17.01	0.90	0.00	0.90	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
240	17.11	0.91	0.00	0.91	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
241	17.12	0.91	0.00	0.91	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
242	17.14	0.91	0.00	0.91	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
243	17.19	0.91	0.00	0.91	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
244	17.28	0.92	0.00	0.92	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
245	17.33	0.92	0.00	0.92	0.96	0.395	1.36	0.290	1.00	1.00	2.000	No
246	17.43	0.92	0.00	0.92	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
247	17.47	0.93	0.00	0.93	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
248	17.57	0.93	0.00	0.93	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
249	17.65	0.94	0.00	0.94	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
250	17.72	0.94	0.00	0.94	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
251	17.81	0.94	0.00	0.94	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
252	17.86	0.95	0.00	0.95	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
253	17.95	0.95	0.00	0.95	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
254	18.05	0.96	0.00	0.96	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
255	18.10	0.96	0.00	0.96	0.96	0.394	1.36	0.290	1.00	1.00	2.000	No
256	18.20	0.97	0.00	0.97	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
257	18.30	0.97	0.00	0.97	0.96	0.394	1.36	0.289	1.00	1.00	2.000	No
258	18.39	0.98	0.00	0.98	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
259	18.48	0.98	0.00	0.98	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
260	18.58	0.99	0.00	0.99	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
261	18.66	0.99	0.00	0.99	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
262	18.74	1.00	0.00	1.00	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
263	18.87	1.00	0.00	1.00	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
264	18.97	1.01	0.00	1.01	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
265	19.06	1.01	0.00	1.01	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
266	19.16	1.02	0.00	1.02	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
267	19.25	1.02	0.00	1.02	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
268	19.27	1.02	0.00	1.02	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
269	19.30	1.02	0.00	1.02	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
270	19.34	1.03	0.00	1.03	0.96	0.393	1.36	0.289	1.00	1.00	2.000	No
271	19.39	1.03	0.00	1.03	0.96	0.392	1.36	0.289	1.00	1.00	2.000	No
272	19.49	1.04	0.00	1.04	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
273	19.55	1.04	0.00	1.04	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
274	19.63	1.04	0.00	1.04	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
275	19.68	1.05	0.00	1.05	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
276	19.74	1.05	0.00	1.05	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
277	19.83	1.05	0.00	1.05	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
278	19.87	1.06	0.00	1.06	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
279	19.94	1.06	0.00	1.06	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
280	20.02	1.06	0.00	1.06	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
281	20.07	1.07	0.00	1.07	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
282	20.17	1.07	0.00	1.07	0.96	0.392	1.36	0.288	1.00	1.00	2.000	No
283	20.21	1.07	0.00	1.07	0.96	0.392	1.36	0.288	1.00	1.00	2.000	Yes
284	20.28	1.08	0.00	1.08	0.96	0.392	1.36	0.288	1.00	1.00	2.000	Yes
285	20.36	1.08	0.00	1.08	0.96	0.391	1.36	0.288	1.00	1.00	2.000	Yes
286	20.41	1.09	0.00	1.09	0.96	0.391	1.36	0.288	0.99	1.00	2.000	Yes
287	20.48	1.09	0.00	1.09	0.96	0.391	1.36	0.288	0.99	1.00	2.000	Yes
288	20.55	1.09	0.00	1.09	0.96	0.391	1.36	0.288	0.99	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
289	20.60	1.10	0.00	1.10	0.96	0.391	1.36	0.288	0.99	1.00	2.000	Yes
290	20.70	1.10	0.00	1.10	0.96	0.391	1.36	0.288	0.99	1.00	2.000	No
291	20.74	1.11	0.00	1.11	0.95	0.391	1.36	0.288	0.99	1.00	2.000	No
292	20.79	1.11	0.00	1.11	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
293	20.89	1.11	0.00	1.11	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
294	20.96	1.12	0.00	1.12	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
295	21.04	1.12	0.00	1.12	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
296	21.13	1.13	0.00	1.13	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
297	21.22	1.13	0.00	1.13	0.95	0.391	1.36	0.287	0.99	1.00	2.000	No
298	21.29	1.14	0.00	1.14	0.95	0.390	1.36	0.287	0.99	1.00	2.000	No
299	21.35	1.14	0.00	1.14	0.95	0.390	1.36	0.287	0.99	1.00	2.000	No
300	21.37	1.14	0.00	1.14	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
301	21.42	1.14	0.00	1.14	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
302	21.47	1.15	0.00	1.15	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
303	21.48	1.15	0.00	1.15	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
304	21.52	1.15	0.00	1.15	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
305	21.57	1.15	0.00	1.15	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
306	21.62	1.16	0.00	1.16	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
307	21.66	1.16	0.00	1.16	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
308	21.71	1.16	0.00	1.16	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
309	21.76	1.17	0.00	1.17	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
310	21.81	1.17	0.00	1.17	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
311	21.85	1.17	0.00	1.17	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
312	21.91	1.17	0.00	1.17	0.95	0.390	1.36	0.287	0.98	1.00	2.000	No
313	21.95	1.18	0.00	1.18	0.95	0.390	1.36	0.286	0.98	1.00	2.000	No
314	22.00	1.18	0.00	1.18	0.95	0.390	1.36	0.286	0.98	1.00	2.000	No
315	22.05	1.18	0.00	1.18	0.95	0.390	1.36	0.286	0.98	1.00	2.000	No
316	22.10	1.19	0.00	1.19	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
317	22.15	1.19	0.00	1.19	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
318	22.19	1.19	0.00	1.19	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
319	22.24	1.19	0.00	1.19	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
320	22.29	1.20	0.00	1.20	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
321	22.34	1.20	0.00	1.20	0.95	0.389	1.36	0.286	0.98	1.00	2.000	No
322	22.39	1.20	0.00	1.20	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
323	22.43	1.21	0.00	1.21	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
324	22.48	1.21	0.00	1.21	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
325	22.55	1.21	0.00	1.21	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
326	22.62	1.22	0.00	1.22	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
327	22.63	1.22	0.00	1.22	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
328	22.72	1.22	0.00	1.22	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
329	22.77	1.23	0.00	1.23	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
330	22.83	1.23	0.00	1.23	0.95	0.389	1.36	0.286	0.97	1.00	2.000	No
331	22.91	1.24	0.00	1.24	0.95	0.388	1.36	0.286	0.97	1.00	2.000	No
332	22.96	1.24	0.00	1.24	0.95	0.388	1.36	0.286	0.97	1.00	2.000	No
333	23.02	1.24	0.00	1.24	0.95	0.388	1.36	0.286	0.97	1.00	2.000	No
334	23.10	1.25	0.00	1.25	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No
335	23.16	1.25	0.00	1.25	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No
336	23.20	1.25	0.00	1.25	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
337	23.26	1.26	0.00	1.26	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No
338	23.35	1.26	0.00	1.26	0.95	0.388	1.36	0.285	0.97	1.00	2.000	No
339	23.39	1.27	0.00	1.27	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
340	23.48	1.27	0.00	1.27	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
341	23.54	1.27	0.00	1.27	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
342	23.63	1.28	0.00	1.28	0.95	0.388	1.36	0.285	0.96	1.00	2.000	No
343	23.69	1.28	0.00	1.28	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
344	23.78	1.29	0.00	1.29	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
345	23.87	1.29	0.00	1.29	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
346	23.88	1.29	0.00	1.29	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
347	23.93	1.30	0.00	1.30	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
348	24.02	1.30	0.00	1.30	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
349	24.04	1.30	0.00	1.30	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
350	24.05	1.30	0.00	1.30	0.95	0.387	1.36	0.285	0.96	1.00	2.000	No
351	24.15	1.31	0.00	1.31	0.94	0.387	1.36	0.284	0.96	1.00	2.000	No
352	24.20	1.31	0.00	1.31	0.94	0.387	1.36	0.284	0.96	1.00	2.000	No
353	24.30	1.32	0.00	1.32	0.94	0.387	1.36	0.284	0.96	1.00	2.000	No
354	24.40	1.32	0.00	1.32	0.94	0.387	1.36	0.284	0.96	1.00	2.000	No
355	24.46	1.33	0.00	1.33	0.94	0.386	1.36	0.284	0.96	1.00	2.000	No
356	24.54	1.33	0.00	1.33	0.94	0.386	1.36	0.284	0.95	1.00	2.000	No
357	24.64	1.34	0.00	1.34	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
358	24.73	1.34	0.00	1.34	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
359	24.78	1.35	0.00	1.35	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
360	24.88	1.35	0.00	1.35	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
361	24.94	1.36	0.00	1.36	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
362	25.02	1.36	0.00	1.36	0.94	0.386	1.36	0.284	0.95	1.00	2.000	Yes
363	25.12	1.37	0.00	1.37	0.94	0.386	1.36	0.283	0.95	1.00	2.000	Yes
364	25.17	1.37	0.00	1.37	0.94	0.385	1.36	0.283	0.95	1.00	2.000	Yes
365	25.27	1.38	0.00	1.38	0.94	0.385	1.36	0.283	0.95	1.00	2.000	Yes
366	25.36	1.38	0.00	1.38	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
367	25.43	1.38	0.00	1.38	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
368	25.50	1.39	0.00	1.39	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
369	25.60	1.39	0.00	1.39	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
370	25.64	1.40	0.00	1.40	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
371	25.67	1.40	0.00	1.40	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
372	25.71	1.40	0.00	1.40	0.94	0.385	1.36	0.283	0.95	1.00	2.000	No
373	25.79	1.40	0.00	1.40	0.94	0.384	1.36	0.283	0.95	1.00	2.000	No
374	25.93	1.41	0.00	1.41	0.94	0.384	1.36	0.283	0.94	1.00	2.000	No
375	26.03	1.42	0.00	1.42	0.94	0.384	1.36	0.282	0.94	1.00	2.000	No
376	26.13	1.42	0.00	1.42	0.94	0.384	1.36	0.282	0.94	1.00	2.000	No
377	26.24	1.43	0.00	1.43	0.94	0.384	1.36	0.282	0.94	1.00	2.000	No
378	26.37	1.43	0.00	1.43	0.94	0.384	1.36	0.282	0.94	1.00	2.000	No
379	26.47	1.44	0.00	1.44	0.94	0.383	1.36	0.282	0.94	1.00	2.000	No
380	26.60	1.45	0.00	1.45	0.94	0.383	1.36	0.282	0.94	1.00	2.000	No
381	26.71	1.45	0.00	1.45	0.94	0.383	1.36	0.282	0.94	1.00	2.000	No
382	26.85	1.46	0.00	1.46	0.93	0.383	1.36	0.281	0.94	1.00	2.000	No
383	26.95	1.46	0.00	1.46	0.93	0.383	1.36	0.281	0.94	1.00	2.000	No
384	27.04	1.47	0.00	1.47	0.93	0.382	1.36	0.281	0.94	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
385	27.09	1.47	0.00	1.47	0.93	0.382	1.36	0.281	0.94	1.00	2.000	No
386	27.19	1.48	0.00	1.48	0.93	0.382	1.36	0.281	0.94	1.00	2.000	No
387	27.23	1.48	0.00	1.48	0.93	0.382	1.36	0.281	0.94	1.00	2.000	No
388	27.33	1.48	0.00	1.48	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
389	27.40	1.49	0.00	1.49	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
390	27.47	1.49	0.00	1.49	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
391	27.57	1.50	0.00	1.50	0.93	0.382	1.36	0.281	0.93	1.00	2.000	No
392	27.66	1.50	0.00	1.50	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
393	27.77	1.51	0.00	1.51	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
394	27.86	1.51	0.00	1.51	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
395	27.96	1.52	0.00	1.52	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
396	28.06	1.52	0.00	1.52	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
397	28.15	1.53	0.00	1.53	0.93	0.381	1.36	0.280	0.93	1.00	2.000	No
398	28.25	1.54	0.00	1.54	0.93	0.380	1.36	0.280	0.93	1.00	2.000	No
399	28.34	1.54	0.00	1.54	0.93	0.380	1.36	0.280	0.93	1.00	2.000	No
400	28.44	1.55	0.00	1.55	0.93	0.380	1.36	0.279	0.93	1.00	2.000	No
401	28.54	1.55	0.00	1.55	0.93	0.380	1.36	0.279	0.93	1.00	2.000	No
402	28.62	1.56	0.00	1.56	0.93	0.380	1.36	0.279	0.93	1.00	2.000	No
403	28.71	1.56	0.00	1.56	0.93	0.380	1.36	0.279	0.93	1.00	2.000	No
404	28.77	1.56	0.00	1.56	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
405	28.86	1.57	0.00	1.57	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
406	28.91	1.57	0.00	1.57	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
407	28.97	1.58	0.00	1.58	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
408	29.04	1.58	0.00	1.58	0.93	0.379	1.36	0.279	0.92	1.00	2.000	No
409	29.10	1.58	0.00	1.58	0.92	0.379	1.36	0.278	0.92	1.00	2.000	No
410	29.15	1.59	0.00	1.59	0.92	0.379	1.36	0.278	0.92	1.00	2.000	No
411	29.25	1.59	0.00	1.59	0.92	0.378	1.36	0.278	0.92	1.00	2.000	No
412	29.34	1.60	0.00	1.60	0.92	0.378	1.36	0.278	0.92	1.00	2.000	No
413	29.38	1.60	0.00	1.60	0.92	0.378	1.36	0.278	0.92	1.00	2.000	No
414	29.48	1.61	0.00	1.61	0.92	0.378	1.36	0.278	0.92	1.00	2.000	No
415	29.55	1.61	0.00	1.61	0.92	0.378	1.36	0.278	0.92	1.00	2.000	Yes
416	29.63	1.62	0.00	1.62	0.92	0.378	1.36	0.278	0.92	1.00	2.000	Yes
417	29.72	1.62	0.00	1.62	0.92	0.378	1.36	0.278	0.92	1.00	2.000	Yes
418	29.82	1.63	0.00	1.63	0.92	0.377	1.36	0.277	0.92	1.00	2.000	Yes
419	29.88	1.63	0.00	1.63	0.92	0.377	1.36	0.277	0.92	1.00	2.000	Yes
420	29.96	1.63	0.00	1.63	0.92	0.377	1.36	0.277	0.92	1.00	2.000	Yes
421	30.06	1.64	0.00	1.64	0.92	0.377	1.36	0.277	0.92	1.00	2.000	Yes
422	30.13	1.64	0.00	1.64	0.92	0.378	1.36	0.278	0.92	1.00	2.000	Yes
423	30.18	1.65	0.01	1.64	0.92	0.378	1.36	0.278	0.92	1.00	0.303	No
424	30.28	1.65	0.01	1.64	0.92	0.378	1.36	0.278	0.92	1.00	0.304	No
425	30.37	1.66	0.01	1.65	0.92	0.379	1.36	0.279	0.92	1.00	0.304	No
426	30.47	1.66	0.01	1.65	0.92	0.379	1.36	0.279	0.92	1.00	0.305	No
427	30.57	1.67	0.02	1.65	0.92	0.380	1.36	0.279	0.91	1.00	0.305	No
428	30.66	1.68	0.02	1.65	0.92	0.380	1.36	0.280	0.91	1.00	0.306	No
429	30.74	1.68	0.02	1.66	0.92	0.381	1.36	0.280	0.91	1.00	0.306	No
430	30.82	1.68	0.03	1.66	0.92	0.381	1.36	0.280	0.91	1.00	0.306	No
431	30.90	1.69	0.03	1.66	0.92	0.381	1.36	0.280	0.91	1.00	0.307	No
432	31.01	1.70	0.03	1.66	0.92	0.382	1.36	0.281	0.91	1.00	0.307	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
433	31.10	1.70	0.03	1.67	0.91	0.382	1.36	0.281	0.91	1.00	0.308	No
434	31.19	1.71	0.04	1.67	0.91	0.383	1.36	0.281	0.91	1.00	0.308	No
435	31.28	1.71	0.04	1.67	0.91	0.383	1.36	0.282	0.91	1.00	0.309	No
436	31.35	1.72	0.04	1.67	0.91	0.383	1.36	0.282	0.91	1.00	0.309	No
437	31.43	1.72	0.04	1.68	0.91	0.384	1.36	0.282	0.91	1.00	0.309	No
438	31.53	1.73	0.05	1.68	0.91	0.384	1.36	0.283	0.91	1.00	0.310	No
439	31.60	1.73	0.05	1.68	0.91	0.385	1.36	0.283	0.91	1.00	0.310	No
440	31.67	1.74	0.05	1.68	0.91	0.385	1.36	0.283	0.91	1.00	0.311	No
441	31.77	1.74	0.06	1.69	0.91	0.385	1.36	0.283	0.91	1.00	0.311	No
442	31.84	1.75	0.06	1.69	0.91	0.386	1.36	0.283	0.91	1.00	0.311	No
443	31.91	1.75	0.06	1.69	0.91	0.386	1.36	0.284	0.91	1.00	0.312	No
444	31.98	1.76	0.06	1.69	0.91	0.386	1.36	0.284	0.91	1.00	0.312	No
445	31.98	1.76	0.06	1.69	0.91	0.386	1.36	0.284	0.91	1.00	0.312	No
446	32.04	1.76	0.06	1.70	0.91	0.386	1.36	0.284	0.91	1.00	0.312	No
447	32.12	1.76	0.07	1.70	0.91	0.387	1.36	0.284	0.91	1.00	2.000	Yes
448	32.16	1.77	0.07	1.70	0.91	0.387	1.36	0.284	0.91	1.00	2.000	Yes
449	32.27	1.77	0.07	1.70	0.91	0.387	1.36	0.285	0.91	1.00	2.000	Yes
450	32.33	1.78	0.07	1.70	0.91	0.388	1.36	0.285	0.91	1.00	2.000	Yes
451	32.41	1.78	0.08	1.71	0.91	0.388	1.36	0.285	0.91	1.00	2.000	Yes
452	32.50	1.79	0.08	1.71	0.91	0.388	1.36	0.285	0.91	1.00	2.000	Yes
453	32.58	1.79	0.08	1.71	0.91	0.389	1.36	0.286	0.91	1.00	2.000	Yes
454	32.66	1.80	0.08	1.71	0.91	0.389	1.36	0.286	0.91	1.00	2.000	Yes
455	32.74	1.80	0.09	1.72	0.91	0.389	1.36	0.286	0.91	1.00	2.000	Yes
456	32.84	1.81	0.09	1.72	0.90	0.390	1.36	0.286	0.91	1.00	2.000	Yes
457	32.90	1.81	0.09	1.72	0.90	0.390	1.36	0.287	0.91	1.00	2.000	Yes
458	32.98	1.82	0.09	1.72	0.90	0.390	1.36	0.287	0.91	1.00	2.000	Yes
459	33.08	1.82	0.10	1.73	0.90	0.390	1.36	0.287	0.91	1.00	0.317	No
460	33.14	1.83	0.10	1.73	0.90	0.391	1.36	0.287	0.91	1.00	0.317	No
461	33.22	1.83	0.10	1.73	0.90	0.391	1.36	0.287	0.91	1.00	0.317	No
462	33.32	1.84	0.10	1.73	0.90	0.391	1.36	0.288	0.91	1.00	0.318	No
463	33.37	1.84	0.11	1.73	0.90	0.392	1.36	0.288	0.91	1.00	0.318	No
464	33.47	1.84	0.11	1.74	0.90	0.392	1.36	0.288	0.91	1.00	0.318	No
465	33.56	1.85	0.11	1.74	0.90	0.392	1.36	0.288	0.91	1.00	0.318	No
466	33.63	1.85	0.11	1.74	0.90	0.392	1.36	0.289	0.91	1.00	0.319	No
467	33.71	1.86	0.12	1.74	0.90	0.393	1.36	0.289	0.91	1.00	0.319	No
468	33.81	1.86	0.12	1.74	0.90	0.393	1.36	0.289	0.90	1.00	0.319	No
469	33.90	1.87	0.12	1.75	0.90	0.393	1.36	0.289	0.90	1.00	0.320	No
470	33.95	1.87	0.12	1.75	0.90	0.394	1.36	0.289	0.90	1.00	0.320	No
471	34.04	1.88	0.13	1.75	0.90	0.394	1.36	0.290	0.90	1.00	0.320	No
472	34.14	1.88	0.13	1.75	0.90	0.394	1.36	0.290	0.90	1.00	0.321	No
473	34.17	1.88	0.13	1.75	0.90	0.394	1.36	0.290	0.90	1.00	0.321	No
474	34.20	1.88	0.13	1.75	0.90	0.394	1.36	0.290	0.90	1.00	0.321	No
475	34.26	1.89	0.13	1.75	0.90	0.395	1.36	0.290	0.90	1.00	0.321	No
476	34.35	1.89	0.14	1.76	0.90	0.395	1.36	0.290	0.90	1.00	0.321	No
477	34.43	1.90	0.14	1.76	0.89	0.395	1.36	0.291	0.90	1.00	0.322	No
478	34.49	1.90	0.14	1.76	0.89	0.395	1.36	0.291	0.90	1.00	0.322	No
479	34.59	1.90	0.14	1.76	0.89	0.396	1.36	0.291	0.90	1.00	0.322	No
480	34.69	1.91	0.15	1.76	0.89	0.396	1.36	0.291	0.90	1.00	0.322	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
481	34.73	1.91	0.15	1.76	0.89	0.396	1.36	0.291	0.90	1.00	0.323	No
482	34.83	1.92	0.15	1.76	0.89	0.396	1.36	0.291	0.90	1.00	0.323	No
483	34.90	1.92	0.15	1.77	0.89	0.397	1.36	0.292	0.90	1.00	0.323	No
484	34.98	1.92	0.16	1.77	0.89	0.397	1.36	0.292	0.90	1.00	0.323	No
485	35.07	1.93	0.16	1.77	0.89	0.397	1.36	0.292	0.90	1.00	0.324	No
486	35.16	1.93	0.16	1.77	0.89	0.397	1.36	0.292	0.90	1.00	0.324	No
487	35.26	1.94	0.16	1.77	0.89	0.398	1.36	0.292	0.90	1.00	0.324	No
488	35.33	1.94	0.17	1.78	0.89	0.398	1.36	0.292	0.90	1.00	0.324	No
489	35.40	1.95	0.17	1.78	0.89	0.398	1.36	0.293	0.90	1.00	0.325	No
490	35.50	1.95	0.17	1.78	0.89	0.398	1.36	0.293	0.90	1.00	0.325	No
491	35.57	1.96	0.17	1.78	0.89	0.398	1.36	0.293	0.90	1.00	0.325	No
492	35.65	1.96	0.18	1.78	0.89	0.399	1.36	0.293	0.90	1.00	0.325	No
493	35.71	1.96	0.18	1.79	0.89	0.399	1.36	0.293	0.90	1.00	0.326	No
494	35.79	1.97	0.18	1.79	0.88	0.399	1.36	0.293	0.90	1.00	0.326	No
495	35.85	1.97	0.18	1.79	0.88	0.399	1.36	0.293	0.90	1.00	0.326	No
496	35.94	1.98	0.19	1.79	0.88	0.399	1.36	0.294	0.90	1.00	0.326	No
497	35.99	1.98	0.19	1.79	0.88	0.400	1.36	0.294	0.90	1.00	0.326	No
498	36.08	1.99	0.19	1.80	0.88	0.400	1.36	0.294	0.90	1.00	0.327	No
499	36.17	1.99	0.19	1.80	0.88	0.400	1.36	0.294	0.90	1.00	0.327	No
500	36.24	1.99	0.19	1.80	0.88	0.400	1.36	0.294	0.90	1.00	0.327	No
501	36.33	2.00	0.20	1.80	0.88	0.400	1.36	0.294	0.90	1.00	0.327	No
502	36.42	2.00	0.20	1.80	0.88	0.401	1.36	0.294	0.90	1.00	0.328	No
503	36.52	2.01	0.20	1.81	0.88	0.401	1.36	0.295	0.90	1.00	0.328	No
504	36.61	2.02	0.21	1.81	0.88	0.401	1.36	0.295	0.90	1.00	0.328	No
505	36.70	2.02	0.21	1.81	0.88	0.401	1.36	0.295	0.90	1.00	0.328	No
506	36.78	2.02	0.21	1.81	0.88	0.401	1.36	0.295	0.90	1.00	0.329	No
507	36.85	2.03	0.21	1.82	0.88	0.401	1.36	0.295	0.90	1.00	0.329	No
508	36.87	2.03	0.21	1.82	0.88	0.401	1.36	0.295	0.90	1.00	0.329	No
509	36.91	2.03	0.22	1.82	0.88	0.402	1.36	0.295	0.90	1.00	0.329	No
510	36.97	2.04	0.22	1.82	0.88	0.402	1.36	0.295	0.90	1.00	2.000	Yes
511	37.06	2.04	0.22	1.82	0.88	0.402	1.36	0.295	0.90	1.00	2.000	Yes
512	37.12	2.04	0.22	1.82	0.87	0.402	1.36	0.296	0.90	1.00	2.000	Yes
513	37.20	2.05	0.22	1.82	0.87	0.402	1.36	0.296	0.90	1.00	2.000	Yes
514	37.27	2.05	0.23	1.83	0.87	0.402	1.36	0.296	0.90	1.00	2.000	Yes
515	37.35	2.06	0.23	1.83	0.87	0.402	1.36	0.296	0.90	1.00	2.000	Yes
516	37.44	2.06	0.23	1.83	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
517	37.49	2.07	0.23	1.83	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
518	37.59	2.07	0.24	1.84	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
519	37.64	2.08	0.24	1.84	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
520	37.70	2.08	0.24	1.84	0.87	0.403	1.36	0.296	0.90	1.00	2.000	Yes
521	37.78	2.09	0.24	1.84	0.87	0.403	1.36	0.296	0.89	1.00	2.000	Yes
522	37.83	2.09	0.24	1.84	0.87	0.403	1.36	0.296	0.89	1.00	2.000	Yes
523	37.92	2.09	0.25	1.85	0.87	0.403	1.36	0.297	0.89	1.00	2.000	Yes
524	37.97	2.10	0.25	1.85	0.87	0.403	1.36	0.297	0.89	1.00	2.000	Yes
525	38.07	2.10	0.25	1.85	0.87	0.403	1.36	0.297	0.89	1.00	0.332	No
526	38.14	2.11	0.25	1.85	0.87	0.404	1.36	0.297	0.89	1.00	0.332	No
527	38.22	2.11	0.26	1.86	0.87	0.404	1.36	0.297	0.89	1.00	0.332	No
528	38.31	2.12	0.26	1.86	0.87	0.404	1.36	0.297	0.89	1.00	0.332	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
529	38.41	2.12	0.26	1.86	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
530	38.52	2.13	0.27	1.87	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
531	38.64	2.14	0.27	1.87	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
532	38.74	2.15	0.27	1.87	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
533	38.80	2.15	0.27	1.88	0.86	0.404	1.36	0.297	0.89	1.00	0.333	No
534	38.89	2.16	0.28	1.88	0.86	0.404	1.36	0.297	0.89	1.00	0.334	No
535	38.94	2.16	0.28	1.88	0.86	0.405	1.36	0.297	0.89	1.00	0.334	No
536	39.03	2.17	0.28	1.88	0.86	0.405	1.36	0.297	0.89	1.00	0.334	No
537	39.13	2.17	0.28	1.89	0.86	0.405	1.36	0.298	0.89	1.00	0.334	No
538	39.23	2.18	0.29	1.89	0.86	0.405	1.36	0.298	0.89	1.00	0.334	No
539	39.35	2.19	0.29	1.89	0.86	0.405	1.36	0.298	0.89	1.00	0.334	No
540	39.42	2.19	0.29	1.90	0.86	0.405	1.36	0.298	0.89	1.00	0.335	No
541	39.51	2.20	0.30	1.90	0.86	0.405	1.36	0.298	0.89	1.00	0.335	No
542	39.60	2.20	0.30	1.90	0.85	0.405	1.36	0.298	0.89	1.00	0.335	No
543	39.70	2.21	0.30	1.91	0.85	0.405	1.36	0.298	0.89	1.00	0.335	No
544	39.78	2.21	0.31	1.91	0.85	0.405	1.36	0.298	0.89	1.00	0.335	No
545	39.90	2.22	0.31	1.91	0.85	0.405	1.36	0.298	0.89	1.00	0.335	No
546	39.99	2.23	0.31	1.92	0.85	0.405	1.36	0.298	0.89	1.00	0.336	No
547	40.09	2.23	0.31	1.92	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
548	40.18	2.24	0.32	1.92	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
549	40.23	2.24	0.32	1.92	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
550	40.33	2.25	0.32	1.93	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
551	40.43	2.26	0.33	1.93	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
552	40.52	2.26	0.33	1.93	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
553	40.61	2.27	0.33	1.94	0.85	0.405	1.36	0.298	0.89	1.00	2.000	Yes
554	40.69	2.27	0.33	1.94	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
555	40.80	2.28	0.34	1.94	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
556	40.87	2.28	0.34	1.94	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
557	40.95	2.29	0.34	1.95	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
558	40.97	2.29	0.34	1.95	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
559	41.01	2.29	0.34	1.95	0.84	0.406	1.36	0.298	0.89	1.00	2.000	Yes
560	41.07	2.30	0.35	1.95	0.84	0.406	1.36	0.298	0.88	1.00	2.000	Yes
561	41.15	2.30	0.35	1.95	0.84	0.406	1.36	0.298	0.88	1.00	2.000	Yes
562	41.26	2.31	0.35	1.96	0.84	0.406	1.36	0.298	0.88	1.00	0.337	No
563	41.35	2.31	0.35	1.96	0.84	0.406	1.36	0.298	0.88	1.00	0.337	No
564	41.47	2.32	0.36	1.96	0.84	0.406	1.36	0.298	0.88	1.00	0.337	No
565	41.59	2.33	0.36	1.97	0.84	0.406	1.36	0.298	0.88	1.00	0.338	No
566	41.69	2.33	0.36	1.97	0.84	0.406	1.36	0.298	0.88	1.00	0.338	No
567	41.78	2.34	0.37	1.97	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
568	41.88	2.34	0.37	1.97	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
569	41.98	2.35	0.37	1.98	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
570	42.08	2.36	0.38	1.98	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
571	42.16	2.36	0.38	1.98	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
572	42.24	2.37	0.38	1.98	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
573	42.31	2.37	0.38	1.99	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
574	42.45	2.38	0.39	1.99	0.83	0.406	1.36	0.298	0.88	1.00	0.338	No
575	42.55	2.38	0.39	1.99	0.83	0.405	1.36	0.298	0.88	1.00	0.338	No
576	42.60	2.39	0.39	1.99	0.83	0.405	1.36	0.298	0.88	1.00	0.338	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
577	42.70	2.39	0.40	2.00	0.83	0.405	1.36	0.298	0.88	1.00	0.338	No
578	42.81	2.40	0.40	2.00	0.83	0.405	1.36	0.298	0.88	1.00	0.339	No
579	42.89	2.41	0.40	2.00	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
580	42.98	2.41	0.41	2.01	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
581	43.08	2.42	0.41	2.01	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
582	43.17	2.42	0.41	2.01	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
583	43.27	2.43	0.41	2.01	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
584	43.37	2.43	0.42	2.02	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
585	43.50	2.44	0.42	2.02	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
586	43.61	2.45	0.42	2.02	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
587	43.74	2.46	0.43	2.03	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
588	43.79	2.46	0.43	2.03	0.82	0.405	1.36	0.298	0.88	1.00	0.339	No
589	43.86	2.46	0.43	2.03	0.81	0.405	1.36	0.298	0.88	1.00	0.339	No
590	43.94	2.47	0.43	2.03	0.81	0.405	1.36	0.298	0.88	1.00	0.339	No
591	44.00	2.47	0.44	2.04	0.81	0.405	1.36	0.298	0.88	1.00	0.339	No
592	44.08	2.48	0.44	2.04	0.81	0.405	1.36	0.297	0.88	1.00	0.339	No
593	44.17	2.48	0.44	2.04	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
594	44.27	2.49	0.45	2.04	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
595	44.42	2.50	0.45	2.05	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
596	44.52	2.50	0.45	2.05	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
597	44.61	2.51	0.46	2.05	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
598	44.71	2.51	0.46	2.06	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
599	44.85	2.52	0.46	2.06	0.81	0.404	1.36	0.297	0.88	1.00	0.339	No
600	44.95	2.53	0.47	2.06	0.80	0.404	1.36	0.297	0.88	1.00	0.339	No
601	45.09	2.54	0.47	2.07	0.80	0.404	1.36	0.297	0.87	1.00	0.339	No
602	45.19	2.54	0.47	2.07	0.80	0.403	1.36	0.297	0.87	1.00	0.339	No
603	45.33	2.55	0.48	2.07	0.80	0.403	1.36	0.297	0.87	1.00	0.339	No
604	45.42	2.56	0.48	2.08	0.80	0.403	1.36	0.296	0.87	1.00	0.339	No
605	45.57	2.57	0.49	2.08	0.80	0.403	1.36	0.296	0.87	1.00	0.339	No
606	45.68	2.57	0.49	2.08	0.80	0.403	1.36	0.296	0.87	1.00	0.339	No
607	45.81	2.58	0.49	2.09	0.80	0.403	1.36	0.296	0.87	1.00	0.339	No
608	45.92	2.59	0.50	2.09	0.79	0.403	1.36	0.296	0.87	1.00	0.339	No
609	46.05	2.59	0.50	2.09	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
610	46.16	2.60	0.50	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
611	46.17	2.60	0.50	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
612	46.23	2.60	0.51	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
613	46.29	2.61	0.51	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
614	46.34	2.61	0.51	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
615	46.42	2.62	0.51	2.10	0.79	0.402	1.36	0.296	0.87	1.00	0.339	No
616	46.48	2.62	0.51	2.10	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
617	46.52	2.62	0.52	2.11	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
618	46.60	2.63	0.52	2.11	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
619	46.67	2.63	0.52	2.11	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
620	46.74	2.63	0.52	2.11	0.79	0.402	1.36	0.295	0.87	1.00	0.339	No
621	46.82	2.64	0.52	2.11	0.79	0.401	1.36	0.295	0.87	1.00	0.339	No
622	46.88	2.64	0.53	2.11	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
623	46.96	2.64	0.53	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
624	47.06	2.65	0.53	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
625	47.15	2.65	0.54	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
626	47.24	2.66	0.54	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
627	47.35	2.67	0.54	2.12	0.78	0.401	1.36	0.295	0.87	1.00	0.339	No
628	47.49	2.67	0.55	2.13	0.78	0.400	1.36	0.294	0.87	1.00	0.339	No
629	47.58	2.68	0.55	2.13	0.78	0.400	1.36	0.294	0.87	1.00	0.339	No
630	47.73	2.69	0.55	2.13	0.78	0.400	1.36	0.294	0.87	1.00	0.338	No
631	47.83	2.69	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
632	47.87	2.70	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
633	47.89	2.70	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
634	47.94	2.70	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
635	48.02	2.70	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
636	48.07	2.71	0.56	2.14	0.77	0.400	1.36	0.294	0.87	1.00	0.338	No
637	48.12	2.71	0.57	2.14	0.77	0.399	1.36	0.294	0.87	1.00	0.338	No
638	48.18	2.71	0.57	2.15	0.77	0.399	1.36	0.294	0.87	1.00	0.338	No
639	48.26	2.72	0.57	2.15	0.77	0.399	1.36	0.294	0.87	1.00	0.338	No
640	48.31	2.72	0.57	2.15	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
641	48.38	2.72	0.57	2.15	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
642	48.46	2.73	0.58	2.15	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
643	48.52	2.73	0.58	2.16	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
644	48.60	2.74	0.58	2.16	0.77	0.399	1.36	0.293	0.87	1.00	0.338	No
645	48.68	2.74	0.58	2.16	0.77	0.398	1.36	0.293	0.87	1.00	0.338	No
646	48.74	2.75	0.58	2.16	0.77	0.398	1.36	0.293	0.87	1.00	0.338	No
647	48.82	2.75	0.59	2.16	0.76	0.398	1.36	0.293	0.87	1.00	0.338	No
648	48.89	2.75	0.59	2.16	0.76	0.398	1.36	0.293	0.87	1.00	0.338	No
649	48.99	2.76	0.59	2.17	0.76	0.398	1.36	0.293	0.87	1.00	0.338	No
650	49.05	2.76	0.59	2.17	0.76	0.398	1.36	0.292	0.87	1.00	0.338	No
651	49.12	2.77	0.60	2.17	0.76	0.398	1.36	0.292	0.87	1.00	0.338	No
652	49.18	2.77	0.60	2.17	0.76	0.398	1.36	0.292	0.87	1.00	0.337	No
653	49.27	2.77	0.60	2.17	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
654	49.32	2.78	0.60	2.17	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
655	49.42	2.78	0.61	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
656	49.48	2.78	0.61	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
657	49.56	2.79	0.61	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
658	49.66	2.79	0.61	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
659	49.76	2.80	0.62	2.18	0.76	0.397	1.36	0.292	0.87	1.00	0.337	No
660	49.85	2.80	0.62	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
661	49.99	2.81	0.62	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
662	50.09	2.82	0.63	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
663	50.21	2.82	0.63	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
664	50.24	2.82	0.63	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
665	50.29	2.83	0.63	2.19	0.75	0.396	1.36	0.291	0.86	1.00	0.337	No
666	50.38	2.83	0.64	2.20	0.75	0.395	1.36	0.291	0.86	1.00	0.336	No
667	50.47	2.84	0.64	2.20	0.75	0.395	1.36	0.291	0.86	1.00	0.336	No
668	50.52	2.84	0.64	2.20	0.75	0.395	1.36	0.291	0.86	1.00	0.336	No
669	50.62	2.84	0.64	2.20	0.75	0.395	1.36	0.290	0.86	1.00	0.336	No
670	50.66	2.85	0.64	2.20	0.75	0.395	1.36	0.290	0.86	1.00	0.336	No
671	50.76	2.85	0.65	2.20	0.74	0.395	1.36	0.290	0.86	1.00	0.336	No
672	50.83	2.85	0.65	2.21	0.74	0.395	1.36	0.290	0.86	1.00	0.336	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
673	50.91	2.86	0.65	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
674	51.00	2.86	0.66	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
675	51.06	2.87	0.66	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
676	51.15	2.87	0.66	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
677	51.24	2.88	0.66	2.21	0.74	0.394	1.36	0.290	0.86	1.00	0.336	No
678	51.31	2.88	0.67	2.22	0.74	0.394	1.36	0.289	0.86	1.00	0.336	No
679	51.39	2.89	0.67	2.22	0.74	0.393	1.36	0.289	0.86	1.00	0.335	No
680	51.48	2.89	0.67	2.22	0.74	0.393	1.36	0.289	0.86	1.00	0.335	No
681	51.58	2.90	0.67	2.22	0.74	0.393	1.36	0.289	0.86	1.00	0.335	No
682	51.68	2.90	0.68	2.23	0.74	0.393	1.36	0.289	0.86	1.00	0.335	No
683	51.77	2.91	0.68	2.23	0.73	0.393	1.36	0.289	0.86	1.00	0.335	No
684	51.90	2.92	0.68	2.23	0.73	0.392	1.36	0.288	0.86	1.00	0.335	No
685	52.01	2.92	0.69	2.24	0.73	0.392	1.36	0.288	0.86	1.00	2.000	Yes
686	52.11	2.93	0.69	2.24	0.73	0.392	1.36	0.288	0.86	1.00	2.000	Yes
687	52.26	2.94	0.69	2.24	0.73	0.391	1.36	0.288	0.86	1.00	2.000	Yes
688	52.30	2.94	0.70	2.25	0.73	0.391	1.36	0.288	0.86	1.00	2.000	Yes
689	52.33	2.94	0.70	2.25	0.73	0.391	1.36	0.288	0.86	1.00	2.000	Yes
690	52.35	2.95	0.70	2.25	0.73	0.391	1.36	0.288	0.86	1.00	2.000	Yes
691	52.40	2.95	0.70	2.25	0.73	0.391	1.36	0.287	0.86	1.00	2.000	Yes
692	52.45	2.95	0.70	2.25	0.73	0.391	1.36	0.287	0.86	1.00	2.000	Yes
693	52.50	2.96	0.70	2.25	0.73	0.391	1.36	0.287	0.86	1.00	0.334	No
694	52.55	2.96	0.70	2.26	0.73	0.391	1.36	0.287	0.86	1.00	0.334	No
695	52.60	2.96	0.71	2.26	0.73	0.390	1.36	0.287	0.86	1.00	0.334	No
696	52.65	2.97	0.71	2.26	0.73	0.390	1.36	0.287	0.86	1.00	0.334	No
697	52.71	2.97	0.71	2.26	0.73	0.390	1.36	0.287	0.86	1.00	0.334	No
698	52.77	2.97	0.71	2.26	0.72	0.390	1.36	0.287	0.86	1.00	0.334	No
699	52.82	2.98	0.71	2.27	0.72	0.390	1.36	0.287	0.86	1.00	0.334	No
700	52.88	2.98	0.71	2.27	0.72	0.390	1.36	0.287	0.86	1.00	0.334	No
701	52.93	2.99	0.72	2.27	0.72	0.390	1.36	0.286	0.86	1.00	0.334	No
702	52.98	2.99	0.72	2.27	0.72	0.389	1.36	0.286	0.86	1.00	0.334	No
703	53.03	2.99	0.72	2.27	0.72	0.389	1.36	0.286	0.86	1.00	0.334	No
704	53.08	2.99	0.72	2.27	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
705	53.12	3.00	0.72	2.28	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
706	53.17	3.00	0.72	2.28	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
707	53.23	3.01	0.72	2.28	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
708	53.28	3.01	0.73	2.28	0.72	0.389	1.36	0.286	0.86	1.00	0.333	No
709	53.37	3.01	0.73	2.29	0.72	0.388	1.36	0.286	0.86	1.00	0.333	No
710	53.42	3.02	0.73	2.29	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
711	53.46	3.02	0.73	2.29	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
712	53.53	3.03	0.73	2.29	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
713	53.61	3.03	0.74	2.29	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
714	53.62	3.03	0.74	2.30	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
715	53.65	3.03	0.74	2.30	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
716	53.67	3.04	0.74	2.30	0.72	0.388	1.36	0.285	0.86	1.00	0.333	No
717	53.70	3.04	0.74	2.30	0.72	0.387	1.36	0.285	0.86	1.00	0.333	No
718	53.74	3.04	0.74	2.30	0.72	0.387	1.36	0.285	0.86	1.00	0.333	No
719	53.76	3.04	0.74	2.30	0.72	0.387	1.36	0.285	0.86	1.00	0.333	No
720	53.80	3.04	0.74	2.30	0.71	0.387	1.36	0.285	0.86	1.00	0.333	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
721	53.84	3.05	0.74	2.30	0.71	0.387	1.36	0.285	0.86	1.00	0.332	No
722	53.90	3.05	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
723	53.91	3.05	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
724	53.95	3.05	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
725	53.96	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
726	53.98	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
727	53.99	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
728	54.01	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
729	54.02	3.06	0.75	2.31	0.71	0.387	1.36	0.284	0.86	1.00	0.332	No
730	54.03	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
731	54.04	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
732	54.05	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
733	54.09	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
734	54.10	3.06	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
735	54.13	3.07	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
736	54.14	3.07	0.75	2.31	0.71	0.386	1.36	0.284	0.86	1.00	0.332	No
737	54.19	3.07	0.75	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
738	54.19	3.07	0.75	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
739	54.24	3.07	0.76	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
740	54.29	3.08	0.76	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
741	54.33	3.08	0.76	2.32	0.71	0.386	1.36	0.284	0.85	1.00	0.332	No
742	54.38	3.08	0.76	2.32	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
743	54.39	3.09	0.76	2.32	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
744	54.43	3.09	0.76	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
745	54.48	3.09	0.76	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
746	54.52	3.09	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.332	No
747	54.58	3.10	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
748	54.62	3.10	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
749	54.65	3.10	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
750	54.67	3.10	0.77	2.33	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
751	54.71	3.11	0.77	2.34	0.71	0.385	1.36	0.283	0.85	1.00	0.331	No
752	54.77	3.11	0.77	2.34	0.71	0.384	1.36	0.283	0.85	1.00	0.331	No
753	54.81	3.11	0.77	2.34	0.71	0.384	1.36	0.283	0.85	1.00	0.331	No
754	54.85	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
755	54.86	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
756	54.87	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
757	54.91	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
758	54.96	3.12	0.78	2.34	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
759	55.00	3.13	0.78	2.35	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
760	55.01	3.13	0.78	2.35	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
761	55.05	3.13	0.78	2.35	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
762	55.10	3.13	0.78	2.35	0.70	0.384	1.36	0.282	0.85	1.00	0.331	No
763	55.12	3.13	0.78	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
764	55.13	3.13	0.78	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
765	55.14	3.14	0.78	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
766	55.19	3.14	0.79	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
767	55.20	3.14	0.79	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No
768	55.25	3.14	0.79	2.35	0.70	0.383	1.36	0.282	0.85	1.00	0.331	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
769	55.29	3.14	0.79	2.36	0.70	0.383	1.36	0.282	0.85	1.00	0.330	No
770	55.33	3.15	0.79	2.36	0.70	0.383	1.36	0.281	0.85	1.00	0.330	No
771	55.38	3.15	0.79	2.36	0.70	0.383	1.36	0.281	0.85	1.00	0.330	No
772	55.48	3.16	0.80	2.36	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
773	55.57	3.16	0.80	2.37	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
774	55.63	3.17	0.80	2.37	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
775	55.72	3.17	0.80	2.37	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
776	55.80	3.18	0.80	2.37	0.70	0.382	1.36	0.281	0.85	1.00	0.330	No
777	55.86	3.18	0.81	2.38	0.70	0.381	1.36	0.280	0.85	1.00	0.330	No
778	55.97	3.19	0.81	2.38	0.69	0.381	1.36	0.280	0.85	1.00	0.330	No
779	56.01	3.19	0.81	2.38	0.69	0.381	1.36	0.280	0.85	1.00	0.329	No
780	56.06	3.20	0.81	2.38	0.69	0.381	1.36	0.280	0.85	1.00	0.329	No
781	56.11	3.20	0.81	2.39	0.69	0.381	1.36	0.280	0.85	1.00	0.329	No
782	56.15	3.20	0.82	2.39	0.69	0.381	1.36	0.280	0.85	1.00	0.329	No
783	56.20	3.21	0.82	2.39	0.69	0.380	1.36	0.280	0.85	1.00	0.329	No
784	56.27	3.21	0.82	2.39	0.69	0.380	1.36	0.280	0.85	1.00	0.329	No
785	56.27	3.21	0.82	2.39	0.69	0.380	1.36	0.280	0.85	1.00	0.329	No
786	56.30	3.21	0.82	2.39	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
787	56.33	3.22	0.82	2.39	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
788	56.35	3.22	0.82	2.39	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
789	56.40	3.22	0.82	2.40	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
790	56.41	3.22	0.82	2.40	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
791	56.44	3.22	0.83	2.40	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
792	56.49	3.23	0.83	2.40	0.69	0.380	1.36	0.279	0.85	1.00	0.329	No
793	56.54	3.23	0.83	2.40	0.69	0.379	1.36	0.279	0.85	1.00	0.329	No
794	56.58	3.23	0.83	2.40	0.69	0.379	1.36	0.279	0.85	1.00	0.329	No
795	56.59	3.23	0.83	2.40	0.69	0.379	1.36	0.279	0.85	1.00	0.329	No
796	56.64	3.24	0.83	2.41	0.69	0.379	1.36	0.279	0.85	1.00	0.329	No
797	56.69	3.24	0.83	2.41	0.69	0.379	1.36	0.279	0.85	1.00	0.328	No
798	56.73	3.24	0.83	2.41	0.69	0.379	1.36	0.279	0.85	1.00	0.328	No
799	56.78	3.25	0.84	2.41	0.69	0.379	1.36	0.278	0.85	1.00	0.328	No
800	56.83	3.25	0.84	2.41	0.69	0.379	1.36	0.278	0.85	1.00	0.328	No
801	56.88	3.25	0.84	2.41	0.69	0.378	1.36	0.278	0.85	1.00	0.328	No
802	56.89	3.25	0.84	2.42	0.69	0.378	1.36	0.278	0.85	1.00	0.328	No
803	56.95	3.26	0.84	2.42	0.69	0.378	1.36	0.278	0.85	1.00	0.328	No
804	57.01	3.26	0.84	2.42	0.68	0.378	1.36	0.278	0.85	1.00	0.328	No
805	57.07	3.27	0.84	2.42	0.68	0.378	1.36	0.278	0.85	1.00	0.328	No
806	57.11	3.27	0.85	2.42	0.68	0.378	1.36	0.278	0.85	1.00	0.328	No
807	57.17	3.27	0.85	2.43	0.68	0.378	1.36	0.278	0.85	1.00	0.328	No
808	57.26	3.28	0.85	2.43	0.68	0.377	1.36	0.277	0.85	1.00	0.328	No
809	57.31	3.28	0.85	2.43	0.68	0.377	1.36	0.277	0.85	1.00	0.328	No
810	57.37	3.29	0.85	2.43	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
811	57.45	3.29	0.86	2.43	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
812	57.51	3.30	0.86	2.44	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
813	57.53	3.30	0.86	2.44	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
814	57.59	3.30	0.86	2.44	0.68	0.377	1.36	0.277	0.85	1.00	0.327	No
815	57.63	3.30	0.86	2.44	0.68	0.376	1.36	0.277	0.85	1.00	0.327	No
816	57.68	3.31	0.86	2.44	0.68	0.376	1.36	0.277	0.85	1.00	0.327	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
817	57.73	3.31	0.87	2.44	0.68	0.376	1.36	0.277	0.85	1.00	0.327	No
818	57.78	3.31	0.87	2.45	0.68	0.376	1.36	0.276	0.85	1.00	0.327	No
819	57.86	3.32	0.87	2.45	0.68	0.376	1.36	0.276	0.85	1.00	0.327	No
820	57.92	3.32	0.87	2.45	0.68	0.376	1.36	0.276	0.85	1.00	2.000	Yes
821	57.98	3.33	0.87	2.45	0.68	0.376	1.36	0.276	0.85	1.00	2.000	Yes
822	58.06	3.33	0.88	2.45	0.68	0.375	1.36	0.276	0.85	1.00	2.000	Yes
823	58.12	3.33	0.88	2.46	0.68	0.375	1.36	0.276	0.84	1.00	2.000	Yes
824	58.21	3.34	0.88	2.46	0.67	0.375	1.36	0.276	0.84	1.00	2.000	Yes
825	58.26	3.34	0.88	2.46	0.67	0.375	1.36	0.276	0.84	1.00	2.000	Yes
826	58.35	3.35	0.88	2.46	0.67	0.375	1.36	0.275	0.84	1.00	2.000	Yes
827	58.41	3.35	0.89	2.47	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
828	58.50	3.36	0.89	2.47	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
829	58.56	3.36	0.89	2.47	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
830	58.64	3.37	0.89	2.47	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
831	58.73	3.37	0.90	2.48	0.67	0.374	1.36	0.275	0.84	1.00	2.000	Yes
832	58.80	3.38	0.90	2.48	0.67	0.373	1.36	0.275	0.84	1.00	2.000	Yes
833	58.84	3.38	0.90	2.48	0.67	0.373	1.36	0.274	0.84	1.00	2.000	Yes
834	58.85	3.38	0.90	2.48	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
835	58.93	3.38	0.90	2.48	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
836	58.98	3.39	0.90	2.48	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
837	59.02	3.39	0.91	2.48	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
838	59.12	3.40	0.91	2.49	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
839	59.17	3.40	0.91	2.49	0.67	0.373	1.36	0.274	0.84	1.00	0.325	No
840	59.27	3.40	0.91	2.49	0.67	0.372	1.36	0.274	0.84	1.00	0.325	No
841	59.31	3.41	0.91	2.49	0.66	0.372	1.36	0.274	0.84	1.00	0.325	No
842	59.41	3.41	0.92	2.50	0.66	0.372	1.36	0.273	0.84	1.00	0.325	No
843	59.46	3.42	0.92	2.50	0.66	0.372	1.36	0.273	0.84	1.00	0.325	No
844	59.55	3.42	0.92	2.50	0.66	0.372	1.36	0.273	0.84	1.00	0.324	No
845	59.65	3.43	0.93	2.50	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
846	59.70	3.43	0.93	2.50	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
847	59.80	3.44	0.93	2.51	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
848	59.89	3.44	0.93	2.51	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
849	59.94	3.44	0.93	2.51	0.66	0.371	1.36	0.273	0.84	1.00	0.324	No
850	60.01	3.45	0.94	2.51	0.66	0.371	1.36	0.272	0.84	1.00	0.324	No
851	60.02	3.45	0.94	2.51	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
852	60.08	3.45	0.94	2.51	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
853	60.12	3.46	0.94	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
854	60.17	3.46	0.94	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
855	60.27	3.46	0.94	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.324	No
856	60.31	3.47	0.95	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.323	No
857	60.37	3.47	0.95	2.52	0.66	0.370	1.36	0.272	0.84	1.00	0.323	No
858	60.46	3.47	0.95	2.52	0.66	0.369	1.36	0.272	0.84	1.00	0.323	No
859	60.51	3.48	0.95	2.53	0.66	0.369	1.36	0.272	0.84	1.00	0.323	No
860	60.61	3.48	0.95	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No
861	60.65	3.49	0.96	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No
862	60.75	3.49	0.96	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No
863	60.81	3.49	0.96	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No
864	60.89	3.50	0.96	2.53	0.65	0.369	1.36	0.271	0.84	1.00	0.323	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
865	60.94	3.50	0.97	2.54	0.65	0.368	1.36	0.271	0.84	1.00	0.323	No
866	61.03	3.51	0.97	2.54	0.65	0.368	1.36	0.271	0.84	1.00	0.323	No
867	61.09	3.51	0.97	2.54	0.65	0.368	1.36	0.271	0.84	1.00	0.322	No
868	61.19	3.51	0.97	2.54	0.65	0.368	1.36	0.271	0.84	1.00	0.322	No
869	61.24	3.52	0.97	2.54	0.65	0.368	1.36	0.270	0.84	1.00	0.322	No
870	61.33	3.52	0.98	2.54	0.65	0.368	1.36	0.270	0.84	1.00	0.322	No
871	61.38	3.52	0.98	2.55	0.65	0.368	1.36	0.270	0.84	1.00	0.322	No
872	61.47	3.53	0.98	2.55	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
873	61.53	3.53	0.98	2.55	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
874	61.62	3.54	0.99	2.55	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
875	61.70	3.54	0.99	2.55	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
876	61.77	3.55	0.99	2.56	0.65	0.367	1.36	0.270	0.84	1.00	0.322	No
877	61.86	3.55	0.99	2.56	0.64	0.366	1.36	0.269	0.84	1.00	0.322	No
878	61.95	3.56	1.00	2.56	0.64	0.366	1.36	0.269	0.84	1.00	0.321	No
879	61.97	3.56	1.00	2.56	0.64	0.366	1.36	0.269	0.84	1.00	0.321	No
880	62.01	3.56	1.00	2.56	0.64	0.366	1.36	0.269	0.84	1.00	2.000	No
881	62.10	3.57	1.00	2.57	0.64	0.366	1.36	0.269	0.84	1.00	2.000	Yes
882	62.24	3.58	1.01	2.57	0.64	0.366	1.36	0.269	0.84	1.00	2.000	Yes
883	62.34	3.58	1.01	2.57	0.64	0.365	1.36	0.269	0.84	1.00	2.000	Yes
884	62.49	3.59	1.01	2.58	0.64	0.365	1.36	0.268	0.84	1.00	2.000	Yes
885	62.54	3.60	1.02	2.58	0.64	0.365	1.36	0.268	0.84	1.00	2.000	Yes
886	62.66	3.60	1.02	2.58	0.64	0.365	1.36	0.268	0.84	1.00	2.000	Yes
887	62.74	3.61	1.02	2.59	0.64	0.364	1.36	0.268	0.84	1.00	2.000	Yes
888	62.87	3.62	1.03	2.59	0.64	0.364	1.36	0.268	0.84	1.00	2.000	No
889	62.92	3.62	1.03	2.59	0.64	0.364	1.36	0.268	0.84	1.00	2.000	No
890	63.03	3.63	1.03	2.60	0.64	0.364	1.36	0.267	0.84	1.00	2.000	No
891	63.15	3.63	1.03	2.60	0.63	0.363	1.36	0.267	0.84	1.00	2.000	No
892	63.26	3.64	1.04	2.60	0.63	0.363	1.36	0.267	0.84	1.00	2.000	No
893	63.37	3.65	1.04	2.61	0.63	0.363	1.36	0.267	0.83	1.00	2.000	No
894	63.45	3.65	1.04	2.61	0.63	0.363	1.36	0.267	0.83	1.00	2.000	No
895	63.54	3.66	1.05	2.61	0.63	0.363	1.36	0.267	0.83	1.00	2.000	No
896	63.61	3.66	1.05	2.61	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
897	63.69	3.67	1.05	2.62	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
898	63.79	3.67	1.05	2.62	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
899	63.89	3.68	1.06	2.62	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
900	63.98	3.69	1.06	2.63	0.63	0.362	1.36	0.266	0.83	1.00	2.000	Yes
901	64.07	3.69	1.06	2.63	0.63	0.361	1.36	0.266	0.83	1.00	2.000	Yes
902	64.15	3.70	1.07	2.63	0.63	0.361	1.36	0.266	0.83	1.00	2.000	Yes
903	64.23	3.70	1.07	2.63	0.63	0.361	1.36	0.266	0.83	1.00	2.000	No
904	64.26	3.70	1.07	2.63	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
905	64.29	3.70	1.07	2.63	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
906	64.33	3.71	1.07	2.64	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
907	64.43	3.71	1.07	2.64	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
908	64.47	3.71	1.08	2.64	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
909	64.53	3.72	1.08	2.64	0.63	0.361	1.36	0.265	0.83	1.00	2.000	No
910	64.62	3.72	1.08	2.64	0.62	0.360	1.36	0.265	0.83	1.00	2.000	No
911	64.72	3.73	1.08	2.64	0.62	0.360	1.36	0.265	0.83	1.00	2.000	No
912	64.78	3.73	1.09	2.65	0.62	0.360	1.36	0.265	0.83	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
913	64.86	3.74	1.09	2.65	0.62	0.360	1.36	0.265	0.83	1.00	2.000	No
914	64.96	3.74	1.09	2.65	0.62	0.360	1.36	0.264	0.83	1.00	2.000	No
915	65.06	3.75	1.09	2.65	0.62	0.360	1.36	0.264	0.83	1.00	2.000	No
916	65.11	3.75	1.10	2.65	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
917	65.21	3.76	1.10	2.66	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
918	65.31	3.76	1.10	2.66	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
919	65.40	3.77	1.10	2.66	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
920	65.50	3.77	1.11	2.66	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
921	65.58	3.78	1.11	2.67	0.62	0.359	1.36	0.264	0.83	1.00	2.000	No
922	65.68	3.78	1.11	2.67	0.62	0.358	1.36	0.264	0.83	1.00	2.000	No
923	65.78	3.79	1.12	2.67	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
924	65.84	3.79	1.12	2.67	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
925	65.86	3.79	1.12	2.67	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
926	65.87	3.79	1.12	2.67	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
927	65.98	3.80	1.12	2.68	0.62	0.358	1.36	0.263	0.83	1.00	2.000	No
928	66.10	3.80	1.13	2.68	0.61	0.358	1.36	0.263	0.83	1.00	2.000	No
929	66.21	3.81	1.13	2.68	0.61	0.357	1.36	0.263	0.83	1.00	2.000	No
930	66.34	3.82	1.13	2.68	0.61	0.357	1.36	0.263	0.83	1.00	2.000	No
931	66.48	3.83	1.14	2.69	0.61	0.357	1.36	0.262	0.83	1.00	2.000	No
932	66.62	3.83	1.14	2.69	0.61	0.357	1.36	0.262	0.83	1.00	2.000	No
933	66.68	3.84	1.14	2.69	0.61	0.357	1.36	0.262	0.83	1.00	2.000	No
934	66.87	3.85	1.15	2.70	0.61	0.356	1.36	0.262	0.83	1.00	2.000	No
935	66.96	3.85	1.15	2.70	0.61	0.356	1.36	0.262	0.83	1.00	2.000	No
936	67.11	3.86	1.16	2.70	0.61	0.356	1.36	0.262	0.83	1.00	2.000	No
937	67.21	3.87	1.16	2.71	0.61	0.356	1.36	0.262	0.83	1.00	2.000	No
938	67.35	3.87	1.17	2.71	0.61	0.356	1.36	0.261	0.83	1.00	2.000	No
939	67.45	3.88	1.17	2.71	0.61	0.355	1.36	0.261	0.83	1.00	2.000	No
940	67.59	3.89	1.17	2.72	0.61	0.355	1.36	0.261	0.83	1.00	2.000	No
941	67.68	3.89	1.18	2.72	0.61	0.355	1.36	0.261	0.83	1.00	2.000	Yes
942	67.83	3.90	1.18	2.72	0.60	0.355	1.36	0.261	0.83	1.00	2.000	Yes
943	67.92	3.91	1.18	2.73	0.60	0.354	1.36	0.261	0.83	1.00	2.000	Yes
944	68.02	3.92	1.19	2.73	0.60	0.354	1.36	0.260	0.83	1.00	2.000	Yes
945	68.07	3.92	1.19	2.73	0.60	0.354	1.36	0.260	0.83	1.00	2.000	Yes
946	68.16	3.93	1.19	2.73	0.60	0.354	1.36	0.260	0.83	1.00	2.000	No
947	68.26	3.93	1.19	2.74	0.60	0.354	1.36	0.260	0.83	1.00	2.000	No
948	68.35	3.94	1.20	2.74	0.60	0.354	1.36	0.260	0.83	1.00	2.000	No
949	68.45	3.94	1.20	2.74	0.60	0.353	1.36	0.260	0.83	1.00	2.000	No
950	68.55	3.95	1.20	2.75	0.60	0.353	1.36	0.260	0.83	1.00	2.000	No
951	68.65	3.96	1.21	2.75	0.60	0.353	1.36	0.260	0.83	1.00	2.000	No
952	68.78	3.97	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
953	68.78	3.97	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
954	68.79	3.97	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
955	68.83	3.97	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
956	68.93	3.98	1.21	2.76	0.60	0.353	1.36	0.259	0.83	1.00	2.000	No
957	68.98	3.98	1.22	2.76	0.60	0.352	1.36	0.259	0.83	1.00	2.000	No
958	69.04	3.98	1.22	2.76	0.60	0.352	1.36	0.259	0.83	1.00	2.000	No
959	69.12	3.99	1.22	2.77	0.60	0.352	1.36	0.259	0.83	1.00	2.000	No
960	69.22	3.99	1.22	2.77	0.60	0.352	1.36	0.259	0.82	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
961	69.28	4.00	1.23	2.77	0.60	0.352	1.36	0.259	0.82	1.00	2.000	No
962	69.36	4.00	1.23	2.77	0.60	0.352	1.36	0.259	0.82	1.00	2.000	No
963	69.45	4.01	1.23	2.78	0.59	0.352	1.36	0.258	0.82	1.00	2.000	No
964	69.60	4.02	1.24	2.78	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
965	69.70	4.02	1.24	2.79	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
966	69.80	4.03	1.24	2.79	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
967	69.89	4.04	1.24	2.79	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
968	69.98	4.04	1.25	2.79	0.59	0.351	1.36	0.258	0.82	1.00	2.000	No
969	70.08	4.05	1.25	2.80	0.59	0.350	1.36	0.258	0.82	1.00	2.000	Yes
970	70.18	4.05	1.25	2.80	0.59	0.350	1.36	0.258	0.82	1.00	2.000	Yes
971	70.32	4.06	1.26	2.80	0.59	0.350	1.36	0.257	0.82	1.00	2.000	Yes
972	70.42	4.07	1.26	2.81	0.59	0.350	1.36	0.257	0.82	1.00	2.000	Yes
973	70.54	4.08	1.26	2.81	0.59	0.350	1.36	0.257	0.82	1.00	2.000	Yes
974	70.66	4.08	1.27	2.81	0.59	0.350	1.36	0.257	0.82	1.00	2.000	No
975	70.75	4.09	1.27	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
976	70.80	4.09	1.27	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
977	70.89	4.10	1.28	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
978	70.99	4.10	1.28	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
979	71.08	4.11	1.28	2.82	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
980	71.17	4.11	1.28	2.83	0.59	0.349	1.36	0.257	0.82	1.00	2.000	No
981	71.23	4.11	1.29	2.83	0.59	0.349	1.36	0.256	0.82	1.00	2.000	No
982	71.33	4.12	1.29	2.83	0.58	0.349	1.36	0.256	0.82	1.00	2.000	No
983	71.42	4.12	1.29	2.83	0.58	0.349	1.36	0.256	0.82	1.00	2.000	No
984	71.52	4.13	1.30	2.83	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
985	71.58	4.13	1.30	2.83	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
986	71.67	4.14	1.30	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
987	71.81	4.14	1.30	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
988	71.82	4.14	1.30	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
989	71.86	4.15	1.31	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
990	71.91	4.15	1.31	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
991	71.97	4.15	1.31	2.84	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
992	72.05	4.16	1.31	2.85	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
993	72.10	4.16	1.31	2.85	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
994	72.20	4.17	1.32	2.85	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
995	72.25	4.17	1.32	2.85	0.58	0.348	1.36	0.256	0.82	1.00	2.000	No
996	72.34	4.17	1.32	2.85	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
997	72.44	4.18	1.32	2.85	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
998	72.53	4.18	1.33	2.86	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
999	72.63	4.19	1.33	2.86	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1000	72.69	4.19	1.33	2.86	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1001	72.82	4.20	1.34	2.86	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1002	72.92	4.20	1.34	2.87	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1003	73.06	4.21	1.34	2.87	0.58	0.347	1.36	0.255	0.82	1.00	2.000	No
1004	73.16	4.22	1.35	2.87	0.58	0.346	1.36	0.255	0.82	1.00	2.000	No
1005	73.30	4.23	1.35	2.87	0.58	0.346	1.36	0.255	0.82	1.00	2.000	No
1006	73.35	4.23	1.35	2.88	0.58	0.346	1.36	0.255	0.82	1.00	2.000	No
1007	73.38	4.23	1.35	2.88	0.57	0.346	1.36	0.255	0.82	1.00	2.000	No
1008	73.47	4.24	1.36	2.88	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1009	73.53	4.24	1.36	2.88	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1010	73.62	4.24	1.36	2.88	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1011	73.71	4.25	1.36	2.88	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1012	73.77	4.25	1.37	2.89	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1013	73.86	4.26	1.37	2.89	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1014	73.96	4.26	1.37	2.89	0.57	0.346	1.36	0.254	0.82	1.00	2.000	No
1015	74.06	4.27	1.37	2.89	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1016	74.13	4.27	1.38	2.90	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1017	74.24	4.28	1.38	2.90	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1018	74.34	4.28	1.38	2.90	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1019	74.44	4.29	1.39	2.90	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1020	74.58	4.30	1.39	2.91	0.57	0.345	1.36	0.254	0.82	1.00	2.000	No
1021	74.68	4.30	1.39	2.91	0.57	0.345	1.36	0.253	0.82	1.00	2.000	No
1022	74.80	4.31	1.40	2.91	0.57	0.345	1.36	0.253	0.82	1.00	2.000	No
1023	74.92	4.32	1.40	2.91	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1024	75.07	4.32	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1025	75.08	4.32	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1026	75.11	4.33	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1027	75.16	4.33	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1028	75.25	4.33	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1029	75.32	4.34	1.41	2.92	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1030	75.40	4.34	1.42	2.93	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1031	75.50	4.35	1.42	2.93	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1032	75.59	4.35	1.42	2.93	0.57	0.344	1.36	0.253	0.82	1.00	2.000	No
1033	75.69	4.36	1.43	2.93	0.56	0.344	1.36	0.253	0.82	1.00	2.000	No
1034	75.78	4.36	1.43	2.93	0.56	0.344	1.36	0.253	0.82	1.00	2.000	No
1035	75.88	4.37	1.43	2.94	0.56	0.343	1.36	0.253	0.82	1.00	2.000	No
1036	75.96	4.37	1.43	2.94	0.56	0.343	1.36	0.252	0.82	1.00	2.000	No
1037	76.05	4.38	1.44	2.94	0.56	0.343	1.36	0.252	0.82	1.00	2.000	No
1038	76.14	4.38	1.44	2.94	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1039	76.26	4.39	1.44	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1040	76.36	4.39	1.45	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1041	76.41	4.40	1.45	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1042	76.51	4.40	1.45	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1043	76.65	4.41	1.46	2.95	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1044	76.72	4.41	1.46	2.96	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1045	76.79	4.42	1.46	2.96	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1046	76.89	4.42	1.46	2.96	0.56	0.343	1.36	0.252	0.81	1.00	2.000	No
1047	76.98	4.43	1.47	2.96	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1048	77.08	4.43	1.47	2.96	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1049	77.18	4.44	1.47	2.97	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1050	77.28	4.44	1.48	2.97	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1051	77.37	4.45	1.48	2.97	0.56	0.342	1.36	0.252	0.81	1.00	2.000	No
1052	77.42	4.45	1.48	2.97	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1053	77.42	4.45	1.48	2.97	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1054	77.44	4.45	1.48	2.97	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1055	77.48	4.46	1.48	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1056	77.52	4.46	1.48	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1057	77.54	4.46	1.48	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1058	77.57	4.46	1.48	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1059	77.62	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1060	77.65	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1061	77.67	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1062	77.71	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1063	77.71	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1064	77.76	4.47	1.49	2.98	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1065	77.81	4.48	1.49	2.99	0.56	0.342	1.36	0.251	0.81	1.00	2.000	No
1066	77.90	4.48	1.49	2.99	0.56	0.341	1.36	0.251	0.81	1.00	2.000	No
1067	77.95	4.49	1.50	2.99	0.56	0.341	1.36	0.251	0.81	1.00	2.000	No
1068	78.01	4.49	1.50	2.99	0.56	0.341	1.36	0.251	0.81	1.00	2.000	No
1069	78.10	4.49	1.50	2.99	0.56	0.341	1.36	0.251	0.81	1.00	2.000	No
1070	78.16	4.50	1.50	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	No
1071	78.24	4.50	1.51	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1072	78.29	4.51	1.51	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1073	78.39	4.51	1.51	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1074	78.47	4.52	1.51	3.00	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1075	78.53	4.52	1.51	3.01	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1076	78.62	4.53	1.52	3.01	0.55	0.341	1.36	0.251	0.81	1.00	2.000	Yes
1077	78.68	4.53	1.52	3.01	0.55	0.341	1.36	0.250	0.81	1.00	2.000	Yes
1078	78.69	4.53	1.52	3.01	0.55	0.341	1.36	0.250	0.81	1.00	2.000	Yes
1079	78.78	4.54	1.52	3.01	0.55	0.341	1.36	0.250	0.81	1.00	2.000	No
1080	78.81	4.54	1.52	3.02	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1081	78.92	4.55	1.53	3.02	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1082	79.03	4.55	1.53	3.02	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1083	79.16	4.56	1.53	3.03	0.55	0.340	1.36	0.250	0.81	1.00	2.000	Yes
1084	79.26	4.57	1.54	3.03	0.55	0.340	1.36	0.250	0.81	1.00	2.000	Yes
1085	79.35	4.57	1.54	3.03	0.55	0.340	1.36	0.250	0.81	1.00	2.000	Yes
1086	79.45	4.58	1.54	3.04	0.55	0.340	1.36	0.250	0.81	1.00	2.000	Yes
1087	79.54	4.58	1.55	3.04	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1088	79.64	4.59	1.55	3.04	0.55	0.340	1.36	0.250	0.81	1.00	2.000	No
1089	79.74	4.60	1.55	3.05	0.55	0.339	1.36	0.250	0.81	1.00	2.000	No
1090	79.88	4.61	1.56	3.05	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1091	79.98	4.61	1.56	3.05	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1092	80.12	4.62	1.56	3.06	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1093	80.22	4.63	1.57	3.06	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1094	80.36	4.64	1.57	3.07	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1095	80.46	4.64	1.57	3.07	0.55	0.339	1.36	0.249	0.81	1.00	2.000	No
1096	80.60	4.65	1.58	3.07	0.55	0.338	1.36	0.249	0.81	1.00	2.000	No
1097	80.70	4.66	1.58	3.08	0.55	0.338	1.36	0.249	0.81	1.00	2.000	No
1098	80.83	4.67	1.59	3.08	0.55	0.338	1.36	0.249	0.81	1.00	2.000	Yes
1099	80.94	4.67	1.59	3.09	0.54	0.338	1.36	0.249	0.81	1.00	2.000	Yes
1100	81.01	4.68	1.59	3.09	0.54	0.338	1.36	0.249	0.81	1.00	2.000	Yes
1101	81.04	4.68	1.59	3.09	0.54	0.338	1.36	0.249	0.81	1.00	2.000	Yes
1102	81.09	4.68	1.59	3.09	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1103	81.13	4.69	1.60	3.09	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1104	81.18	4.69	1.60	3.09	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1105	81.23	4.69	1.60	3.09	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1106	81.28	4.70	1.60	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1107	81.33	4.70	1.60	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1108	81.37	4.70	1.60	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1109	81.42	4.70	1.60	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1110	81.47	4.71	1.61	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1111	81.52	4.71	1.61	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1112	81.56	4.71	1.61	3.10	0.54	0.338	1.36	0.248	0.81	1.00	2.000	Yes
1113	81.61	4.72	1.61	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1114	81.64	4.72	1.61	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1115	81.70	4.72	1.61	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1116	81.75	4.73	1.61	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1117	81.79	4.73	1.62	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1118	81.82	4.73	1.62	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1119	81.86	4.73	1.62	3.11	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1120	81.91	4.74	1.62	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1121	81.95	4.74	1.62	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1122	82.00	4.74	1.62	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1123	82.09	4.75	1.63	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1124	82.15	4.75	1.63	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1125	82.19	4.75	1.63	3.12	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1126	82.26	4.76	1.63	3.13	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1127	82.34	4.76	1.63	3.13	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1128	82.39	4.76	1.63	3.13	0.54	0.337	1.36	0.248	0.81	1.00	2.000	No
1129	82.48	4.77	1.64	3.13	0.54	0.337	1.36	0.248	0.80	1.00	2.000	No
1130	82.58	4.77	1.64	3.13	0.54	0.337	1.36	0.248	0.80	1.00	2.000	No
1131	82.62	4.78	1.64	3.13	0.54	0.337	1.36	0.248	0.80	1.00	2.000	No
1132	82.70	4.78	1.64	3.14	0.54	0.337	1.36	0.247	0.80	1.00	2.000	No
1133	82.77	4.78	1.65	3.14	0.54	0.337	1.36	0.247	0.80	1.00	2.000	No
1134	82.87	4.79	1.65	3.14	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1135	82.96	4.80	1.65	3.14	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1136	83.06	4.80	1.66	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1137	83.16	4.81	1.66	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1138	83.25	4.81	1.66	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1139	83.34	4.82	1.66	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1140	83.44	4.82	1.67	3.15	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1141	83.54	4.83	1.67	3.16	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1142	83.64	4.83	1.67	3.16	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1143	83.73	4.84	1.68	3.16	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1144	83.83	4.84	1.68	3.16	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1145	83.85	4.85	1.68	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1146	83.89	4.85	1.68	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1147	83.94	4.85	1.68	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1148	84.04	4.86	1.69	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1149	84.09	4.86	1.69	3.17	0.54	0.336	1.36	0.247	0.80	1.00	2.000	No
1150	84.13	4.86	1.69	3.17	0.53	0.336	1.36	0.247	0.80	1.00	2.000	No
1151	84.18	4.87	1.69	3.17	0.53	0.336	1.36	0.247	0.80	1.00	2.000	No
1152	84.25	4.87	1.69	3.18	0.53	0.336	1.36	0.247	0.80	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1153	84.33	4.87	1.69	3.18	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1154	84.37	4.88	1.70	3.18	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1155	84.46	4.88	1.70	3.18	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1156	84.52	4.89	1.70	3.18	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1157	84.57	4.89	1.70	3.19	0.53	0.335	1.36	0.247	0.80	1.00	2.000	No
1158	84.67	4.89	1.71	3.19	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1159	84.71	4.90	1.71	3.19	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1160	84.81	4.90	1.71	3.19	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1161	84.86	4.91	1.71	3.19	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1162	84.91	4.91	1.71	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1163	85.00	4.91	1.72	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1164	85.05	4.92	1.72	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1165	85.15	4.92	1.72	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1166	85.19	4.93	1.72	3.20	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1167	85.29	4.93	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1168	85.35	4.94	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1169	85.42	4.94	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1170	85.48	4.94	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1171	85.55	4.95	1.73	3.21	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1172	85.63	4.95	1.74	3.22	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1173	85.68	4.95	1.74	3.22	0.53	0.335	1.36	0.246	0.80	1.00	2.000	No
1174	85.77	4.96	1.74	3.22	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1175	85.82	4.96	1.74	3.22	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1176	85.89	4.97	1.74	3.22	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1177	85.96	4.97	1.75	3.22	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1178	86.03	4.97	1.75	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1179	86.11	4.98	1.75	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1180	86.16	4.98	1.75	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1181	86.25	4.99	1.76	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1182	86.36	4.99	1.76	3.23	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1183	86.50	5.00	1.76	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1184	86.51	5.00	1.76	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1185	86.52	5.00	1.76	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1186	86.57	5.01	1.76	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1187	86.65	5.01	1.77	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1188	86.71	5.01	1.77	3.24	0.53	0.334	1.36	0.246	0.80	1.00	2.000	No
1189	86.80	5.02	1.77	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1190	86.90	5.02	1.78	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1191	86.99	5.03	1.78	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1192	87.04	5.03	1.78	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1193	87.14	5.04	1.78	3.25	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1194	87.19	5.04	1.78	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1195	87.28	5.04	1.79	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1196	87.38	5.05	1.79	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1197	87.43	5.05	1.79	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1198	87.52	5.06	1.79	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1199	87.61	5.06	1.80	3.26	0.53	0.334	1.36	0.245	0.80	1.00	2.000	No
1200	87.66	5.07	1.80	3.27	0.53	0.333	1.36	0.245	0.80	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1201	87.76	5.07	1.80	3.27	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1202	87.84	5.07	1.80	3.27	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1203	87.91	5.08	1.81	3.27	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1204	88.00	5.08	1.81	3.27	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1205	88.11	5.09	1.81	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1206	88.19	5.09	1.82	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1207	88.25	5.10	1.82	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1208	88.34	5.10	1.82	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1209	88.44	5.11	1.82	3.28	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1210	88.54	5.11	1.83	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1211	88.64	5.12	1.83	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1212	88.72	5.12	1.83	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1213	88.82	5.13	1.84	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1214	88.91	5.13	1.84	3.29	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1215	89.01	5.14	1.84	3.30	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1216	89.10	5.14	1.84	3.30	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1217	89.19	5.15	1.85	3.30	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1218	89.30	5.15	1.85	3.30	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1219	89.39	5.16	1.85	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1220	89.49	5.16	1.86	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1221	89.59	5.17	1.86	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1222	89.69	5.17	1.86	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1223	89.73	5.18	1.86	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1224	89.78	5.18	1.87	3.31	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1225	89.83	5.18	1.87	3.32	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1226	89.88	5.19	1.87	3.32	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1227	89.93	5.19	1.87	3.32	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1228	90.00	5.19	1.87	3.32	0.52	0.333	1.36	0.245	0.80	1.00	2.000	No
1229	90.07	5.20	1.87	3.32	0.52	0.333	1.36	0.244	0.80	1.00	2.000	No
1230	90.12	5.20	1.88	3.32	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1231	90.22	5.20	1.88	3.33	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1232	90.27	5.21	1.88	3.33	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1233	90.36	5.21	1.88	3.33	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1234	90.46	5.22	1.89	3.33	0.52	0.332	1.36	0.244	0.80	1.00	2.000	No
1235	90.50	5.22	1.89	3.33	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1236	90.61	5.23	1.89	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1237	90.66	5.23	1.89	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1238	90.75	5.23	1.90	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1239	90.84	5.24	1.90	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1240	90.89	5.24	1.90	3.34	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1241	90.99	5.25	1.90	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1242	91.04	5.25	1.90	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1243	91.14	5.26	1.91	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1244	91.22	5.26	1.91	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1245	91.28	5.26	1.91	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1246	91.37	5.27	1.91	3.35	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1247	91.47	5.28	1.92	3.36	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1248	91.61	5.28	1.92	3.36	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1249	91.71	5.29	1.93	3.36	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1250	91.81	5.29	1.93	3.37	0.52	0.332	1.36	0.244	0.79	1.00	2.000	No
1251	91.87	5.30	1.93	3.37	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1252	92.00	5.30	1.93	3.37	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1253	92.10	5.31	1.94	3.37	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1254	92.20	5.32	1.94	3.37	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1255	92.33	5.32	1.94	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1256	92.38	5.33	1.95	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1257	92.43	5.33	1.95	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1258	92.48	5.33	1.95	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1259	92.56	5.33	1.95	3.38	0.51	0.332	1.36	0.244	0.79	1.00	2.000	No
1260	92.63	5.34	1.95	3.38	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1261	92.67	5.34	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1262	92.72	5.34	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1263	92.77	5.35	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1264	92.86	5.35	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1265	92.92	5.35	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1266	92.97	5.36	1.96	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1267	93.05	5.36	1.97	3.39	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1268	93.10	5.37	1.97	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1269	93.16	5.37	1.97	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1270	93.25	5.37	1.97	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1271	93.35	5.38	1.98	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1272	93.40	5.38	1.98	3.40	0.51	0.331	1.36	0.244	0.79	1.00	2.000	No
1273	93.49	5.39	1.98	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1274	93.56	5.39	1.98	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1275	93.64	5.40	1.99	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1276	93.73	5.40	1.99	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1277	93.83	5.41	1.99	3.41	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1278	93.88	5.41	1.99	3.42	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1279	93.97	5.41	2.00	3.42	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1280	94.07	5.42	2.00	3.42	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1281	94.17	5.43	2.00	3.42	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1282	94.26	5.43	2.01	3.43	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1283	94.36	5.44	2.01	3.43	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1284	94.45	5.44	2.01	3.43	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1285	94.55	5.45	2.01	3.43	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1286	94.64	5.45	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1287	94.72	5.46	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1288	94.74	5.46	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1289	94.77	5.46	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1290	94.85	5.47	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1291	94.90	5.47	2.02	3.44	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1292	94.95	5.47	2.03	3.45	0.51	0.331	1.36	0.243	0.79	1.00	2.000	No
1293	95.01	5.48	2.03	3.45	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1294	95.09	5.48	2.03	3.45	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1295	95.14	5.48	2.03	3.45	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1296	95.23	5.49	2.04	3.46	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1297	95.29	5.49	2.04	3.46	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1298	95.38	5.50	2.04	3.46	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1299	95.43	5.50	2.04	3.46	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1300	95.52	5.51	2.04	3.47	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1301	95.57	5.51	2.05	3.47	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1302	95.67	5.52	2.05	3.47	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1303	95.77	5.53	2.05	3.47	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1304	95.86	5.53	2.05	3.48	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1305	95.95	5.54	2.06	3.48	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1306	96.03	5.54	2.06	3.48	0.51	0.330	1.36	0.243	0.79	1.00	2.000	No
1307	96.11	5.55	2.06	3.48	0.51	0.330	1.36	0.242	0.79	1.00	2.000	No
1308	96.20	5.55	2.07	3.49	0.51	0.330	1.36	0.242	0.79	1.00	2.000	No
1309	96.30	5.56	2.07	3.49	0.51	0.330	1.36	0.242	0.79	1.00	2.000	Yes
1310	96.39	5.57	2.07	3.49	0.51	0.330	1.36	0.242	0.79	1.00	2.000	Yes
1311	96.50	5.57	2.07	3.50	0.51	0.330	1.36	0.242	0.79	1.00	2.000	Yes
1312	96.59	5.58	2.08	3.50	0.50	0.330	1.36	0.242	0.79	1.00	2.000	Yes
1313	96.69	5.58	2.08	3.50	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1314	96.78	5.59	2.08	3.51	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1315	96.87	5.60	2.09	3.51	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1316	96.98	5.60	2.09	3.51	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1317	97.02	5.61	2.09	3.51	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1318	97.06	5.61	2.09	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1319	97.12	5.61	2.09	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1320	97.16	5.62	2.10	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1321	97.21	5.62	2.10	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1322	97.27	5.62	2.10	3.52	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1323	97.33	5.63	2.10	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1324	97.40	5.63	2.10	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	No
1325	97.45	5.63	2.10	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1326	97.50	5.64	2.11	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1327	97.58	5.64	2.11	3.53	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1328	97.65	5.65	2.11	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1329	97.69	5.65	2.11	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1330	97.74	5.65	2.11	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1331	97.81	5.66	2.12	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1332	97.88	5.66	2.12	3.54	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1333	97.93	5.67	2.12	3.55	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1334	98.03	5.67	2.12	3.55	0.50	0.329	1.36	0.242	0.79	1.00	2.000	Yes
1335	98.15	5.68	2.13	3.55	0.50	0.329	1.36	0.242	0.78	1.00	2.000	Yes
1336	98.21	5.68	2.13	3.56	0.50	0.329	1.36	0.242	0.78	1.00	2.000	Yes
1337	98.32	5.69	2.13	3.56	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1338	98.42	5.70	2.13	3.56	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1339	98.47	5.70	2.14	3.56	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1340	98.57	5.71	2.14	3.57	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1341	98.70	5.71	2.14	3.57	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1342	98.78	5.72	2.15	3.57	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1343	98.85	5.72	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1344	98.86	5.72	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No

:: Cyclic Stress Ratio fully adjusted (CSR*) calculation data :: (continued)

Point ID	Depth (ft)	σ_v (tsf)	u_0 (tsf)	σ_v' (tsf)	r_d	CSR	MSF	CSR_{eq}	K_σ	User FS	CSR^*	Belongs to transition
1345	98.92	5.73	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	No
1346	98.98	5.73	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1347	99.03	5.74	2.15	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1348	99.11	5.74	2.16	3.58	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1349	99.18	5.74	2.16	3.59	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1350	99.23	5.75	2.16	3.59	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1351	99.32	5.75	2.16	3.59	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1352	99.37	5.76	2.16	3.59	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1353	99.45	5.76	2.17	3.60	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1354	99.56	5.77	2.17	3.60	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1355	99.64	5.77	2.17	3.60	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1356	99.71	5.78	2.17	3.60	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1357	99.75	5.78	2.18	3.61	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1358	99.90	5.79	2.18	3.61	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1359	99.95	5.80	2.18	3.61	0.50	0.328	1.36	0.241	0.78	1.00	2.000	Yes
1360	100.04	5.80	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1361	100.14	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1362	100.14	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1363	100.15	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1364	100.19	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1365	100.21	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1366	100.24	5.81	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1367	100.28	5.82	2.19	3.62	0.50	0.327	1.36	0.241	0.78	1.00	2.000	Yes
1368	100.31	5.82	2.19	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1369	100.33	5.82	2.19	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1370	100.38	5.82	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1371	100.39	5.82	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1372	100.43	5.82	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1373	100.48	5.83	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1374	100.53	5.83	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1375	100.57	5.83	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No
1376	100.60	5.83	2.20	3.63	0.50	0.327	1.36	0.241	0.78	1.00	2.000	No

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
σ_v: Total overburden pressure at test point (tsf)
u_0: Water pressure at test point (tsf)
σ_v': Effective overburden pressure based on GWT during earthquake (tsf)
r_d: Nonlinear shear mass factor
CSR: Cyclic Stress Ratio
MSF: Magnitude Scaling Factor
CSR_{eq}: CSR adjusted for M=7.5
K_σ: Effective overburden stress factor
CSR^*: CSR fully adjusted

:: Cyclic Resistance Ratio (CRR) calculation data ::

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1	0.04	0.10	4.06	37.76	1.00	0.16	54.25	8.56	4.000	No	Yes	2.00
2	0.10	0.13	4.06	31.79	1.00	0.21	54.25	11.25	4.000	No	Yes	2.00
3	0.11	0.23	4.06	19.95	1.00	0.37	54.25	19.92	4.000	No	Yes	2.00
4	0.16	0.54	4.06	8.78	1.00	0.85	54.25	46.18	4.000	No	Yes	2.00
5	0.19	1.28	3.64	3.82	1.00	2.04	26.86	54.86	4.000	No	Yes	2.00
6	0.24	2.83	3.19	1.88	1.00	4.54	12.41	56.29	4.000	No	Yes	2.00
7	0.31	4.93	2.89	1.26	0.88	7.89	7.08	55.92	4.000	No	Yes	2.00
8	0.38	6.68	2.74	1.06	0.83	10.70	5.13	54.91	4.000	No	Yes	2.00
9	0.43	7.56	2.68	1.02	0.81	12.11	4.55	55.04	4.000	No	Yes	2.00
10	0.49	7.32	2.72	1.13	0.82	11.72	4.88	57.26	4.000	No	Yes	2.00
11	0.58	6.81	2.78	1.31	0.84	10.90	5.56	60.65	4.000	No	Yes	2.00
12	0.63	6.24	2.85	1.60	0.86	9.98	6.53	65.19	4.000	No	Yes	2.00
13	0.67	6.05	2.90	1.88	0.88	9.68	7.19	69.56	4.000	No	Yes	2.00
14	0.72	6.02	2.92	2.08	0.89	9.62	7.57	72.80	4.000	Yes	Yes	2.00
15	0.72	6.70	2.91	2.29	0.88	10.70	7.32	78.32	4.000	Yes	Yes	2.00
16	0.84	9.28	2.77	2.08	0.84	14.84	5.43	80.63	4.000	Yes	Yes	2.00
17	0.96	15.82	2.50	1.53	0.76	25.35	2.97	75.23	4.000	Yes	No	2.00
18	1.06	22.64	2.32	1.27	0.71	36.29	2.02	73.35	4.000	Yes	No	2.00
19	1.24	27.97	2.21	1.11	0.67	44.84	1.65	74.08	4.000	Yes	No	2.00
20	1.30	31.48	2.14	0.98	0.65	50.47	1.49	75.12	4.000	Yes	No	2.00
21	1.48	37.28	2.04	0.82	0.62	59.78	1.34	80.22	4.000	Yes	No	2.00
22	1.59	42.14	1.98	0.77	0.60	67.57	1.29	87.16	4.000	Yes	No	2.00
23	1.69	47.40	1.93	0.75	0.59	76.02	1.26	95.52	4.000	Yes	No	2.00
24	1.69	49.80	1.91	0.76	0.58	79.87	1.25	99.55	4.000	Yes	No	2.00
25	1.74	53.24	1.88	0.73	0.57	85.40	1.22	104.46	4.000	Yes	No	2.00
26	1.79	53.78	1.88	0.73	0.57	86.26	1.22	105.40	4.000	No	No	2.00
27	1.84	52.90	1.89	0.73	0.57	84.84	1.23	104.08	4.000	No	No	2.00
28	1.88	51.25	1.89	0.73	0.58	82.18	1.23	101.34	4.000	No	No	2.00
29	1.93	49.46	1.90	0.71	0.58	79.31	1.24	98.11	4.000	No	No	2.00
30	1.99	48.69	1.90	0.68	0.58	78.06	1.23	96.29	4.000	No	No	2.00
31	2.03	48.08	1.89	0.65	0.58	77.07	1.23	94.90	4.000	No	No	2.00
32	2.08	47.67	1.89	0.64	0.57	76.42	1.23	93.98	4.000	No	No	2.00
33	2.13	46.86	1.90	0.64	0.58	75.11	1.23	92.67	4.000	No	No	2.00
34	2.22	45.85	1.90	0.64	0.58	73.48	1.24	91.09	4.000	No	No	2.00
35	2.27	44.97	1.91	0.64	0.58	72.07	1.24	89.70	4.000	No	No	2.00
36	2.33	44.77	1.91	0.63	0.58	71.74	1.24	89.16	4.000	No	No	2.00
37	2.42	45.44	1.90	0.61	0.58	72.81	1.24	89.96	4.000	No	No	2.00
38	2.48	46.73	1.88	0.60	0.57	74.86	1.22	91.66	4.000	No	No	2.00
39	2.56	48.41	1.86	0.59	0.57	77.57	1.21	94.03	4.000	No	No	2.00
40	2.65	49.43	1.86	0.59	0.56	79.19	1.21	95.47	4.000	No	No	2.00
41	2.72	48.72	1.87	0.60	0.57	78.04	1.21	94.74	4.000	No	No	2.00
42	2.80	46.02	1.90	0.62	0.58	73.70	1.23	90.99	4.000	No	No	2.00
43	2.89	42.44	1.94	0.65	0.59	67.94	1.26	85.67	4.000	No	No	2.00
44	2.94	39.03	1.98	0.69	0.60	62.46	1.29	80.64	4.000	No	No	2.00
45	3.04	35.90	2.02	0.71	0.61	57.42	1.32	76.04	4.000	No	No	2.00
46	3.14	32.32	2.07	0.73	0.63	51.66	1.37	70.91	4.000	No	No	2.00
47	3.23	29.01	2.10	0.73	0.64	46.34	1.42	65.97	4.000	No	No	2.00
48	3.31	25.74	2.15	0.73	0.65	41.07	1.50	61.64	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
49	3.37	23.04	2.19	0.72	0.66	36.73	1.59	58.33	4.000	No	No	2.00
50	3.48	20.38	2.23	0.72	0.68	32.44	1.71	55.35	4.000	No	No	2.00
51	3.57	18.79	2.25	0.67	0.68	29.89	1.76	52.71	4.000	No	No	2.00
52	3.65	18.02	2.26	0.63	0.69	28.64	1.78	50.93	4.000	No	No	2.00
53	3.71	18.02	2.26	0.63	0.68	28.64	1.77	50.70	4.000	No	No	2.00
54	3.82	18.63	2.26	0.67	0.68	29.60	1.77	52.47	4.000	No	No	2.00
55	3.91	20.18	2.23	0.70	0.68	32.09	1.71	54.73	4.000	No	No	2.00
56	4.00	22.81	2.20	0.73	0.67	36.30	1.60	58.22	4.000	No	No	2.00
57	4.10	26.38	2.09	0.58	0.64	42.04	1.41	59.10	4.000	No	No	2.00
58	4.19	31.21	1.98	0.46	0.60	49.79	1.00	49.79	4.000	No	No	2.00
59	4.26	37.92	1.86	0.36	0.57	60.57	1.00	60.57	4.000	No	No	2.00
60	4.35	45.62	1.79	0.37	0.54	72.92	1.00	72.92	4.000	No	No	2.00
61	4.44	49.80	1.77	0.39	0.54	79.63	1.00	79.63	4.000	No	No	2.00
62	4.52	51.39	1.76	0.41	0.54	82.17	1.00	82.17	4.000	No	No	2.00
63	4.53	52.26	1.76	0.41	0.54	83.58	1.00	83.58	4.000	No	No	2.00
64	4.58	55.03	1.73	0.39	0.53	88.02	1.00	88.02	4.000	No	No	2.00
65	4.63	57.76	1.71	0.39	0.52	92.41	1.00	92.41	4.000	No	No	2.00
66	4.68	58.84	1.70	0.39	0.52	94.14	1.00	94.14	4.000	No	No	2.00
67	4.72	59.28	1.71	0.41	0.52	94.84	1.00	94.84	4.000	No	No	2.00
68	4.77	59.08	1.72	0.42	0.52	94.51	1.00	94.51	4.000	No	No	2.00
69	4.82	58.07	1.73	0.44	0.53	92.88	1.00	92.88	4.000	No	No	2.00
70	4.88	56.21	1.76	0.47	0.54	89.89	1.00	89.89	4.000	No	No	2.00
71	4.96	53.61	1.79	0.50	0.55	85.71	1.14	97.96	4.000	No	No	2.00
72	5.01	50.54	1.83	0.54	0.56	80.78	1.18	95.67	4.000	No	No	2.00
73	5.08	47.44	1.87	0.59	0.57	75.78	1.22	92.32	4.000	No	No	2.00
74	5.16	44.81	1.91	0.63	0.58	71.55	1.24	88.93	4.000	No	No	2.00
75	5.21	43.27	1.93	0.65	0.59	69.07	1.26	86.85	4.000	No	No	2.00
76	5.30	42.68	1.94	0.66	0.59	68.12	1.26	86.01	4.000	No	No	2.00
77	5.37	42.65	1.94	0.66	0.59	68.06	1.26	85.96	4.000	No	No	2.00
78	5.45	42.70	1.94	0.66	0.59	68.13	1.26	86.01	4.000	No	No	2.00
79	5.52	42.44	1.94	0.66	0.59	67.72	1.26	85.64	4.000	No	No	2.00
80	5.59	41.70	1.95	0.67	0.59	66.52	1.27	84.54	4.000	No	No	2.00
81	5.65	40.15	1.97	0.69	0.60	64.02	1.28	82.25	4.000	No	No	2.00
82	5.74	38.46	1.99	0.71	0.61	61.30	1.30	79.83	4.000	No	No	2.00
83	5.83	37.08	2.02	0.73	0.61	59.07	1.32	77.99	4.000	No	No	2.00
84	5.89	36.30	2.03	0.75	0.62	57.82	1.33	77.16	4.000	No	No	2.00
85	5.97	35.66	2.04	0.77	0.62	56.79	1.35	76.43	4.000	No	No	2.00
86	6.07	34.52	2.06	0.79	0.63	54.94	1.37	75.11	4.000	No	No	2.00
87	6.12	32.56	2.10	0.84	0.64	51.79	1.41	73.14	4.000	No	No	2.00
88	6.22	29.76	2.15	0.92	0.65	47.28	1.51	71.19	4.000	No	No	2.00
89	6.28	26.56	2.22	1.04	0.67	42.13	1.67	70.33	4.000	No	No	2.00
90	6.36	23.45	2.29	1.15	0.70	37.14	1.90	70.41	4.000	No	No	2.00
91	6.46	21.29	2.34	1.22	0.71	33.66	2.09	70.43	4.000	No	No	2.00
92	6.52	20.72	2.33	1.14	0.71	32.73	2.06	67.56	4.000	No	No	2.00
93	6.60	22.07	2.26	0.92	0.69	34.89	1.79	62.55	4.000	No	No	2.00
94	6.70	23.55	2.18	0.72	0.66	37.27	1.57	58.59	4.000	No	No	2.00
95	6.76	23.01	2.17	0.66	0.66	36.39	1.55	56.58	4.000	Yes	No	2.00
96	6.84	19.64	2.27	0.77	0.69	30.96	1.81	55.94	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
97	6.94	14.91	2.44	1.05	0.74	23.37	2.60	60.83	4.000	Yes	No	2.00
98	7.03	10.86	2.63	1.42	0.80	16.85	4.02	67.75	4.000	Yes	Yes	2.00
99	7.13	8.23	2.79	1.78	0.84	12.62	5.71	72.04	4.000	Yes	Yes	2.00
100	7.19	6.62	2.88	1.83	0.87	10.02	6.93	69.39	4.000	Yes	Yes	2.00
101	7.32	5.77	2.88	1.39	0.87	8.65	6.87	59.40	4.000	No	Yes	2.00
102	7.42	5.17	2.80	0.72	0.85	7.67	5.87	44.99	4.000	No	Yes	2.00
103	7.49	4.93	2.63	0.13	0.80	7.28	4.02	29.29	4.000	No	Yes	2.00
104	7.57	4.73	N/A	-0.03	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
105	7.66	4.56	N/A	-0.01	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
106	7.76	4.44	2.68	0.13	0.81	6.47	4.48	29.00	4.000	No	Yes	2.00
107	7.77	4.39	2.72	0.22	0.82	6.39	4.95	31.63	4.000	No	Yes	2.00
108	7.78	4.42	2.73	0.25	0.83	6.44	5.05	32.53	4.000	No	Yes	2.00
109	7.82	4.44	2.76	0.33	0.84	6.47	5.36	34.69	4.000	No	Yes	2.00
110	7.87	4.45	2.80	0.46	0.85	6.49	5.86	38.07	4.000	No	Yes	2.00
111	7.92	4.45	2.85	0.63	0.86	6.49	6.45	41.83	4.000	No	Yes	2.00
112	7.97	4.49	2.88	0.80	0.87	6.54	6.96	45.53	4.000	No	Yes	2.00
113	8.01	4.59	2.91	1.01	0.88	6.70	7.41	49.66	4.000	No	Yes	2.00
114	8.06	4.76	2.92	1.17	0.89	6.97	7.58	52.81	4.000	No	Yes	2.00
115	8.11	4.93	2.93	1.29	0.89	7.24	7.65	55.42	4.000	No	Yes	2.00
116	8.20	5.06	2.93	1.38	0.89	7.45	7.68	57.24	4.000	No	Yes	2.00
117	8.26	5.16	2.94	1.51	0.89	7.60	7.84	59.63	4.000	No	Yes	2.00
118	8.35	5.23	2.95	1.61	1.00	7.70	7.98	61.50	4.000	No	Yes	2.00
119	8.40	5.30	2.95	1.67	1.00	7.81	8.02	62.65	4.000	No	Yes	2.00
120	8.49	5.37	2.95	1.68	0.89	7.91	7.96	62.99	4.000	No	Yes	2.00
121	8.54	5.51	2.94	1.69	0.89	8.13	7.81	63.54	4.000	No	Yes	2.00
122	8.64	5.71	2.93	1.68	0.89	8.45	7.58	64.06	4.000	No	Yes	2.00
123	8.69	5.91	2.91	1.68	0.88	8.77	7.37	64.63	4.000	No	Yes	2.00
124	8.79	6.18	2.92	1.87	0.88	9.19	7.46	68.57	4.000	No	Yes	2.00
125	8.84	6.48	2.93	2.12	0.89	9.68	7.59	73.49	4.000	No	Yes	2.00
126	8.93	6.89	2.92	2.28	0.88	10.32	7.50	77.37	4.000	No	Yes	2.00
127	9.03	7.13	2.92	2.39	0.88	10.69	7.46	79.83	4.000	No	Yes	2.00
128	9.08	7.21	2.92	2.47	0.88	10.83	7.52	81.47	4.000	No	Yes	2.00
129	9.11	7.16	2.94	2.63	0.89	10.75	7.78	83.66	4.000	No	Yes	2.00
130	9.12	7.13	2.95	2.68	0.89	10.69	7.89	84.32	4.000	No	Yes	2.00
131	9.17	7.07	2.95	2.75	1.00	10.60	8.03	85.13	4.000	No	Yes	2.00
132	9.22	7.12	2.96	2.81	1.00	10.67	8.09	86.32	4.000	No	Yes	2.00
133	9.31	6.92	2.99	3.02	1.00	10.34	8.56	88.56	4.000	No	Yes	2.00
134	9.36	7.16	2.98	3.04	1.00	10.72	8.37	89.76	4.000	No	Yes	2.00
135	9.40	7.46	2.95	2.98	1.00	11.20	8.04	90.10	4.000	No	Yes	2.00
136	9.46	8.14	2.90	2.76	0.88	12.28	7.25	89.07	4.000	No	Yes	2.00
137	9.51	8.47	2.88	2.68	0.87	12.82	6.92	88.75	4.000	No	Yes	2.00
138	9.55	8.78	2.86	2.65	0.87	13.30	6.70	89.10	4.000	No	Yes	2.00
139	9.61	8.98	2.86	2.71	0.87	13.63	6.65	90.65	4.000	No	Yes	2.00
140	9.69	9.12	2.87	2.83	0.87	13.84	6.73	93.09	4.000	No	Yes	2.00
141	9.74	9.18	2.88	2.97	0.87	13.94	6.87	95.71	4.000	No	Yes	2.00
142	9.81	9.39	2.88	3.05	0.87	14.26	6.85	97.70	4.000	No	Yes	2.00
143	9.89	9.76	2.86	3.02	0.87	14.85	6.62	98.33	4.000	No	Yes	2.00
144	9.94	10.06	2.84	2.98	0.86	15.33	6.42	98.43	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
145	10.03	10.23	2.83	2.93	0.86	15.59	6.28	97.94	4.000	No	Yes	2.00
146	10.08	10.23	2.80	2.62	0.85	15.59	5.91	92.18	4.000	No	Yes	2.00
147	10.18	10.23	2.76	2.21	0.84	15.58	5.40	84.12	4.000	No	Yes	2.00
148	10.23	10.23	2.73	1.94	0.83	15.58	5.05	78.62	4.000	No	Yes	2.00
149	10.33	10.23	2.74	2.03	0.83	15.57	5.17	80.55	4.000	No	Yes	2.00
150	10.40	10.23	2.77	2.31	0.84	15.56	5.54	86.20	4.000	No	Yes	2.00
151	10.47	10.08	2.80	2.55	0.85	15.32	5.91	90.44	4.000	No	Yes	2.00
152	10.51	10.06	2.83	2.76	0.86	15.28	6.18	94.42	4.000	No	Yes	2.00
153	10.56	10.03	2.84	2.94	0.86	15.23	6.41	97.63	4.000	No	Yes	2.00
154	10.61	10.21	2.85	3.10	0.86	15.52	6.51	100.97	4.000	No	Yes	2.00
155	10.67	10.16	2.88	3.41	0.87	15.43	6.88	106.14	4.000	No	Yes	2.00
156	10.75	10.13	2.90	3.70	0.88	15.37	7.21	110.80	4.000	No	Yes	2.00
157	10.80	9.99	2.92	3.91	0.88	15.15	7.50	113.70	4.000	No	Yes	2.00
158	10.85	9.89	2.93	3.98	0.89	14.99	7.63	114.35	4.000	No	Yes	2.00
159	10.90	9.72	2.94	4.07	0.89	14.71	7.82	115.05	4.000	No	Yes	2.00
160	11.00	9.45	2.96	4.21	1.00	14.27	8.13	116.05	4.000	No	Yes	2.00
161	11.05	9.05	2.99	4.36	1.00	13.61	8.55	116.32	4.000	No	Yes	2.00
162	11.14	8.61	3.01	4.54	1.00	12.90	9.04	116.64	4.000	No	Yes	2.00
163	11.21	8.27	3.04	4.77	1.00	12.36	9.53	117.80	4.000	No	Yes	2.00
164	11.29	8.24	3.05	4.86	1.00	12.30	9.66	118.79	4.000	No	Yes	2.00
165	11.38	8.41	3.04	4.86	1.00	12.56	9.53	119.67	4.000	No	Yes	2.00
166	11.46	8.68	3.02	4.71	1.00	12.98	9.18	119.19	4.000	No	Yes	2.00
167	11.52	8.88	3.01	4.64	1.00	13.30	8.96	119.26	4.000	No	Yes	2.00
168	11.60	8.98	3.00	4.60	1.00	13.46	8.85	119.12	4.000	No	Yes	2.00
169	11.67	9.05	3.00	4.58	1.00	13.56	8.79	119.24	4.000	No	Yes	2.00
170	11.72	9.12	3.00	4.58	1.00	13.67	8.75	119.52	4.000	No	Yes	2.00
171	11.81	9.32	2.99	4.50	1.00	13.98	8.54	119.37	4.000	No	Yes	2.00
172	11.86	9.35	2.98	4.50	1.00	14.03	8.52	119.54	4.000	No	Yes	2.00
173	11.96	9.42	2.98	4.48	1.00	14.07	8.48	119.37	4.000	No	Yes	2.00
174	12.01	9.45	2.98	4.50	1.00	14.06	8.50	119.58	4.000	No	Yes	2.00
175	12.10	9.69	2.97	4.05	0.89	13.55	8.25	111.75	4.000	No	Yes	2.00
176	12.16	10.07	2.91	3.44	0.88	13.97	7.41	103.51	4.000	No	Yes	2.00
177	12.24	10.47	2.88	3.08	0.87	14.38	6.85	98.49	4.000	No	Yes	2.00
178	12.32	10.87	2.88	3.24	0.87	14.89	6.86	102.09	4.000	No	Yes	2.00
179	12.39	11.18	2.90	3.63	0.88	15.29	7.16	109.53	4.000	No	Yes	2.00
180	12.48	10.64	2.95	4.13	0.89	14.47	7.97	115.36	4.000	No	Yes	2.00
181	12.50	10.23	2.97	4.52	1.00	14.64	8.30	121.50	4.000	No	Yes	2.00
182	12.54	10.74	2.96	4.40	0.89	14.58	8.20	119.55	4.000	No	Yes	2.00
183	12.64	12.36	2.89	3.89	0.87	16.65	7.01	116.68	4.000	No	Yes	2.00
184	12.68	14.04	2.81	3.45	0.85	18.79	6.01	113.05	4.000	No	Yes	2.00
185	12.77	14.72	2.78	3.24	0.84	19.54	5.64	110.30	4.000	No	Yes	2.00
186	12.82	14.75	2.78	3.14	0.84	19.48	5.55	108.15	4.000	No	Yes	2.00
187	12.89	14.21	2.79	3.12	0.84	18.67	5.71	106.60	4.000	No	Yes	2.00
188	12.97	13.37	2.82	3.26	0.85	17.49	6.13	107.25	4.000	No	Yes	2.00
189	13.03	12.49	2.86	3.45	0.87	16.30	6.66	108.51	4.000	No	Yes	2.00
190	13.12	11.72	2.90	3.66	0.88	15.20	7.22	109.85	4.000	No	Yes	2.00
191	13.16	11.21	2.93	3.77	0.89	14.50	7.58	109.96	4.000	No	Yes	2.00
192	13.26	10.91	2.93	3.69	0.89	13.99	7.68	107.43	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
193	13.34	10.84	2.92	3.42	0.88	13.79	7.45	102.72	4.000	No	Yes	2.00
194	13.41	10.74	2.90	3.11	0.88	13.56	7.18	97.27	4.000	No	Yes	2.00
195	13.50	10.60	2.89	2.96	0.88	13.27	7.10	94.19	4.000	No	Yes	2.00
196	13.60	10.33	2.90	2.95	0.88	12.84	7.26	93.25	4.000	No	Yes	2.00
197	13.65	10.13	2.92	3.04	0.88	12.55	7.49	94.05	4.000	No	Yes	2.00
198	13.75	10.03	2.93	3.14	0.89	12.35	7.71	95.17	4.000	No	Yes	2.00
199	13.80	10.10	2.92	3.04	0.89	12.37	7.57	93.67	4.000	No	Yes	2.00
200	13.89	10.23	2.92	3.06	0.89	12.47	7.55	94.18	4.000	No	Yes	2.00
201	13.94	10.63	2.92	3.15	0.88	12.95	7.46	96.59	4.000	No	Yes	2.00
202	14.03	10.80	2.95	3.59	0.89	13.13	7.91	103.87	4.000	No	Yes	2.00
203	14.11	11.23	2.95	3.82	0.89	13.59	7.98	108.45	4.000	No	Yes	2.00
204	14.13	11.53	2.95	3.97	0.89	13.97	7.99	111.61	4.000	No	Yes	2.00
205	14.18	12.27	2.92	3.86	0.89	14.85	7.55	112.19	4.000	No	Yes	2.00
206	14.22	12.83	2.91	3.88	0.88	15.50	7.35	113.98	4.000	No	Yes	2.00
207	14.28	13.44	2.90	3.92	0.88	16.19	7.18	116.20	4.000	No	Yes	2.00
208	14.37	14.01	2.89	3.98	0.88	16.81	7.06	118.62	4.000	No	Yes	2.00
209	14.44	14.79	2.87	3.97	0.87	17.68	6.80	120.24	4.000	No	Yes	2.00
210	14.51	15.63	2.85	3.90	0.86	18.60	6.50	120.95	4.000	No	Yes	2.00
211	14.60	16.31	2.83	3.86	0.86	19.30	6.30	121.55	4.000	No	Yes	2.00
212	14.65	16.58	2.83	3.91	0.86	19.57	6.28	122.89	4.000	No	Yes	2.00
213	14.75	16.56	2.84	3.99	0.86	19.44	6.39	124.23	4.000	No	Yes	2.00
214	14.85	16.48	2.85	4.06	0.86	19.22	6.50	124.95	4.000	No	Yes	2.00
215	14.91	16.44	2.85	4.07	0.86	19.11	6.54	124.89	4.000	No	Yes	2.00
216	14.99	17.00	2.83	3.89	0.86	19.64	6.25	122.73	4.000	Yes	Yes	2.00
217	15.09	18.30	2.79	3.60	0.84	21.01	5.69	119.59	4.000	Yes	Yes	2.00
218	15.18	20.29	2.72	3.20	0.82	23.13	4.94	114.33	4.000	Yes	Yes	2.00
219	15.25	22.28	2.66	2.79	0.80	25.25	4.26	107.53	4.000	Yes	Yes	2.00
220	15.33	24.50	2.58	2.38	0.78	27.58	3.60	99.22	4.000	Yes	No	2.00
221	15.43	27.51	2.50	1.99	0.76	30.70	2.96	90.92	4.000	Yes	No	2.00
222	15.51	31.32	2.41	1.70	0.73	34.70	2.45	84.95	4.000	Yes	No	2.00
223	15.59	34.63	2.35	1.53	0.71	38.13	2.14	81.77	4.000	Yes	No	2.00
224	15.67	36.18	2.33	1.46	0.71	39.65	2.03	80.65	4.000	Yes	No	2.00
225	15.76	35.13	2.35	1.53	0.71	38.36	2.14	81.98	4.000	Yes	No	2.00
226	15.86	32.03	2.41	1.71	0.73	34.86	2.45	85.36	4.000	Yes	No	2.00
227	15.95	27.64	2.51	2.00	0.76	30.01	3.03	90.95	4.000	Yes	No	2.00
228	16.05	23.08	2.61	2.33	0.79	24.94	3.85	95.91	4.000	Yes	Yes	2.00
229	16.14	19.31	2.71	2.64	0.82	20.73	4.79	99.32	4.000	Yes	Yes	2.00
230	16.20	16.85	2.78	2.83	0.84	17.98	5.55	99.84	4.000	Yes	Yes	2.00
231	16.28	15.33	2.82	2.95	0.85	16.24	6.13	99.52	4.000	Yes	Yes	2.00
232	16.34	14.21	2.85	2.97	0.86	14.97	6.52	97.62	4.000	Yes	Yes	2.00
233	16.44	12.93	2.89	3.04	0.88	13.48	7.12	95.96	4.000	Yes	Yes	2.00
234	16.50	11.61	2.93	3.03	0.89	12.00	7.73	92.73	4.000	Yes	Yes	2.00
235	16.58	10.17	2.96	2.83	1.00	10.54	8.19	86.31	4.000	Yes	Yes	2.00
236	16.73	8.75	2.98	2.31	1.00	8.85	8.43	74.57	4.000	No	Yes	2.00
237	16.82	7.60	2.96	1.61	1.00	7.51	8.14	61.14	4.000	No	Yes	2.00
238	16.92	7.06	2.97	1.45	1.00	6.86	8.35	57.29	4.000	No	Yes	2.00
239	17.01	6.56	3.09	2.09	1.00	6.26	10.33	64.67	4.000	No	Yes	2.00
240	17.11	6.20	3.19	2.99	1.00	5.84	12.54	73.17	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
241	17.12	5.73	3.28	3.81	1.00	5.31	14.74	78.30	4.000	No	Yes	2.00
242	17.14	6.34	3.23	3.66	1.00	5.97	13.44	80.31	4.000	No	Yes	2.00
243	17.19	7.13	3.17	3.53	1.00	6.82	12.15	82.92	4.000	No	Yes	2.00
244	17.28	7.94	3.13	3.46	1.00	7.67	11.16	85.58	4.000	No	Yes	2.00
245	17.33	8.01	3.14	3.72	1.00	7.71	11.48	88.52	4.000	No	Yes	2.00
246	17.43	7.87	3.16	3.90	1.00	7.52	11.93	89.67	4.000	No	Yes	2.00
247	17.47	7.74	3.17	3.85	1.00	7.35	12.03	88.37	4.000	No	Yes	2.00
248	17.57	7.57	3.16	3.62	1.00	7.12	11.95	85.14	4.000	No	Yes	2.00
249	17.65	7.47	3.15	3.35	1.00	6.98	11.70	81.63	4.000	No	Yes	2.00
250	17.72	7.40	3.16	3.37	1.00	6.88	11.84	81.46	4.000	No	Yes	2.00
251	17.81	7.57	3.16	3.48	1.00	7.02	11.86	83.22	4.000	No	Yes	2.00
252	17.86	7.87	3.17	3.79	1.00	7.32	11.98	87.65	4.000	No	Yes	2.00
253	17.95	8.31	3.16	4.07	1.00	7.73	11.95	92.32	4.000	No	Yes	2.00
254	18.05	8.78	3.16	4.29	1.00	8.18	11.81	96.52	4.000	No	Yes	2.00
255	18.10	9.22	3.15	4.49	1.00	8.61	11.67	100.43	4.000	No	Yes	2.00
256	18.20	9.66	3.14	4.65	1.00	9.01	11.52	103.80	4.000	No	Yes	2.00
257	18.30	9.90	3.15	4.85	1.00	9.20	11.60	106.76	4.000	No	Yes	2.00
258	18.39	10.13	3.14	4.89	1.00	9.38	11.50	107.91	4.000	No	Yes	2.00
259	18.48	10.27	3.14	4.83	1.00	9.47	11.38	107.71	4.000	No	Yes	2.00
260	18.58	10.30	3.14	4.82	1.00	9.44	11.38	107.46	4.000	No	Yes	2.00
261	18.66	10.20	3.14	4.82	1.00	9.30	11.49	106.87	4.000	No	Yes	2.00
262	18.74	10.07	3.14	4.69	1.00	9.12	11.49	104.74	4.000	No	Yes	2.00
263	18.87	9.90	3.11	3.92	1.00	8.88	10.73	95.26	4.000	No	Yes	2.00
264	18.97	9.66	3.07	3.27	1.00	8.59	10.09	86.69	4.000	No	Yes	2.00
265	19.06	9.56	3.05	2.85	1.00	8.45	9.58	80.90	4.000	No	Yes	2.00
266	19.16	9.83	3.06	3.14	1.00	8.66	9.84	85.25	4.000	No	Yes	2.00
267	19.25	10.13	3.06	3.34	1.00	8.91	9.93	88.50	4.000	No	Yes	2.00
268	19.27	10.23	3.08	3.58	1.00	9.00	10.18	91.69	4.000	No	Yes	2.00
269	19.30	10.37	3.09	3.79	1.00	9.12	10.39	94.70	4.000	No	Yes	2.00
270	19.34	10.57	3.10	4.04	1.00	9.29	10.57	98.19	4.000	No	Yes	2.00
271	19.39	10.84	3.09	4.12	1.00	9.53	10.50	100.00	4.000	No	Yes	2.00
272	19.49	10.78	3.10	4.12	1.00	9.41	10.57	99.51	4.000	No	Yes	2.00
273	19.55	10.51	3.10	4.04	1.00	9.12	10.70	97.54	4.000	No	Yes	2.00
274	19.63	10.17	3.11	3.94	1.00	8.75	10.86	95.04	4.000	No	Yes	2.00
275	19.68	9.87	3.11	3.78	1.00	8.43	10.91	92.04	4.000	No	Yes	2.00
276	19.74	9.77	3.10	3.54	1.00	8.31	10.69	88.83	4.000	No	Yes	2.00
277	19.83	9.73	3.10	3.44	1.00	8.24	10.61	87.40	4.000	No	Yes	2.00
278	19.87	9.73	3.10	3.38	1.00	8.22	10.55	86.67	4.000	No	Yes	2.00
279	19.94	9.73	3.11	3.54	1.00	8.19	10.80	88.39	4.000	No	Yes	2.00
280	20.02	9.80	3.12	3.73	1.00	8.21	11.04	90.64	4.000	No	Yes	2.00
281	20.07	10.17	3.13	4.13	1.00	8.54	11.28	96.33	4.000	No	Yes	2.00
282	20.17	11.42	3.09	4.10	1.00	9.65	10.38	100.21	4.000	No	Yes	2.00
283	20.21	14.18	2.97	3.57	1.00	12.20	8.30	101.25	4.000	Yes	Yes	2.00
284	20.28	18.74	2.80	2.81	0.85	16.43	5.92	97.16	4.000	Yes	Yes	2.00
285	20.36	24.88	2.64	2.22	0.80	22.08	4.11	90.84	4.000	Yes	Yes	2.00
286	20.41	31.73	2.51	1.86	0.76	28.40	3.02	85.89	4.000	Yes	No	2.00
287	20.48	38.64	2.40	1.64	0.73	34.74	2.39	83.15	4.000	Yes	No	2.00
288	20.55	44.99	2.33	1.49	0.71	40.52	2.02	82.00	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
289	20.60	49.88	2.27	1.39	0.69	44.99	1.82	81.90	4.000	Yes	No	2.00
290	20.70	52.55	2.25	1.34	0.68	47.28	1.74	82.23	4.000	No	No	2.00
291	20.74	52.68	2.25	1.37	0.68	47.32	1.75	82.97	4.000	No	No	2.00
292	20.79	51.17	2.28	1.45	0.69	45.83	1.84	84.31	4.000	No	No	2.00
293	20.89	48.70	2.33	1.63	0.71	43.39	2.03	87.95	4.000	No	No	2.00
294	20.96	46.86	2.33	1.59	0.71	41.58	2.06	85.66	4.000	No	No	2.00
295	21.04	45.83	2.34	1.58	0.71	40.52	2.09	84.84	4.000	No	No	2.00
296	21.13	45.80	2.33	1.51	0.71	40.36	2.05	82.71	4.000	No	No	2.00
297	21.22	49.22	2.31	1.55	0.70	43.31	1.97	85.52	4.000	No	No	2.00
298	21.29	52.71	2.28	1.51	0.69	46.38	1.86	86.23	4.000	No	No	2.00
299	21.35	62.13	2.19	1.30	0.66	54.84	1.58	86.56	4.000	No	No	2.00
300	21.37	71.37	2.10	1.15	0.64	63.21	1.42	89.97	4.000	No	No	2.00
301	21.42	83.72	2.01	0.98	0.61	74.37	1.31	97.64	4.000	No	No	2.00
302	21.47	92.73	1.95	0.89	0.59	82.47	1.27	104.48	4.000	No	No	2.00
303	21.48	100.66	1.90	0.82	0.58	89.69	1.23	110.65	4.000	No	No	2.00
304	21.52	107.37	1.85	0.77	0.56	95.73	1.20	115.32	4.000	No	No	2.00
305	21.57	113.24	1.82	0.73	0.55	100.98	1.17	118.63	4.000	No	No	2.00
306	21.62	118.81	1.79	0.69	0.54	105.91	1.14	120.85	4.000	No	No	2.00
307	21.66	124.00	1.76	0.65	0.54	110.52	1.10	122.11	4.000	No	No	2.00
308	21.71	128.79	1.74	0.63	0.53	114.75	1.07	122.79	4.000	No	No	2.00
309	21.76	132.64	1.73	0.62	0.53	118.10	1.04	123.42	4.000	No	No	2.00
310	21.81	135.34	1.72	0.63	0.52	120.38	1.03	124.51	4.000	No	No	2.00
311	21.85	136.99	1.72	0.64	0.53	121.70	1.04	126.15	4.000	No	No	2.00
312	21.91	137.80	1.73	0.66	0.53	122.24	1.05	127.87	4.000	No	No	2.00
313	21.95	138.11	1.73	0.67	0.53	122.32	1.06	129.40	4.000	No	No	2.00
314	22.00	138.24	1.74	0.69	0.53	122.26	1.07	130.49	4.000	No	No	2.00
315	22.05	138.18	1.75	0.70	0.53	122.02	1.08	131.33	4.000	No	No	2.00
316	22.10	138.24	1.75	0.71	0.53	121.90	1.08	132.00	4.000	No	No	2.00
317	22.15	138.31	1.75	0.72	0.53	121.77	1.09	132.56	4.000	No	No	2.00
318	22.19	138.68	1.75	0.72	0.53	121.94	1.09	133.12	4.000	No	No	2.00
319	22.24	139.25	1.76	0.75	0.54	122.24	1.11	135.35	4.000	No	No	2.00
320	22.29	139.86	1.77	0.77	0.54	122.58	1.11	136.60	4.000	No	No	2.00
321	22.34	140.20	1.77	0.78	0.54	122.70	1.12	137.16	4.000	No	No	2.00
322	22.39	140.06	1.77	0.76	0.54	122.45	1.11	135.89	4.000	No	No	2.00
323	22.43	139.42	1.77	0.76	0.54	121.72	1.11	135.26	4.000	No	No	2.00
324	22.48	138.34	1.77	0.76	0.54	120.56	1.12	135.08	4.000	No	No	2.00
325	22.55	136.79	1.78	0.78	0.54	118.95	1.13	134.76	4.000	No	No	2.00
326	22.62	130.08	1.82	0.82	0.55	112.68	1.17	131.90	4.000	No	No	2.00
327	22.63	127.95	1.83	0.83	0.56	110.75	1.18	130.57	4.000	No	No	2.00
328	22.72	125.56	1.83	0.84	0.56	108.31	1.19	128.61	4.000	No	No	2.00
329	22.77	128.09	1.82	0.81	0.55	110.46	1.17	129.57	4.000	No	No	2.00
330	22.83	126.13	1.83	0.83	0.56	108.51	1.19	128.59	4.000	No	No	2.00
331	22.91	124.21	1.85	0.86	0.56	106.52	1.20	127.55	4.000	No	No	2.00
332	22.96	121.74	1.86	0.88	0.57	104.15	1.21	126.09	4.000	No	No	2.00
333	23.02	118.20	1.88	0.91	0.57	100.84	1.22	123.45	4.000	No	No	2.00
334	23.10	113.85	1.90	0.94	0.58	96.74	1.24	119.96	4.000	No	No	2.00
335	23.16	108.42	1.93	0.98	0.59	91.79	1.26	115.60	4.000	No	No	2.00
336	23.20	102.21	1.97	1.03	0.60	86.20	1.28	110.62	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
337	23.26	95.46	2.01	1.08	0.61	80.15	1.31	105.23	4.000	No	No	2.00
338	23.35	88.68	2.05	1.15	0.62	74.00	1.36	100.36	4.000	No	No	2.00
339	23.39	81.66	2.10	1.23	0.64	67.80	1.42	95.97	4.000	No	No	2.00
340	23.48	74.68	2.15	1.34	0.65	61.55	1.51	93.11	4.000	No	No	2.00
341	23.54	68.33	2.20	1.41	0.67	55.99	1.61	90.41	4.000	No	No	2.00
342	23.63	63.44	2.23	1.41	0.68	51.67	1.69	87.24	4.000	No	No	2.00
343	23.69	60.07	2.21	1.21	0.67	48.84	1.63	79.68	4.000	No	No	2.00
344	23.78	58.37	2.19	1.08	0.66	47.34	1.59	75.09	4.000	No	No	2.00
345	23.87	57.71	2.18	1.00	0.66	46.70	1.56	72.76	4.000	No	No	2.00
346	23.88	57.81	2.20	1.11	0.67	46.69	1.62	75.51	4.000	No	No	2.00
347	23.93	57.42	2.23	1.22	0.68	46.23	1.69	78.05	4.000	No	No	2.00
348	24.02	57.22	2.25	1.33	0.68	45.85	1.76	80.73	4.000	No	No	2.00
349	24.04	56.97	2.27	1.41	0.69	45.57	1.82	82.98	4.000	No	No	2.00
350	24.05	57.34	2.28	1.47	0.69	45.82	1.85	84.83	4.000	No	No	2.00
351	24.15	58.27	2.28	1.52	0.69	46.42	1.87	86.71	4.000	No	No	2.00
352	24.20	60.11	2.28	1.55	0.69	47.86	1.85	88.32	4.000	No	No	2.00
353	24.30	62.64	2.25	1.45	0.68	49.86	1.75	87.06	4.000	No	No	2.00
354	24.40	65.07	2.21	1.31	0.67	51.83	1.63	84.41	4.000	No	No	2.00
355	24.46	66.59	2.16	1.15	0.66	53.10	1.53	81.44	4.000	No	No	2.00
356	24.54	66.42	2.15	1.08	0.65	52.90	1.50	79.49	4.000	No	No	2.00
357	24.64	64.09	2.17	1.11	0.66	50.78	1.55	78.59	4.000	Yes	No	2.00
358	24.73	59.94	2.22	1.24	0.68	47.12	1.68	79.13	4.000	Yes	No	2.00
359	24.78	54.64	2.30	1.43	0.70	42.55	1.92	81.62	4.000	Yes	No	2.00
360	24.88	48.57	2.38	1.66	0.72	37.36	2.28	85.25	4.000	Yes	No	2.00
361	24.94	41.92	2.47	1.90	0.75	31.81	2.80	89.16	4.000	Yes	No	2.00
362	25.02	35.00	2.57	2.14	0.78	26.12	3.52	92.04	4.000	Yes	No	2.00
363	25.12	28.43	2.69	2.46	0.81	20.76	4.59	95.35	4.000	Yes	Yes	2.00
364	25.17	22.86	2.81	2.88	0.85	16.30	6.02	98.17	4.000	Yes	Yes	2.00
365	25.27	18.41	2.93	3.27	0.89	12.75	7.69	98.13	4.000	Yes	Yes	2.00
366	25.36	15.13	3.04	3.56	1.00	9.96	9.50	94.69	4.000	No	Yes	2.00
367	25.43	12.60	3.13	3.75	1.00	8.11	11.16	90.44	4.000	No	Yes	2.00
368	25.50	10.88	3.20	3.97	1.00	6.84	12.76	87.31	4.000	No	Yes	2.00
369	25.60	9.77	3.25	4.08	1.00	6.01	14.03	84.31	4.000	No	Yes	2.00
370	25.64	9.26	3.27	4.02	1.00	5.64	14.52	81.86	4.000	No	Yes	2.00
371	25.67	9.06	3.28	3.90	1.00	5.48	14.58	79.98	4.000	No	Yes	2.00
372	25.71	8.86	3.27	3.61	1.00	5.33	14.38	76.65	4.000	No	Yes	2.00
373	25.79	8.52	3.26	3.26	1.00	5.07	14.25	72.22	4.000	No	Yes	2.00
374	25.93	8.18	3.26	2.95	1.00	4.80	14.17	68.01	4.000	No	Yes	2.00
375	26.03	8.02	3.25	2.70	1.00	4.66	13.97	65.11	4.000	No	Yes	2.00
376	26.13	8.02	3.24	2.57	1.00	4.64	13.74	63.74	4.000	No	Yes	2.00
377	26.24	8.08	3.23	2.50	1.00	4.67	13.54	63.18	4.000	No	Yes	2.00
378	26.37	8.18	3.23	2.51	1.00	4.71	13.48	63.49	4.000	No	Yes	2.00
379	26.47	8.25	3.23	2.56	1.00	4.73	13.53	64.09	4.000	No	Yes	2.00
380	26.60	8.25	3.22	2.39	1.00	4.71	13.24	62.33	4.000	No	Yes	2.00
381	26.71	8.38	3.19	2.15	1.00	4.78	12.59	60.15	4.000	No	Yes	2.00
382	26.85	8.75	3.16	1.96	1.00	5.00	11.78	58.94	4.000	No	Yes	2.00
383	26.95	8.96	3.18	2.26	1.00	5.12	12.24	62.69	4.000	No	Yes	2.00
384	27.04	9.60	3.18	2.57	1.00	5.54	12.21	67.66	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
385	27.09	10.14	3.18	2.92	1.00	5.90	12.33	72.68	4.000	No	Yes	2.00
386	27.19	10.95	3.16	2.98	1.00	6.42	11.76	75.49	4.000	No	Yes	2.00
387	27.23	11.18	3.16	3.16	1.00	6.56	11.88	78.01	4.000	No	Yes	2.00
388	27.33	11.42	3.17	3.32	1.00	6.70	11.98	80.22	4.000	No	Yes	2.00
389	27.40	11.76	3.16	3.46	1.00	6.91	11.94	82.48	4.000	No	Yes	2.00
390	27.47	12.30	3.15	3.56	1.00	7.25	11.72	84.94	4.000	No	Yes	2.00
391	27.57	12.97	3.14	3.59	1.00	7.66	11.34	86.93	4.000	No	Yes	2.00
392	27.66	13.85	3.12	3.70	1.00	8.22	10.99	90.36	4.000	No	Yes	2.00
393	27.77	14.96	3.10	3.87	1.00	8.93	10.64	94.93	4.000	No	Yes	2.00
394	27.86	16.28	3.08	4.09	1.00	9.76	10.29	100.42	4.000	No	Yes	2.00
395	27.96	17.39	3.07	4.27	1.00	10.45	10.06	105.14	4.000	No	Yes	2.00
396	28.06	17.73	3.08	4.52	1.00	10.63	10.22	108.70	4.000	No	Yes	2.00
397	28.15	17.29	3.10	4.70	1.00	10.31	10.64	109.63	4.000	No	Yes	2.00
398	28.25	17.04	3.08	4.30	1.00	10.10	10.32	104.18	4.000	No	Yes	2.00
399	28.34	16.50	3.07	3.92	1.00	9.71	10.12	98.29	4.000	No	Yes	2.00
400	28.44	16.94	3.04	3.53	1.00	9.96	9.46	94.21	4.000	No	Yes	2.00
401	28.54	16.11	3.09	4.00	1.00	9.38	10.45	98.03	4.000	No	Yes	2.00
402	28.62	17.46	3.06	4.02	1.00	10.22	9.90	101.19	4.000	No	Yes	2.00
403	28.71	18.34	3.05	4.14	1.00	10.74	9.72	104.45	4.000	No	Yes	2.00
404	28.77	20.26	3.01	4.01	1.00	11.95	8.92	106.63	4.000	No	Yes	2.00
405	28.86	20.73	3.01	4.13	1.00	12.21	8.93	109.00	4.000	No	Yes	2.00
406	28.91	21.34	3.00	4.15	1.00	12.56	8.78	110.37	4.000	No	Yes	2.00
407	28.97	22.04	2.99	4.19	1.00	12.99	8.63	112.06	4.000	No	Yes	2.00
408	29.04	22.92	2.98	4.23	1.00	13.50	8.45	114.13	4.000	No	Yes	2.00
409	29.10	23.97	2.97	4.28	1.00	14.13	8.26	116.69	4.000	No	Yes	2.00
410	29.15	25.15	2.96	4.38	1.00	14.85	8.08	120.01	4.000	No	Yes	2.00
411	29.25	26.40	2.93	4.48	0.89	16.30	7.69	125.36	4.000	No	Yes	2.00
412	29.34	27.38	2.93	4.58	0.89	16.91	7.60	128.48	4.000	No	Yes	2.00
413	29.38	27.75	2.93	4.68	0.89	17.12	7.63	130.55	4.000	No	Yes	2.00
414	29.48	27.72	2.95	4.76	1.00	16.25	7.97	129.55	4.000	No	Yes	2.00
415	29.55	27.48	2.96	4.80	1.00	16.06	8.07	129.61	4.000	Yes	Yes	2.00
416	29.63	27.41	2.93	4.54	0.89	16.75	7.61	127.50	4.000	Yes	Yes	2.00
417	29.72	28.43	2.81	3.17	0.85	17.61	6.01	105.80	4.000	Yes	Yes	2.00
418	29.82	31.56	2.63	1.83	0.80	20.09	3.98	79.94	4.000	Yes	Yes	2.00
419	29.88	36.83	2.39	0.90	0.73	24.31	2.33	56.65	4.000	Yes	No	2.00
420	29.96	45.23	2.29	0.81	0.69	30.47	1.87	56.98	4.000	Yes	No	2.00
421	30.06	49.92	2.25	0.82	0.68	33.83	1.75	59.16	4.000	Yes	No	2.00
422	30.13	54.67	2.21	0.81	0.67	37.29	1.64	60.99	4.000	Yes	No	2.00
423	30.18	56.02	2.21	0.84	0.67	38.21	1.63	62.30	0.102	No	No	0.34
424	30.28	58.72	2.20	0.87	0.67	40.06	1.61	64.44	0.105	No	No	0.35
425	30.37	59.53	2.22	0.98	0.67	40.40	1.67	67.53	0.109	No	No	0.36
426	30.47	60.51	2.25	1.10	0.68	40.85	1.74	71.05	0.113	No	No	0.37
427	30.57	63.28	2.24	1.15	0.68	42.69	1.73	73.87	0.117	No	No	0.38
428	30.66	67.26	2.22	1.17	0.67	45.46	1.67	76.12	0.121	No	No	0.40
429	30.74	71.34	2.20	1.17	0.67	48.33	1.62	78.31	0.125	No	No	0.41
430	30.82	74.51	2.19	1.19	0.67	50.51	1.59	80.52	0.129	No	No	0.42
431	30.90	76.30	2.20	1.26	0.67	51.60	1.61	82.93	0.133	No	No	0.43
432	31.01	76.90	2.22	1.35	0.67	51.74	1.66	85.67	0.138	No	No	0.45

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
433	31.10	77.02	2.24	1.50	0.68	51.51	1.74	89.47	0.147	No	No	0.48
434	31.19	77.06	2.28	1.66	0.69	51.19	1.84	93.96	0.157	No	No	0.51
435	31.28	77.57	2.30	1.81	0.70	51.24	1.92	98.21	0.168	No	No	0.54
436	31.35	78.53	2.31	1.92	0.70	51.70	1.97	101.82	0.178	No	No	0.58
437	31.43	80.52	2.31	1.98	0.70	52.90	1.98	104.59	0.186	No	No	0.60
438	31.53	83.11	2.31	2.04	0.70	54.53	1.97	107.28	0.195	No	No	0.63
439	31.60	85.91	2.26	1.77	0.69	56.74	1.78	101.10	0.176	No	No	0.57
440	31.67	88.07	2.21	1.54	0.67	58.52	1.64	95.74	0.162	No	No	0.52
441	31.77	89.46	2.16	1.33	0.66	59.74	1.53	91.18	0.150	No	No	0.48
442	31.84	89.86	2.18	1.41	0.66	59.77	1.56	93.40	0.156	No	No	0.50
443	31.91	86.18	2.22	1.57	0.68	56.78	1.68	95.19	0.160	No	No	0.51
444	31.98	79.10	2.29	1.77	0.70	51.41	1.89	97.23	0.165	No	No	0.53
445	31.98	77.21	2.32	1.87	0.70	49.95	1.99	99.23	0.171	No	No	0.55
446	32.04	78.73	2.31	1.90	0.70	50.91	1.98	100.65	0.175	No	No	0.56
447	32.12	82.68	2.30	1.89	0.70	53.56	1.91	102.19	4.000	Yes	No	2.00
448	32.16	80.04	2.33	2.05	0.71	51.46	2.05	105.63	4.000	Yes	No	2.00
449	32.27	75.66	2.38	2.23	0.72	48.11	2.26	108.77	4.000	Yes	No	2.00
450	32.33	70.76	2.42	2.40	0.74	44.53	2.50	111.51	4.000	Yes	No	2.00
451	32.41	66.31	2.46	2.50	0.75	41.33	2.72	112.40	4.000	Yes	No	2.00
452	32.50	61.79	2.49	2.55	0.76	38.14	2.93	111.66	4.000	Yes	No	2.00
453	32.58	56.66	2.53	2.59	0.77	34.61	3.18	110.12	4.000	Yes	No	2.00
454	32.66	50.22	2.58	2.66	0.78	30.23	3.59	108.68	4.000	Yes	No	2.00
455	32.74	43.30	2.65	2.79	0.80	25.56	4.22	107.79	4.000	Yes	Yes	2.00
456	32.84	36.12	2.75	3.04	0.83	20.76	5.20	107.96	4.000	Yes	Yes	2.00
457	32.90	29.88	2.85	3.36	0.86	16.68	6.45	107.62	4.000	Yes	Yes	2.00
458	32.98	24.92	2.96	3.68	1.00	12.71	8.19	104.08	4.000	Yes	Yes	2.00
459	33.08	20.77	3.06	4.02	1.00	10.40	9.80	101.84	3.600	No	Yes	2.00
460	33.14	17.05	3.16	4.51	1.00	8.34	11.93	99.50	3.600	No	Yes	2.00
461	33.22	14.12	3.27	5.00	1.00	6.71	14.31	96.06	3.600	No	Yes	2.00
462	33.32	12.19	3.34	5.20	1.00	5.64	16.21	91.43	3.600	No	Yes	2.00
463	33.37	11.28	3.35	4.81	1.00	5.14	16.60	85.28	3.600	No	Yes	2.00
464	33.47	11.05	3.34	4.46	1.00	4.99	16.37	81.70	3.600	No	Yes	2.00
465	33.56	11.66	3.30	4.00	1.00	5.30	15.06	79.85	3.600	No	Yes	2.00
466	33.63	12.43	3.26	3.78	1.00	5.71	14.04	80.15	3.600	No	Yes	2.00
467	33.71	12.67	3.23	3.53	1.00	5.82	13.47	78.37	3.600	No	Yes	2.00
468	33.81	11.99	3.22	3.07	1.00	5.44	13.27	72.19	3.600	No	Yes	2.00
469	33.90	11.05	3.23	2.64	1.00	4.92	13.35	65.65	3.600	No	Yes	2.00
470	33.95	10.31	3.23	2.27	1.00	4.51	13.36	60.28	3.600	No	Yes	2.00
471	34.04	10.07	3.24	2.29	1.00	4.37	13.69	59.84	3.600	No	Yes	2.00
472	34.14	9.87	3.25	2.32	1.00	4.25	14.01	59.54	3.600	No	Yes	2.00
473	34.17	9.81	3.26	2.35	1.00	4.21	14.16	59.63	3.600	No	Yes	2.00
474	34.20	10.07	3.24	2.31	1.00	4.35	13.78	59.92	3.600	No	Yes	2.00
475	34.26	10.38	3.23	2.26	1.00	4.50	13.36	60.14	3.600	No	Yes	2.00
476	34.35	10.61	3.21	2.19	1.00	4.61	12.99	59.91	3.600	No	Yes	2.00
477	34.43	10.41	3.22	2.20	1.00	4.49	13.24	59.45	3.600	No	Yes	2.00
478	34.49	10.27	3.22	2.15	1.00	4.41	13.28	58.59	3.600	No	Yes	2.00
479	34.59	10.17	3.22	2.05	1.00	4.34	13.18	57.25	3.600	No	Yes	2.00
480	34.69	10.07	3.21	1.94	1.00	4.28	13.07	55.91	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
481	34.73	9.90	3.22	1.88	1.00	4.18	13.12	54.88	3.600	No	Yes	2.00
482	34.83	9.80	3.22	1.86	1.00	4.12	13.19	54.34	3.600	No	Yes	2.00
483	34.90	9.74	3.23	1.89	1.00	4.07	13.37	54.48	3.600	No	Yes	2.00
484	34.98	9.84	3.23	1.97	1.00	4.12	13.48	55.47	3.600	No	Yes	2.00
485	35.07	10.14	3.24	2.18	1.00	4.26	13.68	58.28	3.600	No	Yes	2.00
486	35.16	10.58	3.27	2.77	1.00	4.47	14.49	64.79	3.600	No	Yes	2.00
487	35.26	11.29	3.32	3.92	1.00	4.82	15.85	76.48	3.600	No	Yes	2.00
488	35.33	13.25	3.31	4.84	1.00	5.82	15.42	89.71	3.600	No	Yes	2.00
489	35.40	16.76	3.22	5.02	1.00	7.61	13.28	101.03	3.600	No	Yes	2.00
490	35.50	20.84	3.12	4.66	1.00	9.67	11.03	106.70	3.600	No	Yes	2.00
491	35.57	23.37	3.07	4.51	1.00	10.95	10.02	109.72	3.600	No	Yes	2.00
492	35.65	23.77	3.07	4.67	1.00	11.12	10.10	112.36	3.600	No	Yes	2.00
493	35.71	22.86	3.11	5.08	1.00	10.64	10.83	115.22	3.600	No	Yes	2.00
494	35.79	21.65	3.15	5.43	1.00	9.99	11.64	116.27	3.600	No	Yes	2.00
495	35.85	20.37	3.18	5.49	1.00	9.32	12.22	113.90	3.600	No	Yes	2.00
496	35.94	19.29	3.19	5.34	1.00	8.75	12.53	109.71	3.600	No	Yes	2.00
497	35.99	18.31	3.19	4.97	1.00	8.24	12.58	103.66	3.600	No	Yes	2.00
498	36.08	17.16	3.19	4.47	1.00	7.64	12.55	95.94	3.600	No	Yes	2.00
499	36.17	15.54	3.21	4.09	1.00	6.80	12.98	88.35	3.600	No	Yes	2.00
500	36.24	14.22	3.23	3.84	1.00	6.13	13.50	82.76	3.600	No	Yes	2.00
501	36.33	13.58	3.25	3.84	1.00	5.79	14.00	81.11	3.600	No	Yes	2.00
502	36.42	13.58	3.26	3.97	1.00	5.77	14.22	82.08	3.600	No	Yes	2.00
503	36.52	14.05	3.21	3.32	1.00	5.99	12.88	77.16	3.600	No	Yes	2.00
504	36.61	15.40	3.13	2.85	1.00	6.64	11.27	74.88	3.600	No	Yes	2.00
505	36.70	17.73	3.06	2.69	1.00	7.78	9.87	76.79	3.600	No	Yes	2.00
506	36.78	20.23	3.06	3.31	1.00	8.99	9.83	88.43	3.600	No	Yes	2.00
507	36.85	18.24	3.19	4.64	1.00	7.99	12.41	99.18	3.600	No	Yes	2.00
508	36.87	20.20	3.15	4.68	1.00	8.95	11.61	103.88	3.600	No	Yes	2.00
509	36.91	23.23	3.07	4.28	1.00	10.43	10.08	105.17	3.600	No	Yes	2.00
510	36.97	31.40	2.86	3.30	0.87	15.73	6.66	104.77	4.000	Yes	Yes	2.00
511	37.06	35.24	2.80	3.11	0.85	17.97	5.86	105.20	4.000	Yes	Yes	2.00
512	37.12	38.62	2.76	3.10	0.84	19.91	5.42	107.91	4.000	Yes	Yes	2.00
513	37.20	42.40	2.74	3.17	0.83	22.04	5.10	112.33	4.000	Yes	Yes	2.00
514	37.27	47.56	2.69	3.09	0.81	25.06	4.56	114.30	4.000	Yes	Yes	2.00
515	37.35	52.21	2.63	2.89	0.80	27.88	4.03	112.42	4.000	Yes	Yes	2.00
516	37.44	55.22	2.59	2.66	0.78	29.75	3.64	108.21	4.000	Yes	No	2.00
517	37.49	58.42	2.53	2.39	0.77	31.83	3.23	102.76	4.000	Yes	No	2.00
518	37.59	67.19	2.43	2.02	0.74	37.46	2.56	95.81	4.000	Yes	No	2.00
519	37.64	85.65	2.27	1.57	0.69	49.64	1.82	90.11	4.000	Yes	No	2.00
520	37.70	111.29	2.10	1.20	0.64	67.10	1.41	94.79	4.000	Yes	No	2.00
521	37.78	136.59	1.96	0.98	0.60	84.81	1.28	108.37	4.000	Yes	No	2.00
522	37.83	155.69	1.88	0.87	0.57	98.45	1.22	120.19	4.000	Yes	No	2.00
523	37.92	167.53	1.83	0.82	0.56	106.83	1.19	126.68	4.000	Yes	No	2.00
524	37.97	174.58	1.81	0.81	0.55	111.69	1.17	130.53	4.000	Yes	No	2.00
525	38.07	178.80	1.81	0.82	0.55	114.34	1.16	133.13	0.299	No	No	0.90
526	38.14	181.84	1.81	0.85	0.55	116.07	1.17	135.64	0.312	No	No	0.94
527	38.22	185.72	1.82	0.88	0.55	118.33	1.17	138.68	0.328	No	No	0.99
528	38.31	191.72	1.82	0.92	0.55	121.94	1.17	143.23	0.353	No	No	1.06

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
529	38.41	201.37	1.80	0.92	0.55	128.37	1.16	148.66	0.386	No	No	1.16
530	38.52	212.64	1.79	0.92	0.54	135.94	1.14	154.32	0.422	No	No	1.27
531	38.64	221.04	1.77	0.91	0.54	141.59	1.11	157.41	0.443	No	No	1.33
532	38.74	217.87	1.79	0.95	0.54	138.67	1.14	158.10	0.448	No	No	1.34
533	38.80	214.19	1.81	0.99	0.55	135.62	1.16	157.57	0.444	No	No	1.33
534	38.89	210.42	1.83	1.04	0.56	132.43	1.18	156.57	0.437	No	No	1.31
535	38.94	213.65	1.83	1.05	0.56	134.37	1.18	158.84	0.453	No	No	1.36
536	39.03	213.59	1.84	1.10	0.56	133.74	1.19	159.69	0.459	No	No	1.37
537	39.13	213.25	1.86	1.15	0.57	132.81	1.21	160.46	0.464	No	No	1.39
538	39.23	211.36	1.88	1.22	0.57	130.76	1.22	160.12	0.462	No	No	1.38
539	39.35	207.85	1.90	1.28	0.58	127.69	1.24	158.27	0.449	No	No	1.34
540	39.42	201.04	1.93	1.34	0.59	122.59	1.26	154.08	0.420	No	No	1.26
541	39.51	192.09	1.96	1.40	0.60	116.15	1.28	148.22	0.383	No	No	1.14
542	39.60	181.50	1.99	1.45	0.61	108.71	1.30	141.37	0.343	No	No	1.02
543	39.70	172.83	2.02	1.50	0.61	102.65	1.32	135.85	0.313	No	No	0.93
544	39.78	164.63	2.04	1.53	0.62	97.07	1.35	130.75	0.288	No	No	0.86
545	39.90	157.35	2.06	1.56	0.63	92.05	1.37	126.28	0.267	No	No	0.80
546	39.99	149.05	2.09	1.60	0.64	86.44	1.41	121.65	0.247	No	No	0.74
547	40.09	141.42	2.12	1.64	0.64	81.31	1.45	117.75	4.000	Yes	No	2.00
548	40.18	133.79	2.15	1.68	0.65	76.23	1.50	114.33	4.000	Yes	No	2.00
549	40.23	126.04	2.18	1.74	0.66	71.16	1.56	111.30	4.000	Yes	No	2.00
550	40.33	118.01	2.22	1.81	0.67	65.88	1.65	108.90	4.000	Yes	No	2.00
551	40.43	110.12	2.25	1.88	0.68	60.74	1.76	107.17	4.000	Yes	No	2.00
552	40.52	101.85	2.31	2.03	0.70	55.31	1.95	107.68	4.000	Yes	No	2.00
553	40.61	92.44	2.36	2.12	0.71	49.44	2.15	106.53	4.000	Yes	No	2.00
554	40.69	80.59	2.43	2.30	0.74	42.14	2.54	106.96	4.000	Yes	No	2.00
555	40.80	68.65	2.51	2.44	0.76	35.01	3.03	106.21	4.000	Yes	No	2.00
556	40.87	59.91	2.58	2.61	0.78	29.84	3.59	107.20	4.000	Yes	No	2.00
557	40.95	53.47	2.64	2.76	0.80	26.09	4.12	107.50	4.000	Yes	Yes	2.00
558	40.97	51.37	2.65	2.73	0.80	24.94	4.24	105.79	4.000	Yes	Yes	2.00
559	41.01	54.31	2.61	2.50	0.79	26.70	3.81	101.77	4.000	Yes	Yes	2.00
560	41.07	61.80	2.51	2.12	0.76	31.20	3.04	94.92	4.000	Yes	No	2.00
561	41.15	67.40	2.44	1.89	0.74	34.61	2.61	90.47	4.000	Yes	No	2.00
562	41.26	67.13	2.44	1.87	0.74	34.39	2.61	89.74	0.147	No	No	0.44
563	41.35	63.05	2.48	1.98	0.75	31.86	2.87	91.40	0.151	No	No	0.45
564	41.47	60.28	2.52	2.09	0.76	30.09	3.10	93.27	0.155	No	No	0.46
565	41.59	59.67	2.53	2.13	0.77	29.62	3.18	94.19	0.158	No	No	0.47
566	41.69	60.42	2.53	2.16	0.77	29.94	3.18	95.29	0.160	No	No	0.48
567	41.78	59.17	2.55	2.27	0.77	29.08	3.36	97.63	0.167	No	No	0.49
568	41.88	54.75	2.61	2.48	0.79	26.41	3.82	100.94	3.600	No	Yes	2.00
569	41.98	49.45	2.67	2.69	0.81	23.32	4.43	103.21	3.600	No	Yes	2.00
570	42.08	45.13	2.72	2.83	0.83	20.88	4.96	103.54	3.600	No	Yes	2.00
571	42.16	44.32	2.73	2.78	0.83	20.43	4.99	102.01	3.600	No	Yes	2.00
572	42.24	47.12	2.68	2.60	0.81	21.98	4.53	99.69	3.600	No	Yes	2.00
573	42.31	52.25	2.62	2.38	0.79	24.86	3.91	97.23	3.600	No	Yes	2.00
574	42.45	56.94	2.57	2.24	0.78	27.44	3.48	95.61	0.161	No	No	0.48
575	42.55	59.37	2.54	2.18	0.77	28.78	3.30	94.91	0.160	No	No	0.47
576	42.60	59.78	2.54	2.18	0.77	28.96	3.29	95.14	0.160	No	No	0.47

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
577	42.70	59.34	2.55	2.25	0.77	28.59	3.38	96.60	0.164	No	No	0.48
578	42.81	57.38	2.59	2.39	0.78	27.33	3.64	99.43	0.171	No	No	0.51
579	42.89	53.57	2.64	2.62	0.80	25.06	4.12	103.15	3.600	No	Yes	2.00
580	42.98	48.27	2.71	2.91	0.82	22.02	4.84	106.61	3.600	No	Yes	2.00
581	43.08	43.14	2.79	3.21	0.84	19.16	5.69	108.99	3.600	No	Yes	2.00
582	43.17	40.44	2.83	3.35	0.86	17.68	6.18	109.35	3.600	No	Yes	2.00
583	43.27	41.05	2.81	3.20	0.85	18.01	5.94	107.03	3.600	No	Yes	2.00
584	43.37	43.81	2.71	2.52	0.82	19.71	4.84	95.48	3.600	No	Yes	2.00
585	43.50	46.82	2.61	1.93	0.79	21.62	3.86	83.44	3.600	No	Yes	2.00
586	43.61	48.54	2.54	1.53	0.77	22.85	3.24	73.95	0.118	No	No	0.35
587	43.74	49.31	2.54	1.57	0.77	23.16	3.25	75.29	0.120	No	No	0.35
588	43.79	49.31	2.56	1.72	0.78	22.99	3.44	79.06	0.126	No	No	0.37
589	43.86	48.47	2.60	1.95	0.79	22.31	3.79	84.59	3.600	No	Yes	2.00
590	43.94	47.05	2.66	2.26	0.81	21.30	4.28	91.16	3.600	No	Yes	2.00
591	44.00	44.89	2.72	2.63	0.82	19.92	4.92	98.08	3.600	No	Yes	2.00
592	44.08	42.33	2.78	2.98	0.84	18.39	5.62	103.37	3.600	No	Yes	2.00
593	44.17	38.85	2.85	3.30	0.86	16.48	6.45	106.26	3.600	No	Yes	2.00
594	44.27	35.44	2.90	3.43	0.88	14.71	7.14	105.00	3.600	No	Yes	2.00
595	44.42	34.16	2.90	3.25	0.88	14.09	7.15	100.72	3.600	No	Yes	2.00
596	44.52	37.10	2.82	2.76	0.85	15.69	6.06	95.03	3.600	No	Yes	2.00
597	44.61	44.15	2.68	2.18	0.81	19.52	4.49	87.72	3.600	No	Yes	2.00
598	44.71	51.91	2.57	1.87	0.78	23.77	3.51	83.46	0.134	No	No	0.40
599	44.85	56.66	2.53	1.83	0.77	26.27	3.19	83.87	0.135	No	No	0.40
600	44.95	57.30	2.55	1.98	0.77	26.40	3.34	88.11	0.144	No	No	0.42
601	45.09	54.98	2.59	2.17	0.79	24.92	3.69	92.06	0.153	No	No	0.45
602	45.19	50.09	2.66	2.39	0.81	22.17	4.29	95.00	3.600	No	Yes	2.00
603	45.33	43.44	2.76	2.73	0.83	18.53	5.31	98.48	3.600	No	Yes	2.00
604	45.42	37.17	2.85	3.08	0.86	15.25	6.56	100.02	3.600	No	Yes	2.00
605	45.57	34.20	2.90	3.17	0.88	13.74	7.18	98.64	3.600	No	Yes	2.00
606	45.68	32.58	2.91	3.02	0.88	12.98	7.29	94.66	3.600	No	Yes	2.00
607	45.81	30.45	2.91	2.71	0.88	12.02	7.30	87.72	3.600	No	Yes	2.00
608	45.92	26.54	3.01	2.83	1.00	9.26	8.96	82.93	3.600	No	Yes	2.00
609	46.05	22.29	3.11	3.22	1.00	7.59	10.87	82.51	3.600	No	Yes	2.00
610	46.16	19.32	3.23	4.05	1.00	6.43	13.40	86.12	3.600	No	Yes	2.00
611	46.17	17.73	3.28	4.34	1.00	5.82	14.71	85.57	3.600	No	Yes	2.00
612	46.23	17.46	3.28	4.24	1.00	5.70	14.75	84.09	3.600	No	Yes	2.00
613	46.29	16.85	3.29	4.16	1.00	5.46	15.02	82.02	3.600	No	Yes	2.00
614	46.34	16.04	3.31	3.98	1.00	5.15	15.32	78.81	3.600	No	Yes	2.00
615	46.42	15.30	3.31	3.71	1.00	4.85	15.44	74.90	3.600	No	Yes	2.00
616	46.48	14.90	3.30	3.33	1.00	4.69	15.10	70.80	3.600	No	Yes	2.00
617	46.52	14.69	3.28	3.04	1.00	4.61	14.73	67.86	3.600	No	Yes	2.00
618	46.60	14.56	3.27	2.84	1.00	4.55	14.47	65.79	3.600	No	Yes	2.00
619	46.67	14.49	3.26	2.68	1.00	4.51	14.23	64.21	3.600	No	Yes	2.00
620	46.74	14.45	3.25	2.57	1.00	4.49	14.03	63.02	3.600	No	Yes	2.00
621	46.82	14.42	3.25	2.46	1.00	4.47	13.84	61.88	3.600	No	Yes	2.00
622	46.88	14.19	3.25	2.42	1.00	4.37	13.96	61.07	3.600	No	Yes	2.00
623	46.96	14.10	3.25	2.39	1.00	4.33	13.99	60.61	3.600	No	Yes	2.00
624	47.06	13.97	3.26	2.41	1.00	4.27	14.16	60.52	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
625	47.15	14.11	3.26	2.45	1.00	4.31	14.15	61.03	3.600	No	Yes	2.00
626	47.24	14.43	3.28	2.83	1.00	4.42	14.72	65.10	3.600	No	Yes	2.00
627	47.35	16.18	3.29	3.62	1.00	5.07	14.87	75.39	3.600	No	Yes	2.00
628	47.49	19.69	3.20	3.51	1.00	6.36	12.67	80.67	3.600	No	Yes	2.00
629	47.58	24.11	3.09	3.10	1.00	8.00	10.33	82.65	3.600	No	Yes	2.00
630	47.73	26.03	3.03	2.80	1.00	8.69	9.32	80.95	3.600	No	Yes	2.00
631	47.83	27.06	3.02	2.79	1.00	9.05	9.05	81.84	3.600	No	Yes	2.00
632	47.87	26.18	3.04	2.97	1.00	8.71	9.55	83.19	3.600	No	Yes	2.00
633	47.89	26.93	3.02	2.82	1.00	8.98	9.14	82.12	3.600	No	Yes	2.00
634	47.94	26.64	3.02	2.81	1.00	8.87	9.20	81.59	3.600	No	Yes	2.00
635	48.02	26.81	3.02	2.75	1.00	8.91	9.08	80.90	3.600	No	Yes	2.00
636	48.07	26.40	3.03	2.79	1.00	8.75	9.26	81.07	3.600	No	Yes	2.00
637	48.12	25.97	3.05	2.94	1.00	8.58	9.61	82.45	3.600	No	Yes	2.00
638	48.18	25.43	3.07	3.12	1.00	8.37	10.05	84.09	3.600	No	Yes	2.00
639	48.26	25.01	3.09	3.28	1.00	8.20	10.42	85.42	3.600	No	Yes	2.00
640	48.31	24.60	3.10	3.27	1.00	8.04	10.54	84.77	3.600	No	Yes	2.00
641	48.38	24.56	3.08	3.09	1.00	8.01	10.30	82.58	3.600	No	Yes	2.00
642	48.46	24.71	3.06	2.82	1.00	8.05	9.85	79.31	3.600	No	Yes	2.00
643	48.52	24.41	3.05	2.59	1.00	7.93	9.58	75.99	3.600	No	Yes	2.00
644	48.60	23.16	3.05	2.42	1.00	7.46	9.70	72.40	3.600	No	Yes	2.00
645	48.68	20.77	3.10	2.41	1.00	6.57	10.59	69.64	3.600	No	Yes	2.00
646	48.74	18.20	3.17	2.55	1.00	5.63	12.04	67.76	3.600	No	Yes	2.00
647	48.82	15.94	3.25	2.86	1.00	4.80	14.01	67.24	3.600	No	Yes	2.00
648	48.89	14.56	3.31	3.07	1.00	4.29	15.49	66.41	3.600	No	Yes	2.00
649	48.99	13.82	3.34	3.08	1.00	4.01	16.21	64.98	3.600	No	Yes	2.00
650	49.05	13.65	3.32	2.83	1.00	3.94	15.85	62.48	3.600	No	Yes	2.00
651	49.12	13.51	3.31	2.54	1.00	3.89	15.38	59.74	3.600	No	Yes	2.00
652	49.18	13.55	3.28	2.25	1.00	3.89	14.70	57.20	3.600	No	Yes	2.00
653	49.27	13.75	3.26	2.06	1.00	3.96	14.08	55.71	3.600	No	Yes	2.00
654	49.32	13.92	3.24	1.91	1.00	4.01	13.56	54.42	3.600	No	Yes	2.00
655	49.42	13.55	3.25	1.92	1.00	3.87	13.92	53.88	3.600	No	Yes	2.00
656	49.48	13.11	3.27	1.97	1.00	3.71	14.46	53.63	3.600	No	Yes	2.00
657	49.56	13.01	3.28	2.04	1.00	3.66	14.76	54.09	3.600	No	Yes	2.00
658	49.66	13.28	3.28	2.12	1.00	3.75	14.73	55.25	3.600	No	Yes	2.00
659	49.76	13.68	3.27	2.16	1.00	3.89	14.49	56.33	3.600	No	Yes	2.00
660	49.85	14.06	3.23	1.87	1.00	4.01	13.46	54.00	3.600	No	Yes	2.00
661	49.99	14.87	3.17	1.52	1.00	4.29	11.96	51.28	3.600	No	Yes	2.00
662	50.09	14.43	3.16	1.38	1.00	4.12	11.90	49.07	3.600	No	Yes	2.00
663	50.21	13.82	3.21	1.57	1.00	3.89	12.94	50.39	3.600	No	Yes	2.00
664	50.24	13.21	3.24	1.66	1.00	3.68	13.72	50.47	3.600	No	Yes	2.00
665	50.29	13.59	3.21	1.54	1.00	3.81	13.05	49.66	3.600	No	Yes	2.00
666	50.38	13.69	3.20	1.45	1.00	3.83	12.73	48.82	3.600	No	Yes	2.00
667	50.47	13.39	3.21	1.45	1.00	3.72	13.00	48.36	3.600	No	Yes	2.00
668	50.52	12.98	3.24	1.53	1.00	3.57	13.61	48.61	3.600	No	Yes	2.00
669	50.62	13.01	3.24	1.57	1.00	3.58	13.73	49.09	3.600	No	Yes	2.00
670	50.66	13.15	3.24	1.60	1.00	3.62	13.70	49.58	3.600	No	Yes	2.00
671	50.76	13.28	3.24	1.64	1.00	3.66	13.70	50.11	3.600	No	Yes	2.00
672	50.83	14.13	3.21	1.63	1.00	3.95	12.99	51.29	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
673	50.91	14.30	3.23	1.81	1.00	4.00	13.34	53.36	3.600	No	Yes	2.00
674	51.00	15.61	3.19	1.82	1.00	4.45	12.42	55.29	3.600	No	Yes	2.00
675	51.06	17.36	3.13	1.78	1.00	5.06	11.27	56.99	3.600	No	Yes	2.00
676	51.15	17.67	3.16	2.10	1.00	5.15	11.86	61.08	3.600	No	Yes	2.00
677	51.24	16.35	3.27	2.96	1.00	4.68	14.43	67.57	3.600	No	Yes	2.00
678	51.31	12.88	3.51	5.15	1.00	3.47	21.69	75.27	3.600	No	Yes	2.00
679	51.39	18.55	3.28	3.96	1.00	5.43	14.77	80.15	3.600	No	Yes	2.00
680	51.48	32.14	2.90	2.47	0.88	11.43	7.23	82.64	3.600	No	Yes	2.00
681	51.58	35.38	2.87	2.60	0.87	12.78	6.83	87.30	3.600	No	Yes	2.00
682	51.68	27.82	3.10	3.71	1.00	8.59	10.70	91.85	3.600	No	Yes	2.00
683	51.77	17.84	3.45	6.98	1.00	5.13	19.49	100.06	3.600	No	Yes	2.00
684	51.90	36.80	3.02	4.07	1.00	11.62	9.16	106.47	3.600	No	Yes	2.00
685	52.01	74.42	2.58	2.71	0.78	30.49	3.61	110.20	4.000	Yes	No	2.00
686	52.11	128.50	2.34	2.42	0.71	57.50	2.11	121.05	4.000	Yes	No	2.00
687	52.26	161.87	2.25	2.35	0.68	74.64	1.77	131.90	4.000	Yes	No	2.00
688	52.30	209.17	2.12	2.06	0.65	100.78	1.45	146.55	4.000	Yes	No	2.00
689	52.33	248.44	2.00	1.70	0.61	124.60	1.31	162.63	4.000	Yes	No	2.00
690	52.35	302.93	1.87	1.40	0.57	158.50	1.21	192.22	4.000	Yes	No	2.00
691	52.40	347.53	1.78	1.23	0.54	187.07	1.12	209.95	4.000	Yes	No	2.00
692	52.45	381.51	1.72	1.16	0.53	208.63	1.04	216.58	4.000	Yes	No	2.00
693	52.50	415.58	1.69	1.13	0.51	229.89	1.00	229.89	4.000	No	No	2.00
694	52.55	447.33	1.67	1.14	0.51	248.98	1.00	248.98	4.000	No	No	2.00
695	52.60	486.53	1.63	1.11	0.50	273.15	1.00	273.15	4.000	No	No	2.00
696	52.65	516.02	1.60	1.04	0.50	289.64	1.00	289.64	4.000	No	No	2.00
697	52.71	531.14	1.57	0.97	0.50	297.95	1.00	297.95	4.000	No	No	2.00
698	52.77	541.83	1.53	0.90	0.50	303.79	1.00	303.79	4.000	No	No	2.00
699	52.82	558.50	1.51	0.85	0.50	312.99	1.00	312.99	4.000	No	No	2.00
700	52.88	578.13	1.48	0.81	0.50	323.84	1.00	323.84	4.000	No	No	2.00
701	52.93	592.07	1.46	0.79	0.50	331.46	1.00	331.46	4.000	No	No	2.00
702	52.98	605.70	1.46	0.78	0.50	338.95	1.00	338.95	4.000	No	No	2.00
703	53.03	608.64	1.46	0.79	0.50	340.39	1.00	340.39	4.000	No	No	2.00
704	53.08	608.27	1.46	0.80	0.50	340.01	1.00	340.01	4.000	No	No	2.00
705	53.12	601.01	1.47	0.80	0.50	335.78	1.00	335.78	4.000	No	No	2.00
706	53.17	598.22	1.46	0.78	0.50	333.99	1.00	333.99	4.000	No	No	2.00
707	53.23	600.71	1.45	0.76	0.50	335.19	1.00	335.19	4.000	No	No	2.00
708	53.28	596.23	1.47	0.79	0.50	332.45	1.00	332.45	4.000	No	No	2.00
709	53.37	588.50	1.48	0.83	0.50	327.80	1.00	327.80	4.000	No	No	2.00
710	53.42	584.11	1.50	0.86	0.50	325.17	1.00	325.17	4.000	No	No	2.00
711	53.46	586.81	1.52	0.90	0.50	326.50	1.00	326.50	4.000	No	No	2.00
712	53.53	599.03	1.53	0.96	0.50	333.09	1.00	333.09	4.000	No	No	2.00
713	53.61	597.34	1.56	1.05	0.50	331.84	1.00	331.84	4.000	No	No	2.00
714	53.62	582.26	1.60	1.13	0.50	323.39	1.00	323.39	4.000	No	No	2.00
715	53.65	574.05	1.60	1.15	0.50	318.67	1.00	318.67	4.000	No	No	2.00
716	53.67	571.35	1.61	1.16	0.50	317.12	1.00	317.12	4.000	No	No	2.00
717	53.70	583.83	1.59	1.12	0.50	323.95	1.00	323.95	4.000	No	No	2.00
718	53.74	582.83	1.60	1.14	0.50	323.26	1.00	323.26	4.000	No	No	2.00
719	53.76	583.81	1.60	1.14	0.50	323.74	1.00	323.74	4.000	No	No	2.00
720	53.80	581.08	1.59	1.13	0.50	322.06	1.00	322.06	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
721	53.84	577.81	1.59	1.10	0.50	320.07	1.00	320.07	4.000	No	No	2.00
722	53.90	578.23	1.58	1.07	0.50	320.12	1.00	320.12	4.000	No	No	2.00
723	53.91	570.20	1.59	1.08	0.50	315.61	1.00	315.61	4.000	No	No	2.00
724	53.95	573.64	1.58	1.08	0.50	317.38	1.00	317.38	4.000	No	No	2.00
725	53.96	579.94	1.58	1.07	0.50	320.83	1.00	320.83	4.000	No	No	2.00
726	53.98	601.06	1.56	1.04	0.50	332.48	1.00	332.48	4.000	No	No	2.00
727	53.99	602.95	1.56	1.03	0.50	333.50	1.00	333.50	4.000	No	No	2.00
728	54.01	592.15	1.57	1.05	0.50	327.46	1.00	327.46	4.000	No	No	2.00
729	54.02	579.33	1.58	1.08	0.50	320.31	1.00	320.31	4.000	No	No	2.00
730	54.03	553.15	1.61	1.13	0.50	305.74	1.00	305.74	4.000	No	No	2.00
731	54.04	504.84	1.67	1.24	0.51	276.21	1.00	276.21	4.000	No	No	2.00
732	54.05	452.17	1.75	1.40	0.53	241.19	1.08	260.14	4.000	No	No	2.00
733	54.09	422.63	1.79	1.51	0.55	221.81	1.15	254.46	4.000	No	No	2.00
734	54.10	421.59	1.80	1.53	0.55	220.94	1.15	254.57	4.000	No	No	2.00
735	54.13	421.89	1.80	1.53	0.55	221.06	1.15	254.64	4.000	No	No	2.00
736	54.14	420.96	1.80	1.54	0.55	220.34	1.16	254.59	4.000	No	No	2.00
737	54.19	422.82	1.80	1.54	0.55	221.19	1.16	255.77	4.000	No	No	2.00
738	54.19	428.79	1.80	1.55	0.55	224.52	1.15	258.95	4.000	No	No	2.00
739	54.24	439.22	1.77	1.47	0.54	231.86	1.12	259.93	4.000	No	No	2.00
740	54.29	456.97	1.71	1.29	0.52	245.94	1.02	249.88	4.000	No	No	2.00
741	54.33	474.10	1.64	1.08	0.50	261.31	1.00	261.31	4.000	No	No	2.00
742	54.38	494.95	1.57	0.92	0.50	272.80	1.00	272.80	4.000	No	No	2.00
743	54.39	512.70	1.53	0.85	0.50	282.62	1.00	282.62	4.000	No	No	2.00
744	54.43	529.13	1.52	0.84	0.50	291.66	1.00	291.66	4.000	No	No	2.00
745	54.48	543.10	1.44	0.67	0.50	299.32	1.00	299.32	4.000	No	No	2.00
746	54.52	556.66	1.36	0.53	0.50	306.76	1.00	306.76	4.000	No	No	2.00
747	54.58	573.87	1.26	0.38	0.50	316.20	1.00	316.20	4.000	No	No	2.00
748	54.62	587.13	1.28	0.42	0.50	323.46	1.00	323.46	4.000	No	No	2.00
749	54.65	604.44	1.29	0.46	0.50	333.00	1.00	333.00	4.000	No	No	2.00
750	54.67	623.33	1.30	0.48	0.50	343.41	1.00	343.41	4.000	No	No	2.00
751	54.71	658.15	1.28	0.48	0.50	362.60	1.00	362.60	4.000	No	No	2.00
752	54.77	679.34	1.20	0.37	0.50	374.21	1.00	374.21	4.000	No	No	2.00
753	54.81	702.99	1.11	0.28	0.50	387.19	1.00	387.19	4.000	No	No	2.00
754	54.85	704.07	1.04	0.22	0.50	387.70	1.00	387.70	4.000	No	No	2.00
755	54.86	709.13	1.06	0.24	0.50	390.48	1.00	390.48	4.000	No	No	2.00
756	54.87	703.33	1.09	0.27	0.50	387.26	1.00	387.26	4.000	No	No	2.00
757	54.91	703.66	1.13	0.30	0.50	387.35	1.00	387.35	4.000	No	No	2.00
758	54.96	707.14	1.16	0.34	0.50	389.17	1.00	389.17	4.000	No	No	2.00
759	55.00	703.19	1.18	0.36	0.50	386.89	1.00	386.89	4.000	No	No	2.00
760	55.01	695.84	1.19	0.37	0.50	382.82	1.00	382.82	4.000	No	No	2.00
761	55.05	679.11	1.21	0.39	0.50	373.47	1.00	373.47	4.000	No	No	2.00
762	55.10	651.07	1.24	0.42	0.50	357.87	1.00	357.87	4.000	No	No	2.00
763	55.12	603.77	1.29	0.46	0.50	331.72	1.00	331.72	4.000	No	No	2.00
764	55.13	570.97	1.33	0.49	0.50	313.58	1.00	313.58	4.000	No	No	2.00
765	55.14	563.11	1.33	0.48	0.50	309.22	1.00	309.22	4.000	No	No	2.00
766	55.19	576.91	1.31	0.46	0.50	316.75	1.00	316.75	4.000	No	No	2.00
767	55.20	576.27	1.31	0.46	0.50	316.38	1.00	316.38	4.000	No	No	2.00
768	55.25	562.13	1.33	0.48	0.50	308.48	1.00	308.48	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
769	55.29	546.07	1.37	0.52	0.50	299.55	1.00	299.55	4.000	No	No	2.00
770	55.33	519.69	1.42	0.59	0.50	284.92	1.00	284.92	4.000	No	No	2.00
771	55.38	481.16	1.52	0.76	0.50	263.59	1.00	263.59	4.000	No	No	2.00
772	55.48	439.32	1.63	0.99	0.50	240.38	1.00	240.38	4.000	No	No	2.00
773	55.57	411.39	1.73	1.22	0.53	218.55	1.04	227.87	4.000	No	No	2.00
774	55.63	398.09	1.80	1.45	0.55	206.42	1.15	237.94	4.000	No	No	2.00
775	55.72	402.04	1.83	1.60	0.56	206.08	1.19	244.53	4.000	No	No	2.00
776	55.80	431.09	1.82	1.63	0.55	221.88	1.17	260.68	4.000	No	No	2.00
777	55.86	480.55	1.67	1.19	0.51	259.76	1.00	259.76	4.000	No	No	2.00
778	55.97	527.85	1.51	0.79	0.50	288.32	1.00	288.32	4.000	No	No	2.00
779	56.01	560.55	1.34	0.49	0.50	306.20	1.00	306.20	4.000	No	No	2.00
780	56.06	587.84	1.50	0.47	1.00	186.61	1.00	186.61	0.684	No	No	2.00
781	56.11	613.11	1.50	0.51	1.00	194.57	1.00	194.57	0.765	No	No	2.00
782	56.15	640.71	1.51	0.55	1.00	203.27	1.00	203.27	4.000	No	No	2.00
783	56.20	660.92	1.52	0.59	1.00	209.60	1.00	209.60	4.000	No	No	2.00
784	56.27	663.16	1.53	0.63	1.00	210.15	1.00	210.15	4.000	No	No	2.00
785	56.27	664.17	1.56	0.69	1.00	210.45	1.00	210.45	4.000	No	No	2.00
786	56.30	642.20	1.61	0.79	1.00	203.39	1.00	203.39	4.000	No	No	2.00
787	56.33	649.54	1.64	0.87	1.00	205.64	1.00	205.64	4.000	No	No	2.00
788	56.35	647.65	1.66	0.92	1.00	205.00	1.00	205.00	4.000	No	No	2.00
789	56.40	667.86	1.64	0.90	1.00	211.31	1.00	211.31	4.000	No	No	2.00
790	56.41	669.34	1.64	0.90	1.00	211.76	1.00	211.76	4.000	No	No	2.00
791	56.44	681.53	1.63	0.88	1.00	215.53	1.00	215.53	4.000	No	No	2.00
792	56.49	695.19	1.62	0.87	1.00	219.75	1.00	219.75	4.000	No	No	2.00
793	56.54	717.49	1.61	0.87	1.00	226.71	1.00	226.71	4.000	No	No	2.00
794	56.58	737.23	1.61	0.89	1.00	232.85	1.00	232.85	4.000	No	No	2.00
795	56.59	750.18	1.61	0.91	1.00	236.93	1.00	236.93	4.000	No	No	2.00
796	56.64	757.34	1.60	0.90	1.00	239.07	1.00	239.07	4.000	No	No	2.00
797	56.69	764.80	1.60	0.90	1.00	241.29	1.00	241.29	4.000	No	No	2.00
798	56.73	778.16	1.59	0.88	1.00	245.40	1.00	245.40	4.000	No	No	2.00
799	56.78	778.56	1.58	0.86	1.00	245.38	1.00	245.38	4.000	No	No	2.00
800	56.83	759.53	1.58	0.83	1.00	239.22	1.00	239.22	4.000	No	No	2.00
801	56.88	731.80	1.58	0.82	1.00	230.32	1.00	230.32	4.000	No	No	2.00
802	56.89	708.89	1.60	0.82	1.00	223.03	1.00	223.03	4.000	No	No	2.00
803	56.95	692.53	1.59	0.80	1.00	217.71	1.00	217.71	4.000	No	No	2.00
804	57.01	668.00	1.59	0.77	1.00	209.81	1.00	209.81	4.000	No	No	2.00
805	57.07	645.94	1.58	0.71	1.00	202.70	1.00	202.70	4.000	No	No	2.00
806	57.11	619.45	1.52	0.54	1.00	194.25	1.00	194.25	0.762	No	No	2.00
807	57.17	598.63	1.46	0.41	1.00	187.56	1.00	187.56	0.694	No	No	2.00
808	57.26	574.07	1.37	0.26	1.00	179.66	1.00	179.66	0.619	No	No	1.89
809	57.31	547.05	1.43	0.31	1.00	171.06	1.00	171.06	0.546	No	No	1.67
810	57.37	520.16	1.45	0.32	1.00	162.50	1.00	162.50	0.479	No	No	1.46
811	57.45	490.27	1.51	0.38	1.00	152.96	1.00	152.96	0.413	No	No	1.26
812	57.51	451.30	1.55	0.39	1.00	140.63	1.00	140.63	0.339	No	No	1.03
813	57.53	421.54	1.59	0.41	1.00	131.27	1.00	131.27	0.290	No	No	0.89
814	57.59	401.40	1.62	0.43	1.00	124.87	1.00	124.87	0.261	No	No	0.80
815	57.63	398.96	1.62	0.43	1.00	124.05	1.00	124.05	0.258	No	No	0.79
816	57.68	391.51	1.63	0.44	1.00	121.66	1.00	121.66	0.247	No	No	0.76

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
817	57.73	386.48	1.64	0.44	1.00	120.01	1.00	120.01	0.241	No	No	0.74
818	57.78	379.02	1.65	0.44	1.00	117.62	1.00	117.62	0.231	No	No	0.71
819	57.86	359.96	1.66	0.43	1.00	111.55	1.00	111.55	0.209	No	No	0.64
820	57.92	326.32	1.71	0.47	1.00	100.97	1.00	100.97	4.000	Yes	No	2.00
821	57.98	290.83	1.76	0.47	1.00	89.82	1.00	89.82	4.000	Yes	No	2.00
822	58.06	263.33	1.82	0.53	1.00	81.16	1.18	95.51	4.000	Yes	No	2.00
823	58.12	242.92	1.90	0.64	1.00	74.75	1.24	92.39	4.000	Yes	No	2.00
824	58.21	222.41	1.99	0.82	1.00	68.28	1.30	88.73	4.000	Yes	No	2.00
825	58.26	204.43	2.06	0.97	1.00	62.64	1.37	85.71	4.000	Yes	No	2.00
826	58.35	180.37	2.14	1.08	1.00	55.10	1.48	81.38	4.000	Yes	No	2.00
827	58.41	154.93	2.19	1.08	1.00	47.15	1.59	74.91	4.000	Yes	No	2.00
828	58.50	122.84	2.29	1.16	1.00	37.13	1.90	70.73	4.000	Yes	No	2.00
829	58.56	98.18	2.38	1.18	1.00	29.45	2.28	67.27	4.000	Yes	No	2.00
830	58.64	77.90	2.53	1.55	1.00	23.14	3.23	74.61	4.000	Yes	No	2.00
831	58.73	63.67	2.66	1.93	1.00	18.70	4.34	81.15	4.000	Yes	Yes	2.00
832	58.80	51.12	2.80	2.41	1.00	14.80	5.89	87.16	4.000	Yes	Yes	2.00
833	58.84	42.24	2.93	2.94	1.00	12.04	7.59	91.44	4.000	Yes	Yes	2.00
834	58.85	43.79	2.90	2.86	1.00	12.52	7.27	91.06	3.600	No	Yes	2.00
835	58.93	50.50	2.81	2.45	1.00	14.59	6.00	87.49	3.600	No	Yes	2.00
836	58.98	58.12	2.72	2.06	1.00	16.94	4.87	82.49	3.600	No	Yes	2.00
837	59.02	61.77	2.67	1.86	1.00	18.06	4.38	79.02	3.600	No	Yes	2.00
838	59.12	63.39	2.65	1.79	1.00	18.54	4.19	77.74	3.600	No	Yes	2.00
839	59.17	65.41	2.64	1.79	1.00	19.15	4.09	78.34	3.600	No	Yes	2.00
840	59.27	67.33	2.63	1.85	1.00	19.73	4.06	80.06	3.600	No	Yes	2.00
841	59.31	67.64	2.64	1.94	1.00	19.81	4.15	82.31	3.600	No	Yes	2.00
842	59.41	64.84	2.68	2.06	1.00	18.93	4.46	84.40	3.600	No	Yes	2.00
843	59.46	57.99	2.74	2.22	1.00	16.81	5.11	85.91	3.600	No	Yes	2.00
844	59.55	48.77	2.83	2.45	1.00	13.96	6.20	86.53	3.600	No	Yes	2.00
845	59.65	39.66	2.91	2.48	1.00	11.14	7.37	82.12	3.600	No	Yes	2.00
846	59.70	34.25	2.97	2.47	1.00	9.47	8.28	78.48	3.600	No	Yes	2.00
847	59.80	32.07	2.99	2.40	1.00	8.80	8.61	75.77	3.600	No	Yes	2.00
848	59.89	32.04	3.01	2.66	1.00	8.78	9.03	79.29	3.600	No	Yes	2.00
849	59.94	31.04	3.06	2.98	1.00	8.47	9.76	82.68	3.600	No	Yes	2.00
850	60.01	30.35	3.09	3.25	1.00	8.25	10.33	85.21	3.600	No	Yes	2.00
851	60.02	32.64	3.04	3.10	1.00	8.95	9.57	85.70	3.600	No	Yes	2.00
852	60.08	35.54	2.99	2.84	1.00	9.83	8.61	84.70	3.600	No	Yes	2.00
853	60.12	36.56	2.97	2.70	1.00	10.14	8.23	83.40	3.600	No	Yes	2.00
854	60.17	32.87	3.01	2.76	1.00	9.01	9.03	81.32	3.600	No	Yes	2.00
855	60.27	28.56	3.07	2.73	1.00	7.68	10.03	76.99	3.600	No	Yes	2.00
856	60.31	24.81	3.12	2.61	1.00	6.53	11.00	71.83	3.600	No	Yes	2.00
857	60.37	22.21	3.15	2.46	1.00	5.73	11.72	67.16	3.600	No	Yes	2.00
858	60.46	20.93	3.17	2.32	1.00	5.33	12.03	64.16	3.600	No	Yes	2.00
859	60.51	20.76	3.15	2.06	1.00	5.28	11.57	61.05	3.600	No	Yes	2.00
860	60.61	21.43	3.11	1.87	1.00	5.48	10.86	59.48	3.600	No	Yes	2.00
861	60.65	21.84	3.09	1.76	1.00	5.60	10.44	58.49	3.600	No	Yes	2.00
862	60.75	22.18	3.08	1.74	1.00	5.70	10.27	58.52	3.600	No	Yes	2.00
863	60.81	22.25	3.08	1.74	1.00	5.72	10.24	58.52	3.600	No	Yes	2.00
864	60.89	22.21	3.08	1.71	1.00	5.70	10.20	58.14	3.600	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
865	60.94	22.45	3.07	1.71	1.00	5.77	10.12	58.37	3.600	No	Yes	2.00
866	61.03	22.62	3.08	1.77	1.00	5.81	10.19	59.27	3.600	No	Yes	2.00
867	61.09	22.65	3.08	1.79	1.00	5.82	10.23	59.56	3.600	No	Yes	2.00
868	61.19	22.38	3.08	1.78	1.00	5.74	10.30	59.09	3.600	No	Yes	2.00
869	61.24	22.96	3.06	1.69	1.00	5.91	9.90	58.48	3.600	No	Yes	2.00
870	61.33	24.51	3.03	1.68	1.00	6.37	9.35	59.55	3.600	No	Yes	2.00
871	61.38	24.20	3.09	2.19	1.00	6.28	10.50	65.92	3.600	No	Yes	2.00
872	61.47	23.16	3.18	2.97	1.00	5.95	12.35	73.50	3.600	No	Yes	2.00
873	61.53	21.88	3.28	3.99	1.00	5.56	14.59	81.14	3.600	No	Yes	2.00
874	61.62	27.61	3.13	3.27	1.00	7.29	11.24	81.97	3.600	No	Yes	2.00
875	61.70	44.48	2.86	2.37	1.00	12.39	6.68	82.73	3.600	No	Yes	2.00
876	61.77	66.81	2.67	2.07	1.00	19.14	4.44	84.93	3.600	No	Yes	2.00
877	61.86	81.96	2.60	2.12	1.00	23.70	3.78	89.66	3.600	No	Yes	2.00
878	61.95	81.02	2.63	2.34	1.00	23.39	4.06	94.89	3.600	No	Yes	2.00
879	61.97	72.62	2.69	2.53	1.00	20.85	4.65	96.91	3.600	No	Yes	2.00
880	62.01	62.36	2.78	2.84	1.00	17.75	5.62	99.66	4.000	No	Yes	2.00
881	62.10	52.17	2.87	3.09	1.00	14.66	6.77	99.23	4.000	Yes	Yes	2.00
882	62.24	55.41	2.79	2.50	1.00	15.61	5.76	89.92	4.000	Yes	Yes	2.00
883	62.34	87.70	2.48	1.40	1.00	25.31	2.83	71.54	4.000	Yes	No	2.00
884	62.49	127.58	2.25	0.95	1.00	37.26	1.74	64.77	4.000	Yes	No	2.00
885	62.54	164.52	2.11	0.82	1.00	48.34	1.44	69.68	4.000	Yes	No	2.00
886	62.66	181.39	2.07	0.78	1.00	53.35	1.37	73.33	4.000	Yes	No	2.00
887	62.74	199.68	2.02	0.75	1.00	58.78	1.33	77.94	4.000	Yes	No	2.00
888	62.87	211.65	1.99	0.72	1.00	62.29	1.30	80.99	4.000	No	No	2.00
889	62.92	217.18	1.98	0.72	1.00	63.92	1.29	82.65	4.000	No	No	2.00
890	63.03	219.18	1.98	0.73	1.00	64.44	1.29	83.41	4.000	No	No	2.00
891	63.15	218.06	1.99	0.76	1.00	64.03	1.30	83.38	4.000	No	No	2.00
892	63.26	213.11	2.01	0.79	1.00	62.49	1.32	82.35	4.000	No	No	2.00
893	63.37	206.70	2.03	0.82	1.00	60.51	1.34	80.92	4.000	No	No	2.00
894	63.45	200.15	2.04	0.79	1.00	58.51	1.34	78.49	4.000	No	No	2.00
895	63.54	197.59	2.02	0.71	1.00	57.70	1.32	76.31	4.000	No	No	2.00
896	63.61	190.30	2.02	0.68	1.00	55.49	1.33	73.61	4.000	Yes	No	2.00
897	63.69	172.04	2.08	0.74	1.00	50.02	1.39	69.47	4.000	Yes	No	2.00
898	63.79	141.71	2.22	0.97	1.00	40.98	1.65	67.77	4.000	Yes	No	2.00
899	63.89	106.15	2.36	1.15	1.00	30.39	2.20	66.74	4.000	Yes	No	2.00
900	63.98	75.22	2.55	1.47	1.00	21.20	3.37	71.48	4.000	Yes	No	2.00
901	64.07	53.15	2.72	1.67	1.00	14.65	4.91	71.91	4.000	Yes	Yes	2.00
902	64.15	39.12	2.91	2.21	1.00	10.48	7.30	76.48	4.000	Yes	Yes	2.00
903	64.23	29.98	3.07	2.76	1.00	7.77	10.00	77.68	4.000	No	Yes	2.00
904	64.26	25.15	3.18	3.28	1.00	6.34	12.34	78.26	4.000	No	Yes	2.00
905	64.29	23.57	3.22	3.48	1.00	5.87	13.31	78.14	4.000	No	Yes	2.00
906	64.33	23.37	3.21	3.17	1.00	5.81	12.89	74.86	4.000	No	Yes	2.00
907	64.43	22.99	3.19	2.81	1.00	5.69	12.43	70.78	4.000	No	Yes	2.00
908	64.47	22.29	3.17	2.45	1.00	5.48	12.05	66.07	4.000	No	Yes	2.00
909	64.53	21.82	3.17	2.32	1.00	5.34	12.01	64.15	4.000	No	Yes	2.00
910	64.62	20.60	3.20	2.39	1.00	4.98	12.74	63.40	4.000	No	Yes	2.00
911	64.72	19.12	3.25	2.57	1.00	4.53	13.95	63.23	4.000	No	Yes	2.00
912	64.78	18.00	3.30	2.81	1.00	4.20	15.17	63.74	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
913	64.86	18.21	3.30	2.92	1.00	4.26	15.26	65.01	4.000	No	Yes	2.00
914	64.96	18.78	3.31	3.20	1.00	4.42	15.44	68.31	4.000	No	Yes	2.00
915	65.06	19.22	3.32	3.52	1.00	4.55	15.74	71.61	4.000	No	Yes	2.00
916	65.11	19.22	3.34	3.90	1.00	4.55	16.41	74.58	4.000	No	Yes	2.00
917	65.21	18.85	3.37	4.16	1.00	4.43	17.13	75.90	4.000	No	Yes	2.00
918	65.31	18.45	3.39	4.32	1.00	4.31	17.70	76.26	4.000	No	Yes	2.00
919	65.40	18.28	3.37	3.90	1.00	4.25	17.10	72.77	4.000	No	Yes	2.00
920	65.50	18.58	3.32	3.22	1.00	4.34	15.67	67.97	4.000	No	Yes	2.00
921	65.58	19.02	3.26	2.59	1.00	4.46	14.15	63.13	4.000	No	Yes	2.00
922	65.68	19.05	3.24	2.38	1.00	4.47	13.69	61.17	4.000	No	Yes	2.00
923	65.78	17.67	3.29	2.52	1.00	4.06	14.89	60.45	4.000	No	Yes	2.00
924	65.84	16.40	3.34	2.66	1.00	3.69	16.19	59.69	4.000	No	Yes	2.00
925	65.86	15.56	3.38	2.83	1.00	3.44	17.33	59.62	4.000	No	Yes	2.00
926	65.87	16.51	3.33	2.60	1.00	3.72	15.97	59.36	4.000	No	Yes	2.00
927	65.98	17.26	3.29	2.44	1.00	3.93	15.03	59.09	4.000	No	Yes	2.00
928	66.10	17.84	3.28	2.46	1.00	4.09	14.69	60.13	4.000	No	Yes	2.00
929	66.21	18.21	3.29	2.65	1.00	4.20	14.85	62.32	4.000	No	Yes	2.00
930	66.34	18.48	3.28	2.68	1.00	4.27	14.76	63.01	4.000	No	Yes	2.00
931	66.48	19.00	3.27	2.66	1.00	4.42	14.39	63.55	4.000	No	Yes	2.00
932	66.62	18.46	3.28	2.63	1.00	4.25	14.69	62.45	4.000	No	Yes	2.00
933	66.68	18.67	3.29	2.78	1.00	4.31	14.87	64.07	4.000	No	Yes	2.00
934	66.87	18.92	3.31	3.19	1.00	4.37	15.53	67.94	4.000	No	Yes	2.00
935	66.96	19.16	3.35	3.89	1.00	4.44	16.65	73.89	4.000	No	Yes	2.00
936	67.11	18.25	3.42	4.74	1.00	4.17	18.76	78.15	4.000	No	Yes	2.00
937	67.21	16.83	3.47	4.99	1.00	3.75	20.42	76.60	4.000	No	Yes	2.00
938	67.35	16.22	3.48	4.67	1.00	3.57	20.50	73.18	4.000	No	Yes	2.00
939	67.45	16.16	3.52	5.49	1.00	3.55	21.95	77.86	4.000	No	Yes	2.00
940	67.59	27.42	3.21	4.13	1.00	6.79	13.06	88.71	4.000	No	Yes	2.00
941	67.68	77.39	2.62	1.95	1.00	21.19	3.95	83.67	4.000	Yes	Yes	2.00
942	67.83	159.77	2.22	1.13	1.00	44.89	1.66	74.68	4.000	Yes	No	2.00
943	67.92	241.25	1.99	0.82	1.00	68.29	1.30	88.64	4.000	Yes	No	2.00
944	68.02	283.19	1.90	0.72	1.00	80.28	1.24	99.35	4.000	Yes	No	2.00
945	68.07	299.01	1.88	0.72	1.00	84.78	1.22	103.71	4.000	Yes	No	2.00
946	68.16	305.70	1.87	0.71	1.00	86.62	1.22	105.26	4.000	No	No	2.00
947	68.26	310.93	1.86	0.70	1.00	88.04	1.21	106.54	4.000	No	No	2.00
948	68.35	307.75	1.88	0.74	1.00	87.05	1.22	106.44	4.000	No	No	2.00
949	68.45	299.96	1.91	0.81	1.00	84.74	1.24	105.37	4.000	No	No	2.00
950	68.55	291.49	1.94	0.86	1.00	82.23	1.26	103.72	4.000	No	No	2.00
951	68.65	271.72	1.98	0.91	1.00	76.50	1.29	98.57	4.000	No	No	2.00
952	68.78	253.59	2.02	0.98	1.00	71.23	1.32	94.35	4.000	No	No	2.00
953	68.78	238.18	2.05	1.03	1.00	66.83	1.36	90.91	4.000	No	No	2.00
954	68.79	234.24	2.06	1.02	1.00	65.70	1.37	89.70	4.000	No	No	2.00
955	68.83	237.70	2.03	0.94	1.00	66.66	1.34	89.08	4.000	No	No	2.00
956	68.93	243.69	1.99	0.81	1.00	68.30	1.30	88.59	4.000	No	No	2.00
957	68.98	253.54	1.93	0.67	1.00	71.08	1.25	89.18	4.000	No	No	2.00
958	69.04	257.79	1.89	0.60	1.00	72.25	1.23	89.05	4.000	No	No	2.00
959	69.12	259.28	1.89	0.58	1.00	72.61	1.23	89.10	4.000	No	No	2.00
960	69.22	255.36	1.90	0.59	1.00	71.43	1.24	88.23	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
961	69.28	247.73	1.91	0.61	1.00	69.22	1.25	86.25	4.000	No	No	2.00
962	69.36	237.41	1.93	0.61	1.00	66.24	1.26	83.22	4.000	No	No	2.00
963	69.45	223.58	1.95	0.61	1.00	62.26	1.27	79.21	4.000	No	No	2.00
964	69.60	210.12	1.98	0.61	1.00	58.37	1.29	75.34	4.000	No	No	2.00
965	69.70	198.18	2.01	0.62	1.00	54.94	1.31	72.05	4.000	No	No	2.00
966	69.80	193.42	2.01	0.62	1.00	53.54	1.32	70.68	4.000	No	No	2.00
967	69.89	192.07	2.02	0.62	1.00	53.12	1.32	70.30	4.000	No	No	2.00
968	69.98	190.15	2.02	0.63	1.00	52.53	1.33	69.82	4.000	No	No	2.00
969	70.08	181.88	2.04	0.63	1.00	50.15	1.35	67.53	4.000	Yes	No	2.00
970	70.18	159.82	2.12	0.71	1.00	43.89	1.45	63.51	4.000	Yes	No	2.00
971	70.32	124.32	2.27	0.89	1.00	33.85	1.81	61.16	4.000	Yes	No	2.00
972	70.42	84.31	2.50	1.27	1.00	22.56	2.96	66.77	4.000	Yes	No	2.00
973	70.54	51.82	2.77	1.84	1.00	13.41	5.53	74.19	4.000	Yes	Yes	2.00
974	70.66	31.85	3.05	2.58	1.00	7.79	9.69	75.54	4.000	No	Yes	2.00
975	70.75	23.52	3.23	3.11	1.00	5.45	13.34	72.70	4.000	No	Yes	2.00
976	70.80	21.80	3.23	2.72	1.00	4.97	13.43	66.71	4.000	No	Yes	2.00
977	70.89	22.64	3.14	1.98	1.00	5.20	11.52	59.87	4.000	No	Yes	2.00
978	70.99	22.34	3.09	1.45	1.00	5.11	10.38	53.00	4.000	No	Yes	2.00
979	71.08	21.63	3.07	1.23	1.00	4.90	10.09	49.46	4.000	No	Yes	2.00
980	71.17	21.43	3.06	1.12	1.00	4.84	9.87	47.79	4.000	No	Yes	2.00
981	71.23	20.92	3.07	1.10	1.00	4.70	10.01	47.05	4.000	No	Yes	2.00
982	71.33	21.09	3.05	1.03	1.00	4.74	9.74	46.20	4.000	No	Yes	2.00
983	71.42	21.73	3.02	0.90	1.00	4.92	9.08	44.64	4.000	No	Yes	2.00
984	71.52	22.81	2.97	0.78	1.00	5.22	8.26	43.06	4.000	No	Yes	2.00
985	71.58	23.21	2.97	0.82	1.00	5.33	8.27	44.01	4.000	No	Yes	2.00
986	71.67	22.88	3.02	1.04	1.00	5.23	9.07	47.43	4.000	No	Yes	2.00
987	71.81	22.47	3.06	1.28	1.00	5.11	9.94	50.76	4.000	No	Yes	2.00
988	71.82	22.24	3.09	1.43	1.00	5.04	10.42	52.55	4.000	No	Yes	2.00
989	71.86	21.97	3.10	1.47	1.00	4.96	10.64	52.82	4.000	No	Yes	2.00
990	71.91	21.83	3.11	1.49	1.00	4.92	10.75	52.95	4.000	No	Yes	2.00
991	71.97	21.60	3.12	1.53	1.00	4.86	10.97	53.27	4.000	No	Yes	2.00
992	72.05	21.36	3.13	1.58	1.00	4.79	11.22	53.72	4.000	No	Yes	2.00
993	72.10	21.13	3.14	1.65	1.00	4.72	11.52	54.35	4.000	No	Yes	2.00
994	72.20	20.99	3.15	1.70	1.00	4.68	11.71	54.79	4.000	No	Yes	2.00
995	72.25	20.99	3.16	1.76	1.00	4.67	11.87	55.49	4.000	No	Yes	2.00
996	72.34	21.09	3.17	1.88	1.00	4.70	12.12	56.94	4.000	No	Yes	2.00
997	72.44	21.09	3.19	2.06	1.00	4.69	12.53	58.80	4.000	No	Yes	2.00
998	72.53	20.89	3.21	2.23	1.00	4.63	13.04	60.40	4.000	No	Yes	2.00
999	72.63	20.79	3.22	2.32	1.00	4.60	13.29	61.13	4.000	No	Yes	2.00
1000	72.69	20.48	3.23	2.36	1.00	4.51	13.55	61.14	4.000	No	Yes	2.00
1001	72.82	20.69	3.23	2.31	1.00	4.56	13.34	60.87	4.000	No	Yes	2.00
1002	72.92	21.13	3.20	2.18	1.00	4.68	12.83	60.05	4.000	No	Yes	2.00
1003	73.06	22.11	3.17	2.01	1.00	4.95	11.98	59.27	4.000	No	Yes	2.00
1004	73.16	22.34	3.16	2.02	1.00	5.01	11.90	59.57	4.000	No	Yes	2.00
1005	73.30	20.86	3.22	2.28	1.00	4.59	13.21	60.65	4.000	No	Yes	2.00
1006	73.35	19.88	3.26	2.50	1.00	4.32	14.25	61.53	4.000	No	Yes	2.00
1007	73.38	19.20	3.29	2.56	1.00	4.13	14.83	61.23	4.000	No	Yes	2.00
1008	73.47	20.02	3.25	2.39	1.00	4.35	13.95	60.67	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1009	73.53	20.08	3.24	2.33	1.00	4.37	13.79	60.20	4.000	No	Yes	2.00
1010	73.62	20.18	3.24	2.30	1.00	4.39	13.66	59.95	4.000	No	Yes	2.00
1011	73.71	19.95	3.25	2.36	1.00	4.32	13.95	60.28	4.000	No	Yes	2.00
1012	73.77	19.61	3.28	2.54	1.00	4.23	14.55	61.46	4.000	No	Yes	2.00
1013	73.86	19.34	3.30	2.76	1.00	4.15	15.21	63.08	4.000	No	Yes	2.00
1014	73.96	19.38	3.31	2.94	1.00	4.15	15.56	64.61	4.000	No	Yes	2.00
1015	74.06	19.58	3.32	3.02	1.00	4.20	15.60	65.59	4.000	No	Yes	2.00
1016	74.13	20.02	3.31	3.02	1.00	4.32	15.32	66.22	4.000	No	Yes	2.00
1017	74.24	20.36	3.30	3.02	1.00	4.41	15.12	66.66	4.000	No	Yes	2.00
1018	74.34	20.56	3.30	3.06	1.00	4.46	15.08	67.26	4.000	No	Yes	2.00
1019	74.44	20.42	3.31	3.15	1.00	4.42	15.35	67.81	4.000	No	Yes	2.00
1020	74.58	20.37	3.30	3.10	1.00	4.40	15.30	67.28	4.000	No	Yes	2.00
1021	74.68	20.30	3.27	2.60	1.00	4.38	14.35	62.80	4.000	No	Yes	2.00
1022	74.80	20.47	3.22	2.16	1.00	4.42	13.30	58.74	4.000	No	Yes	2.00
1023	74.92	20.26	3.21	1.96	1.00	4.35	12.97	56.43	4.000	No	Yes	2.00
1024	75.07	20.06	3.24	2.18	1.00	4.29	13.60	58.35	4.000	No	Yes	2.00
1025	75.08	19.75	3.26	2.32	1.00	4.21	14.10	59.34	4.000	No	Yes	2.00
1026	75.11	19.62	3.26	2.36	1.00	4.17	14.28	59.53	4.000	No	Yes	2.00
1027	75.16	19.55	3.27	2.45	1.00	4.15	14.53	60.28	4.000	No	Yes	2.00
1028	75.25	19.31	3.30	2.65	1.00	4.08	15.14	61.74	4.000	No	Yes	2.00
1029	75.32	19.14	3.32	2.86	1.00	4.03	15.69	63.23	4.000	No	Yes	2.00
1030	75.40	18.98	3.33	2.95	1.00	3.98	16.00	63.73	4.000	No	Yes	2.00
1031	75.50	18.81	3.33	2.87	1.00	3.93	15.96	62.77	4.000	No	Yes	2.00
1032	75.59	18.30	3.33	2.72	1.00	3.79	16.02	60.75	4.000	No	Yes	2.00
1033	75.69	17.56	3.34	2.60	1.00	3.59	16.34	58.60	4.000	No	Yes	2.00
1034	75.78	16.85	3.35	2.48	1.00	3.39	16.66	56.46	4.000	No	Yes	2.00
1035	75.88	16.41	3.36	2.34	1.00	3.27	16.73	54.66	4.000	No	Yes	2.00
1036	75.96	16.11	3.35	2.19	1.00	3.18	16.62	52.90	4.000	No	Yes	2.00
1037	76.05	16.04	3.34	2.06	1.00	3.16	16.34	51.65	4.000	No	Yes	2.00
1038	76.14	15.97	3.34	1.99	1.00	3.14	16.25	51.00	4.000	No	Yes	2.00
1039	76.26	16.07	3.34	1.99	1.00	3.16	16.16	51.09	4.000	No	Yes	2.00
1040	76.36	16.07	3.34	2.03	1.00	3.16	16.26	51.38	4.000	No	Yes	2.00
1041	76.41	16.07	3.34	2.04	1.00	3.16	16.31	51.50	4.000	No	Yes	2.00
1042	76.51	15.84	3.35	2.05	1.00	3.09	16.56	51.17	4.000	No	Yes	2.00
1043	76.65	15.50	3.37	2.09	1.00	2.99	17.04	51.04	4.000	No	Yes	2.00
1044	76.72	15.26	3.38	2.15	1.00	2.93	17.45	51.12	4.000	No	Yes	2.00
1045	76.79	15.16	3.39	2.21	1.00	2.90	17.72	51.39	4.000	No	Yes	2.00
1046	76.89	15.23	3.41	2.47	1.00	2.91	18.36	53.53	4.000	No	Yes	2.00
1047	76.98	15.47	3.48	3.62	1.00	2.98	20.80	61.89	4.000	No	Yes	2.00
1048	77.08	18.00	3.43	4.02	1.00	3.65	19.05	69.60	4.000	No	Yes	2.00
1049	77.18	22.18	3.34	4.06	1.00	4.77	16.19	77.29	4.000	No	Yes	2.00
1050	77.28	26.73	3.26	4.08	1.00	5.99	14.06	84.26	4.000	No	Yes	2.00
1051	77.37	27.88	3.29	4.98	1.00	6.30	14.87	93.62	4.000	No	Yes	2.00
1052	77.42	28.76	3.31	5.68	1.00	6.53	15.41	100.64	4.000	No	Yes	2.00
1053	77.42	30.22	3.30	5.86	1.00	6.92	15.09	104.44	4.000	No	Yes	2.00
1054	77.44	34.00	3.23	5.50	1.00	7.94	13.49	107.05	4.000	No	Yes	2.00
1055	77.48	37.40	3.19	5.36	1.00	8.85	12.47	110.31	4.000	No	Yes	2.00
1056	77.52	40.61	3.15	5.24	1.00	9.70	11.65	113.00	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1057	77.54	42.94	3.12	5.12	1.00	10.33	11.08	114.44	4.000	No	Yes	2.00
1058	77.57	43.37	3.12	5.18	1.00	10.44	11.07	115.54	4.000	No	Yes	2.00
1059	77.62	42.26	3.14	5.33	1.00	10.14	11.44	115.93	4.000	No	Yes	2.00
1060	77.65	40.10	3.17	5.56	1.00	9.55	12.10	115.64	4.000	No	Yes	2.00
1061	77.67	38.72	3.18	5.50	1.00	9.18	12.34	113.32	4.000	No	Yes	2.00
1062	77.71	37.91	3.19	5.40	1.00	8.96	12.41	111.24	4.000	No	Yes	2.00
1063	77.71	37.03	3.18	5.16	1.00	8.73	12.35	107.78	4.000	No	Yes	2.00
1064	77.76	34.77	3.20	5.10	1.00	8.12	12.85	104.25	4.000	No	Yes	2.00
1065	77.81	31.76	3.23	4.96	1.00	7.31	13.53	98.88	4.000	No	Yes	2.00
1066	77.90	29.03	3.27	4.92	1.00	6.57	14.40	94.60	4.000	No	Yes	2.00
1067	77.95	27.32	3.30	4.97	1.00	6.11	15.14	92.44	4.000	No	Yes	2.00
1068	78.01	26.34	3.32	5.03	1.00	5.84	15.63	91.29	4.000	No	Yes	2.00
1069	78.10	27.59	3.27	4.56	1.00	6.17	14.49	89.37	4.000	No	Yes	2.00
1070	78.16	36.29	3.07	3.14	1.00	8.49	9.98	84.71	4.000	No	Yes	2.00
1071	78.24	48.94	2.86	2.21	1.00	11.86	6.66	79.05	4.000	Yes	Yes	2.00
1072	78.29	64.83	2.68	1.67	1.00	16.10	4.54	73.14	4.000	Yes	Yes	2.00
1073	78.39	77.42	2.58	1.42	1.00	19.44	3.56	69.27	4.000	Yes	No	2.00
1074	78.47	87.30	2.52	1.35	1.00	22.06	3.11	68.51	4.000	Yes	No	2.00
1075	78.53	92.74	2.51	1.44	1.00	23.49	3.05	71.72	4.000	Yes	No	2.00
1076	78.62	94.25	2.54	1.65	1.00	23.88	3.25	77.71	4.000	Yes	No	2.00
1077	78.68	91.22	2.59	1.91	1.00	23.06	3.64	84.02	4.000	Yes	No	2.00
1078	78.69	92.97	2.61	2.12	1.00	23.52	3.81	89.57	4.000	Yes	Yes	2.00
1079	78.78	93.95	2.63	2.33	1.00	23.76	4.00	95.10	4.000	No	Yes	2.00
1080	78.81	94.86	2.65	2.61	1.00	24.00	4.25	102.04	4.000	No	Yes	2.00
1081	78.92	85.28	2.73	2.97	1.00	21.43	5.01	107.35	4.000	No	Yes	2.00
1082	79.03	72.83	2.81	3.21	1.00	18.11	5.93	107.43	4.000	No	Yes	2.00
1083	79.16	68.41	2.80	2.88	1.00	16.91	5.87	99.26	4.000	Yes	Yes	2.00
1084	79.26	78.39	2.68	2.21	1.00	19.54	4.53	88.45	4.000	Yes	Yes	2.00
1085	79.35	97.35	2.56	1.87	1.00	24.54	3.42	83.92	4.000	Yes	No	2.00
1086	79.45	114.43	2.50	1.84	1.00	29.03	2.95	85.78	4.000	Yes	No	2.00
1087	79.54	124.25	2.48	1.92	1.00	31.60	2.84	89.58	4.000	No	No	2.00
1088	79.64	131.23	2.47	1.97	1.00	33.41	2.75	91.91	4.000	No	No	2.00
1089	79.74	153.43	2.40	1.91	1.00	39.23	2.39	93.85	4.000	No	No	2.00
1090	79.88	186.93	2.31	1.77	1.00	48.00	1.98	94.86	4.000	No	No	2.00
1091	79.98	228.94	2.20	1.52	1.00	59.00	1.62	95.73	4.000	No	No	2.00
1092	80.12	248.77	2.14	1.34	1.00	64.13	1.48	95.14	4.000	No	No	2.00
1093	80.22	253.19	2.09	1.12	1.00	65.23	1.40	91.22	4.000	No	No	2.00
1094	80.36	244.79	2.06	0.97	1.00	62.94	1.37	86.07	4.000	No	No	2.00
1095	80.46	238.82	2.02	0.78	1.00	61.33	1.32	81.11	4.000	No	No	2.00
1096	80.60	231.84	1.99	0.66	1.00	59.42	1.30	77.21	4.000	No	No	2.00
1097	80.70	223.91	1.99	0.62	1.00	57.30	1.30	74.37	4.000	No	No	2.00
1098	80.83	213.12	2.02	0.65	1.00	54.42	1.32	72.04	4.000	Yes	No	2.00
1099	80.94	194.49	2.09	0.77	1.00	49.51	1.41	69.62	4.000	Yes	No	2.00
1100	81.01	177.96	2.15	0.85	1.00	45.17	1.50	67.91	4.000	Yes	No	2.00
1101	81.04	164.23	2.19	0.91	1.00	41.58	1.60	66.50	4.000	Yes	No	2.00
1102	81.09	158.43	2.21	0.93	1.00	40.05	1.65	65.97	4.000	Yes	No	2.00
1103	81.13	149.59	2.25	0.99	1.00	37.74	1.75	66.04	4.000	Yes	No	2.00
1104	81.18	136.87	2.31	1.12	1.00	34.41	1.98	67.98	4.000	Yes	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1105	81.23	123.31	2.39	1.33	1.00	30.87	2.34	72.13	4.000	Yes	No	2.00
1106	81.28	109.41	2.48	1.58	1.00	27.24	2.85	77.64	4.000	Yes	No	2.00
1107	81.33	98.17	2.57	1.89	1.00	24.30	3.46	84.19	4.000	Yes	No	2.00
1108	81.37	88.49	2.65	2.30	1.00	21.78	4.25	92.48	4.000	Yes	Yes	2.00
1109	81.42	81.24	2.73	2.74	1.00	19.88	5.05	100.46	4.000	Yes	Yes	2.00
1110	81.47	75.77	2.79	3.12	1.00	18.46	5.75	106.15	4.000	Yes	Yes	2.00
1111	81.52	71.99	2.83	3.36	1.00	17.47	6.25	109.13	4.000	Yes	Yes	2.00
1112	81.56	70.98	2.85	3.50	1.00	17.20	6.46	111.09	4.000	Yes	Yes	2.00
1113	81.61	70.58	2.86	3.61	1.00	17.08	6.60	112.75	4.000	No	Yes	2.00
1114	81.64	68.79	2.88	3.76	1.00	16.62	6.89	114.41	4.000	No	Yes	2.00
1115	81.70	62.18	2.94	4.16	1.00	14.89	7.85	116.91	4.000	No	Yes	2.00
1116	81.75	54.38	3.03	4.72	1.00	12.87	9.25	118.94	4.000	No	Yes	2.00
1117	81.79	46.89	3.11	5.33	1.00	10.92	10.91	119.14	4.000	No	Yes	2.00
1118	81.82	41.90	3.17	5.62	1.00	9.62	12.12	116.62	4.000	No	Yes	2.00
1119	81.86	37.62	3.22	5.76	1.00	8.51	13.21	112.49	4.000	No	Yes	2.00
1120	81.91	34.01	3.26	5.79	1.00	7.57	14.21	107.66	4.000	No	Yes	2.00
1121	81.95	30.63	3.30	5.75	1.00	6.70	15.27	102.27	4.000	No	Yes	2.00
1122	82.00	27.33	3.34	5.61	1.00	5.84	16.41	95.81	4.000	No	Yes	2.00
1123	82.09	24.26	3.39	5.48	1.00	5.04	17.74	89.46	4.000	No	Yes	2.00
1124	82.15	21.66	3.44	5.50	1.00	4.37	19.38	84.64	4.000	No	Yes	2.00
1125	82.19	19.83	3.48	5.52	1.00	3.89	20.80	81.03	4.000	No	Yes	2.00
1126	82.26	18.38	3.52	5.48	1.00	3.52	22.06	77.56	4.000	No	Yes	2.00
1127	82.34	17.00	3.56	5.45	1.00	3.16	23.49	74.17	4.000	No	Yes	2.00
1128	82.39	15.65	3.61	5.65	1.00	2.81	25.58	71.81	4.000	No	Yes	2.00
1129	82.48	14.77	3.64	5.76	1.00	2.58	27.14	69.97	4.000	No	Yes	2.00
1130	82.58	14.64	3.64	5.47	1.00	2.54	26.84	68.21	4.000	No	Yes	2.00
1131	82.62	14.74	3.62	5.09	1.00	2.57	25.95	66.60	4.000	No	Yes	2.00
1132	82.70	14.88	3.60	4.83	1.00	2.60	25.23	65.56	4.000	No	Yes	2.00
1133	82.77	14.81	3.59	4.65	1.00	2.58	24.98	64.46	4.000	No	Yes	2.00
1134	82.87	15.08	3.57	4.45	1.00	2.65	24.19	64.01	4.000	No	Yes	2.00
1135	82.96	16.23	3.51	3.90	1.00	2.94	21.57	63.38	4.000	No	Yes	2.00
1136	83.06	18.22	3.41	3.33	1.00	3.45	18.38	63.34	4.000	No	Yes	2.00
1137	83.16	21.39	3.29	2.70	1.00	4.26	14.82	63.10	4.000	No	Yes	2.00
1138	83.25	24.46	3.19	2.32	1.00	5.04	12.49	62.94	4.000	No	Yes	2.00
1139	83.34	27.20	3.11	2.06	1.00	5.74	10.91	62.57	4.000	No	Yes	2.00
1140	83.44	28.34	3.10	2.06	1.00	6.03	10.55	63.55	4.000	No	Yes	2.00
1141	83.54	28.75	3.10	2.14	1.00	6.12	10.60	64.89	4.000	No	Yes	2.00
1142	83.64	28.61	3.12	2.29	1.00	6.08	10.93	66.49	4.000	No	Yes	2.00
1143	83.73	27.70	3.15	2.52	1.00	5.84	11.68	68.29	4.000	No	Yes	2.00
1144	83.83	27.26	3.18	2.77	1.00	5.73	12.30	70.46	4.000	No	Yes	2.00
1145	83.85	26.83	3.21	3.11	1.00	5.62	13.07	73.38	4.000	No	Yes	2.00
1146	83.89	27.47	3.22	3.29	1.00	5.78	13.14	75.93	4.000	No	Yes	2.00
1147	83.94	28.11	3.24	3.78	1.00	5.94	13.69	81.26	4.000	No	Yes	2.00
1148	84.04	29.26	3.25	4.14	1.00	6.23	13.80	85.92	4.000	No	Yes	2.00
1149	84.09	30.40	3.25	4.44	1.00	6.51	13.83	90.10	4.000	No	Yes	2.00
1150	84.13	31.28	3.24	4.51	1.00	6.74	13.65	91.94	4.000	No	Yes	2.00
1151	84.18	31.68	3.24	4.64	1.00	6.83	13.70	93.61	4.000	No	Yes	2.00
1152	84.25	31.52	3.25	4.81	1.00	6.79	13.97	94.85	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1153	84.33	30.64	3.28	5.04	1.00	6.56	14.57	95.60	4.000	No	Yes	2.00
1154	84.37	29.46	3.31	5.29	1.00	6.26	15.33	95.90	4.000	No	Yes	2.00
1155	84.46	28.35	3.33	5.40	1.00	5.97	15.91	94.98	4.000	No	Yes	2.00
1156	84.52	27.50	3.34	5.37	1.00	5.75	16.25	93.43	4.000	No	Yes	2.00
1157	84.57	26.90	3.34	5.22	1.00	5.59	16.32	91.27	4.000	No	Yes	2.00
1158	84.67	26.52	3.34	5.14	1.00	5.49	16.38	90.00	4.000	No	Yes	2.00
1159	84.71	26.15	3.35	5.18	1.00	5.40	16.62	89.72	4.000	No	Yes	2.00
1160	84.81	25.58	3.38	5.48	1.00	5.25	17.32	90.86	4.000	No	Yes	2.00
1161	84.86	24.84	3.41	5.93	1.00	5.06	18.32	92.62	4.000	No	Yes	2.00
1162	84.91	24.06	3.44	6.37	1.00	4.86	19.36	94.03	4.000	No	Yes	2.00
1163	85.00	23.42	3.47	6.69	1.00	4.69	20.18	94.63	4.000	No	Yes	2.00
1164	85.05	22.81	3.48	6.79	1.00	4.53	20.72	93.94	4.000	No	Yes	2.00
1165	85.15	22.34	3.49	6.69	1.00	4.41	20.94	92.30	4.000	No	Yes	2.00
1166	85.19	21.80	3.49	6.36	1.00	4.27	20.88	89.13	4.000	No	Yes	2.00
1167	85.29	21.33	3.48	6.00	1.00	4.15	20.74	85.98	4.000	No	Yes	2.00
1168	85.35	20.72	3.49	5.75	1.00	3.99	20.84	83.14	4.000	No	Yes	2.00
1169	85.42	20.08	3.50	5.71	1.00	3.82	21.32	81.54	4.000	No	Yes	2.00
1170	85.48	19.40	3.52	5.78	1.00	3.65	22.03	80.45	4.000	No	Yes	2.00
1171	85.55	18.77	3.54	5.87	1.00	3.49	22.80	79.50	4.000	No	Yes	2.00
1172	85.63	18.19	3.56	5.98	1.00	3.34	23.58	78.76	4.000	No	Yes	2.00
1173	85.68	17.62	3.58	6.16	1.00	3.19	24.50	78.25	4.000	No	Yes	2.00
1174	85.77	17.18	3.60	6.34	1.00	3.08	25.34	78.03	4.000	No	Yes	2.00
1175	85.82	17.04	3.61	6.47	1.00	3.04	25.74	78.34	4.000	No	Yes	2.00
1176	85.89	17.42	3.60	6.38	1.00	3.13	25.13	78.79	4.000	No	Yes	2.00
1177	85.96	18.33	3.56	5.99	1.00	3.36	23.51	79.01	4.000	No	Yes	2.00
1178	86.03	19.71	3.49	5.35	1.00	3.71	21.16	78.44	4.000	No	Yes	2.00
1179	86.11	21.06	3.44	4.76	1.00	4.04	19.14	77.40	4.000	No	Yes	2.00
1180	86.16	22.11	3.39	4.32	1.00	4.30	17.71	76.21	4.000	No	Yes	2.00
1181	86.25	21.67	3.40	4.38	1.00	4.19	18.09	75.81	4.000	No	Yes	2.00
1182	86.36	19.98	3.45	4.62	1.00	3.76	19.76	74.32	4.000	No	Yes	2.00
1183	86.50	18.16	3.52	4.99	1.00	3.30	22.08	72.85	4.000	No	Yes	2.00
1184	86.51	17.25	3.55	5.00	1.00	3.07	23.09	70.91	4.000	No	Yes	2.00
1185	86.52	17.32	3.53	4.74	1.00	3.09	22.53	69.58	4.000	No	Yes	2.00
1186	86.57	17.35	3.51	4.25	1.00	3.10	21.58	66.80	4.000	No	Yes	2.00
1187	86.65	17.39	3.48	3.72	1.00	3.10	20.48	63.50	4.000	No	Yes	2.00
1188	86.71	17.35	3.45	3.31	1.00	3.09	19.65	60.73	4.000	No	Yes	2.00
1189	86.80	17.08	3.45	3.15	1.00	3.02	19.57	59.11	4.000	No	Yes	2.00
1190	86.90	16.48	3.46	3.06	1.00	2.87	20.04	57.42	4.000	No	Yes	2.00
1191	86.99	15.77	3.48	3.01	1.00	2.69	20.75	55.74	4.000	No	Yes	2.00
1192	87.04	15.26	3.50	2.94	1.00	2.56	21.24	54.32	4.000	No	Yes	2.00
1193	87.14	15.16	3.49	2.85	1.00	2.53	21.16	53.51	4.000	No	Yes	2.00
1194	87.19	15.36	3.48	2.77	1.00	2.58	20.70	53.36	4.000	No	Yes	2.00
1195	87.28	15.87	3.46	2.79	1.00	2.70	20.13	54.40	4.000	No	Yes	2.00
1196	87.38	16.51	3.45	2.81	1.00	2.86	19.47	55.67	4.000	No	Yes	2.00
1197	87.43	17.18	3.42	2.82	1.00	3.03	18.79	56.85	4.000	No	Yes	2.00
1198	87.52	17.76	3.40	2.76	1.00	3.17	18.12	57.36	4.000	No	Yes	2.00
1199	87.61	18.23	3.38	2.70	1.00	3.28	17.55	57.58	4.000	No	Yes	2.00
1200	87.66	18.53	3.37	2.63	1.00	3.35	17.13	57.47	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1201	87.76	18.57	3.37	2.58	1.00	3.36	17.00	57.12	4.000	No	Yes	2.00
1202	87.84	18.43	3.37	2.54	1.00	3.32	17.02	56.58	4.000	No	Yes	2.00
1203	87.91	18.13	3.37	2.53	1.00	3.25	17.27	56.08	4.000	No	Yes	2.00
1204	88.00	17.79	3.39	2.53	1.00	3.16	17.58	55.54	4.000	No	Yes	2.00
1205	88.11	17.46	3.40	2.56	1.00	3.07	17.98	55.23	4.000	No	Yes	2.00
1206	88.19	17.22	3.41	2.58	1.00	3.01	18.27	55.01	4.000	No	Yes	2.00
1207	88.25	17.08	3.41	2.59	1.00	2.98	18.42	54.79	4.000	No	Yes	2.00
1208	88.34	17.02	3.41	2.53	1.00	2.96	18.36	54.27	4.000	No	Yes	2.00
1209	88.44	16.98	3.41	2.45	1.00	2.94	18.20	53.59	4.000	No	Yes	2.00
1210	88.54	16.98	3.40	2.37	1.00	2.94	17.99	52.93	4.000	No	Yes	2.00
1211	88.64	16.95	3.40	2.33	1.00	2.93	17.92	52.52	4.000	No	Yes	2.00
1212	88.72	16.88	3.40	2.33	1.00	2.91	18.00	52.42	4.000	No	Yes	2.00
1213	88.82	16.82	3.40	2.36	1.00	2.89	18.16	52.53	4.000	No	Yes	2.00
1214	88.91	16.72	3.41	2.41	1.00	2.87	18.42	52.79	4.000	No	Yes	2.00
1215	89.01	16.62	3.42	2.47	1.00	2.84	18.68	53.02	4.000	No	Yes	2.00
1216	89.10	16.49	3.43	2.53	1.00	2.80	18.99	53.22	4.000	No	Yes	2.00
1217	89.19	16.32	3.44	2.53	1.00	2.76	19.19	52.91	4.000	No	Yes	2.00
1218	89.30	16.21	3.41	2.22	1.00	2.73	18.48	50.44	4.000	No	Yes	2.00
1219	89.39	16.31	3.39	2.02	1.00	2.75	17.80	48.98	4.000	No	Yes	2.00
1220	89.49	16.62	3.38	2.03	1.00	2.82	17.53	49.49	4.000	No	Yes	2.00
1221	89.59	16.90	3.41	2.39	1.00	2.89	18.25	52.76	4.000	No	Yes	2.00
1222	89.69	17.04	3.42	2.65	1.00	2.92	18.79	54.90	4.000	No	Yes	2.00
1223	89.73	17.68	3.40	2.64	1.00	3.08	18.14	55.86	4.000	No	Yes	2.00
1224	89.78	18.48	3.37	2.53	1.00	3.27	17.18	56.23	4.000	No	Yes	2.00
1225	89.83	19.36	3.34	2.42	1.00	3.49	16.22	56.56	4.000	No	Yes	2.00
1226	89.88	19.63	3.33	2.44	1.00	3.55	16.06	57.05	4.000	No	Yes	2.00
1227	89.93	19.86	3.33	2.48	1.00	3.61	16.01	57.77	4.000	No	Yes	2.00
1228	90.00	20.24	3.33	2.55	1.00	3.70	15.90	58.79	4.000	No	Yes	2.00
1229	90.07	20.88	3.31	2.57	1.00	3.85	15.53	59.82	4.000	No	Yes	2.00
1230	90.12	21.62	3.30	2.62	1.00	4.03	15.19	61.24	4.000	No	Yes	2.00
1231	90.22	22.26	3.29	2.71	1.00	4.19	15.01	62.84	4.000	No	Yes	2.00
1232	90.27	23.04	3.29	2.93	1.00	4.37	15.02	65.70	4.000	No	Yes	2.00
1233	90.36	24.99	3.26	2.95	1.00	4.85	14.09	68.34	4.000	No	Yes	2.00
1234	90.46	27.46	3.21	2.86	1.00	5.45	12.89	70.27	4.000	No	Yes	2.00
1235	90.50	29.28	3.17	2.76	1.00	5.89	12.05	71.01	4.000	No	Yes	2.00
1236	90.61	29.48	3.17	2.77	1.00	5.94	12.02	71.39	4.000	No	Yes	2.00
1237	90.66	28.70	3.18	2.82	1.00	5.75	12.38	71.12	4.000	No	Yes	2.00
1238	90.75	27.62	3.20	2.80	1.00	5.48	12.73	69.74	4.000	No	Yes	2.00
1239	90.84	26.17	3.22	2.78	1.00	5.12	13.28	67.94	4.000	No	Yes	2.00
1240	90.89	24.72	3.25	2.77	1.00	4.76	13.90	66.20	4.000	No	Yes	2.00
1241	90.99	23.48	3.28	2.82	1.00	4.45	14.63	65.12	4.000	No	Yes	2.00
1242	91.04	22.50	3.30	2.86	1.00	4.21	15.24	64.21	4.000	No	Yes	2.00
1243	91.14	21.59	3.33	2.94	1.00	3.99	15.98	63.69	4.000	No	Yes	2.00
1244	91.22	20.75	3.36	3.03	1.00	3.78	16.73	63.19	4.000	No	Yes	2.00
1245	91.28	19.83	3.39	3.13	1.00	3.55	17.61	62.55	4.000	No	Yes	2.00
1246	91.37	19.26	3.40	3.14	1.00	3.41	18.11	61.75	4.000	No	Yes	2.00
1247	91.47	18.99	3.40	3.07	1.00	3.34	18.18	60.75	4.000	No	Yes	2.00
1248	91.61	19.26	3.39	2.94	1.00	3.40	17.69	60.19	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1249	91.71	19.40	3.38	2.89	1.00	3.43	17.48	59.97	4.000	No	Yes	2.00
1250	91.81	19.50	3.38	2.88	1.00	3.45	17.39	60.03	4.000	No	Yes	2.00
1251	91.87	19.36	3.38	2.86	1.00	3.42	17.46	59.68	4.000	No	Yes	2.00
1252	92.00	19.38	3.36	2.58	1.00	3.42	16.82	57.50	4.000	No	Yes	2.00
1253	92.10	19.41	3.34	2.37	1.00	3.42	16.30	55.77	4.000	No	Yes	2.00
1254	92.20	19.62	3.32	2.25	1.00	3.47	15.85	54.98	4.000	No	Yes	2.00
1255	92.33	19.76	3.33	2.39	1.00	3.50	16.12	56.37	4.000	No	Yes	2.00
1256	92.38	19.89	3.34	2.50	1.00	3.53	16.27	57.43	4.000	No	Yes	2.00
1257	92.43	20.03	3.34	2.54	1.00	3.56	16.28	57.96	4.000	No	Yes	2.00
1258	92.48	19.98	3.35	2.62	1.00	3.55	16.52	58.57	4.000	No	Yes	2.00
1259	92.56	19.88	3.36	2.71	1.00	3.52	16.79	59.09	4.000	No	Yes	2.00
1260	92.63	19.64	3.37	2.79	1.00	3.46	17.17	59.41	4.000	No	Yes	2.00
1261	92.67	19.57	3.37	2.81	1.00	3.44	17.27	59.42	4.000	No	Yes	2.00
1262	92.72	19.54	3.38	2.81	1.00	3.43	17.30	59.38	4.000	No	Yes	2.00
1263	92.77	19.64	3.37	2.79	1.00	3.46	17.18	59.37	4.000	No	Yes	2.00
1264	92.86	19.84	3.37	2.77	1.00	3.50	16.99	59.49	4.000	No	Yes	2.00
1265	92.92	20.08	3.36	2.78	1.00	3.56	16.84	59.88	4.000	No	Yes	2.00
1266	92.97	20.21	3.37	2.90	1.00	3.59	17.01	61.03	4.000	No	Yes	2.00
1267	93.05	20.35	3.37	3.02	1.00	3.62	17.17	62.12	4.000	No	Yes	2.00
1268	93.10	20.62	3.37	3.09	1.00	3.68	17.13	63.07	4.000	No	Yes	2.00
1269	93.16	21.10	3.35	3.03	1.00	3.79	16.68	63.28	4.000	No	Yes	2.00
1270	93.25	21.70	3.33	2.92	1.00	3.94	16.06	63.20	4.000	No	Yes	2.00
1271	93.35	22.78	3.29	2.71	1.00	4.19	14.99	62.84	4.000	No	Yes	2.00
1272	93.40	23.19	3.27	2.59	1.00	4.29	14.52	62.27	4.000	No	Yes	2.00
1273	93.49	23.25	3.27	2.54	1.00	4.30	14.38	61.82	4.000	No	Yes	2.00
1274	93.56	22.71	3.28	2.58	1.00	4.17	14.77	61.55	4.000	No	Yes	2.00
1275	93.64	22.88	3.28	2.57	1.00	4.21	14.66	61.65	4.000	No	Yes	2.00
1276	93.73	23.63	3.27	2.60	1.00	4.38	14.34	62.81	4.000	No	Yes	2.00
1277	93.83	24.91	3.25	2.65	1.00	4.69	13.81	64.72	4.000	No	Yes	2.00
1278	93.88	26.43	3.23	2.80	1.00	5.05	13.44	67.85	4.000	No	Yes	2.00
1279	93.97	27.01	3.24	3.00	1.00	5.18	13.58	70.35	4.000	No	Yes	2.00
1280	94.07	26.43	3.27	3.36	1.00	5.04	14.48	72.95	4.000	No	Yes	2.00
1281	94.17	25.76	3.31	3.78	1.00	4.87	15.51	75.57	4.000	No	Yes	2.00
1282	94.26	26.70	3.29	3.75	1.00	5.09	15.04	76.60	4.000	No	Yes	2.00
1283	94.36	27.88	3.30	4.18	1.00	5.37	15.22	81.75	4.000	No	Yes	2.00
1284	94.45	29.47	3.30	4.56	1.00	5.75	15.14	87.02	4.000	No	Yes	2.00
1285	94.55	35.88	3.19	4.21	1.00	7.27	12.61	91.74	4.000	No	Yes	2.00
1286	94.64	48.46	3.00	3.11	1.00	10.27	8.71	89.52	4.000	No	Yes	2.00
1287	94.72	59.93	2.85	2.46	1.00	13.01	6.55	85.22	4.000	No	Yes	2.00
1288	94.74	73.87	2.72	1.96	1.00	16.33	4.89	79.85	4.000	No	Yes	2.00
1289	94.77	84.50	2.64	1.75	1.00	18.86	4.08	76.98	4.000	No	Yes	2.00
1290	94.85	97.35	2.56	1.57	1.00	21.92	3.39	74.39	4.000	No	No	2.00
1291	94.90	102.75	2.54	1.57	1.00	23.20	3.24	75.17	4.000	No	No	2.00
1292	94.95	105.32	2.54	1.66	1.00	23.80	3.27	77.89	4.000	No	No	2.00
1293	95.01	104.68	2.58	1.94	1.00	23.63	3.61	85.22	4.000	No	No	2.00
1294	95.09	100.83	2.64	2.34	1.00	22.70	4.16	94.37	4.000	No	Yes	2.00
1295	95.14	94.49	2.73	2.97	1.00	21.18	5.05	107.02	4.000	No	Yes	2.00
1296	95.23	86.42	2.82	3.64	1.00	19.25	6.10	117.34	4.000	No	Yes	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1297	95.29	78.06	2.91	4.43	1.00	17.25	7.36	126.89	4.000	No	Yes	2.00
1298	95.38	71.11	2.98	5.04	1.00	15.59	8.45	131.69	4.000	No	Yes	2.00
1299	95.43	67.53	3.02	5.36	1.00	14.73	9.06	133.43	4.000	No	Yes	2.00
1300	95.52	67.83	3.01	5.27	1.00	14.79	8.96	132.50	4.000	No	Yes	2.00
1301	95.57	70.23	2.98	4.89	1.00	15.35	8.40	128.95	4.000	No	Yes	2.00
1302	95.67	71.24	2.95	4.48	1.00	15.58	7.93	123.49	4.000	No	Yes	2.00
1303	95.77	66.52	2.97	4.36	1.00	14.45	8.22	118.72	4.000	No	Yes	2.00
1304	95.86	56.97	3.06	4.90	1.00	12.17	9.76	118.80	4.000	No	Yes	2.00
1305	95.95	52.94	3.09	5.00	1.00	11.21	10.40	116.56	4.000	No	Yes	2.00
1306	96.03	46.73	3.17	5.75	1.00	9.74	12.16	118.40	4.000	No	Yes	2.00
1307	96.11	51.55	3.12	5.30	1.00	10.87	10.92	118.64	4.000	No	Yes	2.00
1308	96.20	59.20	3.06	5.23	1.00	12.66	9.84	124.65	4.000	No	Yes	2.00
1309	96.30	80.15	2.90	4.31	1.00	17.59	7.15	125.73	4.000	Yes	Yes	2.00
1310	96.39	101.37	2.77	3.72	1.00	22.58	5.51	124.50	4.000	Yes	Yes	2.00
1311	96.50	122.96	2.67	3.23	1.00	27.64	4.35	120.31	4.000	Yes	Yes	2.00
1312	96.59	144.96	2.54	2.51	1.00	32.80	3.25	106.72	4.000	Yes	No	2.00
1313	96.69	164.86	2.41	1.87	1.00	37.45	2.44	91.36	4.000	Yes	No	2.00
1314	96.78	180.18	2.29	1.32	1.00	41.02	1.89	77.51	4.000	Yes	No	2.00
1315	96.87	185.95	2.24	1.13	1.00	42.35	1.72	72.98	4.000	Yes	No	2.00
1316	96.98	185.28	2.23	1.08	1.00	42.15	1.69	71.40	4.000	No	No	2.00
1317	97.02	177.79	2.26	1.14	1.00	40.38	1.78	71.90	4.000	No	No	2.00
1318	97.06	176.40	2.27	1.20	1.00	40.04	1.83	73.47	4.000	No	No	2.00
1319	97.12	175.60	2.30	1.30	1.00	39.84	1.91	76.16	4.000	No	No	2.00
1320	97.16	176.98	2.31	1.41	1.00	40.15	1.98	79.48	4.000	No	No	2.00
1321	97.21	173.67	2.35	1.58	1.00	39.35	2.13	83.99	4.000	No	No	2.00
1322	97.27	170.50	2.39	1.77	1.00	38.59	2.31	89.17	4.000	No	No	2.00
1323	97.33	168.21	2.42	1.93	1.00	38.04	2.46	93.67	4.000	No	No	2.00
1324	97.40	165.98	2.44	2.03	1.00	37.49	2.57	96.33	4.000	No	No	2.00
1325	97.45	163.92	2.45	2.09	1.00	37.00	2.64	97.51	4.000	Yes	No	2.00
1326	97.50	161.39	2.47	2.20	1.00	36.39	2.76	100.38	4.000	Yes	No	2.00
1327	97.58	155.82	2.50	2.38	1.00	35.06	2.99	104.78	4.000	Yes	No	2.00
1328	97.65	146.95	2.55	2.64	1.00	32.97	3.34	110.26	4.000	Yes	No	2.00
1329	97.69	134.43	2.60	2.87	1.00	30.04	3.79	113.95	4.000	Yes	Yes	2.00
1330	97.74	121.75	2.66	3.06	1.00	27.07	4.27	115.68	4.000	Yes	Yes	2.00
1331	97.81	110.51	2.71	3.22	1.00	24.44	4.76	116.42	4.000	Yes	Yes	2.00
1332	97.88	103.09	2.74	3.33	1.00	22.69	5.14	116.63	4.000	Yes	Yes	2.00
1333	97.93	108.66	2.70	3.05	1.00	23.98	4.67	111.98	4.000	Yes	Yes	2.00
1334	98.03	138.72	2.52	2.22	1.00	30.95	3.15	97.35	4.000	Yes	No	2.00
1335	98.15	182.62	2.33	1.53	1.00	41.12	2.03	83.50	4.000	Yes	No	2.00
1336	98.21	228.43	2.15	1.06	1.00	51.75	1.51	78.05	4.000	Yes	No	2.00
1337	98.32	264.20	2.03	0.81	1.00	60.00	1.34	80.19	4.000	Yes	No	2.00
1338	98.42	301.85	1.92	0.62	1.00	68.69	1.25	85.96	4.000	Yes	No	2.00
1339	98.47	349.59	1.79	0.45	1.00	79.73	1.00	79.73	4.000	Yes	No	2.00
1340	98.57	388.76	1.69	0.32	1.00	88.75	1.00	88.75	4.000	No	No	2.00
1341	98.70	411.84	1.61	0.24	1.00	94.00	1.00	94.00	4.000	No	No	2.00
1342	98.78	404.01	1.62	0.24	1.00	92.13	1.00	92.13	4.000	No	No	2.00
1343	98.85	372.43	1.67	0.27	1.00	84.79	1.00	84.79	4.000	No	No	2.00
1344	98.86	337.78	1.74	0.31	1.00	76.77	1.00	76.77	4.000	No	No	2.00

:: Cyclic Resistance Ratio (CRR) calculation data :: (continued)

Point ID	Depth (ft)	q_t (tsf)	I_c	Fr (%)	n	Q_{tn}	K_c	$Q_{tn,cs}$	$CRR_{7.5}$	Belongs to trans. layer	Clay-like behaviour	FS
1345	98.92	322.73	1.77	0.33	1.00	73.26	1.00	73.26	4.000	No	No	2.00
1346	98.98	318.48	1.78	0.34	1.00	72.24	1.00	72.24	4.000	Yes	No	2.00
1347	99.03	309.41	1.81	0.38	1.00	70.12	1.00	70.12	4.000	Yes	No	2.00
1348	99.11	281.64	1.90	0.48	1.00	63.67	1.00	63.67	4.000	Yes	No	2.00
1349	99.18	255.32	1.99	0.62	1.00	57.57	1.30	74.69	4.000	Yes	No	2.00
1350	99.23	231.33	2.09	0.83	1.00	52.01	1.41	73.25	4.000	Yes	No	2.00
1351	99.32	209.84	2.20	1.12	1.00	47.02	1.62	76.01	4.000	Yes	No	2.00
1352	99.37	189.39	2.31	1.49	1.00	42.29	1.96	83.05	4.000	Yes	No	2.00
1353	99.45	170.57	2.40	1.81	1.00	37.93	2.37	90.04	4.000	Yes	No	2.00
1354	99.56	157.24	2.47	2.08	1.00	34.83	2.76	96.01	4.000	Yes	No	2.00
1355	99.64	147.39	2.52	2.34	1.00	32.55	3.13	101.90	4.000	Yes	No	2.00
1356	99.71	140.04	2.57	2.64	1.00	30.84	3.53	108.77	4.000	Yes	No	2.00
1357	99.75	128.26	2.63	2.93	1.00	28.12	4.04	113.72	4.000	Yes	Yes	2.00
1358	99.90	116.32	2.70	3.25	1.00	25.35	4.67	118.27	4.000	Yes	Yes	2.00
1359	99.95	101.78	2.79	3.87	1.00	22.01	5.75	126.55	4.000	Yes	Yes	2.00
1360	100.04	116.32	2.73	3.67	1.00	25.32	5.03	127.45	4.000	Yes	Yes	2.00
1361	100.14	159.30	2.55	2.82	1.00	35.14	3.33	116.89	4.000	Yes	No	2.00
1362	100.14	204.99	2.39	2.20	1.00	45.59	2.33	106.43	4.000	Yes	No	2.00
1363	100.15	235.79	2.32	2.02	1.00	52.64	2.00	105.52	4.000	Yes	No	2.00
1364	100.19	258.80	2.30	2.10	1.00	57.89	1.93	111.71	4.000	Yes	No	2.00
1365	100.21	298.07	2.26	2.14	1.00	66.86	1.78	119.29	4.000	Yes	No	2.00
1366	100.24	351.88	2.06	1.31	1.00	79.16	1.37	108.37	4.000	Yes	No	2.00
1367	100.28	410.56	1.80	0.59	1.00	92.54	1.15	106.62	4.000	Yes	No	2.00
1368	100.31	470.98	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1369	100.33	508.57	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1370	100.38	524.63	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1371	100.39	526.55	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1372	100.43	531.78	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1373	100.48	522.24	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1374	100.53	509.38	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1375	100.57	496.12	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00
1376	100.60	497.27	N/A	0.00	1.00	-1.00	1.00	N/A	4.000	No	No	2.00

Abbreviations

Depth: Depth from free surface, at which CPT was performed (ft)
q_t: Total cone resistance
I_c: Soil behavior type index
Fr: Normalized friction ratio (%)
n: Stress exponent
Q_{tn}: Normalized cone resistance
K_c: Cone resistance correction factor due to fines
$Q_{tn,cs}$: Normalized and adjusted cone resistance
$CRR_{7.5}$: Cyclic resistance ratio for M_w=7.5
FS: Factor of safety against soil liquefaction

:: Liquefaction Potential Index calculation data ::

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
0.04	2.00	0.00	0.00	0.06	0.00	0.10	2.00	0.00	0.00	0.06	0.00
0.11	2.00	0.00	0.00	0.01	0.00	0.16	2.00	0.00	0.00	0.05	0.00
0.19	2.00	0.00	0.00	0.04	0.00	0.24	2.00	0.00	0.00	0.05	0.00
0.31	2.00	0.00	0.00	0.07	0.00	0.38	2.00	0.00	0.00	0.07	0.00
0.43	2.00	0.00	0.00	0.05	0.00	0.49	2.00	0.00	0.00	0.06	0.00
0.58	2.00	0.00	0.00	0.09	0.00	0.63	2.00	0.00	0.00	0.05	0.00
0.67	2.00	0.00	0.00	0.04	0.00	0.72	2.00	0.00	0.00	0.05	0.00
0.72	2.00	0.00	0.00	0.01	0.00	0.84	2.00	0.00	0.00	0.12	0.00
0.96	2.00	0.00	0.00	0.12	0.00	1.06	2.00	0.00	0.00	0.09	0.00
1.24	2.00	0.00	0.00	0.19	0.00	1.30	2.00	0.00	0.00	0.06	0.00
1.48	2.00	0.00	0.00	0.18	0.00	1.59	2.00	0.00	0.00	0.10	0.00
1.69	2.00	0.00	0.00	0.10	0.00	1.69	2.00	0.00	0.00	0.01	0.00
1.74	2.00	0.00	0.00	0.05	0.00	1.79	2.00	0.00	0.00	0.04	0.00
1.84	2.00	0.00	0.00	0.05	0.00	1.88	2.00	0.00	0.00	0.05	0.00
1.93	2.00	0.00	0.00	0.05	0.00	1.99	2.00	0.00	0.00	0.06	0.00
2.03	2.00	0.00	0.00	0.04	0.00	2.08	2.00	0.00	0.00	0.05	0.00
2.13	2.00	0.00	0.00	0.05	0.00	2.22	2.00	0.00	0.00	0.09	0.00
2.27	2.00	0.00	0.00	0.06	0.00	2.33	2.00	0.00	0.00	0.05	0.00
2.42	2.00	0.00	0.00	0.09	0.00	2.48	2.00	0.00	0.00	0.07	0.00
2.56	2.00	0.00	0.00	0.07	0.00	2.65	2.00	0.00	0.00	0.10	0.00
2.72	2.00	0.00	0.00	0.07	0.00	2.80	2.00	0.00	0.00	0.08	0.00
2.89	2.00	0.00	0.00	0.09	0.00	2.94	2.00	0.00	0.00	0.05	0.00
3.04	2.00	0.00	0.00	0.10	0.00	3.14	2.00	0.00	0.00	0.10	0.00
3.23	2.00	0.00	0.00	0.10	0.00	3.31	2.00	0.00	0.00	0.07	0.00
3.37	2.00	0.00	0.00	0.06	0.00	3.48	2.00	0.00	0.00	0.11	0.00
3.57	2.00	0.00	0.00	0.09	0.00	3.65	2.00	0.00	0.00	0.09	0.00
3.71	2.00	0.00	0.00	0.06	0.00	3.82	2.00	0.00	0.00	0.11	0.00
3.91	2.00	0.00	0.00	0.09	0.00	4.00	2.00	0.00	0.00	0.10	0.00
4.10	2.00	0.00	0.00	0.09	0.00	4.19	2.00	0.00	0.00	0.10	0.00
4.26	2.00	0.00	0.00	0.07	0.00	4.35	2.00	0.00	0.00	0.09	0.00
4.44	2.00	0.00	0.00	0.10	0.00	4.52	2.00	0.00	0.00	0.08	0.00
4.53	2.00	0.00	0.00	0.01	0.00	4.58	2.00	0.00	0.00	0.05	0.00
4.63	2.00	0.00	0.00	0.05	0.00	4.68	2.00	0.00	0.00	0.05	0.00
4.72	2.00	0.00	0.00	0.04	0.00	4.77	2.00	0.00	0.00	0.05	0.00
4.82	2.00	0.00	0.00	0.05	0.00	4.88	2.00	0.00	0.00	0.06	0.00
4.96	2.00	0.00	0.00	0.08	0.00	5.01	2.00	0.00	0.00	0.05	0.00
5.08	2.00	0.00	0.00	0.07	0.00	5.16	2.00	0.00	0.00	0.08	0.00
5.21	2.00	0.00	0.00	0.05	0.00	5.30	2.00	0.00	0.00	0.09	0.00
5.37	2.00	0.00	0.00	0.07	0.00	5.45	2.00	0.00	0.00	0.08	0.00
5.52	2.00	0.00	0.00	0.07	0.00	5.59	2.00	0.00	0.00	0.07	0.00
5.65	2.00	0.00	0.00	0.06	0.00	5.74	2.00	0.00	0.00	0.08	0.00
5.83	2.00	0.00	0.00	0.09	0.00	5.89	2.00	0.00	0.00	0.06	0.00
5.97	2.00	0.00	0.00	0.08	0.00	6.07	2.00	0.00	0.00	0.09	0.00
6.12	2.00	0.00	0.00	0.05	0.00	6.22	2.00	0.00	0.00	0.10	0.00
6.28	2.00	0.00	0.00	0.06	0.00	6.36	2.00	0.00	0.00	0.08	0.00
6.46	2.00	0.00	0.00	0.10	0.00	6.52	2.00	0.00	0.00	0.06	0.00
6.60	2.00	0.00	0.00	0.09	0.00	6.70	2.00	0.00	0.00	0.09	0.00
6.76	2.00	0.00	0.00	0.07	0.00	6.84	2.00	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
6.94	2.00	0.00	0.00	0.10	0.00	7.03	2.00	0.00	0.00	0.09	0.00
7.13	2.00	0.00	0.00	0.09	0.00	7.19	2.00	0.00	0.00	0.06	0.00
7.32	2.00	0.00	0.00	0.13	0.00	7.42	2.00	0.00	0.00	0.10	0.00
7.49	2.00	0.00	0.00	0.07	0.00	7.57	2.00	0.00	0.00	0.08	0.00
7.66	2.00	0.00	0.00	0.09	0.00	7.76	2.00	0.00	0.00	0.10	0.00
7.77	2.00	0.00	0.00	0.01	0.00	7.78	2.00	0.00	0.00	0.00	0.00
7.82	2.00	0.00	0.00	0.04	0.00	7.87	2.00	0.00	0.00	0.05	0.00
7.92	2.00	0.00	0.00	0.04	0.00	7.97	2.00	0.00	0.00	0.05	0.00
8.01	2.00	0.00	0.00	0.04	0.00	8.06	2.00	0.00	0.00	0.05	0.00
8.11	2.00	0.00	0.00	0.05	0.00	8.20	2.00	0.00	0.00	0.09	0.00
8.26	2.00	0.00	0.00	0.06	0.00	8.35	2.00	0.00	0.00	0.09	0.00
8.40	2.00	0.00	0.00	0.06	0.00	8.49	2.00	0.00	0.00	0.09	0.00
8.54	2.00	0.00	0.00	0.05	0.00	8.64	2.00	0.00	0.00	0.09	0.00
8.69	2.00	0.00	0.00	0.05	0.00	8.79	2.00	0.00	0.00	0.10	0.00
8.84	2.00	0.00	0.00	0.05	0.00	8.93	2.00	0.00	0.00	0.09	0.00
9.03	2.00	0.00	0.00	0.10	0.00	9.08	2.00	0.00	0.00	0.06	0.00
9.11	2.00	0.00	0.00	0.02	0.00	9.12	2.00	0.00	0.00	0.01	0.00
9.17	2.00	0.00	0.00	0.05	0.00	9.22	2.00	0.00	0.00	0.05	0.00
9.31	2.00	0.00	0.00	0.10	0.00	9.36	2.00	0.00	0.00	0.05	0.00
9.40	2.00	0.00	0.00	0.03	0.00	9.46	2.00	0.00	0.00	0.06	0.00
9.51	2.00	0.00	0.00	0.05	0.00	9.55	2.00	0.00	0.00	0.04	0.00
9.61	2.00	0.00	0.00	0.06	0.00	9.69	2.00	0.00	0.00	0.09	0.00
9.74	2.00	0.00	0.00	0.05	0.00	9.81	2.00	0.00	0.00	0.07	0.00
9.89	2.00	0.00	0.00	0.07	0.00	9.94	2.00	0.00	0.00	0.05	0.00
10.03	2.00	0.00	0.00	0.09	0.00	10.08	2.00	0.00	0.00	0.05	0.00
10.18	2.00	0.00	0.00	0.11	0.00	10.23	2.00	0.00	0.00	0.04	0.00
10.33	2.00	0.00	0.00	0.10	0.00	10.40	2.00	0.00	0.00	0.07	0.00
10.47	2.00	0.00	0.00	0.07	0.00	10.51	2.00	0.00	0.00	0.04	0.00
10.56	2.00	0.00	0.00	0.05	0.00	10.61	2.00	0.00	0.00	0.05	0.00
10.67	2.00	0.00	0.00	0.05	0.00	10.75	2.00	0.00	0.00	0.08	0.00
10.80	2.00	0.00	0.00	0.05	0.00	10.85	2.00	0.00	0.00	0.05	0.00
10.90	2.00	0.00	0.00	0.04	0.00	11.00	2.00	0.00	0.00	0.10	0.00
11.05	2.00	0.00	0.00	0.06	0.00	11.14	2.00	0.00	0.00	0.09	0.00
11.21	2.00	0.00	0.00	0.07	0.00	11.29	2.00	0.00	0.00	0.08	0.00
11.38	2.00	0.00	0.00	0.09	0.00	11.46	2.00	0.00	0.00	0.08	0.00
11.52	2.00	0.00	0.00	0.06	0.00	11.60	2.00	0.00	0.00	0.08	0.00
11.67	2.00	0.00	0.00	0.07	0.00	11.72	2.00	0.00	0.00	0.05	0.00
11.81	2.00	0.00	0.00	0.09	0.00	11.86	2.00	0.00	0.00	0.05	0.00
11.96	2.00	0.00	0.00	0.10	0.00	12.01	2.00	0.00	0.00	0.05	0.00
12.10	2.00	0.00	0.00	0.09	0.00	12.16	2.00	0.00	0.00	0.06	0.00
12.24	2.00	0.00	0.00	0.09	0.00	12.32	2.00	0.00	0.00	0.07	0.00
12.39	2.00	0.00	0.00	0.08	0.00	12.48	2.00	0.00	0.00	0.09	0.00
12.50	2.00	0.00	0.00	0.01	0.00	12.54	2.00	0.00	0.00	0.04	0.00
12.64	2.00	0.00	0.00	0.10	0.00	12.68	2.00	0.00	0.00	0.05	0.00
12.77	2.00	0.00	0.00	0.08	0.00	12.82	2.00	0.00	0.00	0.06	0.00
12.89	2.00	0.00	0.00	0.07	0.00	12.97	2.00	0.00	0.00	0.08	0.00
13.03	2.00	0.00	0.00	0.06	0.00	13.12	2.00	0.00	0.00	0.09	0.00
13.16	2.00	0.00	0.00	0.05	0.00	13.26	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
13.34	2.00	0.00	0.00	0.08	0.00	13.41	2.00	0.00	0.00	0.06	0.00
13.50	2.00	0.00	0.00	0.09	0.00	13.60	2.00	0.00	0.00	0.10	0.00
13.65	2.00	0.00	0.00	0.05	0.00	13.75	2.00	0.00	0.00	0.10	0.00
13.80	2.00	0.00	0.00	0.06	0.00	13.89	2.00	0.00	0.00	0.09	0.00
13.94	2.00	0.00	0.00	0.05	0.00	14.03	2.00	0.00	0.00	0.09	0.00
14.11	2.00	0.00	0.00	0.07	0.00	14.13	2.00	0.00	0.00	0.02	0.00
14.18	2.00	0.00	0.00	0.05	0.00	14.22	2.00	0.00	0.00	0.04	0.00
14.28	2.00	0.00	0.00	0.06	0.00	14.37	2.00	0.00	0.00	0.09	0.00
14.44	2.00	0.00	0.00	0.07	0.00	14.51	2.00	0.00	0.00	0.08	0.00
14.60	2.00	0.00	0.00	0.09	0.00	14.65	2.00	0.00	0.00	0.05	0.00
14.75	2.00	0.00	0.00	0.10	0.00	14.85	2.00	0.00	0.00	0.10	0.00
14.91	2.00	0.00	0.00	0.06	0.00	14.99	2.00	0.00	0.00	0.08	0.00
15.09	2.00	0.00	0.00	0.09	0.00	15.18	2.00	0.00	0.00	0.09	0.00
15.25	2.00	0.00	0.00	0.07	0.00	15.33	2.00	0.00	0.00	0.08	0.00
15.43	2.00	0.00	0.00	0.10	0.00	15.51	2.00	0.00	0.00	0.09	0.00
15.59	2.00	0.00	0.00	0.08	0.00	15.67	2.00	0.00	0.00	0.08	0.00
15.76	2.00	0.00	0.00	0.09	0.00	15.86	2.00	0.00	0.00	0.10	0.00
15.95	2.00	0.00	0.00	0.09	0.00	16.05	2.00	0.00	0.00	0.10	0.00
16.14	2.00	0.00	0.00	0.09	0.00	16.20	2.00	0.00	0.00	0.06	0.00
16.28	2.00	0.00	0.00	0.09	0.00	16.34	2.00	0.00	0.00	0.05	0.00
16.44	2.00	0.00	0.00	0.10	0.00	16.50	2.00	0.00	0.00	0.06	0.00
16.58	2.00	0.00	0.00	0.08	0.00	16.73	2.00	0.00	0.00	0.15	0.00
16.82	2.00	0.00	0.00	0.09	0.00	16.92	2.00	0.00	0.00	0.10	0.00
17.01	2.00	0.00	0.00	0.09	0.00	17.11	2.00	0.00	0.00	0.09	0.00
17.12	2.00	0.00	0.00	0.01	0.00	17.14	2.00	0.00	0.00	0.02	0.00
17.19	2.00	0.00	0.00	0.05	0.00	17.28	2.00	0.00	0.00	0.09	0.00
17.33	2.00	0.00	0.00	0.05	0.00	17.43	2.00	0.00	0.00	0.10	0.00
17.47	2.00	0.00	0.00	0.05	0.00	17.57	2.00	0.00	0.00	0.10	0.00
17.65	2.00	0.00	0.00	0.08	0.00	17.72	2.00	0.00	0.00	0.06	0.00
17.81	2.00	0.00	0.00	0.09	0.00	17.86	2.00	0.00	0.00	0.05	0.00
17.95	2.00	0.00	0.00	0.10	0.00	18.05	2.00	0.00	0.00	0.10	0.00
18.10	2.00	0.00	0.00	0.05	0.00	18.20	2.00	0.00	0.00	0.10	0.00
18.30	2.00	0.00	0.00	0.10	0.00	18.39	2.00	0.00	0.00	0.10	0.00
18.48	2.00	0.00	0.00	0.09	0.00	18.58	2.00	0.00	0.00	0.10	0.00
18.66	2.00	0.00	0.00	0.08	0.00	18.74	2.00	0.00	0.00	0.08	0.00
18.87	2.00	0.00	0.00	0.13	0.00	18.97	2.00	0.00	0.00	0.10	0.00
19.06	2.00	0.00	0.00	0.10	0.00	19.16	2.00	0.00	0.00	0.10	0.00
19.25	2.00	0.00	0.00	0.10	0.00	19.27	2.00	0.00	0.00	0.01	0.00
19.30	2.00	0.00	0.00	0.03	0.00	19.34	2.00	0.00	0.00	0.04	0.00
19.39	2.00	0.00	0.00	0.05	0.00	19.49	2.00	0.00	0.00	0.10	0.00
19.55	2.00	0.00	0.00	0.06	0.00	19.63	2.00	0.00	0.00	0.08	0.00
19.68	2.00	0.00	0.00	0.05	0.00	19.74	2.00	0.00	0.00	0.06	0.00
19.83	2.00	0.00	0.00	0.08	0.00	19.87	2.00	0.00	0.00	0.05	0.00
19.94	2.00	0.00	0.00	0.07	0.00	20.02	2.00	0.00	0.00	0.08	0.00
20.07	2.00	0.00	0.00	0.05	0.00	20.17	2.00	0.00	0.00	0.10	0.00
20.21	2.00	0.00	0.00	0.05	0.00	20.28	2.00	0.00	0.00	0.07	0.00
20.36	2.00	0.00	0.00	0.08	0.00	20.41	2.00	0.00	0.00	0.05	0.00
20.48	2.00	0.00	0.00	0.07	0.00	20.55	2.00	0.00	0.00	0.07	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
20.60	2.00	0.00	0.00	0.05	0.00	20.70	2.00	0.00	0.00	0.10	0.00
20.74	2.00	0.00	0.00	0.05	0.00	20.79	2.00	0.00	0.00	0.05	0.00
20.89	2.00	0.00	0.00	0.09	0.00	20.96	2.00	0.00	0.00	0.08	0.00
21.04	2.00	0.00	0.00	0.07	0.00	21.13	2.00	0.00	0.00	0.09	0.00
21.22	2.00	0.00	0.00	0.09	0.00	21.29	2.00	0.00	0.00	0.06	0.00
21.35	2.00	0.00	0.00	0.06	0.00	21.37	2.00	0.00	0.00	0.03	0.00
21.42	2.00	0.00	0.00	0.05	0.00	21.47	2.00	0.00	0.00	0.05	0.00
21.48	2.00	0.00	0.00	0.01	0.00	21.52	2.00	0.00	0.00	0.04	0.00
21.57	2.00	0.00	0.00	0.05	0.00	21.62	2.00	0.00	0.00	0.05	0.00
21.66	2.00	0.00	0.00	0.05	0.00	21.71	2.00	0.00	0.00	0.05	0.00
21.76	2.00	0.00	0.00	0.05	0.00	21.81	2.00	0.00	0.00	0.05	0.00
21.85	2.00	0.00	0.00	0.04	0.00	21.91	2.00	0.00	0.00	0.05	0.00
21.95	2.00	0.00	0.00	0.05	0.00	22.00	2.00	0.00	0.00	0.05	0.00
22.05	2.00	0.00	0.00	0.04	0.00	22.10	2.00	0.00	0.00	0.05	0.00
22.15	2.00	0.00	0.00	0.05	0.00	22.19	2.00	0.00	0.00	0.05	0.00
22.24	2.00	0.00	0.00	0.05	0.00	22.29	2.00	0.00	0.00	0.05	0.00
22.34	2.00	0.00	0.00	0.05	0.00	22.39	2.00	0.00	0.00	0.05	0.00
22.43	2.00	0.00	0.00	0.05	0.00	22.48	2.00	0.00	0.00	0.05	0.00
22.55	2.00	0.00	0.00	0.06	0.00	22.62	2.00	0.00	0.00	0.07	0.00
22.63	2.00	0.00	0.00	0.01	0.00	22.72	2.00	0.00	0.00	0.10	0.00
22.77	2.00	0.00	0.00	0.04	0.00	22.83	2.00	0.00	0.00	0.06	0.00
22.91	2.00	0.00	0.00	0.08	0.00	22.96	2.00	0.00	0.00	0.05	0.00
23.02	2.00	0.00	0.00	0.05	0.00	23.10	2.00	0.00	0.00	0.09	0.00
23.16	2.00	0.00	0.00	0.06	0.00	23.20	2.00	0.00	0.00	0.05	0.00
23.26	2.00	0.00	0.00	0.06	0.00	23.35	2.00	0.00	0.00	0.09	0.00
23.39	2.00	0.00	0.00	0.04	0.00	23.48	2.00	0.00	0.00	0.09	0.00
23.54	2.00	0.00	0.00	0.06	0.00	23.63	2.00	0.00	0.00	0.09	0.00
23.69	2.00	0.00	0.00	0.06	0.00	23.78	2.00	0.00	0.00	0.09	0.00
23.87	2.00	0.00	0.00	0.09	0.00	23.88	2.00	0.00	0.00	0.01	0.00
23.93	2.00	0.00	0.00	0.05	0.00	24.02	2.00	0.00	0.00	0.10	0.00
24.04	2.00	0.00	0.00	0.01	0.00	24.05	2.00	0.00	0.00	0.02	0.00
24.15	2.00	0.00	0.00	0.10	0.00	24.20	2.00	0.00	0.00	0.05	0.00
24.30	2.00	0.00	0.00	0.10	0.00	24.40	2.00	0.00	0.00	0.09	0.00
24.46	2.00	0.00	0.00	0.07	0.00	24.54	2.00	0.00	0.00	0.08	0.00
24.64	2.00	0.00	0.00	0.10	0.00	24.73	2.00	0.00	0.00	0.09	0.00
24.78	2.00	0.00	0.00	0.06	0.00	24.88	2.00	0.00	0.00	0.09	0.00
24.94	2.00	0.00	0.00	0.06	0.00	25.02	2.00	0.00	0.00	0.08	0.00
25.12	2.00	0.00	0.00	0.10	0.00	25.17	2.00	0.00	0.00	0.05	0.00
25.27	2.00	0.00	0.00	0.10	0.00	25.36	2.00	0.00	0.00	0.09	0.00
25.43	2.00	0.00	0.00	0.07	0.00	25.50	2.00	0.00	0.00	0.08	0.00
25.60	2.00	0.00	0.00	0.10	0.00	25.64	2.00	0.00	0.00	0.04	0.00
25.67	2.00	0.00	0.00	0.03	0.00	25.71	2.00	0.00	0.00	0.04	0.00
25.79	2.00	0.00	0.00	0.09	0.00	25.93	2.00	0.00	0.00	0.14	0.00
26.03	2.00	0.00	0.00	0.10	0.00	26.13	2.00	0.00	0.00	0.10	0.00
26.24	2.00	0.00	0.00	0.11	0.00	26.37	2.00	0.00	0.00	0.13	0.00
26.47	2.00	0.00	0.00	0.10	0.00	26.60	2.00	0.00	0.00	0.13	0.00
26.71	2.00	0.00	0.00	0.11	0.00	26.85	2.00	0.00	0.00	0.15	0.00
26.95	2.00	0.00	0.00	0.09	0.00	27.04	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
27.09	2.00	0.00	0.00	0.05	0.00	27.19	2.00	0.00	0.00	0.10	0.00
27.23	2.00	0.00	0.00	0.05	0.00	27.33	2.00	0.00	0.00	0.10	0.00
27.40	2.00	0.00	0.00	0.07	0.00	27.47	2.00	0.00	0.00	0.07	0.00
27.57	2.00	0.00	0.00	0.11	0.00	27.66	2.00	0.00	0.00	0.09	0.00
27.77	2.00	0.00	0.00	0.10	0.00	27.86	2.00	0.00	0.00	0.10	0.00
27.96	2.00	0.00	0.00	0.10	0.00	28.06	2.00	0.00	0.00	0.10	0.00
28.15	2.00	0.00	0.00	0.09	0.00	28.25	2.00	0.00	0.00	0.10	0.00
28.34	2.00	0.00	0.00	0.09	0.00	28.44	2.00	0.00	0.00	0.10	0.00
28.54	2.00	0.00	0.00	0.10	0.00	28.62	2.00	0.00	0.00	0.08	0.00
28.71	2.00	0.00	0.00	0.09	0.00	28.77	2.00	0.00	0.00	0.05	0.00
28.86	2.00	0.00	0.00	0.09	0.00	28.91	2.00	0.00	0.00	0.05	0.00
28.97	2.00	0.00	0.00	0.05	0.00	29.04	2.00	0.00	0.00	0.08	0.00
29.10	2.00	0.00	0.00	0.06	0.00	29.15	2.00	0.00	0.00	0.05	0.00
29.25	2.00	0.00	0.00	0.10	0.00	29.34	2.00	0.00	0.00	0.09	0.00
29.38	2.00	0.00	0.00	0.04	0.00	29.48	2.00	0.00	0.00	0.10	0.00
29.55	2.00	0.00	0.00	0.06	0.00	29.63	2.00	0.00	0.00	0.09	0.00
29.72	2.00	0.00	0.00	0.09	0.00	29.82	2.00	0.00	0.00	0.10	0.00
29.88	2.00	0.00	0.00	0.06	0.00	29.96	2.00	0.00	0.00	0.08	0.00
30.06	2.00	0.00	0.00	0.09	0.00	30.13	2.00	0.00	0.00	0.07	0.00
30.18	0.34	0.00	0.00	0.04	0.05	30.28	0.35	0.00	0.00	0.10	0.11
30.37	0.36	0.00	0.00	0.09	0.10	30.47	0.37	0.00	0.00	0.10	0.10
30.57	0.38	0.00	0.00	0.10	0.10	30.66	0.40	0.00	0.00	0.10	0.10
30.74	0.41	0.00	0.00	0.08	0.07	30.82	0.42	0.00	0.00	0.08	0.07
30.90	0.43	0.00	0.00	0.08	0.07	31.01	0.45	0.00	0.00	0.11	0.10
31.10	0.48	0.00	0.00	0.08	0.07	31.19	0.51	0.00	0.00	0.09	0.07
31.28	0.54	0.00	0.00	0.09	0.07	31.35	0.58	0.00	0.00	0.06	0.04
31.43	0.60	0.00	0.00	0.09	0.06	31.53	0.63	0.00	0.00	0.09	0.05
31.60	0.57	0.00	0.00	0.07	0.05	31.67	0.52	0.00	0.00	0.08	0.06
31.77	0.48	0.00	0.00	0.10	0.08	31.84	0.50	0.00	0.00	0.07	0.05
31.91	0.51	0.00	0.00	0.07	0.05	31.98	0.53	0.00	0.00	0.07	0.05
31.98	0.55	0.00	0.00	0.01	0.01	32.04	0.56	0.00	0.00	0.05	0.04
32.12	2.00	0.00	0.00	0.08	0.00	32.16	2.00	0.00	0.00	0.05	0.00
32.27	2.00	0.00	0.00	0.10	0.00	32.33	2.00	0.00	0.00	0.06	0.00
32.41	2.00	0.00	0.00	0.08	0.00	32.50	2.00	0.00	0.00	0.09	0.00
32.58	2.00	0.00	0.00	0.08	0.00	32.66	2.00	0.00	0.00	0.07	0.00
32.74	2.00	0.00	0.00	0.09	0.00	32.84	2.00	0.00	0.00	0.10	0.00
32.90	2.00	0.00	0.00	0.06	0.00	32.98	2.00	0.00	0.00	0.09	0.00
33.08	2.00	0.00	0.00	0.09	0.00	33.14	2.00	0.00	0.00	0.07	0.00
33.22	2.00	0.00	0.00	0.08	0.00	33.32	2.00	0.00	0.00	0.10	0.00
33.37	2.00	0.00	0.00	0.05	0.00	33.47	2.00	0.00	0.00	0.10	0.00
33.56	2.00	0.00	0.00	0.09	0.00	33.63	2.00	0.00	0.00	0.07	0.00
33.71	2.00	0.00	0.00	0.08	0.00	33.81	2.00	0.00	0.00	0.09	0.00
33.90	2.00	0.00	0.00	0.09	0.00	33.95	2.00	0.00	0.00	0.05	0.00
34.04	2.00	0.00	0.00	0.09	0.00	34.14	2.00	0.00	0.00	0.10	0.00
34.17	2.00	0.00	0.00	0.02	0.00	34.20	2.00	0.00	0.00	0.04	0.00
34.26	2.00	0.00	0.00	0.05	0.00	34.35	2.00	0.00	0.00	0.09	0.00
34.43	2.00	0.00	0.00	0.08	0.00	34.49	2.00	0.00	0.00	0.06	0.00
34.59	2.00	0.00	0.00	0.09	0.00	34.69	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
34.73	2.00	0.00	0.00	0.05	0.00	34.83	2.00	0.00	0.00	0.10	0.00
34.90	2.00	0.00	0.00	0.07	0.00	34.98	2.00	0.00	0.00	0.08	0.00
35.07	2.00	0.00	0.00	0.09	0.00	35.16	2.00	0.00	0.00	0.10	0.00
35.26	2.00	0.00	0.00	0.10	0.00	35.33	2.00	0.00	0.00	0.07	0.00
35.40	2.00	0.00	0.00	0.07	0.00	35.50	2.00	0.00	0.00	0.10	0.00
35.57	2.00	0.00	0.00	0.06	0.00	35.65	2.00	0.00	0.00	0.08	0.00
35.71	2.00	0.00	0.00	0.06	0.00	35.79	2.00	0.00	0.00	0.09	0.00
35.85	2.00	0.00	0.00	0.06	0.00	35.94	2.00	0.00	0.00	0.08	0.00
35.99	2.00	0.00	0.00	0.06	0.00	36.08	2.00	0.00	0.00	0.08	0.00
36.17	2.00	0.00	0.00	0.10	0.00	36.24	2.00	0.00	0.00	0.07	0.00
36.33	2.00	0.00	0.00	0.08	0.00	36.42	2.00	0.00	0.00	0.09	0.00
36.52	2.00	0.00	0.00	0.10	0.00	36.61	2.00	0.00	0.00	0.09	0.00
36.70	2.00	0.00	0.00	0.09	0.00	36.78	2.00	0.00	0.00	0.08	0.00
36.85	2.00	0.00	0.00	0.07	0.00	36.87	2.00	0.00	0.00	0.01	0.00
36.91	2.00	0.00	0.00	0.05	0.00	36.97	2.00	0.00	0.00	0.06	0.00
37.06	2.00	0.00	0.00	0.09	0.00	37.12	2.00	0.00	0.00	0.06	0.00
37.20	2.00	0.00	0.00	0.08	0.00	37.27	2.00	0.00	0.00	0.08	0.00
37.35	2.00	0.00	0.00	0.07	0.00	37.44	2.00	0.00	0.00	0.09	0.00
37.49	2.00	0.00	0.00	0.05	0.00	37.59	2.00	0.00	0.00	0.10	0.00
37.64	2.00	0.00	0.00	0.05	0.00	37.70	2.00	0.00	0.00	0.07	0.00
37.78	2.00	0.00	0.00	0.08	0.00	37.83	2.00	0.00	0.00	0.05	0.00
37.92	2.00	0.00	0.00	0.09	0.00	37.97	2.00	0.00	0.00	0.05	0.00
38.07	0.90	0.00	0.00	0.09	0.01	38.14	0.94	0.00	0.00	0.07	0.01
38.22	0.99	0.00	0.00	0.08	0.00	38.31	1.06	0.00	0.00	0.09	0.00
38.41	1.16	0.00	0.00	0.09	0.00	38.52	1.27	0.00	0.00	0.11	0.00
38.64	1.33	0.00	0.00	0.13	0.00	38.74	1.34	0.00	0.00	0.10	0.00
38.80	1.33	0.00	0.00	0.06	0.00	38.89	1.31	0.00	0.00	0.08	0.00
38.94	1.36	0.00	0.00	0.05	0.00	39.03	1.37	0.00	0.00	0.09	0.00
39.13	1.39	0.00	0.00	0.10	0.00	39.23	1.38	0.00	0.00	0.10	0.00
39.35	1.34	0.00	0.00	0.12	0.00	39.42	1.26	0.00	0.00	0.07	0.00
39.51	1.14	0.00	0.00	0.09	0.00	39.60	1.02	0.00	0.00	0.09	0.00
39.70	0.93	0.00	0.00	0.10	0.01	39.78	0.86	0.00	0.00	0.07	0.01
39.90	0.80	0.00	0.00	0.12	0.03	39.99	0.74	0.00	0.00	0.09	0.03
40.09	2.00	0.00	0.00	0.10	0.00	40.18	2.00	0.00	0.00	0.09	0.00
40.23	2.00	0.00	0.00	0.05	0.00	40.33	2.00	0.00	0.00	0.10	0.00
40.43	2.00	0.00	0.00	0.10	0.00	40.52	2.00	0.00	0.00	0.09	0.00
40.61	2.00	0.00	0.00	0.08	0.00	40.69	2.00	0.00	0.00	0.09	0.00
40.80	2.00	0.00	0.00	0.10	0.00	40.87	2.00	0.00	0.00	0.08	0.00
40.95	2.00	0.00	0.00	0.08	0.00	40.97	2.00	0.00	0.00	0.02	0.00
41.01	2.00	0.00	0.00	0.04	0.00	41.07	2.00	0.00	0.00	0.06	0.00
41.15	2.00	0.00	0.00	0.08	0.00	41.26	0.44	0.00	0.00	0.11	0.07
41.35	0.45	0.00	0.00	0.09	0.06	41.47	0.46	0.00	0.00	0.12	0.08
41.59	0.47	0.00	0.00	0.12	0.07	41.69	0.48	0.00	0.00	0.10	0.06
41.78	0.49	0.00	0.00	0.09	0.05	41.88	2.00	0.00	0.00	0.10	0.00
41.98	2.00	0.00	0.00	0.10	0.00	42.08	2.00	0.00	0.00	0.10	0.00
42.16	2.00	0.00	0.00	0.08	0.00	42.24	2.00	0.00	0.00	0.08	0.00
42.31	2.00	0.00	0.00	0.07	0.00	42.45	0.48	0.00	0.00	0.14	0.08
42.55	0.47	0.00	0.00	0.09	0.05	42.60	0.47	0.00	0.00	0.05	0.03

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
42.70	0.48	0.00	0.00	0.10	0.06	42.81	0.51	0.00	0.00	0.11	0.06
42.89	2.00	0.00	0.00	0.08	0.00	42.98	2.00	0.00	0.00	0.10	0.00
43.08	2.00	0.00	0.00	0.10	0.00	43.17	2.00	0.00	0.00	0.09	0.00
43.27	2.00	0.00	0.00	0.10	0.00	43.37	2.00	0.00	0.00	0.09	0.00
43.50	2.00	0.00	0.00	0.14	0.00	43.61	0.35	0.00	0.00	0.10	0.07
43.74	0.35	0.00	0.00	0.13	0.09	43.79	0.37	0.00	0.00	0.05	0.03
43.86	2.00	0.00	0.00	0.07	0.00	43.94	2.00	0.00	0.00	0.07	0.00
44.00	2.00	0.00	0.00	0.06	0.00	44.08	2.00	0.00	0.00	0.08	0.00
44.17	2.00	0.00	0.00	0.09	0.00	44.27	2.00	0.00	0.00	0.10	0.00
44.42	2.00	0.00	0.00	0.14	0.00	44.52	2.00	0.00	0.00	0.10	0.00
44.61	2.00	0.00	0.00	0.10	0.00	44.71	0.40	0.00	0.00	0.09	0.06
44.85	0.40	0.00	0.00	0.14	0.08	44.95	0.42	0.00	0.00	0.10	0.06
45.09	0.45	0.00	0.00	0.14	0.07	45.19	2.00	0.00	0.00	0.10	0.00
45.33	2.00	0.00	0.00	0.14	0.00	45.42	2.00	0.00	0.00	0.10	0.00
45.57	2.00	0.00	0.00	0.14	0.00	45.68	2.00	0.00	0.00	0.11	0.00
45.81	2.00	0.00	0.00	0.14	0.00	45.92	2.00	0.00	0.00	0.11	0.00
46.05	2.00	0.00	0.00	0.13	0.00	46.16	2.00	0.00	0.00	0.10	0.00
46.17	2.00	0.00	0.00	0.01	0.00	46.23	2.00	0.00	0.00	0.06	0.00
46.29	2.00	0.00	0.00	0.05	0.00	46.34	2.00	0.00	0.00	0.05	0.00
46.42	2.00	0.00	0.00	0.09	0.00	46.48	2.00	0.00	0.00	0.05	0.00
46.52	2.00	0.00	0.00	0.05	0.00	46.60	2.00	0.00	0.00	0.08	0.00
46.67	2.00	0.00	0.00	0.07	0.00	46.74	2.00	0.00	0.00	0.07	0.00
46.82	2.00	0.00	0.00	0.08	0.00	46.88	2.00	0.00	0.00	0.06	0.00
46.96	2.00	0.00	0.00	0.09	0.00	47.06	2.00	0.00	0.00	0.09	0.00
47.15	2.00	0.00	0.00	0.10	0.00	47.24	2.00	0.00	0.00	0.09	0.00
47.35	2.00	0.00	0.00	0.10	0.00	47.49	2.00	0.00	0.00	0.14	0.00
47.58	2.00	0.00	0.00	0.09	0.00	47.73	2.00	0.00	0.00	0.15	0.00
47.83	2.00	0.00	0.00	0.10	0.00	47.87	2.00	0.00	0.00	0.04	0.00
47.89	2.00	0.00	0.00	0.02	0.00	47.94	2.00	0.00	0.00	0.05	0.00
48.02	2.00	0.00	0.00	0.08	0.00	48.07	2.00	0.00	0.00	0.05	0.00
48.12	2.00	0.00	0.00	0.05	0.00	48.18	2.00	0.00	0.00	0.06	0.00
48.26	2.00	0.00	0.00	0.08	0.00	48.31	2.00	0.00	0.00	0.06	0.00
48.38	2.00	0.00	0.00	0.06	0.00	48.46	2.00	0.00	0.00	0.08	0.00
48.52	2.00	0.00	0.00	0.06	0.00	48.60	2.00	0.00	0.00	0.08	0.00
48.68	2.00	0.00	0.00	0.08	0.00	48.74	2.00	0.00	0.00	0.06	0.00
48.82	2.00	0.00	0.00	0.08	0.00	48.89	2.00	0.00	0.00	0.07	0.00
48.99	2.00	0.00	0.00	0.10	0.00	49.05	2.00	0.00	0.00	0.06	0.00
49.12	2.00	0.00	0.00	0.08	0.00	49.18	2.00	0.00	0.00	0.06	0.00
49.27	2.00	0.00	0.00	0.09	0.00	49.32	2.00	0.00	0.00	0.05	0.00
49.42	2.00	0.00	0.00	0.09	0.00	49.48	2.00	0.00	0.00	0.06	0.00
49.56	2.00	0.00	0.00	0.09	0.00	49.66	2.00	0.00	0.00	0.10	0.00
49.76	2.00	0.00	0.00	0.09	0.00	49.85	2.00	0.00	0.00	0.09	0.00
49.99	2.00	0.00	0.00	0.14	0.00	50.09	2.00	0.00	0.00	0.10	0.00
50.21	2.00	0.00	0.00	0.12	0.00	50.24	2.00	0.00	0.00	0.03	0.00
50.29	2.00	0.00	0.00	0.05	0.00	50.38	2.00	0.00	0.00	0.09	0.00
50.47	2.00	0.00	0.00	0.09	0.00	50.52	2.00	0.00	0.00	0.05	0.00
50.62	2.00	0.00	0.00	0.10	0.00	50.66	2.00	0.00	0.00	0.05	0.00
50.76	2.00	0.00	0.00	0.10	0.00	50.83	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
50.91	2.00	0.00	0.00	0.09	0.00	51.00	2.00	0.00	0.00	0.09	0.00
51.06	2.00	0.00	0.00	0.06	0.00	51.15	2.00	0.00	0.00	0.08	0.00
51.24	2.00	0.00	0.00	0.10	0.00	51.31	2.00	0.00	0.00	0.07	0.00
51.39	2.00	0.00	0.00	0.08	0.00	51.48	2.00	0.00	0.00	0.09	0.00
51.58	2.00	0.00	0.00	0.10	0.00	51.68	2.00	0.00	0.00	0.10	0.00
51.77	2.00	0.00	0.00	0.10	0.00	51.90	2.00	0.00	0.00	0.13	0.00
52.01	2.00	0.00	0.00	0.11	0.00	52.11	2.00	0.00	0.00	0.10	0.00
52.26	2.00	0.00	0.00	0.14	0.00	52.30	2.00	0.00	0.00	0.05	0.00
52.33	2.00	0.00	0.00	0.03	0.00	52.35	2.00	0.00	0.00	0.02	0.00
52.40	2.00	0.00	0.00	0.05	0.00	52.45	2.00	0.00	0.00	0.05	0.00
52.50	2.00	0.00	0.00	0.05	0.00	52.55	2.00	0.00	0.00	0.05	0.00
52.60	2.00	0.00	0.00	0.05	0.00	52.65	2.00	0.00	0.00	0.05	0.00
52.71	2.00	0.00	0.00	0.07	0.00	52.77	2.00	0.00	0.00	0.05	0.00
52.82	2.00	0.00	0.00	0.05	0.00	52.88	2.00	0.00	0.00	0.06	0.00
52.93	2.00	0.00	0.00	0.06	0.00	52.98	2.00	0.00	0.00	0.05	0.00
53.03	2.00	0.00	0.00	0.05	0.00	53.08	2.00	0.00	0.00	0.05	0.00
53.12	2.00	0.00	0.00	0.04	0.00	53.17	2.00	0.00	0.00	0.05	0.00
53.23	2.00	0.00	0.00	0.05	0.00	53.28	2.00	0.00	0.00	0.06	0.00
53.37	2.00	0.00	0.00	0.09	0.00	53.42	2.00	0.00	0.00	0.05	0.00
53.46	2.00	0.00	0.00	0.05	0.00	53.53	2.00	0.00	0.00	0.06	0.00
53.61	2.00	0.00	0.00	0.08	0.00	53.62	2.00	0.00	0.00	0.01	0.00
53.65	2.00	0.00	0.00	0.04	0.00	53.67	2.00	0.00	0.00	0.01	0.00
53.70	2.00	0.00	0.00	0.04	0.00	53.74	2.00	0.00	0.00	0.04	0.00
53.76	2.00	0.00	0.00	0.02	0.00	53.80	2.00	0.00	0.00	0.04	0.00
53.84	2.00	0.00	0.00	0.05	0.00	53.90	2.00	0.00	0.00	0.05	0.00
53.91	2.00	0.00	0.00	0.01	0.00	53.95	2.00	0.00	0.00	0.04	0.00
53.96	2.00	0.00	0.00	0.01	0.00	53.98	2.00	0.00	0.00	0.02	0.00
53.99	2.00	0.00	0.00	0.01	0.00	54.01	2.00	0.00	0.00	0.01	0.00
54.02	2.00	0.00	0.00	0.01	0.00	54.03	2.00	0.00	0.00	0.01	0.00
54.04	2.00	0.00	0.00	0.01	0.00	54.05	2.00	0.00	0.00	0.01	0.00
54.09	2.00	0.00	0.00	0.04	0.00	54.10	2.00	0.00	0.00	0.01	0.00
54.13	2.00	0.00	0.00	0.04	0.00	54.14	2.00	0.00	0.00	0.01	0.00
54.19	2.00	0.00	0.00	0.05	0.00	54.19	2.00	0.00	0.00	0.01	0.00
54.24	2.00	0.00	0.00	0.05	0.00	54.29	2.00	0.00	0.00	0.04	0.00
54.33	2.00	0.00	0.00	0.05	0.00	54.38	2.00	0.00	0.00	0.05	0.00
54.39	2.00	0.00	0.00	0.01	0.00	54.43	2.00	0.00	0.00	0.04	0.00
54.48	2.00	0.00	0.00	0.05	0.00	54.52	2.00	0.00	0.00	0.05	0.00
54.58	2.00	0.00	0.00	0.05	0.00	54.62	2.00	0.00	0.00	0.04	0.00
54.65	2.00	0.00	0.00	0.03	0.00	54.67	2.00	0.00	0.00	0.02	0.00
54.71	2.00	0.00	0.00	0.04	0.00	54.77	2.00	0.00	0.00	0.05	0.00
54.81	2.00	0.00	0.00	0.05	0.00	54.85	2.00	0.00	0.00	0.04	0.00
54.86	2.00	0.00	0.00	0.01	0.00	54.87	2.00	0.00	0.00	0.01	0.00
54.91	2.00	0.00	0.00	0.04	0.00	54.96	2.00	0.00	0.00	0.04	0.00
55.00	2.00	0.00	0.00	0.04	0.00	55.01	2.00	0.00	0.00	0.01	0.00
55.05	2.00	0.00	0.00	0.05	0.00	55.10	2.00	0.00	0.00	0.05	0.00
55.12	2.00	0.00	0.00	0.01	0.00	55.13	2.00	0.00	0.00	0.02	0.00
55.14	2.00	0.00	0.00	0.01	0.00	55.19	2.00	0.00	0.00	0.05	0.00
55.20	2.00	0.00	0.00	0.01	0.00	55.25	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
55.29	2.00	0.00	0.00	0.04	0.00	55.33	2.00	0.00	0.00	0.04	0.00
55.38	2.00	0.00	0.00	0.05	0.00	55.48	2.00	0.00	0.00	0.10	0.00
55.57	2.00	0.00	0.00	0.09	0.00	55.63	2.00	0.00	0.00	0.05	0.00
55.72	2.00	0.00	0.00	0.10	0.00	55.80	2.00	0.00	0.00	0.08	0.00
55.86	2.00	0.00	0.00	0.06	0.00	55.97	2.00	0.00	0.00	0.10	0.00
56.01	2.00	0.00	0.00	0.05	0.00	56.06	2.00	0.00	0.00	0.05	0.00
56.11	2.00	0.00	0.00	0.05	0.00	56.15	2.00	0.00	0.00	0.04	0.00
56.20	2.00	0.00	0.00	0.05	0.00	56.27	2.00	0.00	0.00	0.06	0.00
56.27	2.00	0.00	0.00	0.01	0.00	56.30	2.00	0.00	0.00	0.03	0.00
56.33	2.00	0.00	0.00	0.03	0.00	56.35	2.00	0.00	0.00	0.01	0.00
56.40	2.00	0.00	0.00	0.05	0.00	56.41	2.00	0.00	0.00	0.01	0.00
56.44	2.00	0.00	0.00	0.04	0.00	56.49	2.00	0.00	0.00	0.05	0.00
56.54	2.00	0.00	0.00	0.04	0.00	56.58	2.00	0.00	0.00	0.05	0.00
56.59	2.00	0.00	0.00	0.01	0.00	56.64	2.00	0.00	0.00	0.05	0.00
56.69	2.00	0.00	0.00	0.05	0.00	56.73	2.00	0.00	0.00	0.04	0.00
56.78	2.00	0.00	0.00	0.05	0.00	56.83	2.00	0.00	0.00	0.05	0.00
56.88	2.00	0.00	0.00	0.05	0.00	56.89	2.00	0.00	0.00	0.02	0.00
56.95	2.00	0.00	0.00	0.06	0.00	57.01	2.00	0.00	0.00	0.06	0.00
57.07	2.00	0.00	0.00	0.06	0.00	57.11	2.00	0.00	0.00	0.05	0.00
57.17	2.00	0.00	0.00	0.06	0.00	57.26	1.89	0.00	0.00	0.09	0.00
57.31	1.67	0.00	0.00	0.05	0.00	57.37	1.46	0.00	0.00	0.06	0.00
57.45	1.26	0.00	0.00	0.08	0.00	57.51	1.03	0.00	0.00	0.06	0.00
57.53	0.89	0.00	0.00	0.02	0.00	57.59	0.80	0.00	0.00	0.05	0.00
57.63	0.79	0.00	0.00	0.05	0.00	57.68	0.76	0.00	0.00	0.05	0.00
57.73	0.74	0.00	0.00	0.05	0.01	57.78	0.71	0.00	0.00	0.05	0.01
57.86	0.64	0.00	0.00	0.08	0.01	57.92	2.00	0.00	0.00	0.06	0.00
57.98	2.00	0.00	0.00	0.06	0.00	58.06	2.00	0.00	0.00	0.08	0.00
58.12	2.00	0.00	0.00	0.05	0.00	58.21	2.00	0.00	0.00	0.09	0.00
58.26	2.00	0.00	0.00	0.05	0.00	58.35	2.00	0.00	0.00	0.09	0.00
58.41	2.00	0.00	0.00	0.06	0.00	58.50	2.00	0.00	0.00	0.09	0.00
58.56	2.00	0.00	0.00	0.06	0.00	58.64	2.00	0.00	0.00	0.08	0.00
58.73	2.00	0.00	0.00	0.09	0.00	58.80	2.00	0.00	0.00	0.07	0.00
58.84	2.00	0.00	0.00	0.03	0.00	58.85	2.00	0.00	0.00	0.01	0.00
58.93	2.00	0.00	0.00	0.08	0.00	58.98	2.00	0.00	0.00	0.05	0.00
59.02	2.00	0.00	0.00	0.05	0.00	59.12	2.00	0.00	0.00	0.10	0.00
59.17	2.00	0.00	0.00	0.05	0.00	59.27	2.00	0.00	0.00	0.09	0.00
59.31	2.00	0.00	0.00	0.05	0.00	59.41	2.00	0.00	0.00	0.09	0.00
59.46	2.00	0.00	0.00	0.05	0.00	59.55	2.00	0.00	0.00	0.09	0.00
59.65	2.00	0.00	0.00	0.10	0.00	59.70	2.00	0.00	0.00	0.05	0.00
59.80	2.00	0.00	0.00	0.10	0.00	59.89	2.00	0.00	0.00	0.09	0.00
59.94	2.00	0.00	0.00	0.05	0.00	60.01	2.00	0.00	0.00	0.07	0.00
60.02	2.00	0.00	0.00	0.02	0.00	60.08	2.00	0.00	0.00	0.05	0.00
60.12	2.00	0.00	0.00	0.04	0.00	60.17	2.00	0.00	0.00	0.05	0.00
60.27	2.00	0.00	0.00	0.10	0.00	60.31	2.00	0.00	0.00	0.04	0.00
60.37	2.00	0.00	0.00	0.06	0.00	60.46	2.00	0.00	0.00	0.09	0.00
60.51	2.00	0.00	0.00	0.05	0.00	60.61	2.00	0.00	0.00	0.10	0.00
60.65	2.00	0.00	0.00	0.05	0.00	60.75	2.00	0.00	0.00	0.10	0.00
60.81	2.00	0.00	0.00	0.05	0.00	60.89	2.00	0.00	0.00	0.08	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
60.94	2.00	0.00	0.00	0.05	0.00	61.03	2.00	0.00	0.00	0.09	0.00
61.09	2.00	0.00	0.00	0.06	0.00	61.19	2.00	0.00	0.00	0.09	0.00
61.24	2.00	0.00	0.00	0.06	0.00	61.33	2.00	0.00	0.00	0.08	0.00
61.38	2.00	0.00	0.00	0.05	0.00	61.47	2.00	0.00	0.00	0.10	0.00
61.53	2.00	0.00	0.00	0.06	0.00	61.62	2.00	0.00	0.00	0.09	0.00
61.70	2.00	0.00	0.00	0.09	0.00	61.77	2.00	0.00	0.00	0.06	0.00
61.86	2.00	0.00	0.00	0.09	0.00	61.95	2.00	0.00	0.00	0.10	0.00
61.97	2.00	0.00	0.00	0.02	0.00	62.01	2.00	0.00	0.00	0.04	0.00
62.10	2.00	0.00	0.00	0.09	0.00	62.24	2.00	0.00	0.00	0.14	0.00
62.34	2.00	0.00	0.00	0.10	0.00	62.49	2.00	0.00	0.00	0.14	0.00
62.54	2.00	0.00	0.00	0.05	0.00	62.66	2.00	0.00	0.00	0.12	0.00
62.74	2.00	0.00	0.00	0.08	0.00	62.87	2.00	0.00	0.00	0.13	0.00
62.92	2.00	0.00	0.00	0.05	0.00	63.03	2.00	0.00	0.00	0.11	0.00
63.15	2.00	0.00	0.00	0.12	0.00	63.26	2.00	0.00	0.00	0.11	0.00
63.37	2.00	0.00	0.00	0.11	0.00	63.45	2.00	0.00	0.00	0.08	0.00
63.54	2.00	0.00	0.00	0.10	0.00	63.61	2.00	0.00	0.00	0.07	0.00
63.69	2.00	0.00	0.00	0.08	0.00	63.79	2.00	0.00	0.00	0.09	0.00
63.89	2.00	0.00	0.00	0.10	0.00	63.98	2.00	0.00	0.00	0.09	0.00
64.07	2.00	0.00	0.00	0.09	0.00	64.15	2.00	0.00	0.00	0.08	0.00
64.23	2.00	0.00	0.00	0.08	0.00	64.26	2.00	0.00	0.00	0.03	0.00
64.29	2.00	0.00	0.00	0.02	0.00	64.33	2.00	0.00	0.00	0.05	0.00
64.43	2.00	0.00	0.00	0.10	0.00	64.47	2.00	0.00	0.00	0.04	0.00
64.53	2.00	0.00	0.00	0.05	0.00	64.62	2.00	0.00	0.00	0.10	0.00
64.72	2.00	0.00	0.00	0.09	0.00	64.78	2.00	0.00	0.00	0.06	0.00
64.86	2.00	0.00	0.00	0.09	0.00	64.96	2.00	0.00	0.00	0.10	0.00
65.06	2.00	0.00	0.00	0.09	0.00	65.11	2.00	0.00	0.00	0.05	0.00
65.21	2.00	0.00	0.00	0.10	0.00	65.31	2.00	0.00	0.00	0.10	0.00
65.40	2.00	0.00	0.00	0.09	0.00	65.50	2.00	0.00	0.00	0.10	0.00
65.58	2.00	0.00	0.00	0.09	0.00	65.68	2.00	0.00	0.00	0.10	0.00
65.78	2.00	0.00	0.00	0.10	0.00	65.84	2.00	0.00	0.00	0.07	0.00
65.86	2.00	0.00	0.00	0.01	0.00	65.87	2.00	0.00	0.00	0.01	0.00
65.98	2.00	0.00	0.00	0.11	0.00	66.10	2.00	0.00	0.00	0.12	0.00
66.21	2.00	0.00	0.00	0.11	0.00	66.34	2.00	0.00	0.00	0.13	0.00
66.48	2.00	0.00	0.00	0.14	0.00	66.62	2.00	0.00	0.00	0.14	0.00
66.68	2.00	0.00	0.00	0.06	0.00	66.87	2.00	0.00	0.00	0.19	0.00
66.96	2.00	0.00	0.00	0.09	0.00	67.11	2.00	0.00	0.00	0.15	0.00
67.21	2.00	0.00	0.00	0.10	0.00	67.35	2.00	0.00	0.00	0.14	0.00
67.45	2.00	0.00	0.00	0.10	0.00	67.59	2.00	0.00	0.00	0.14	0.00
67.68	2.00	0.00	0.00	0.09	0.00	67.83	2.00	0.00	0.00	0.15	0.00
67.92	2.00	0.00	0.00	0.10	0.00	68.02	2.00	0.00	0.00	0.09	0.00
68.07	2.00	0.00	0.00	0.05	0.00	68.16	2.00	0.00	0.00	0.09	0.00
68.26	2.00	0.00	0.00	0.10	0.00	68.35	2.00	0.00	0.00	0.09	0.00
68.45	2.00	0.00	0.00	0.10	0.00	68.55	2.00	0.00	0.00	0.10	0.00
68.65	2.00	0.00	0.00	0.10	0.00	68.78	2.00	0.00	0.00	0.13	0.00
68.78	2.00	0.00	0.00	0.01	0.00	68.79	2.00	0.00	0.00	0.01	0.00
68.83	2.00	0.00	0.00	0.04	0.00	68.93	2.00	0.00	0.00	0.09	0.00
68.98	2.00	0.00	0.00	0.05	0.00	69.04	2.00	0.00	0.00	0.06	0.00
69.12	2.00	0.00	0.00	0.08	0.00	69.22	2.00	0.00	0.00	0.10	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
69.28	2.00	0.00	0.00	0.07	0.00	69.36	2.00	0.00	0.00	0.08	0.00
69.45	2.00	0.00	0.00	0.09	0.00	69.60	2.00	0.00	0.00	0.14	0.00
69.70	2.00	0.00	0.00	0.10	0.00	69.80	2.00	0.00	0.00	0.09	0.00
69.89	2.00	0.00	0.00	0.10	0.00	69.98	2.00	0.00	0.00	0.09	0.00
70.08	2.00	0.00	0.00	0.10	0.00	70.18	2.00	0.00	0.00	0.10	0.00
70.32	2.00	0.00	0.00	0.14	0.00	70.42	2.00	0.00	0.00	0.10	0.00
70.54	2.00	0.00	0.00	0.12	0.00	70.66	2.00	0.00	0.00	0.12	0.00
70.75	2.00	0.00	0.00	0.09	0.00	70.80	2.00	0.00	0.00	0.05	0.00
70.89	2.00	0.00	0.00	0.09	0.00	70.99	2.00	0.00	0.00	0.10	0.00
71.08	2.00	0.00	0.00	0.09	0.00	71.17	2.00	0.00	0.00	0.09	0.00
71.23	2.00	0.00	0.00	0.05	0.00	71.33	2.00	0.00	0.00	0.10	0.00
71.42	2.00	0.00	0.00	0.09	0.00	71.52	2.00	0.00	0.00	0.10	0.00
71.58	2.00	0.00	0.00	0.06	0.00	71.67	2.00	0.00	0.00	0.08	0.00
71.81	2.00	0.00	0.00	0.14	0.00	71.82	2.00	0.00	0.00	0.01	0.00
71.86	2.00	0.00	0.00	0.04	0.00	71.91	2.00	0.00	0.00	0.05	0.00
71.97	2.00	0.00	0.00	0.06	0.00	72.05	2.00	0.00	0.00	0.08	0.00
72.10	2.00	0.00	0.00	0.05	0.00	72.20	2.00	0.00	0.00	0.10	0.00
72.25	2.00	0.00	0.00	0.05	0.00	72.34	2.00	0.00	0.00	0.10	0.00
72.44	2.00	0.00	0.00	0.10	0.00	72.53	2.00	0.00	0.00	0.09	0.00
72.63	2.00	0.00	0.00	0.10	0.00	72.69	2.00	0.00	0.00	0.06	0.00
72.82	2.00	0.00	0.00	0.13	0.00	72.92	2.00	0.00	0.00	0.09	0.00
73.06	2.00	0.00	0.00	0.14	0.00	73.16	2.00	0.00	0.00	0.10	0.00
73.30	2.00	0.00	0.00	0.14	0.00	73.35	2.00	0.00	0.00	0.05	0.00
73.38	2.00	0.00	0.00	0.03	0.00	73.47	2.00	0.00	0.00	0.09	0.00
73.53	2.00	0.00	0.00	0.06	0.00	73.62	2.00	0.00	0.00	0.09	0.00
73.71	2.00	0.00	0.00	0.09	0.00	73.77	2.00	0.00	0.00	0.06	0.00
73.86	2.00	0.00	0.00	0.09	0.00	73.96	2.00	0.00	0.00	0.09	0.00
74.06	2.00	0.00	0.00	0.10	0.00	74.13	2.00	0.00	0.00	0.07	0.00
74.24	2.00	0.00	0.00	0.11	0.00	74.34	2.00	0.00	0.00	0.10	0.00
74.44	2.00	0.00	0.00	0.10	0.00	74.58	2.00	0.00	0.00	0.14	0.00
74.68	2.00	0.00	0.00	0.10	0.00	74.80	2.00	0.00	0.00	0.13	0.00
74.92	2.00	0.00	0.00	0.12	0.00	75.07	2.00	0.00	0.00	0.14	0.00
75.08	2.00	0.00	0.00	0.01	0.00	75.11	2.00	0.00	0.00	0.03	0.00
75.16	2.00	0.00	0.00	0.05	0.00	75.25	2.00	0.00	0.00	0.09	0.00
75.32	2.00	0.00	0.00	0.07	0.00	75.40	2.00	0.00	0.00	0.08	0.00
75.50	2.00	0.00	0.00	0.10	0.00	75.59	2.00	0.00	0.00	0.09	0.00
75.69	2.00	0.00	0.00	0.10	0.00	75.78	2.00	0.00	0.00	0.09	0.00
75.88	2.00	0.00	0.00	0.09	0.00	75.96	2.00	0.00	0.00	0.09	0.00
76.05	2.00	0.00	0.00	0.08	0.00	76.14	2.00	0.00	0.00	0.09	0.00
76.26	2.00	0.00	0.00	0.12	0.00	76.36	2.00	0.00	0.00	0.10	0.00
76.41	2.00	0.00	0.00	0.05	0.00	76.51	2.00	0.00	0.00	0.10	0.00
76.65	2.00	0.00	0.00	0.14	0.00	76.72	2.00	0.00	0.00	0.07	0.00
76.79	2.00	0.00	0.00	0.07	0.00	76.89	2.00	0.00	0.00	0.10	0.00
76.98	2.00	0.00	0.00	0.09	0.00	77.08	2.00	0.00	0.00	0.10	0.00
77.18	2.00	0.00	0.00	0.10	0.00	77.28	2.00	0.00	0.00	0.10	0.00
77.37	2.00	0.00	0.00	0.10	0.00	77.42	2.00	0.00	0.00	0.04	0.00
77.42	2.00	0.00	0.00	0.01	0.00	77.44	2.00	0.00	0.00	0.01	0.00
77.48	2.00	0.00	0.00	0.04	0.00	77.52	2.00	0.00	0.00	0.04	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
77.54	2.00	0.00	0.00	0.02	0.00	77.57	2.00	0.00	0.00	0.03	0.00
77.62	2.00	0.00	0.00	0.05	0.00	77.65	2.00	0.00	0.00	0.04	0.00
77.67	2.00	0.00	0.00	0.01	0.00	77.71	2.00	0.00	0.00	0.04	0.00
77.71	2.00	0.00	0.00	0.01	0.00	77.76	2.00	0.00	0.00	0.05	0.00
77.81	2.00	0.00	0.00	0.05	0.00	77.90	2.00	0.00	0.00	0.09	0.00
77.95	2.00	0.00	0.00	0.05	0.00	78.01	2.00	0.00	0.00	0.06	0.00
78.10	2.00	0.00	0.00	0.09	0.00	78.16	2.00	0.00	0.00	0.06	0.00
78.24	2.00	0.00	0.00	0.08	0.00	78.29	2.00	0.00	0.00	0.05	0.00
78.39	2.00	0.00	0.00	0.10	0.00	78.47	2.00	0.00	0.00	0.08	0.00
78.53	2.00	0.00	0.00	0.06	0.00	78.62	2.00	0.00	0.00	0.09	0.00
78.68	2.00	0.00	0.00	0.05	0.00	78.69	2.00	0.00	0.00	0.01	0.00
78.78	2.00	0.00	0.00	0.09	0.00	78.81	2.00	0.00	0.00	0.04	0.00
78.92	2.00	0.00	0.00	0.11	0.00	79.03	2.00	0.00	0.00	0.11	0.00
79.16	2.00	0.00	0.00	0.13	0.00	79.26	2.00	0.00	0.00	0.10	0.00
79.35	2.00	0.00	0.00	0.09	0.00	79.45	2.00	0.00	0.00	0.10	0.00
79.54	2.00	0.00	0.00	0.09	0.00	79.64	2.00	0.00	0.00	0.10	0.00
79.74	2.00	0.00	0.00	0.10	0.00	79.88	2.00	0.00	0.00	0.14	0.00
79.98	2.00	0.00	0.00	0.10	0.00	80.12	2.00	0.00	0.00	0.14	0.00
80.22	2.00	0.00	0.00	0.09	0.00	80.36	2.00	0.00	0.00	0.14	0.00
80.46	2.00	0.00	0.00	0.10	0.00	80.60	2.00	0.00	0.00	0.14	0.00
80.70	2.00	0.00	0.00	0.10	0.00	80.83	2.00	0.00	0.00	0.13	0.00
80.94	2.00	0.00	0.00	0.11	0.00	81.01	2.00	0.00	0.00	0.07	0.00
81.04	2.00	0.00	0.00	0.03	0.00	81.09	2.00	0.00	0.00	0.06	0.00
81.13	2.00	0.00	0.00	0.04	0.00	81.18	2.00	0.00	0.00	0.05	0.00
81.23	2.00	0.00	0.00	0.05	0.00	81.28	2.00	0.00	0.00	0.05	0.00
81.33	2.00	0.00	0.00	0.05	0.00	81.37	2.00	0.00	0.00	0.05	0.00
81.42	2.00	0.00	0.00	0.04	0.00	81.47	2.00	0.00	0.00	0.05	0.00
81.52	2.00	0.00	0.00	0.05	0.00	81.56	2.00	0.00	0.00	0.05	0.00
81.61	2.00	0.00	0.00	0.04	0.00	81.64	2.00	0.00	0.00	0.04	0.00
81.70	2.00	0.00	0.00	0.06	0.00	81.75	2.00	0.00	0.00	0.05	0.00
81.79	2.00	0.00	0.00	0.04	0.00	81.82	2.00	0.00	0.00	0.03	0.00
81.86	2.00	0.00	0.00	0.04	0.00	81.91	2.00	0.00	0.00	0.05	0.00
81.95	2.00	0.00	0.00	0.04	0.00	82.00	2.00	0.00	0.00	0.05	0.00
82.09	2.00	0.00	0.00	0.09	0.00	82.15	2.00	0.00	0.00	0.06	0.00
82.19	2.00	0.00	0.00	0.04	0.00	82.26	2.00	0.00	0.00	0.07	0.00
82.34	2.00	0.00	0.00	0.08	0.00	82.39	2.00	0.00	0.00	0.05	0.00
82.48	2.00	0.00	0.00	0.10	0.00	82.58	2.00	0.00	0.00	0.09	0.00
82.62	2.00	0.00	0.00	0.04	0.00	82.70	2.00	0.00	0.00	0.08	0.00
82.77	2.00	0.00	0.00	0.07	0.00	82.87	2.00	0.00	0.00	0.10	0.00
82.96	2.00	0.00	0.00	0.09	0.00	83.06	2.00	0.00	0.00	0.10	0.00
83.16	2.00	0.00	0.00	0.10	0.00	83.25	2.00	0.00	0.00	0.09	0.00
83.34	2.00	0.00	0.00	0.09	0.00	83.44	2.00	0.00	0.00	0.10	0.00
83.54	2.00	0.00	0.00	0.10	0.00	83.64	2.00	0.00	0.00	0.09	0.00
83.73	2.00	0.00	0.00	0.10	0.00	83.83	2.00	0.00	0.00	0.09	0.00
83.85	2.00	0.00	0.00	0.02	0.00	83.89	2.00	0.00	0.00	0.04	0.00
83.94	2.00	0.00	0.00	0.05	0.00	84.04	2.00	0.00	0.00	0.10	0.00
84.09	2.00	0.00	0.00	0.05	0.00	84.13	2.00	0.00	0.00	0.04	0.00
84.18	2.00	0.00	0.00	0.05	0.00	84.25	2.00	0.00	0.00	0.06	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
84.33	2.00	0.00	0.00	0.08	0.00	84.37	2.00	0.00	0.00	0.05	0.00
84.46	2.00	0.00	0.00	0.08	0.00	84.52	2.00	0.00	0.00	0.06	0.00
84.57	2.00	0.00	0.00	0.05	0.00	84.67	2.00	0.00	0.00	0.10	0.00
84.71	2.00	0.00	0.00	0.04	0.00	84.81	2.00	0.00	0.00	0.10	0.00
84.86	2.00	0.00	0.00	0.05	0.00	84.91	2.00	0.00	0.00	0.06	0.00
85.00	2.00	0.00	0.00	0.09	0.00	85.05	2.00	0.00	0.00	0.05	0.00
85.15	2.00	0.00	0.00	0.10	0.00	85.19	2.00	0.00	0.00	0.05	0.00
85.29	2.00	0.00	0.00	0.10	0.00	85.35	2.00	0.00	0.00	0.06	0.00
85.42	2.00	0.00	0.00	0.07	0.00	85.48	2.00	0.00	0.00	0.06	0.00
85.55	2.00	0.00	0.00	0.06	0.00	85.63	2.00	0.00	0.00	0.08	0.00
85.68	2.00	0.00	0.00	0.05	0.00	85.77	2.00	0.00	0.00	0.09	0.00
85.82	2.00	0.00	0.00	0.05	0.00	85.89	2.00	0.00	0.00	0.07	0.00
85.96	2.00	0.00	0.00	0.08	0.00	86.03	2.00	0.00	0.00	0.07	0.00
86.11	2.00	0.00	0.00	0.07	0.00	86.16	2.00	0.00	0.00	0.06	0.00
86.25	2.00	0.00	0.00	0.09	0.00	86.36	2.00	0.00	0.00	0.11	0.00
86.50	2.00	0.00	0.00	0.14	0.00	86.51	2.00	0.00	0.00	0.01	0.00
86.52	2.00	0.00	0.00	0.01	0.00	86.57	2.00	0.00	0.00	0.05	0.00
86.65	2.00	0.00	0.00	0.09	0.00	86.71	2.00	0.00	0.00	0.06	0.00
86.80	2.00	0.00	0.00	0.09	0.00	86.90	2.00	0.00	0.00	0.09	0.00
86.99	2.00	0.00	0.00	0.09	0.00	87.04	2.00	0.00	0.00	0.05	0.00
87.14	2.00	0.00	0.00	0.09	0.00	87.19	2.00	0.00	0.00	0.06	0.00
87.28	2.00	0.00	0.00	0.09	0.00	87.38	2.00	0.00	0.00	0.09	0.00
87.43	2.00	0.00	0.00	0.06	0.00	87.52	2.00	0.00	0.00	0.09	0.00
87.61	2.00	0.00	0.00	0.09	0.00	87.66	2.00	0.00	0.00	0.05	0.00
87.76	2.00	0.00	0.00	0.10	0.00	87.84	2.00	0.00	0.00	0.08	0.00
87.91	2.00	0.00	0.00	0.07	0.00	88.00	2.00	0.00	0.00	0.09	0.00
88.11	2.00	0.00	0.00	0.11	0.00	88.19	2.00	0.00	0.00	0.08	0.00
88.25	2.00	0.00	0.00	0.06	0.00	88.34	2.00	0.00	0.00	0.09	0.00
88.44	2.00	0.00	0.00	0.10	0.00	88.54	2.00	0.00	0.00	0.11	0.00
88.64	2.00	0.00	0.00	0.10	0.00	88.72	2.00	0.00	0.00	0.09	0.00
88.82	2.00	0.00	0.00	0.10	0.00	88.91	2.00	0.00	0.00	0.09	0.00
89.01	2.00	0.00	0.00	0.10	0.00	89.10	2.00	0.00	0.00	0.09	0.00
89.19	2.00	0.00	0.00	0.09	0.00	89.30	2.00	0.00	0.00	0.11	0.00
89.39	2.00	0.00	0.00	0.09	0.00	89.49	2.00	0.00	0.00	0.10	0.00
89.59	2.00	0.00	0.00	0.09	0.00	89.69	2.00	0.00	0.00	0.10	0.00
89.73	2.00	0.00	0.00	0.05	0.00	89.78	2.00	0.00	0.00	0.04	0.00
89.83	2.00	0.00	0.00	0.06	0.00	89.88	2.00	0.00	0.00	0.05	0.00
89.93	2.00	0.00	0.00	0.05	0.00	90.00	2.00	0.00	0.00	0.07	0.00
90.07	2.00	0.00	0.00	0.08	0.00	90.12	2.00	0.00	0.00	0.05	0.00
90.22	2.00	0.00	0.00	0.09	0.00	90.27	2.00	0.00	0.00	0.05	0.00
90.36	2.00	0.00	0.00	0.09	0.00	90.46	2.00	0.00	0.00	0.10	0.00
90.50	2.00	0.00	0.00	0.04	0.00	90.61	2.00	0.00	0.00	0.10	0.00
90.66	2.00	0.00	0.00	0.05	0.00	90.75	2.00	0.00	0.00	0.09	0.00
90.84	2.00	0.00	0.00	0.09	0.00	90.89	2.00	0.00	0.00	0.05	0.00
90.99	2.00	0.00	0.00	0.10	0.00	91.04	2.00	0.00	0.00	0.05	0.00
91.14	2.00	0.00	0.00	0.09	0.00	91.22	2.00	0.00	0.00	0.09	0.00
91.28	2.00	0.00	0.00	0.06	0.00	91.37	2.00	0.00	0.00	0.09	0.00
91.47	2.00	0.00	0.00	0.10	0.00	91.61	2.00	0.00	0.00	0.14	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
91.71	2.00	0.00	0.00	0.10	0.00	91.81	2.00	0.00	0.00	0.10	0.00
91.87	2.00	0.00	0.00	0.06	0.00	92.00	2.00	0.00	0.00	0.13	0.00
92.10	2.00	0.00	0.00	0.10	0.00	92.20	2.00	0.00	0.00	0.10	0.00
92.33	2.00	0.00	0.00	0.13	0.00	92.38	2.00	0.00	0.00	0.05	0.00
92.43	2.00	0.00	0.00	0.05	0.00	92.48	2.00	0.00	0.00	0.05	0.00
92.56	2.00	0.00	0.00	0.08	0.00	92.63	2.00	0.00	0.00	0.07	0.00
92.67	2.00	0.00	0.00	0.05	0.00	92.72	2.00	0.00	0.00	0.04	0.00
92.77	2.00	0.00	0.00	0.05	0.00	92.86	2.00	0.00	0.00	0.10	0.00
92.92	2.00	0.00	0.00	0.05	0.00	92.97	2.00	0.00	0.00	0.05	0.00
93.05	2.00	0.00	0.00	0.08	0.00	93.10	2.00	0.00	0.00	0.06	0.00
93.16	2.00	0.00	0.00	0.06	0.00	93.25	2.00	0.00	0.00	0.09	0.00
93.35	2.00	0.00	0.00	0.10	0.00	93.40	2.00	0.00	0.00	0.05	0.00
93.49	2.00	0.00	0.00	0.10	0.00	93.56	2.00	0.00	0.00	0.07	0.00
93.64	2.00	0.00	0.00	0.08	0.00	93.73	2.00	0.00	0.00	0.09	0.00
93.83	2.00	0.00	0.00	0.10	0.00	93.88	2.00	0.00	0.00	0.05	0.00
93.97	2.00	0.00	0.00	0.09	0.00	94.07	2.00	0.00	0.00	0.10	0.00
94.17	2.00	0.00	0.00	0.10	0.00	94.26	2.00	0.00	0.00	0.10	0.00
94.36	2.00	0.00	0.00	0.09	0.00	94.45	2.00	0.00	0.00	0.09	0.00
94.55	2.00	0.00	0.00	0.10	0.00	94.64	2.00	0.00	0.00	0.09	0.00
94.72	2.00	0.00	0.00	0.07	0.00	94.74	2.00	0.00	0.00	0.03	0.00
94.77	2.00	0.00	0.00	0.02	0.00	94.85	2.00	0.00	0.00	0.08	0.00
94.90	2.00	0.00	0.00	0.05	0.00	94.95	2.00	0.00	0.00	0.05	0.00
95.01	2.00	0.00	0.00	0.06	0.00	95.09	2.00	0.00	0.00	0.08	0.00
95.14	2.00	0.00	0.00	0.05	0.00	95.23	2.00	0.00	0.00	0.09	0.00
95.29	2.00	0.00	0.00	0.06	0.00	95.38	2.00	0.00	0.00	0.09	0.00
95.43	2.00	0.00	0.00	0.05	0.00	95.52	2.00	0.00	0.00	0.09	0.00
95.57	2.00	0.00	0.00	0.05	0.00	95.67	2.00	0.00	0.00	0.10	0.00
95.77	2.00	0.00	0.00	0.09	0.00	95.86	2.00	0.00	0.00	0.10	0.00
95.95	2.00	0.00	0.00	0.09	0.00	96.03	2.00	0.00	0.00	0.08	0.00
96.11	2.00	0.00	0.00	0.08	0.00	96.20	2.00	0.00	0.00	0.09	0.00
96.30	2.00	0.00	0.00	0.10	0.00	96.39	2.00	0.00	0.00	0.09	0.00
96.50	2.00	0.00	0.00	0.11	0.00	96.59	2.00	0.00	0.00	0.09	0.00
96.69	2.00	0.00	0.00	0.10	0.00	96.78	2.00	0.00	0.00	0.09	0.00
96.87	2.00	0.00	0.00	0.09	0.00	96.98	2.00	0.00	0.00	0.11	0.00
97.02	2.00	0.00	0.00	0.04	0.00	97.06	2.00	0.00	0.00	0.05	0.00
97.12	2.00	0.00	0.00	0.05	0.00	97.16	2.00	0.00	0.00	0.04	0.00
97.21	2.00	0.00	0.00	0.05	0.00	97.27	2.00	0.00	0.00	0.06	0.00
97.33	2.00	0.00	0.00	0.06	0.00	97.40	2.00	0.00	0.00	0.07	0.00
97.45	2.00	0.00	0.00	0.05	0.00	97.50	2.00	0.00	0.00	0.05	0.00
97.58	2.00	0.00	0.00	0.08	0.00	97.65	2.00	0.00	0.00	0.07	0.00
97.69	2.00	0.00	0.00	0.04	0.00	97.74	2.00	0.00	0.00	0.05	0.00
97.81	2.00	0.00	0.00	0.07	0.00	97.88	2.00	0.00	0.00	0.08	0.00
97.93	2.00	0.00	0.00	0.05	0.00	98.03	2.00	0.00	0.00	0.10	0.00
98.15	2.00	0.00	0.00	0.12	0.00	98.21	2.00	0.00	0.00	0.06	0.00
98.32	2.00	0.00	0.00	0.11	0.00	98.42	2.00	0.00	0.00	0.09	0.00
98.47	2.00	0.00	0.00	0.05	0.00	98.57	2.00	0.00	0.00	0.10	0.00
98.70	2.00	0.00	0.00	0.13	0.00	98.78	2.00	0.00	0.00	0.08	0.00
98.85	2.00	0.00	0.00	0.06	0.00	98.86	2.00	0.00	0.00	0.01	0.00

:: Liquefaction Potential Index calculation data :: (continued)

Depth (ft)	FS	F_L	w_z	d_z	LPI	Depth (ft)	FS	F_L	w_z	d_z	LPI
98.92	2.00	0.00	0.00	0.06	0.00	98.98	2.00	0.00	0.00	0.06	0.00
99.03	2.00	0.00	0.00	0.05	0.00	99.11	2.00	0.00	0.00	0.07	0.00
99.18	2.00	0.00	0.00	0.07	0.00	99.23	2.00	0.00	0.00	0.05	0.00
99.32	2.00	0.00	0.00	0.09	0.00	99.37	2.00	0.00	0.00	0.05	0.00
99.45	2.00	0.00	0.00	0.08	0.00	99.56	2.00	0.00	0.00	0.11	0.00
99.64	2.00	0.00	0.00	0.07	0.00	99.71	2.00	0.00	0.00	0.07	0.00
99.75	2.00	0.00	0.00	0.04	0.00	99.90	2.00	0.00	0.00	0.15	0.00
99.95	2.00	0.00	0.00	0.05	0.00	100.04	2.00	0.00	0.00	0.09	0.00
100.14	2.00	0.00	0.00	0.09	0.00	100.14	2.00	0.00	0.00	0.00	0.00
100.15	2.00	0.00	0.00	0.01	0.00	100.19	2.00	0.00	0.00	0.03	0.00
100.21	2.00	0.00	0.00	0.02	0.00	100.24	2.00	0.00	0.00	0.03	0.00
100.28	2.00	0.00	0.00	0.05	0.00	100.31	2.00	0.00	0.00	0.02	0.00
100.33	2.00	0.00	0.00	0.02	0.00	100.38	2.00	0.00	0.00	0.05	0.00
100.39	2.00	0.00	0.00	0.01	0.00	100.43	2.00	0.00	0.00	0.03	0.00
100.48	2.00	0.00	0.00	0.05	0.00	100.53	2.00	0.00	0.00	0.05	0.00
100.57	2.00	0.00	0.00	0.05	0.00	100.60	2.00	0.00	0.00	0.02	0.00

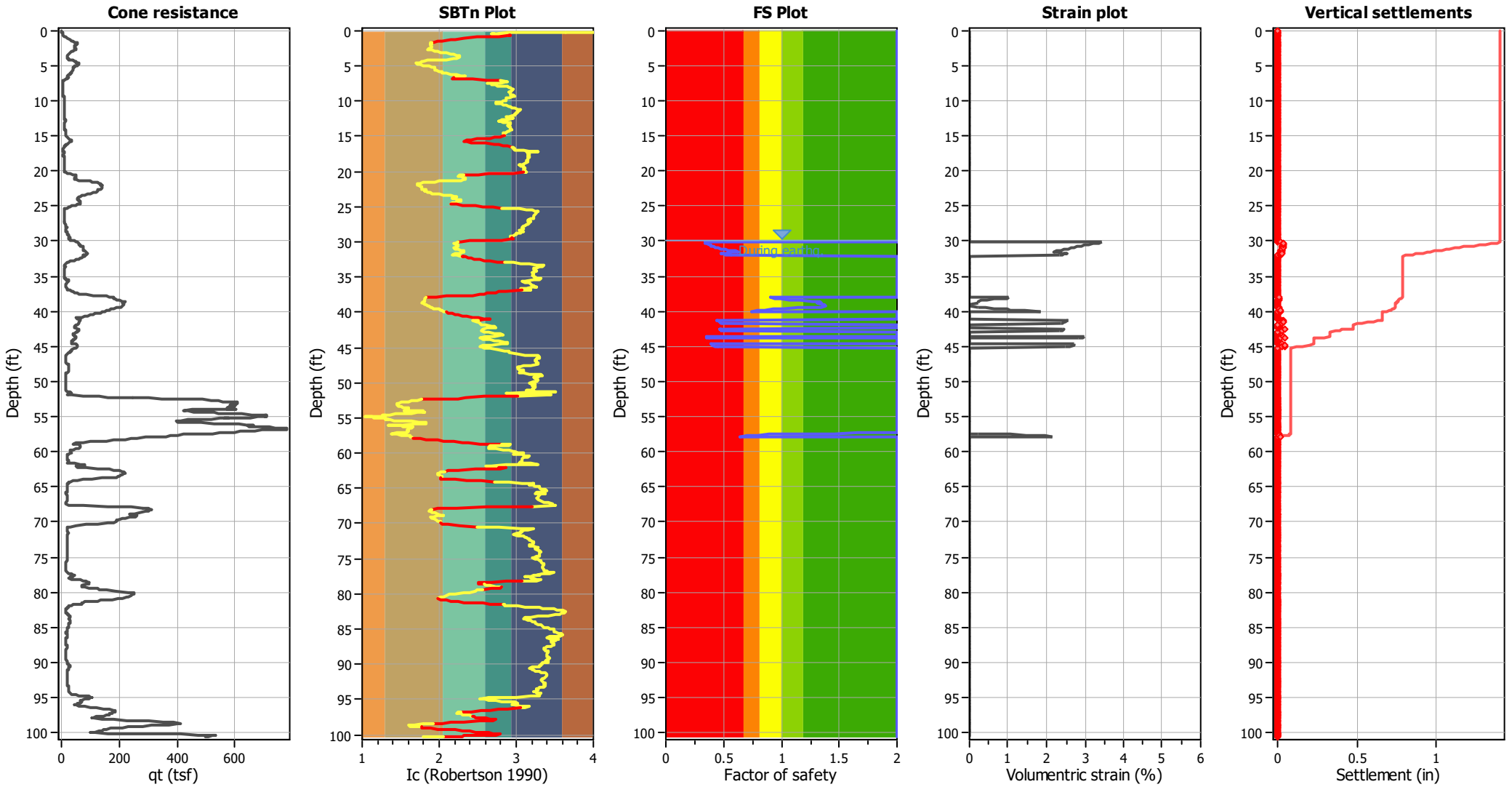
Overall liquefaction potential: 2.86

LPI = 0.00 - Liquefaction risk very low
LPI between 0.00 and 5.00 - Liquefaction risk low
LPI between 5.00 and 15.00 - Liquefaction risk high
LPI > 15.00 - Liquefaction risk very high

Abbreviations

FS: Calculated factor of safety for test point
F_L: 1 - FS
w_z: Function value of the extend of soil liquefaction according to depth
d_z: Layer thickness (ft)
LPI: Liquefaction potential index value for test point

Estimation of post-earthquake settlements



Abbreviations

q_t:	Total cone resistance (cone resistance q_c corrected for pore water effects)
I_c:	Soil Behaviour Type Index
FS:	Calculated Factor of Safety against liquefaction
Volumentric strain:	Post-liquefaction volumentric strain

:: Post-earthquake settlement due to soil liquefaction ::

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
30.06	59.16	2.00	0.00	1.00	0.00	30.13	60.99	2.00	0.00	1.00	0.00
30.18	62.30	0.34	3.44	1.00	0.02	30.28	64.44	0.35	3.35	1.00	0.04
30.37	67.53	0.36	3.22	1.00	0.04	30.47	71.05	0.37	3.09	1.00	0.04
30.57	73.87	0.38	3.00	1.00	0.04	30.66	76.12	0.40	2.92	1.00	0.03
30.74	78.31	0.41	2.86	1.00	0.03	30.82	80.52	0.42	2.79	1.00	0.03
30.90	82.93	0.43	2.72	1.00	0.03	31.01	85.67	0.45	2.65	1.00	0.04
31.10	89.47	0.48	2.56	1.00	0.03	31.19	93.96	0.51	2.46	1.00	0.03
31.28	98.21	0.54	2.37	1.00	0.03	31.35	101.82	0.58	2.30	1.00	0.02
31.43	104.59	0.60	2.25	1.00	0.02	31.53	107.28	0.63	2.21	1.00	0.02
31.60	101.10	0.57	2.32	1.00	0.02	31.67	95.74	0.52	2.42	1.00	0.02
31.77	91.18	0.48	2.52	1.00	0.03	31.84	93.40	0.50	2.47	1.00	0.02
31.91	95.19	0.51	2.43	1.00	0.02	31.98	97.23	0.53	2.39	1.00	0.02
31.98	99.23	0.55	2.35	1.00	0.00	32.04	100.65	0.56	2.32	1.00	0.02
32.12	102.19	2.00	0.00	1.00	0.00	32.16	105.63	2.00	0.00	1.00	0.00
32.27	108.77	2.00	0.00	1.00	0.00	32.33	111.51	2.00	0.00	1.00	0.00
32.41	112.40	2.00	0.00	1.00	0.00	32.50	111.66	2.00	0.00	1.00	0.00
32.58	110.12	2.00	0.00	1.00	0.00	32.66	108.68	2.00	0.00	1.00	0.00
32.74	107.79	2.00	0.00	1.00	0.00	32.84	107.96	2.00	0.00	1.00	0.00
32.90	107.62	2.00	0.00	1.00	0.00	32.98	104.08	2.00	0.00	1.00	0.00
33.08	101.84	2.00	0.00	1.00	0.00	33.14	99.50	2.00	0.00	1.00	0.00
33.22	96.06	2.00	0.00	1.00	0.00	33.32	91.43	2.00	0.00	1.00	0.00
33.37	85.28	2.00	0.00	1.00	0.00	33.47	81.70	2.00	0.00	1.00	0.00
33.56	79.85	2.00	0.00	1.00	0.00	33.63	80.15	2.00	0.00	1.00	0.00
33.71	78.37	2.00	0.00	1.00	0.00	33.81	72.19	2.00	0.00	1.00	0.00
33.90	65.65	2.00	0.00	1.00	0.00	33.95	60.28	2.00	0.00	1.00	0.00
34.04	59.84	2.00	0.00	1.00	0.00	34.14	59.54	2.00	0.00	1.00	0.00
34.17	59.63	2.00	0.00	1.00	0.00	34.20	59.92	2.00	0.00	1.00	0.00
34.26	60.14	2.00	0.00	1.00	0.00	34.35	59.91	2.00	0.00	1.00	0.00
34.43	59.45	2.00	0.00	1.00	0.00	34.49	58.59	2.00	0.00	1.00	0.00
34.59	57.25	2.00	0.00	1.00	0.00	34.69	55.91	2.00	0.00	1.00	0.00
34.73	54.88	2.00	0.00	1.00	0.00	34.83	54.34	2.00	0.00	1.00	0.00
34.90	54.48	2.00	0.00	1.00	0.00	34.98	55.47	2.00	0.00	1.00	0.00
35.07	58.28	2.00	0.00	1.00	0.00	35.16	64.79	2.00	0.00	1.00	0.00
35.26	76.48	2.00	0.00	1.00	0.00	35.33	89.71	2.00	0.00	1.00	0.00
35.40	101.03	2.00	0.00	1.00	0.00	35.50	106.70	2.00	0.00	1.00	0.00
35.57	109.72	2.00	0.00	1.00	0.00	35.65	112.36	2.00	0.00	1.00	0.00
35.71	115.22	2.00	0.00	1.00	0.00	35.79	116.27	2.00	0.00	1.00	0.00
35.85	113.90	2.00	0.00	1.00	0.00	35.94	109.71	2.00	0.00	1.00	0.00
35.99	103.66	2.00	0.00	1.00	0.00	36.08	95.94	2.00	0.00	1.00	0.00
36.17	88.35	2.00	0.00	1.00	0.00	36.24	82.76	2.00	0.00	1.00	0.00
36.33	81.11	2.00	0.00	1.00	0.00	36.42	82.08	2.00	0.00	1.00	0.00
36.52	77.16	2.00	0.00	1.00	0.00	36.61	74.88	2.00	0.00	1.00	0.00
36.70	76.79	2.00	0.00	1.00	0.00	36.78	88.43	2.00	0.00	1.00	0.00
36.85	99.18	2.00	0.00	1.00	0.00	36.87	103.88	2.00	0.00	1.00	0.00
36.91	105.17	2.00	0.00	1.00	0.00	36.97	104.77	2.00	0.00	1.00	0.00
37.06	105.20	2.00	0.00	1.00	0.00	37.12	107.91	2.00	0.00	1.00	0.00
37.20	112.33	2.00	0.00	1.00	0.00	37.27	114.30	2.00	0.00	1.00	0.00
37.35	112.42	2.00	0.00	1.00	0.00	37.44	108.21	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
37.49	102.76	2.00	0.00	1.00	0.00	37.59	95.81	2.00	0.00	1.00	0.00
37.64	90.11	2.00	0.00	1.00	0.00	37.70	94.79	2.00	0.00	1.00	0.00
37.78	108.37	2.00	0.00	1.00	0.00	37.83	120.19	2.00	0.00	1.00	0.00
37.92	126.68	2.00	0.00	1.00	0.00	37.97	130.53	2.00	0.00	1.00	0.00
38.07	133.13	0.90	1.03	1.00	0.01	38.14	135.64	0.94	1.00	1.00	0.01
38.22	138.68	0.99	0.65	1.00	0.01	38.31	143.23	1.06	0.44	1.00	0.00
38.41	148.66	1.16	0.31	1.00	0.00	38.52	154.32	1.27	0.21	1.00	0.00
38.64	157.41	1.33	0.21	1.00	0.00	38.74	158.10	1.34	0.21	1.00	0.00
38.80	157.57	1.33	0.21	1.00	0.00	38.89	156.57	1.31	0.21	1.00	0.00
38.94	158.84	1.36	0.00	1.00	0.00	39.03	159.69	1.37	0.00	1.00	0.00
39.13	160.46	1.39	0.00	1.00	0.00	39.23	160.12	1.38	0.00	1.00	0.00
39.35	158.27	1.34	0.21	1.00	0.00	39.42	154.08	1.26	0.21	1.00	0.00
39.51	148.22	1.14	0.43	1.00	0.00	39.60	141.37	1.02	0.64	1.00	0.01
39.70	135.85	0.93	1.00	1.00	0.01	39.78	130.75	0.86	1.05	1.00	0.01
39.90	126.28	0.80	1.45	1.00	0.02	39.99	121.65	0.74	1.86	1.00	0.02
40.09	117.75	2.00	0.00	1.00	0.00	40.18	114.33	2.00	0.00	1.00	0.00
40.23	111.30	2.00	0.00	1.00	0.00	40.33	108.90	2.00	0.00	1.00	0.00
40.43	107.17	2.00	0.00	1.00	0.00	40.52	107.68	2.00	0.00	1.00	0.00
40.61	106.53	2.00	0.00	1.00	0.00	40.69	106.96	2.00	0.00	1.00	0.00
40.80	106.21	2.00	0.00	1.00	0.00	40.87	107.20	2.00	0.00	1.00	0.00
40.95	107.50	2.00	0.00	1.00	0.00	40.97	105.79	2.00	0.00	1.00	0.00
41.01	101.77	2.00	0.00	1.00	0.00	41.07	94.92	2.00	0.00	1.00	0.00
41.15	90.47	2.00	0.00	1.00	0.00	41.26	89.74	0.44	2.55	1.00	0.03
41.35	91.40	0.45	2.52	1.00	0.03	41.47	93.27	0.46	2.47	1.00	0.04
41.59	94.19	0.47	2.45	1.00	0.03	41.69	95.29	0.48	2.43	1.00	0.03
41.78	97.63	0.49	2.38	1.00	0.03	41.88	100.94	2.00	0.00	1.00	0.00
41.98	103.21	2.00	0.00	1.00	0.00	42.08	103.54	2.00	0.00	1.00	0.00
42.16	102.01	2.00	0.00	1.00	0.00	42.24	99.69	2.00	0.00	1.00	0.00
42.31	97.23	2.00	0.00	1.00	0.00	42.45	95.61	0.48	2.42	1.00	0.04
42.55	94.91	0.47	2.44	1.00	0.03	42.60	95.14	0.47	2.43	1.00	0.01
42.70	96.60	0.48	2.40	1.00	0.03	42.81	99.43	0.51	2.35	1.00	0.03
42.89	103.15	2.00	0.00	1.00	0.00	42.98	106.61	2.00	0.00	1.00	0.00
43.08	108.99	2.00	0.00	1.00	0.00	43.17	109.35	2.00	0.00	1.00	0.00
43.27	107.03	2.00	0.00	1.00	0.00	43.37	95.48	2.00	0.00	1.00	0.00
43.50	83.44	2.00	0.00	1.00	0.00	43.61	73.95	0.35	2.99	1.00	0.04
43.74	75.29	0.35	2.95	1.00	0.05	43.79	79.06	0.37	2.83	1.00	0.02
43.86	84.59	2.00	0.00	1.00	0.00	43.94	91.16	2.00	0.00	1.00	0.00
44.00	98.08	2.00	0.00	1.00	0.00	44.08	103.37	2.00	0.00	1.00	0.00
44.17	106.26	2.00	0.00	1.00	0.00	44.27	105.00	2.00	0.00	1.00	0.00
44.42	100.72	2.00	0.00	1.00	0.00	44.52	95.03	2.00	0.00	1.00	0.00
44.61	87.72	2.00	0.00	1.00	0.00	44.71	83.46	0.40	2.71	1.00	0.03
44.85	83.87	0.40	2.70	1.00	0.05	44.95	88.11	0.42	2.59	1.00	0.03
45.09	92.06	0.45	2.50	1.00	0.04	45.19	95.00	2.00	0.00	1.00	0.00
45.33	98.48	2.00	0.00	1.00	0.00	45.42	100.02	2.00	0.00	1.00	0.00
45.57	98.64	2.00	0.00	1.00	0.00	45.68	94.66	2.00	0.00	1.00	0.00
45.81	87.72	2.00	0.00	1.00	0.00	45.92	82.93	2.00	0.00	1.00	0.00
46.05	82.51	2.00	0.00	1.00	0.00	46.16	86.12	2.00	0.00	1.00	0.00
46.17	85.57	2.00	0.00	1.00	0.00	46.23	84.09	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
46.29	82.02	2.00	0.00	1.00	0.00	46.34	78.81	2.00	0.00	1.00	0.00
46.42	74.90	2.00	0.00	1.00	0.00	46.48	70.80	2.00	0.00	1.00	0.00
46.52	67.86	2.00	0.00	1.00	0.00	46.60	65.79	2.00	0.00	1.00	0.00
46.67	64.21	2.00	0.00	1.00	0.00	46.74	63.02	2.00	0.00	1.00	0.00
46.82	61.88	2.00	0.00	1.00	0.00	46.88	61.07	2.00	0.00	1.00	0.00
46.96	60.61	2.00	0.00	1.00	0.00	47.06	60.52	2.00	0.00	1.00	0.00
47.15	61.03	2.00	0.00	1.00	0.00	47.24	65.10	2.00	0.00	1.00	0.00
47.35	75.39	2.00	0.00	1.00	0.00	47.49	80.67	2.00	0.00	1.00	0.00
47.58	82.65	2.00	0.00	1.00	0.00	47.73	80.95	2.00	0.00	1.00	0.00
47.83	81.84	2.00	0.00	1.00	0.00	47.87	83.19	2.00	0.00	1.00	0.00
47.89	82.12	2.00	0.00	1.00	0.00	47.94	81.59	2.00	0.00	1.00	0.00
48.02	80.90	2.00	0.00	1.00	0.00	48.07	81.07	2.00	0.00	1.00	0.00
48.12	82.45	2.00	0.00	1.00	0.00	48.18	84.09	2.00	0.00	1.00	0.00
48.26	85.42	2.00	0.00	1.00	0.00	48.31	84.77	2.00	0.00	1.00	0.00
48.38	82.58	2.00	0.00	1.00	0.00	48.46	79.31	2.00	0.00	1.00	0.00
48.52	75.99	2.00	0.00	1.00	0.00	48.60	72.40	2.00	0.00	1.00	0.00
48.68	69.64	2.00	0.00	1.00	0.00	48.74	67.76	2.00	0.00	1.00	0.00
48.82	67.24	2.00	0.00	1.00	0.00	48.89	66.41	2.00	0.00	1.00	0.00
48.99	64.98	2.00	0.00	1.00	0.00	49.05	62.48	2.00	0.00	1.00	0.00
49.12	59.74	2.00	0.00	1.00	0.00	49.18	57.20	2.00	0.00	1.00	0.00
49.27	55.71	2.00	0.00	1.00	0.00	49.32	54.42	2.00	0.00	1.00	0.00
49.42	53.88	2.00	0.00	1.00	0.00	49.48	53.63	2.00	0.00	1.00	0.00
49.56	54.09	2.00	0.00	1.00	0.00	49.66	55.25	2.00	0.00	1.00	0.00
49.76	56.33	2.00	0.00	1.00	0.00	49.85	54.00	2.00	0.00	1.00	0.00
49.99	51.28	2.00	0.00	1.00	0.00	50.09	49.07	2.00	0.00	1.00	0.00
50.21	50.39	2.00	0.00	1.00	0.00	50.24	50.47	2.00	0.00	1.00	0.00
50.29	49.66	2.00	0.00	1.00	0.00	50.38	48.82	2.00	0.00	1.00	0.00
50.47	48.36	2.00	0.00	1.00	0.00	50.52	48.61	2.00	0.00	1.00	0.00
50.62	49.09	2.00	0.00	1.00	0.00	50.66	49.58	2.00	0.00	1.00	0.00
50.76	50.11	2.00	0.00	1.00	0.00	50.83	51.29	2.00	0.00	1.00	0.00
50.91	53.36	2.00	0.00	1.00	0.00	51.00	55.29	2.00	0.00	1.00	0.00
51.06	56.99	2.00	0.00	1.00	0.00	51.15	61.08	2.00	0.00	1.00	0.00
51.24	67.57	2.00	0.00	1.00	0.00	51.31	75.27	2.00	0.00	1.00	0.00
51.39	80.15	2.00	0.00	1.00	0.00	51.48	82.64	2.00	0.00	1.00	0.00
51.58	87.30	2.00	0.00	1.00	0.00	51.68	91.85	2.00	0.00	1.00	0.00
51.77	100.06	2.00	0.00	1.00	0.00	51.90	106.47	2.00	0.00	1.00	0.00
52.01	110.20	2.00	0.00	1.00	0.00	52.11	121.05	2.00	0.00	1.00	0.00
52.26	131.90	2.00	0.00	1.00	0.00	52.30	146.55	2.00	0.00	1.00	0.00
52.33	162.63	2.00	0.00	1.00	0.00	52.35	192.22	2.00	0.00	1.00	0.00
52.40	209.95	2.00	0.00	1.00	0.00	52.45	216.58	2.00	0.00	1.00	0.00
52.50	229.89	2.00	0.00	1.00	0.00	52.55	248.98	2.00	0.00	1.00	0.00
52.60	273.15	2.00	0.00	1.00	0.00	52.65	289.64	2.00	0.00	1.00	0.00
52.71	297.95	2.00	0.00	1.00	0.00	52.77	303.79	2.00	0.00	1.00	0.00
52.82	312.99	2.00	0.00	1.00	0.00	52.88	323.84	2.00	0.00	1.00	0.00
52.93	331.46	2.00	0.00	1.00	0.00	52.98	338.95	2.00	0.00	1.00	0.00
53.03	340.39	2.00	0.00	1.00	0.00	53.08	340.01	2.00	0.00	1.00	0.00
53.12	335.78	2.00	0.00	1.00	0.00	53.17	333.99	2.00	0.00	1.00	0.00
53.23	335.19	2.00	0.00	1.00	0.00	53.28	332.45	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
53.37	327.80	2.00	0.00	1.00	0.00	53.42	325.17	2.00	0.00	1.00	0.00
53.46	326.50	2.00	0.00	1.00	0.00	53.53	333.09	2.00	0.00	1.00	0.00
53.61	331.84	2.00	0.00	1.00	0.00	53.62	323.39	2.00	0.00	1.00	0.00
53.65	318.67	2.00	0.00	1.00	0.00	53.67	317.12	2.00	0.00	1.00	0.00
53.70	323.95	2.00	0.00	1.00	0.00	53.74	323.26	2.00	0.00	1.00	0.00
53.76	323.74	2.00	0.00	1.00	0.00	53.80	322.06	2.00	0.00	1.00	0.00
53.84	320.07	2.00	0.00	1.00	0.00	53.90	320.12	2.00	0.00	1.00	0.00
53.91	315.61	2.00	0.00	1.00	0.00	53.95	317.38	2.00	0.00	1.00	0.00
53.96	320.83	2.00	0.00	1.00	0.00	53.98	332.48	2.00	0.00	1.00	0.00
53.99	333.50	2.00	0.00	1.00	0.00	54.01	327.46	2.00	0.00	1.00	0.00
54.02	320.31	2.00	0.00	1.00	0.00	54.03	305.74	2.00	0.00	1.00	0.00
54.04	276.21	2.00	0.00	1.00	0.00	54.05	260.14	2.00	0.00	1.00	0.00
54.09	254.46	2.00	0.00	1.00	0.00	54.10	254.57	2.00	0.00	1.00	0.00
54.13	254.64	2.00	0.00	1.00	0.00	54.14	254.59	2.00	0.00	1.00	0.00
54.19	255.77	2.00	0.00	1.00	0.00	54.19	258.95	2.00	0.00	1.00	0.00
54.24	259.93	2.00	0.00	1.00	0.00	54.29	249.88	2.00	0.00	1.00	0.00
54.33	261.31	2.00	0.00	1.00	0.00	54.38	272.80	2.00	0.00	1.00	0.00
54.39	282.62	2.00	0.00	1.00	0.00	54.43	291.66	2.00	0.00	1.00	0.00
54.48	299.32	2.00	0.00	1.00	0.00	54.52	306.76	2.00	0.00	1.00	0.00
54.58	316.20	2.00	0.00	1.00	0.00	54.62	323.46	2.00	0.00	1.00	0.00
54.65	333.00	2.00	0.00	1.00	0.00	54.67	343.41	2.00	0.00	1.00	0.00
54.71	362.60	2.00	0.00	1.00	0.00	54.77	374.21	2.00	0.00	1.00	0.00
54.81	387.19	2.00	0.00	1.00	0.00	54.85	387.70	2.00	0.00	1.00	0.00
54.86	390.48	2.00	0.00	1.00	0.00	54.87	387.26	2.00	0.00	1.00	0.00
54.91	387.35	2.00	0.00	1.00	0.00	54.96	389.17	2.00	0.00	1.00	0.00
55.00	386.89	2.00	0.00	1.00	0.00	55.01	382.82	2.00	0.00	1.00	0.00
55.05	373.47	2.00	0.00	1.00	0.00	55.10	357.87	2.00	0.00	1.00	0.00
55.12	331.72	2.00	0.00	1.00	0.00	55.13	313.58	2.00	0.00	1.00	0.00
55.14	309.22	2.00	0.00	1.00	0.00	55.19	316.75	2.00	0.00	1.00	0.00
55.20	316.38	2.00	0.00	1.00	0.00	55.25	308.48	2.00	0.00	1.00	0.00
55.29	299.55	2.00	0.00	1.00	0.00	55.33	284.92	2.00	0.00	1.00	0.00
55.38	263.59	2.00	0.00	1.00	0.00	55.48	240.38	2.00	0.00	1.00	0.00
55.57	227.87	2.00	0.00	1.00	0.00	55.63	237.94	2.00	0.00	1.00	0.00
55.72	244.53	2.00	0.00	1.00	0.00	55.80	260.68	2.00	0.00	1.00	0.00
55.86	259.76	2.00	0.00	1.00	0.00	55.97	288.32	2.00	0.00	1.00	0.00
56.01	306.20	2.00	0.00	1.00	0.00	56.06	186.61	2.00	0.00	1.00	0.00
56.11	194.57	2.00	0.00	1.00	0.00	56.15	203.27	2.00	0.00	1.00	0.00
56.20	209.60	2.00	0.00	1.00	0.00	56.27	210.15	2.00	0.00	1.00	0.00
56.27	210.45	2.00	0.00	1.00	0.00	56.30	203.39	2.00	0.00	1.00	0.00
56.33	205.64	2.00	0.00	1.00	0.00	56.35	205.00	2.00	0.00	1.00	0.00
56.40	211.31	2.00	0.00	1.00	0.00	56.41	211.76	2.00	0.00	1.00	0.00
56.44	215.53	2.00	0.00	1.00	0.00	56.49	219.75	2.00	0.00	1.00	0.00
56.54	226.71	2.00	0.00	1.00	0.00	56.58	232.85	2.00	0.00	1.00	0.00
56.59	236.93	2.00	0.00	1.00	0.00	56.64	239.07	2.00	0.00	1.00	0.00
56.69	241.29	2.00	0.00	1.00	0.00	56.73	245.40	2.00	0.00	1.00	0.00
56.78	245.38	2.00	0.00	1.00	0.00	56.83	239.22	2.00	0.00	1.00	0.00
56.88	230.32	2.00	0.00	1.00	0.00	56.89	223.03	2.00	0.00	1.00	0.00
56.95	217.71	2.00	0.00	1.00	0.00	57.01	209.81	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
57.07	202.70	2.00	0.00	1.00	0.00	57.11	194.25	2.00	0.00	1.00	0.00
57.17	187.56	2.00	0.00	1.00	0.00	57.26	179.66	1.89	0.00	1.00	0.00
57.31	171.06	1.67	0.00	1.00	0.00	57.37	162.50	1.46	0.00	1.00	0.00
57.45	152.96	1.26	0.21	1.00	0.00	57.51	140.63	1.03	0.64	1.00	0.00
57.53	131.27	0.89	1.05	1.00	0.00	57.59	124.87	0.80	1.47	1.00	0.01
57.63	124.05	0.79	1.48	1.00	0.01	57.68	121.66	0.76	1.53	1.00	0.01
57.73	120.01	0.74	1.90	1.00	0.01	57.78	117.62	0.71	1.95	1.00	0.01
57.86	111.55	0.64	2.14	1.00	0.02	57.92	100.97	2.00	0.00	1.00	0.00
57.98	89.82	2.00	0.00	1.00	0.00	58.06	95.51	2.00	0.00	1.00	0.00
58.12	92.39	2.00	0.00	1.00	0.00	58.21	88.73	2.00	0.00	1.00	0.00
58.26	85.71	2.00	0.00	1.00	0.00	58.35	81.38	2.00	0.00	1.00	0.00
58.41	74.91	2.00	0.00	1.00	0.00	58.50	70.73	2.00	0.00	1.00	0.00
58.56	67.27	2.00	0.00	1.00	0.00	58.64	74.61	2.00	0.00	1.00	0.00
58.73	81.15	2.00	0.00	1.00	0.00	58.80	87.16	2.00	0.00	1.00	0.00
58.84	91.44	2.00	0.00	1.00	0.00	58.85	91.06	2.00	0.00	1.00	0.00
58.93	87.49	2.00	0.00	1.00	0.00	58.98	82.49	2.00	0.00	1.00	0.00
59.02	79.02	2.00	0.00	1.00	0.00	59.12	77.74	2.00	0.00	1.00	0.00
59.17	78.34	2.00	0.00	1.00	0.00	59.27	80.06	2.00	0.00	1.00	0.00
59.31	82.31	2.00	0.00	1.00	0.00	59.41	84.40	2.00	0.00	1.00	0.00
59.46	85.91	2.00	0.00	1.00	0.00	59.55	86.53	2.00	0.00	1.00	0.00
59.65	82.12	2.00	0.00	1.00	0.00	59.70	78.48	2.00	0.00	1.00	0.00
59.80	75.77	2.00	0.00	1.00	0.00	59.89	79.29	2.00	0.00	1.00	0.00
59.94	82.68	2.00	0.00	1.00	0.00	60.01	85.21	2.00	0.00	1.00	0.00
60.02	85.70	2.00	0.00	1.00	0.00	60.08	84.70	2.00	0.00	1.00	0.00
60.12	83.40	2.00	0.00	1.00	0.00	60.17	81.32	2.00	0.00	1.00	0.00
60.27	76.99	2.00	0.00	1.00	0.00	60.31	71.83	2.00	0.00	1.00	0.00
60.37	67.16	2.00	0.00	1.00	0.00	60.46	64.16	2.00	0.00	1.00	0.00
60.51	61.05	2.00	0.00	1.00	0.00	60.61	59.48	2.00	0.00	1.00	0.00
60.65	58.49	2.00	0.00	1.00	0.00	60.75	58.52	2.00	0.00	1.00	0.00
60.81	58.52	2.00	0.00	1.00	0.00	60.89	58.14	2.00	0.00	1.00	0.00
60.94	58.37	2.00	0.00	1.00	0.00	61.03	59.27	2.00	0.00	1.00	0.00
61.09	59.56	2.00	0.00	1.00	0.00	61.19	59.09	2.00	0.00	1.00	0.00
61.24	58.48	2.00	0.00	1.00	0.00	61.33	59.55	2.00	0.00	1.00	0.00
61.38	65.92	2.00	0.00	1.00	0.00	61.47	73.50	2.00	0.00	1.00	0.00
61.53	81.14	2.00	0.00	1.00	0.00	61.62	81.97	2.00	0.00	1.00	0.00
61.70	82.73	2.00	0.00	1.00	0.00	61.77	84.93	2.00	0.00	1.00	0.00
61.86	89.66	2.00	0.00	1.00	0.00	61.95	94.89	2.00	0.00	1.00	0.00
61.97	96.91	2.00	0.00	1.00	0.00	62.01	99.66	2.00	0.00	1.00	0.00
62.10	99.23	2.00	0.00	1.00	0.00	62.24	89.92	2.00	0.00	1.00	0.00
62.34	71.54	2.00	0.00	1.00	0.00	62.49	64.77	2.00	0.00	1.00	0.00
62.54	69.68	2.00	0.00	1.00	0.00	62.66	73.33	2.00	0.00	1.00	0.00
62.74	77.94	2.00	0.00	1.00	0.00	62.87	80.99	2.00	0.00	1.00	0.00
62.92	82.65	2.00	0.00	1.00	0.00	63.03	83.41	2.00	0.00	1.00	0.00
63.15	83.38	2.00	0.00	1.00	0.00	63.26	82.35	2.00	0.00	1.00	0.00
63.37	80.92	2.00	0.00	1.00	0.00	63.45	78.49	2.00	0.00	1.00	0.00
63.54	76.31	2.00	0.00	1.00	0.00	63.61	73.61	2.00	0.00	1.00	0.00
63.69	69.47	2.00	0.00	1.00	0.00	63.79	67.77	2.00	0.00	1.00	0.00
63.89	66.74	2.00	0.00	1.00	0.00	63.98	71.48	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
64.07	71.91	2.00	0.00	1.00	0.00	64.15	76.48	2.00	0.00	1.00	0.00
64.23	77.68	2.00	0.00	1.00	0.00	64.26	78.26	2.00	0.00	1.00	0.00
64.29	78.14	2.00	0.00	1.00	0.00	64.33	74.86	2.00	0.00	1.00	0.00
64.43	70.78	2.00	0.00	1.00	0.00	64.47	66.07	2.00	0.00	1.00	0.00
64.53	64.15	2.00	0.00	1.00	0.00	64.62	63.40	2.00	0.00	1.00	0.00
64.72	63.23	2.00	0.00	1.00	0.00	64.78	63.74	2.00	0.00	1.00	0.00
64.86	65.01	2.00	0.00	1.00	0.00	64.96	68.31	2.00	0.00	1.00	0.00
65.06	71.61	2.00	0.00	1.00	0.00	65.11	74.58	2.00	0.00	1.00	0.00
65.21	75.90	2.00	0.00	1.00	0.00	65.31	76.26	2.00	0.00	1.00	0.00
65.40	72.77	2.00	0.00	1.00	0.00	65.50	67.97	2.00	0.00	1.00	0.00
65.58	63.13	2.00	0.00	1.00	0.00	65.68	61.17	2.00	0.00	1.00	0.00
65.78	60.45	2.00	0.00	1.00	0.00	65.84	59.69	2.00	0.00	1.00	0.00
65.86	59.62	2.00	0.00	1.00	0.00	65.87	59.36	2.00	0.00	1.00	0.00
65.98	59.09	2.00	0.00	1.00	0.00	66.10	60.13	2.00	0.00	1.00	0.00
66.21	62.32	2.00	0.00	1.00	0.00	66.34	63.01	2.00	0.00	1.00	0.00
66.48	63.55	2.00	0.00	1.00	0.00	66.62	62.45	2.00	0.00	1.00	0.00
66.68	64.07	2.00	0.00	1.00	0.00	66.87	67.94	2.00	0.00	1.00	0.00
66.96	73.89	2.00	0.00	1.00	0.00	67.11	78.15	2.00	0.00	1.00	0.00
67.21	76.60	2.00	0.00	1.00	0.00	67.35	73.18	2.00	0.00	1.00	0.00
67.45	77.86	2.00	0.00	1.00	0.00	67.59	88.71	2.00	0.00	1.00	0.00
67.68	83.67	2.00	0.00	1.00	0.00	67.83	74.68	2.00	0.00	1.00	0.00
67.92	88.64	2.00	0.00	1.00	0.00	68.02	99.35	2.00	0.00	1.00	0.00
68.07	103.71	2.00	0.00	1.00	0.00	68.16	105.26	2.00	0.00	1.00	0.00
68.26	106.54	2.00	0.00	1.00	0.00	68.35	106.44	2.00	0.00	1.00	0.00
68.45	105.37	2.00	0.00	1.00	0.00	68.55	103.72	2.00	0.00	1.00	0.00
68.65	98.57	2.00	0.00	1.00	0.00	68.78	94.35	2.00	0.00	1.00	0.00
68.78	90.91	2.00	0.00	1.00	0.00	68.79	89.70	2.00	0.00	1.00	0.00
68.83	89.08	2.00	0.00	1.00	0.00	68.93	88.59	2.00	0.00	1.00	0.00
68.98	89.18	2.00	0.00	1.00	0.00	69.04	89.05	2.00	0.00	1.00	0.00
69.12	89.10	2.00	0.00	1.00	0.00	69.22	88.23	2.00	0.00	1.00	0.00
69.28	86.25	2.00	0.00	1.00	0.00	69.36	83.22	2.00	0.00	1.00	0.00
69.45	79.21	2.00	0.00	1.00	0.00	69.60	75.34	2.00	0.00	1.00	0.00
69.70	72.05	2.00	0.00	1.00	0.00	69.80	70.68	2.00	0.00	1.00	0.00
69.89	70.30	2.00	0.00	1.00	0.00	69.98	69.82	2.00	0.00	1.00	0.00
70.08	67.53	2.00	0.00	1.00	0.00	70.18	63.51	2.00	0.00	1.00	0.00
70.32	61.16	2.00	0.00	1.00	0.00	70.42	66.77	2.00	0.00	1.00	0.00
70.54	74.19	2.00	0.00	1.00	0.00	70.66	75.54	2.00	0.00	1.00	0.00
70.75	72.70	2.00	0.00	1.00	0.00	70.80	66.71	2.00	0.00	1.00	0.00
70.89	59.87	2.00	0.00	1.00	0.00	70.99	53.00	2.00	0.00	1.00	0.00
71.08	49.46	2.00	0.00	1.00	0.00	71.17	47.79	2.00	0.00	1.00	0.00
71.23	47.05	2.00	0.00	1.00	0.00	71.33	46.20	2.00	0.00	1.00	0.00
71.42	44.64	2.00	0.00	1.00	0.00	71.52	43.06	2.00	0.00	1.00	0.00
71.58	44.01	2.00	0.00	1.00	0.00	71.67	47.43	2.00	0.00	1.00	0.00
71.81	50.76	2.00	0.00	1.00	0.00	71.82	52.55	2.00	0.00	1.00	0.00
71.86	52.82	2.00	0.00	1.00	0.00	71.91	52.95	2.00	0.00	1.00	0.00
71.97	53.27	2.00	0.00	1.00	0.00	72.05	53.72	2.00	0.00	1.00	0.00
72.10	54.35	2.00	0.00	1.00	0.00	72.20	54.79	2.00	0.00	1.00	0.00
72.25	55.49	2.00	0.00	1.00	0.00	72.34	56.94	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
72.44	58.80	2.00	0.00	1.00	0.00	72.53	60.40	2.00	0.00	1.00	0.00
72.63	61.13	2.00	0.00	1.00	0.00	72.69	61.14	2.00	0.00	1.00	0.00
72.82	60.87	2.00	0.00	1.00	0.00	72.92	60.05	2.00	0.00	1.00	0.00
73.06	59.27	2.00	0.00	1.00	0.00	73.16	59.57	2.00	0.00	1.00	0.00
73.30	60.65	2.00	0.00	1.00	0.00	73.35	61.53	2.00	0.00	1.00	0.00
73.38	61.23	2.00	0.00	1.00	0.00	73.47	60.67	2.00	0.00	1.00	0.00
73.53	60.20	2.00	0.00	1.00	0.00	73.62	59.95	2.00	0.00	1.00	0.00
73.71	60.28	2.00	0.00	1.00	0.00	73.77	61.46	2.00	0.00	1.00	0.00
73.86	63.08	2.00	0.00	1.00	0.00	73.96	64.61	2.00	0.00	1.00	0.00
74.06	65.59	2.00	0.00	1.00	0.00	74.13	66.22	2.00	0.00	1.00	0.00
74.24	66.66	2.00	0.00	1.00	0.00	74.34	67.26	2.00	0.00	1.00	0.00
74.44	67.81	2.00	0.00	1.00	0.00	74.58	67.28	2.00	0.00	1.00	0.00
74.68	62.80	2.00	0.00	1.00	0.00	74.80	58.74	2.00	0.00	1.00	0.00
74.92	56.43	2.00	0.00	1.00	0.00	75.07	58.35	2.00	0.00	1.00	0.00
75.08	59.34	2.00	0.00	1.00	0.00	75.11	59.53	2.00	0.00	1.00	0.00
75.16	60.28	2.00	0.00	1.00	0.00	75.25	61.74	2.00	0.00	1.00	0.00
75.32	63.23	2.00	0.00	1.00	0.00	75.40	63.73	2.00	0.00	1.00	0.00
75.50	62.77	2.00	0.00	1.00	0.00	75.59	60.75	2.00	0.00	1.00	0.00
75.69	58.60	2.00	0.00	1.00	0.00	75.78	56.46	2.00	0.00	1.00	0.00
75.88	54.66	2.00	0.00	1.00	0.00	75.96	52.90	2.00	0.00	1.00	0.00
76.05	51.65	2.00	0.00	1.00	0.00	76.14	51.00	2.00	0.00	1.00	0.00
76.26	51.09	2.00	0.00	1.00	0.00	76.36	51.38	2.00	0.00	1.00	0.00
76.41	51.50	2.00	0.00	1.00	0.00	76.51	51.17	2.00	0.00	1.00	0.00
76.65	51.04	2.00	0.00	1.00	0.00	76.72	51.12	2.00	0.00	1.00	0.00
76.79	51.39	2.00	0.00	1.00	0.00	76.89	53.53	2.00	0.00	1.00	0.00
76.98	61.89	2.00	0.00	1.00	0.00	77.08	69.60	2.00	0.00	1.00	0.00
77.18	77.29	2.00	0.00	1.00	0.00	77.28	84.26	2.00	0.00	1.00	0.00
77.37	93.62	2.00	0.00	1.00	0.00	77.42	100.64	2.00	0.00	1.00	0.00
77.42	104.44	2.00	0.00	1.00	0.00	77.44	107.05	2.00	0.00	1.00	0.00
77.48	110.31	2.00	0.00	1.00	0.00	77.52	113.00	2.00	0.00	1.00	0.00
77.54	114.44	2.00	0.00	1.00	0.00	77.57	115.54	2.00	0.00	1.00	0.00
77.62	115.93	2.00	0.00	1.00	0.00	77.65	115.64	2.00	0.00	1.00	0.00
77.67	113.32	2.00	0.00	1.00	0.00	77.71	111.24	2.00	0.00	1.00	0.00
77.71	107.78	2.00	0.00	1.00	0.00	77.76	104.25	2.00	0.00	1.00	0.00
77.81	98.88	2.00	0.00	1.00	0.00	77.90	94.60	2.00	0.00	1.00	0.00
77.95	92.44	2.00	0.00	1.00	0.00	78.01	91.29	2.00	0.00	1.00	0.00
78.10	89.37	2.00	0.00	1.00	0.00	78.16	84.71	2.00	0.00	1.00	0.00
78.24	79.05	2.00	0.00	1.00	0.00	78.29	73.14	2.00	0.00	1.00	0.00
78.39	69.27	2.00	0.00	1.00	0.00	78.47	68.51	2.00	0.00	1.00	0.00
78.53	71.72	2.00	0.00	1.00	0.00	78.62	77.71	2.00	0.00	1.00	0.00
78.68	84.02	2.00	0.00	1.00	0.00	78.69	89.57	2.00	0.00	1.00	0.00
78.78	95.10	2.00	0.00	1.00	0.00	78.81	102.04	2.00	0.00	1.00	0.00
78.92	107.35	2.00	0.00	1.00	0.00	79.03	107.43	2.00	0.00	1.00	0.00
79.16	99.26	2.00	0.00	1.00	0.00	79.26	88.45	2.00	0.00	1.00	0.00
79.35	83.92	2.00	0.00	1.00	0.00	79.45	85.78	2.00	0.00	1.00	0.00
79.54	89.58	2.00	0.00	1.00	0.00	79.64	91.91	2.00	0.00	1.00	0.00
79.74	93.85	2.00	0.00	1.00	0.00	79.88	94.86	2.00	0.00	1.00	0.00
79.98	95.73	2.00	0.00	1.00	0.00	80.12	95.14	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
80.22	91.22	2.00	0.00	1.00	0.00	80.36	86.07	2.00	0.00	1.00	0.00
80.46	81.11	2.00	0.00	1.00	0.00	80.60	77.21	2.00	0.00	1.00	0.00
80.70	74.37	2.00	0.00	1.00	0.00	80.83	72.04	2.00	0.00	1.00	0.00
80.94	69.62	2.00	0.00	1.00	0.00	81.01	67.91	2.00	0.00	1.00	0.00
81.04	66.50	2.00	0.00	1.00	0.00	81.09	65.97	2.00	0.00	1.00	0.00
81.13	66.04	2.00	0.00	1.00	0.00	81.18	67.98	2.00	0.00	1.00	0.00
81.23	72.13	2.00	0.00	1.00	0.00	81.28	77.64	2.00	0.00	1.00	0.00
81.33	84.19	2.00	0.00	1.00	0.00	81.37	92.48	2.00	0.00	1.00	0.00
81.42	100.46	2.00	0.00	1.00	0.00	81.47	106.15	2.00	0.00	1.00	0.00
81.52	109.13	2.00	0.00	1.00	0.00	81.56	111.09	2.00	0.00	1.00	0.00
81.61	112.75	2.00	0.00	1.00	0.00	81.64	114.41	2.00	0.00	1.00	0.00
81.70	116.91	2.00	0.00	1.00	0.00	81.75	118.94	2.00	0.00	1.00	0.00
81.79	119.14	2.00	0.00	1.00	0.00	81.82	116.62	2.00	0.00	1.00	0.00
81.86	112.49	2.00	0.00	1.00	0.00	81.91	107.66	2.00	0.00	1.00	0.00
81.95	102.27	2.00	0.00	1.00	0.00	82.00	95.81	2.00	0.00	1.00	0.00
82.09	89.46	2.00	0.00	1.00	0.00	82.15	84.64	2.00	0.00	1.00	0.00
82.19	81.03	2.00	0.00	1.00	0.00	82.26	77.56	2.00	0.00	1.00	0.00
82.34	74.17	2.00	0.00	1.00	0.00	82.39	71.81	2.00	0.00	1.00	0.00
82.48	69.97	2.00	0.00	1.00	0.00	82.58	68.21	2.00	0.00	1.00	0.00
82.62	66.60	2.00	0.00	1.00	0.00	82.70	65.56	2.00	0.00	1.00	0.00
82.77	64.46	2.00	0.00	1.00	0.00	82.87	64.01	2.00	0.00	1.00	0.00
82.96	63.38	2.00	0.00	1.00	0.00	83.06	63.34	2.00	0.00	1.00	0.00
83.16	63.10	2.00	0.00	1.00	0.00	83.25	62.94	2.00	0.00	1.00	0.00
83.34	62.57	2.00	0.00	1.00	0.00	83.44	63.55	2.00	0.00	1.00	0.00
83.54	64.89	2.00	0.00	1.00	0.00	83.64	66.49	2.00	0.00	1.00	0.00
83.73	68.29	2.00	0.00	1.00	0.00	83.83	70.46	2.00	0.00	1.00	0.00
83.85	73.38	2.00	0.00	1.00	0.00	83.89	75.93	2.00	0.00	1.00	0.00
83.94	81.26	2.00	0.00	1.00	0.00	84.04	85.92	2.00	0.00	1.00	0.00
84.09	90.10	2.00	0.00	1.00	0.00	84.13	91.94	2.00	0.00	1.00	0.00
84.18	93.61	2.00	0.00	1.00	0.00	84.25	94.85	2.00	0.00	1.00	0.00
84.33	95.60	2.00	0.00	1.00	0.00	84.37	95.90	2.00	0.00	1.00	0.00
84.46	94.98	2.00	0.00	1.00	0.00	84.52	93.43	2.00	0.00	1.00	0.00
84.57	91.27	2.00	0.00	1.00	0.00	84.67	90.00	2.00	0.00	1.00	0.00
84.71	89.72	2.00	0.00	1.00	0.00	84.81	90.86	2.00	0.00	1.00	0.00
84.86	92.62	2.00	0.00	1.00	0.00	84.91	94.03	2.00	0.00	1.00	0.00
85.00	94.63	2.00	0.00	1.00	0.00	85.05	93.94	2.00	0.00	1.00	0.00
85.15	92.30	2.00	0.00	1.00	0.00	85.19	89.13	2.00	0.00	1.00	0.00
85.29	85.98	2.00	0.00	1.00	0.00	85.35	83.14	2.00	0.00	1.00	0.00
85.42	81.54	2.00	0.00	1.00	0.00	85.48	80.45	2.00	0.00	1.00	0.00
85.55	79.50	2.00	0.00	1.00	0.00	85.63	78.76	2.00	0.00	1.00	0.00
85.68	78.25	2.00	0.00	1.00	0.00	85.77	78.03	2.00	0.00	1.00	0.00
85.82	78.34	2.00	0.00	1.00	0.00	85.89	78.79	2.00	0.00	1.00	0.00
85.96	79.01	2.00	0.00	1.00	0.00	86.03	78.44	2.00	0.00	1.00	0.00
86.11	77.40	2.00	0.00	1.00	0.00	86.16	76.21	2.00	0.00	1.00	0.00
86.25	75.81	2.00	0.00	1.00	0.00	86.36	74.32	2.00	0.00	1.00	0.00
86.50	72.85	2.00	0.00	1.00	0.00	86.51	70.91	2.00	0.00	1.00	0.00
86.52	69.58	2.00	0.00	1.00	0.00	86.57	66.80	2.00	0.00	1.00	0.00
86.65	63.50	2.00	0.00	1.00	0.00	86.71	60.73	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
86.80	59.11	2.00	0.00	1.00	0.00	86.90	57.42	2.00	0.00	1.00	0.00
86.99	55.74	2.00	0.00	1.00	0.00	87.04	54.32	2.00	0.00	1.00	0.00
87.14	53.51	2.00	0.00	1.00	0.00	87.19	53.36	2.00	0.00	1.00	0.00
87.28	54.40	2.00	0.00	1.00	0.00	87.38	55.67	2.00	0.00	1.00	0.00
87.43	56.85	2.00	0.00	1.00	0.00	87.52	57.36	2.00	0.00	1.00	0.00
87.61	57.58	2.00	0.00	1.00	0.00	87.66	57.47	2.00	0.00	1.00	0.00
87.76	57.12	2.00	0.00	1.00	0.00	87.84	56.58	2.00	0.00	1.00	0.00
87.91	56.08	2.00	0.00	1.00	0.00	88.00	55.54	2.00	0.00	1.00	0.00
88.11	55.23	2.00	0.00	1.00	0.00	88.19	55.01	2.00	0.00	1.00	0.00
88.25	54.79	2.00	0.00	1.00	0.00	88.34	54.27	2.00	0.00	1.00	0.00
88.44	53.59	2.00	0.00	1.00	0.00	88.54	52.93	2.00	0.00	1.00	0.00
88.64	52.52	2.00	0.00	1.00	0.00	88.72	52.42	2.00	0.00	1.00	0.00
88.82	52.53	2.00	0.00	1.00	0.00	88.91	52.79	2.00	0.00	1.00	0.00
89.01	53.02	2.00	0.00	1.00	0.00	89.10	53.22	2.00	0.00	1.00	0.00
89.19	52.91	2.00	0.00	1.00	0.00	89.30	50.44	2.00	0.00	1.00	0.00
89.39	48.98	2.00	0.00	1.00	0.00	89.49	49.49	2.00	0.00	1.00	0.00
89.59	52.76	2.00	0.00	1.00	0.00	89.69	54.90	2.00	0.00	1.00	0.00
89.73	55.86	2.00	0.00	1.00	0.00	89.78	56.23	2.00	0.00	1.00	0.00
89.83	56.56	2.00	0.00	1.00	0.00	89.88	57.05	2.00	0.00	1.00	0.00
89.93	57.77	2.00	0.00	1.00	0.00	90.00	58.79	2.00	0.00	1.00	0.00
90.07	59.82	2.00	0.00	1.00	0.00	90.12	61.24	2.00	0.00	1.00	0.00
90.22	62.84	2.00	0.00	1.00	0.00	90.27	65.70	2.00	0.00	1.00	0.00
90.36	68.34	2.00	0.00	1.00	0.00	90.46	70.27	2.00	0.00	1.00	0.00
90.50	71.01	2.00	0.00	1.00	0.00	90.61	71.39	2.00	0.00	1.00	0.00
90.66	71.12	2.00	0.00	1.00	0.00	90.75	69.74	2.00	0.00	1.00	0.00
90.84	67.94	2.00	0.00	1.00	0.00	90.89	66.20	2.00	0.00	1.00	0.00
90.99	65.12	2.00	0.00	1.00	0.00	91.04	64.21	2.00	0.00	1.00	0.00
91.14	63.69	2.00	0.00	1.00	0.00	91.22	63.19	2.00	0.00	1.00	0.00
91.28	62.55	2.00	0.00	1.00	0.00	91.37	61.75	2.00	0.00	1.00	0.00
91.47	60.75	2.00	0.00	1.00	0.00	91.61	60.19	2.00	0.00	1.00	0.00
91.71	59.97	2.00	0.00	1.00	0.00	91.81	60.03	2.00	0.00	1.00	0.00
91.87	59.68	2.00	0.00	1.00	0.00	92.00	57.50	2.00	0.00	1.00	0.00
92.10	55.77	2.00	0.00	1.00	0.00	92.20	54.98	2.00	0.00	1.00	0.00
92.33	56.37	2.00	0.00	1.00	0.00	92.38	57.43	2.00	0.00	1.00	0.00
92.43	57.96	2.00	0.00	1.00	0.00	92.48	58.57	2.00	0.00	1.00	0.00
92.56	59.09	2.00	0.00	1.00	0.00	92.63	59.41	2.00	0.00	1.00	0.00
92.67	59.42	2.00	0.00	1.00	0.00	92.72	59.38	2.00	0.00	1.00	0.00
92.77	59.37	2.00	0.00	1.00	0.00	92.86	59.49	2.00	0.00	1.00	0.00
92.92	59.88	2.00	0.00	1.00	0.00	92.97	61.03	2.00	0.00	1.00	0.00
93.05	62.12	2.00	0.00	1.00	0.00	93.10	63.07	2.00	0.00	1.00	0.00
93.16	63.28	2.00	0.00	1.00	0.00	93.25	63.20	2.00	0.00	1.00	0.00
93.35	62.84	2.00	0.00	1.00	0.00	93.40	62.27	2.00	0.00	1.00	0.00
93.49	61.82	2.00	0.00	1.00	0.00	93.56	61.55	2.00	0.00	1.00	0.00
93.64	61.65	2.00	0.00	1.00	0.00	93.73	62.81	2.00	0.00	1.00	0.00
93.83	64.72	2.00	0.00	1.00	0.00	93.88	67.85	2.00	0.00	1.00	0.00
93.97	70.35	2.00	0.00	1.00	0.00	94.07	72.95	2.00	0.00	1.00	0.00
94.17	75.57	2.00	0.00	1.00	0.00	94.26	76.60	2.00	0.00	1.00	0.00
94.36	81.75	2.00	0.00	1.00	0.00	94.45	87.02	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)
94.55	91.74	2.00	0.00	1.00	0.00	94.64	89.52	2.00	0.00	1.00	0.00
94.72	85.22	2.00	0.00	1.00	0.00	94.74	79.85	2.00	0.00	1.00	0.00
94.77	76.98	2.00	0.00	1.00	0.00	94.85	74.39	2.00	0.00	1.00	0.00
94.90	75.17	2.00	0.00	1.00	0.00	94.95	77.89	2.00	0.00	1.00	0.00
95.01	85.22	2.00	0.00	1.00	0.00	95.09	94.37	2.00	0.00	1.00	0.00
95.14	107.02	2.00	0.00	1.00	0.00	95.23	117.34	2.00	0.00	1.00	0.00
95.29	126.89	2.00	0.00	1.00	0.00	95.38	131.69	2.00	0.00	1.00	0.00
95.43	133.43	2.00	0.00	1.00	0.00	95.52	132.50	2.00	0.00	1.00	0.00
95.57	128.95	2.00	0.00	1.00	0.00	95.67	123.49	2.00	0.00	1.00	0.00
95.77	118.72	2.00	0.00	1.00	0.00	95.86	118.80	2.00	0.00	1.00	0.00
95.95	116.56	2.00	0.00	1.00	0.00	96.03	118.40	2.00	0.00	1.00	0.00
96.11	118.64	2.00	0.00	1.00	0.00	96.20	124.65	2.00	0.00	1.00	0.00
96.30	125.73	2.00	0.00	1.00	0.00	96.39	124.50	2.00	0.00	1.00	0.00
96.50	120.31	2.00	0.00	1.00	0.00	96.59	106.72	2.00	0.00	1.00	0.00
96.69	91.36	2.00	0.00	1.00	0.00	96.78	77.51	2.00	0.00	1.00	0.00
96.87	72.98	2.00	0.00	1.00	0.00	96.98	71.40	2.00	0.00	1.00	0.00
97.02	71.90	2.00	0.00	1.00	0.00	97.06	73.47	2.00	0.00	1.00	0.00
97.12	76.16	2.00	0.00	1.00	0.00	97.16	79.48	2.00	0.00	1.00	0.00
97.21	83.99	2.00	0.00	1.00	0.00	97.27	89.17	2.00	0.00	1.00	0.00
97.33	93.67	2.00	0.00	1.00	0.00	97.40	96.33	2.00	0.00	1.00	0.00
97.45	97.51	2.00	0.00	1.00	0.00	97.50	100.38	2.00	0.00	1.00	0.00
97.58	104.78	2.00	0.00	1.00	0.00	97.65	110.26	2.00	0.00	1.00	0.00
97.69	113.95	2.00	0.00	1.00	0.00	97.74	115.68	2.00	0.00	1.00	0.00
97.81	116.42	2.00	0.00	1.00	0.00	97.88	116.63	2.00	0.00	1.00	0.00
97.93	111.98	2.00	0.00	1.00	0.00	98.03	97.35	2.00	0.00	1.00	0.00
98.15	83.50	2.00	0.00	1.00	0.00	98.21	78.05	2.00	0.00	1.00	0.00
98.32	80.19	2.00	0.00	1.00	0.00	98.42	85.96	2.00	0.00	1.00	0.00
98.47	79.73	2.00	0.00	1.00	0.00	98.57	88.75	2.00	0.00	1.00	0.00
98.70	94.00	2.00	0.00	1.00	0.00	98.78	92.13	2.00	0.00	1.00	0.00
98.85	84.79	2.00	0.00	1.00	0.00	98.86	76.77	2.00	0.00	1.00	0.00
98.92	73.26	2.00	0.00	1.00	0.00	98.98	72.24	2.00	0.00	1.00	0.00
99.03	70.12	2.00	0.00	1.00	0.00	99.11	63.67	2.00	0.00	1.00	0.00
99.18	74.69	2.00	0.00	1.00	0.00	99.23	73.25	2.00	0.00	1.00	0.00
99.32	76.01	2.00	0.00	1.00	0.00	99.37	83.05	2.00	0.00	1.00	0.00
99.45	90.04	2.00	0.00	1.00	0.00	99.56	96.01	2.00	0.00	1.00	0.00
99.64	101.90	2.00	0.00	1.00	0.00	99.71	108.77	2.00	0.00	1.00	0.00
99.75	113.72	2.00	0.00	1.00	0.00	99.90	118.27	2.00	0.00	1.00	0.00
99.95	126.55	2.00	0.00	1.00	0.00	100.04	127.45	2.00	0.00	1.00	0.00
100.14	116.89	2.00	0.00	1.00	0.00	100.14	106.43	2.00	0.00	1.00	0.00
100.15	105.52	2.00	0.00	1.00	0.00	100.19	111.71	2.00	0.00	1.00	0.00
100.21	119.29	2.00	0.00	1.00	0.00	100.24	108.37	2.00	0.00	1.00	0.00
100.28	106.62	2.00	0.00	1.00	0.00	100.31	-1.00	2.00	0.00	1.00	0.00
100.33	-1.00	2.00	0.00	1.00	0.00	100.38	-1.00	2.00	0.00	1.00	0.00
100.39	-1.00	2.00	0.00	1.00	0.00	100.43	-1.00	2.00	0.00	1.00	0.00
100.48	-1.00	2.00	0.00	1.00	0.00	100.53	-1.00	2.00	0.00	1.00	0.00
100.57	-1.00	2.00	0.00	1.00	0.00	100.60	-1.00	2.00	0.00	1.00	0.00

:: Post-earthquake settlement due to soil liquefaction :: (continued)

Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)	Depth (ft)	$Q_{tn,cs}$	FS	e_v (%)	DF	Settlement (in)

Total estimated settlement: 1.40

Abbreviations

$Q_{tn,cs}$:	Equivalent clean sand normalized cone resistance
FS:	Factor of safety against liquefaction
e_v (%):	Post-liquefaction volumentric strain
DF:	e_v depth weighting factor
Settlement:	Calculated settlement

:: Strength loss calculation (Robertson (2009) ::

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
0.04	0.10	0.16	54.25	8.56	4.06	18.21	3.82
0.10	0.13	0.21	54.25	11.25	4.06	10.48	2.18
0.11	0.23	0.37	54.25	19.92	4.06	9.43	3.40
0.16	0.54	0.85	54.25	46.18	4.06	6.91	5.55
0.19	1.28	2.04	26.86	54.86	3.64	5.54	10.68
0.24	2.83	4.54	12.41	56.29	3.19	4.85	19.02
0.31	4.93	7.89	7.08	55.92	2.89	0.08	0.64
0.38	6.68	10.70	5.13	54.91	2.74	0.08	0.64
0.43	7.56	12.11	4.55	55.04	2.68	0.08	0.64
0.49	7.32	11.72	4.88	57.26	2.72	0.09	0.65
0.58	6.81	10.90	5.56	60.65	2.78	0.12	0.66
0.63	6.24	9.98	6.53	65.19	2.85	0.17	0.67
0.67	6.05	9.68	7.19	69.56	2.90	0.25	0.68
0.72	6.02	9.62	7.57	72.80	2.92	0.32	0.69
0.72	6.70	10.70	7.32	78.32	2.91	0.51	0.70
0.84	9.28	14.84	5.43	80.63	2.77	0.62	0.71
0.96	15.82	25.35	2.97	75.23	2.50	0.39	0.70
1.06	22.64	36.29	2.02	73.35	2.32	0.34	0.69
1.24	27.97	44.84	1.65	74.08	2.21	0.36	0.69
1.30	31.48	50.47	1.49	75.12	2.14	0.39	0.70
1.48	37.28	59.78	1.34	80.22	2.04	0.59	0.71
1.59	42.14	67.57	1.29	87.16	1.98	0.72	0.72
1.69	47.40	76.02	1.26	95.52	1.93	0.74	0.74
1.69	49.80	79.87	1.25	99.55	1.91	0.75	0.75
1.74	53.24	85.40	1.22	104.46	1.88	0.76	0.76
1.79	53.78	86.26	1.22	105.40	1.88	0.76	0.76
1.84	52.90	84.84	1.23	104.08	1.89	0.76	0.76
1.88	51.25	82.18	1.23	101.34	1.89	0.75	0.75
1.93	49.46	79.31	1.24	98.11	1.90	0.74	0.74
1.99	48.69	78.06	1.23	96.29	1.90	0.74	0.74
2.03	48.08	77.07	1.23	94.90	1.89	0.74	0.74
2.08	47.67	76.42	1.23	93.98	1.89	0.74	0.74
2.13	46.86	75.11	1.23	92.67	1.90	0.73	0.73
2.22	45.85	73.48	1.24	91.09	1.90	0.73	0.73
2.27	44.97	72.07	1.24	89.70	1.91	0.73	0.73
2.33	44.77	71.74	1.24	89.16	1.91	0.73	0.73
2.42	45.44	72.81	1.24	89.96	1.90	0.73	0.73
2.48	46.73	74.86	1.22	91.66	1.88	0.73	0.73
2.56	48.41	77.57	1.21	94.03	1.86	0.74	0.74
2.65	49.43	79.19	1.21	95.47	1.86	0.74	0.74
2.72	48.72	78.04	1.21	94.74	1.87	0.74	0.74
2.80	46.02	73.70	1.23	90.99	1.90	0.73	0.73
2.89	42.44	67.94	1.26	85.67	1.94	0.72	0.72
2.94	39.03	62.46	1.29	80.64	1.98	0.62	0.71
3.04	35.90	57.42	1.32	76.04	2.02	0.42	0.70
3.14	32.32	51.66	1.37	70.91	2.07	0.27	0.69
3.23	29.01	46.34	1.42	65.97	2.10	0.18	0.67
3.31	25.74	41.07	1.50	61.64	2.15	0.13	0.66

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
3.37	23.04	36.73	1.59	58.33	2.19	0.10	0.65
3.48	20.38	32.44	1.71	55.35	2.23	0.08	0.64
3.57	18.79	29.89	1.76	52.71	2.25	0.06	0.63
3.65	18.02	28.64	1.78	50.93	2.26	0.06	0.63
3.71	18.02	28.64	1.77	50.70	2.26	0.06	0.63
3.82	18.63	29.60	1.77	52.47	2.26	0.06	0.63
3.91	20.18	32.09	1.71	54.73	2.23	0.07	0.64
4.00	22.81	36.30	1.60	58.22	2.20	0.10	0.65
4.10	26.38	42.04	1.41	59.10	2.09	0.11	0.65
4.19	31.21	49.79	1.00	49.79	1.98	0.05	0.62
4.26	37.92	60.57	1.00	60.57	1.86	0.12	0.66
4.35	45.62	72.92	1.00	72.92	1.79	0.32	0.69
4.44	49.80	79.63	1.00	79.63	1.77	0.57	0.71
4.52	51.39	82.17	1.00	82.17	1.76	0.70	0.71
4.53	52.26	83.58	1.00	83.58	1.76	0.72	0.72
4.58	55.03	88.02	1.00	88.02	1.73	0.72	0.72
4.63	57.76	92.41	1.00	92.41	1.71	0.73	0.73
4.68	58.84	94.14	1.00	94.14	1.70	0.74	0.74
4.72	59.28	94.84	1.00	94.84	1.71	0.74	0.74
4.77	59.08	94.51	1.00	94.51	1.72	0.74	0.74
4.82	58.07	92.88	1.00	92.88	1.73	0.73	0.73
4.88	56.21	89.89	1.00	89.89	1.76	0.73	0.73
4.96	53.61	85.71	1.14	97.96	1.79	0.74	0.74
5.01	50.54	80.78	1.18	95.67	1.83	0.74	0.74
5.08	47.44	75.78	1.22	92.32	1.87	0.73	0.73
5.16	44.81	71.55	1.24	88.93	1.91	0.73	0.73
5.21	43.27	69.07	1.26	86.85	1.93	0.72	0.72
5.30	42.68	68.12	1.26	86.01	1.94	0.72	0.72
5.37	42.65	68.06	1.26	85.96	1.94	0.72	0.72
5.45	42.70	68.13	1.26	86.01	1.94	0.72	0.72
5.52	42.44	67.72	1.26	85.64	1.94	0.72	0.72
5.59	41.70	66.52	1.27	84.54	1.95	0.72	0.72
5.65	40.15	64.02	1.28	82.25	1.97	0.70	0.71
5.74	38.46	61.30	1.30	79.83	1.99	0.58	0.71
5.83	37.08	59.07	1.32	77.99	2.02	0.49	0.70
5.89	36.30	57.82	1.33	77.16	2.03	0.46	0.70
5.97	35.66	56.79	1.35	76.43	2.04	0.43	0.70
6.07	34.52	54.94	1.37	75.11	2.06	0.39	0.70
6.12	32.56	51.79	1.41	73.14	2.10	0.33	0.69
6.22	29.76	47.28	1.51	71.19	2.15	0.28	0.69
6.28	26.56	42.13	1.67	70.33	2.22	0.26	0.68
6.36	23.45	37.14	1.90	70.41	2.29	0.26	0.68
6.46	21.29	33.66	2.09	70.43	2.34	0.26	0.68
6.52	20.72	32.73	2.06	67.56	2.33	0.21	0.68
6.60	22.07	34.89	1.79	62.55	2.26	0.14	0.66
6.70	23.55	37.27	1.57	58.59	2.18	0.10	0.65
6.76	23.01	36.39	1.55	56.58	2.17	0.09	0.65
6.84	19.64	30.96	1.81	55.94	2.27	0.08	0.64

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
6.94	14.91	23.37	2.60	60.83	2.44	0.12	0.66
7.03	10.86	16.85	4.02	67.75	2.63	0.21	0.68
7.13	8.23	12.62	5.71	72.04	2.79	0.30	0.69
7.19	6.62	10.02	6.93	69.39	2.88	0.24	0.68
7.32	5.77	8.65	6.87	59.40	2.88	0.11	0.65
7.42	5.17	7.67	5.87	44.99	2.80	0.04	0.62
7.49	4.93	7.28	4.02	29.29	2.63	0.02	0.62
7.57	4.73	-1.00	1.00	-1.00	-1.00	0.00	0.00
7.66	4.56	-1.00	1.00	-1.00	-1.00	0.00	0.00
7.76	4.44	6.47	4.48	29.00	2.68	0.02	0.62
7.77	4.39	6.39	4.95	31.63	2.72	0.02	0.62
7.78	4.42	6.44	5.05	32.53	2.73	0.02	0.62
7.82	4.44	6.47	5.36	34.69	2.76	0.02	0.62
7.87	4.45	6.49	5.86	38.07	2.80	0.03	0.62
7.92	4.45	6.49	6.45	41.83	2.85	0.03	0.62
7.97	4.49	6.54	6.96	45.53	2.88	0.04	0.62
8.01	4.59	6.70	7.41	49.66	2.91	0.05	0.62
8.06	4.76	6.97	7.58	52.81	2.92	0.06	0.63
8.11	4.93	7.24	7.65	55.42	2.93	0.08	0.64
8.20	5.06	7.45	7.68	57.24	2.93	0.09	0.65
8.26	5.16	7.60	7.84	59.63	2.94	0.11	0.66
8.35	5.23	7.70	7.98	61.50	2.95	0.13	0.66
8.40	5.30	7.81	8.02	62.65	2.95	0.14	0.66
8.49	5.37	7.91	7.96	62.99	2.95	0.14	0.66
8.54	5.51	8.13	7.81	63.54	2.94	0.15	0.67
8.64	5.71	8.45	7.58	64.06	2.93	0.16	0.67
8.69	5.91	8.77	7.37	64.63	2.91	0.16	0.67
8.79	6.18	9.19	7.46	68.57	2.92	0.23	0.68
8.84	6.48	9.68	7.59	73.49	2.93	0.34	0.69
8.93	6.89	10.32	7.50	77.37	2.92	0.47	0.70
9.03	7.13	10.69	7.46	79.83	2.92	0.58	0.71
9.08	7.21	10.83	7.52	81.47	2.92	0.66	0.71
9.11	7.16	10.75	7.78	83.66	2.94	0.72	0.72
9.12	7.13	10.69	7.89	84.32	2.95	0.72	0.72
9.17	7.07	10.60	8.03	85.13	2.95	0.72	0.72
9.22	7.12	10.67	8.09	86.32	2.96	0.72	0.72
9.31	6.92	10.34	8.56	88.56	2.99	0.73	0.73
9.36	7.16	10.72	8.37	89.76	2.98	0.73	0.73
9.40	7.46	11.20	8.04	90.10	2.95	0.73	0.73
9.46	8.14	12.28	7.25	89.07	2.90	0.73	0.73
9.51	8.47	12.82	6.92	88.75	2.88	0.73	0.73
9.55	8.78	13.30	6.70	89.10	2.86	0.73	0.73
9.61	8.98	13.63	6.65	90.65	2.86	0.73	0.73
9.69	9.12	13.84	6.73	93.09	2.87	0.73	0.73
9.74	9.18	13.94	6.87	95.71	2.88	0.74	0.74
9.81	9.39	14.26	6.85	97.70	2.88	0.74	0.74
9.89	9.76	14.85	6.62	98.33	2.86	0.74	0.74
9.94	10.06	15.33	6.42	98.43	2.84	0.75	0.75

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
10.03	10.23	15.59	6.28	97.94	2.83	0.74	0.74
10.08	10.23	15.59	5.91	92.18	2.80	0.73	0.73
10.18	10.23	15.58	5.40	84.12	2.76	0.72	0.72
10.23	10.23	15.58	5.05	78.62	2.73	0.52	0.70
10.33	10.23	15.57	5.17	80.55	2.74	0.61	0.71
10.40	10.23	15.56	5.54	86.20	2.77	0.72	0.72
10.47	10.08	15.32	5.91	90.44	2.80	0.73	0.73
10.51	10.06	15.28	6.18	94.42	2.83	0.74	0.74
10.56	10.03	15.23	6.41	97.63	2.84	0.74	0.74
10.61	10.21	15.52	6.51	100.97	2.85	0.75	0.75
10.67	10.16	15.43	6.88	106.14	2.88	0.76	0.76
10.75	10.13	15.37	7.21	110.80	2.90	0.77	0.77
10.80	9.99	15.15	7.50	113.70	2.92	0.77	0.77
10.85	9.89	14.99	7.63	114.35	2.93	0.77	0.77
10.90	9.72	14.71	7.82	115.05	2.94	0.77	0.77
11.00	9.45	14.27	8.13	116.05	2.96	0.78	0.78
11.05	9.05	13.61	8.55	116.32	2.99	0.78	0.78
11.14	8.61	12.90	9.04	116.64	3.01	0.62	0.99
11.21	8.27	12.36	9.53	117.80	3.04	0.62	0.94
11.29	8.24	12.30	9.66	118.79	3.05	0.65	0.93
11.38	8.41	12.56	9.53	119.67	3.04	0.63	0.94
11.46	8.68	12.98	9.18	119.19	3.02	0.64	0.97
11.52	8.88	13.30	8.96	119.26	3.01	0.64	0.98
11.60	8.98	13.46	8.85	119.12	3.00	0.64	0.99
11.67	9.05	13.56	8.79	119.24	3.00	0.64	0.99
11.72	9.12	13.67	8.75	119.52	3.00	0.78	0.78
11.81	9.32	13.98	8.54	119.37	2.99	0.78	0.78
11.86	9.35	14.03	8.52	119.54	2.98	0.78	0.78
11.96	9.42	14.07	8.48	119.37	2.98	0.78	0.78
12.01	9.45	14.06	8.50	119.58	2.98	0.78	0.78
12.10	9.69	13.55	8.25	111.75	2.97	0.77	0.77
12.16	10.07	13.97	7.41	103.51	2.91	0.75	0.75
12.24	10.47	14.38	6.85	98.49	2.88	0.75	0.75
12.32	10.87	14.89	6.86	102.09	2.88	0.75	0.75
12.39	11.18	15.29	7.16	109.53	2.90	0.77	0.77
12.48	10.64	14.47	7.97	115.36	2.95	0.78	0.78
12.50	10.23	14.64	8.30	121.50	2.97	0.79	0.79
12.54	10.74	14.58	8.20	119.55	2.96	0.78	0.78
12.64	12.36	16.65	7.01	116.68	2.89	0.78	0.78
12.68	14.04	18.79	6.01	113.05	2.81	0.77	0.77
12.77	14.72	19.54	5.64	110.30	2.78	0.77	0.77
12.82	14.75	19.48	5.55	108.15	2.78	0.76	0.76
12.89	14.21	18.67	5.71	106.60	2.79	0.76	0.76
12.97	13.37	17.49	6.13	107.25	2.82	0.76	0.76
13.03	12.49	16.30	6.66	108.51	2.86	0.76	0.76
13.12	11.72	15.20	7.22	109.85	2.90	0.77	0.77
13.16	11.21	14.50	7.58	109.96	2.93	0.77	0.77
13.26	10.91	13.99	7.68	107.43	2.93	0.76	0.76

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
13.34	10.84	13.79	7.45	102.72	2.92	0.75	0.75
13.41	10.74	13.56	7.18	97.27	2.90	0.74	0.74
13.50	10.60	13.27	7.10	94.19	2.89	0.74	0.74
13.60	10.33	12.84	7.26	93.25	2.90	0.74	0.74
13.65	10.13	12.55	7.49	94.05	2.92	0.74	0.74
13.75	10.03	12.35	7.71	95.17	2.93	0.74	0.74
13.80	10.10	12.37	7.57	93.67	2.92	0.74	0.74
13.89	10.23	12.47	7.55	94.18	2.92	0.74	0.74
13.94	10.63	12.95	7.46	96.59	2.92	0.74	0.74
14.03	10.80	13.13	7.91	103.87	2.95	0.76	0.76
14.11	11.23	13.59	7.98	108.45	2.95	0.76	0.76
14.13	11.53	13.97	7.99	111.61	2.95	0.77	0.77
14.18	12.27	14.85	7.55	112.19	2.92	0.77	0.77
14.22	12.83	15.50	7.35	113.98	2.91	0.77	0.77
14.28	13.44	16.19	7.18	116.20	2.90	0.78	0.78
14.37	14.01	16.81	7.06	118.62	2.89	0.78	0.78
14.44	14.79	17.68	6.80	120.24	2.87	0.78	0.78
14.51	15.63	18.60	6.50	120.95	2.85	0.78	0.78
14.60	16.31	19.30	6.30	121.55	2.83	0.79	0.79
14.65	16.58	19.57	6.28	122.89	2.83	0.79	0.79
14.75	16.56	19.44	6.39	124.23	2.84	0.79	0.79
14.85	16.48	19.22	6.50	124.95	2.85	0.79	0.79
14.91	16.44	19.11	6.54	124.89	2.85	0.79	0.79
14.99	17.00	19.64	6.25	122.73	2.83	0.79	0.79
15.09	18.30	21.01	5.69	119.59	2.79	0.78	0.78
15.18	20.29	23.13	4.94	114.33	2.72	0.77	0.77
15.25	22.28	25.25	4.26	107.53	2.66	0.76	0.76
15.33	24.50	27.58	3.60	99.22	2.58	0.75	0.75
15.43	27.51	30.70	2.96	90.92	2.50	0.73	0.73
15.51	31.32	34.70	2.45	84.95	2.41	0.72	0.72
15.59	34.63	38.13	2.14	81.77	2.35	0.68	0.71
15.67	36.18	39.65	2.03	80.65	2.33	0.62	0.71
15.76	35.13	38.36	2.14	81.98	2.35	0.69	0.71
15.86	32.03	34.86	2.45	85.36	2.41	0.72	0.72
15.95	27.64	30.01	3.03	90.95	2.51	0.73	0.73
16.05	23.08	24.94	3.85	95.91	2.61	0.74	0.74
16.14	19.31	20.73	4.79	99.32	2.71	0.75	0.75
16.20	16.85	17.98	5.55	99.84	2.78	0.75	0.75
16.28	15.33	16.24	6.13	99.52	2.82	0.75	0.75
16.34	14.21	14.97	6.52	97.62	2.85	0.74	0.74
16.44	12.93	13.48	7.12	95.96	2.89	0.74	0.74
16.50	11.61	12.00	7.73	92.73	2.93	0.73	0.73
16.58	10.17	10.54	8.19	86.31	2.96	0.72	0.72
16.73	8.75	8.85	8.43	74.57	2.98	0.37	0.69
16.82	7.60	7.51	8.14	61.14	2.96	0.12	0.66
16.92	7.06	6.86	8.35	57.29	2.97	0.09	0.65
17.01	6.56	6.26	10.33	64.67	3.09	0.13	0.45
17.11	6.20	5.84	12.54	73.17	3.19	0.19	0.42

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
17.12	5.73	5.31	14.74	78.30	3.28	0.20	0.38
17.14	6.34	5.97	13.44	80.31	3.23	0.21	0.43
17.19	7.13	6.82	12.15	82.92	3.17	0.24	0.49
17.28	7.94	7.67	11.16	85.58	3.13	0.27	0.55
17.33	8.01	7.71	11.48	88.52	3.14	0.29	0.55
17.43	7.87	7.52	11.93	89.67	3.16	0.30	0.54
17.47	7.74	7.35	12.03	88.37	3.17	0.29	0.52
17.57	7.57	7.12	11.95	85.14	3.16	0.25	0.51
17.65	7.47	6.98	11.70	81.63	3.15	0.23	0.50
17.72	7.40	6.88	11.84	81.46	3.16	0.22	0.49
17.81	7.57	7.02	11.86	83.22	3.16	0.25	0.50
17.86	7.87	7.32	11.98	87.65	3.17	0.27	0.52
17.95	8.31	7.73	11.95	92.32	3.16	0.32	0.55
18.05	8.78	8.18	11.81	96.52	3.16	0.36	0.58
18.10	9.22	8.61	11.67	100.43	3.15	0.38	0.61
18.20	9.66	9.01	11.52	103.80	3.14	0.42	0.64
18.30	9.90	9.20	11.60	106.76	3.15	0.46	0.66
18.39	10.13	9.38	11.50	107.91	3.14	0.46	0.67
18.48	10.27	9.47	11.38	107.71	3.14	0.46	0.68
18.58	10.30	9.44	11.38	107.46	3.14	0.46	0.67
18.66	10.20	9.30	11.49	106.87	3.14	0.45	0.66
18.74	10.07	9.12	11.49	104.74	3.14	0.44	0.65
18.87	9.90	8.88	10.73	95.26	3.11	0.39	0.63
18.97	9.66	8.59	10.09	86.69	3.07	0.22	0.61
19.06	9.56	8.45	9.58	80.90	3.05	0.24	0.60
19.16	9.83	8.66	9.84	85.25	3.06	0.27	0.62
19.25	10.13	8.91	9.93	88.50	3.06	0.31	0.64
19.27	10.23	9.00	10.18	91.69	3.08	0.31	0.64
19.30	10.37	9.12	10.39	94.70	3.09	0.34	0.65
19.34	10.57	9.29	10.57	98.19	3.10	0.38	0.66
19.39	10.84	9.53	10.50	100.00	3.09	0.40	0.68
19.49	10.78	9.41	10.57	99.51	3.10	0.39	0.67
19.55	10.51	9.12	10.70	97.54	3.10	0.37	0.65
19.63	10.17	8.75	10.86	95.04	3.11	0.34	0.63
19.68	9.87	8.43	10.91	92.04	3.11	0.32	0.60
19.74	9.77	8.31	10.69	88.83	3.10	0.29	0.59
19.83	9.73	8.24	10.61	87.40	3.10	0.27	0.59
19.87	9.73	8.22	10.55	86.67	3.10	0.29	0.59
19.94	9.73	8.19	10.80	88.39	3.11	0.27	0.58
20.02	9.80	8.21	11.04	90.64	3.12	0.31	0.59
20.07	10.17	8.54	11.28	96.33	3.13	0.34	0.61
20.17	11.42	9.65	10.38	100.21	3.09	0.41	0.69
20.21	14.18	12.20	8.30	101.25	2.97	0.75	0.75
20.28	18.74	16.43	5.92	97.16	2.80	0.74	0.74
20.36	24.88	22.08	4.11	90.84	2.64	0.73	0.73
20.41	31.73	28.40	3.02	85.89	2.51	0.72	0.72
20.48	38.64	34.74	2.39	83.15	2.40	0.71	0.71
20.55	44.99	40.52	2.02	82.00	2.33	0.69	0.71

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
20.60	49.88	44.99	1.82	81.90	2.27	0.68	0.71
20.70	52.55	47.28	1.74	82.23	2.25	0.70	0.71
20.74	52.68	47.32	1.75	82.97	2.25	0.71	0.71
20.79	51.17	45.83	1.84	84.31	2.28	0.72	0.72
20.89	48.70	43.39	2.03	87.95	2.33	0.72	0.72
20.96	46.86	41.58	2.06	85.66	2.33	0.72	0.72
21.04	45.83	40.52	2.09	84.84	2.34	0.72	0.72
21.13	45.80	40.36	2.05	82.71	2.33	0.71	0.71
21.22	49.22	43.31	1.97	85.52	2.31	0.72	0.72
21.29	52.71	46.38	1.86	86.23	2.28	0.72	0.72
21.35	62.13	54.84	1.58	86.56	2.19	0.72	0.72
21.37	71.37	63.21	1.42	89.97	2.10	0.73	0.73
21.42	83.72	74.37	1.31	97.64	2.01	0.74	0.74
21.47	92.73	82.47	1.27	104.48	1.95	0.76	0.76
21.48	100.66	89.69	1.23	110.65	1.90	0.77	0.77
21.52	107.37	95.73	1.20	115.32	1.85	0.78	0.78
21.57	113.24	100.98	1.17	118.63	1.82	0.78	0.78
21.62	118.81	105.91	1.14	120.85	1.79	0.78	0.78
21.66	124.00	110.52	1.10	122.11	1.76	0.79	0.79
21.71	128.79	114.75	1.07	122.79	1.74	0.79	0.79
21.76	132.64	118.10	1.04	123.42	1.73	0.79	0.79
21.81	135.34	120.38	1.03	124.51	1.72	0.79	0.79
21.85	136.99	121.70	1.04	126.15	1.72	0.79	0.79
21.91	137.80	122.24	1.05	127.87	1.73	0.80	0.80
21.95	138.11	122.32	1.06	129.40	1.73	0.80	0.80
22.00	138.24	122.26	1.07	130.49	1.74	0.80	0.80
22.05	138.18	122.02	1.08	131.33	1.75	0.80	0.80
22.10	138.24	121.90	1.08	132.00	1.75	0.80	0.80
22.15	138.31	121.77	1.09	132.56	1.75	0.80	0.80
22.19	138.68	121.94	1.09	133.12	1.75	0.80	0.80
22.24	139.25	122.24	1.11	135.35	1.76	0.81	0.81
22.29	139.86	122.58	1.11	136.60	1.77	0.81	0.81
22.34	140.20	122.70	1.12	137.16	1.77	0.81	0.81
22.39	140.06	122.45	1.11	135.89	1.77	0.81	0.81
22.43	139.42	121.72	1.11	135.26	1.77	0.81	0.81
22.48	138.34	120.56	1.12	135.08	1.77	0.81	0.81
22.55	136.79	118.95	1.13	134.76	1.78	0.81	0.81
22.62	130.08	112.68	1.17	131.90	1.82	0.80	0.80
22.63	127.95	110.75	1.18	130.57	1.83	0.80	0.80
22.72	125.56	108.31	1.19	128.61	1.83	0.80	0.80
22.77	128.09	110.46	1.17	129.57	1.82	0.80	0.80
22.83	126.13	108.51	1.19	128.59	1.83	0.80	0.80
22.91	124.21	106.52	1.20	127.55	1.85	0.79	0.79
22.96	121.74	104.15	1.21	126.09	1.86	0.79	0.79
23.02	118.20	100.84	1.22	123.45	1.88	0.79	0.79
23.10	113.85	96.74	1.24	119.96	1.90	0.78	0.78
23.16	108.42	91.79	1.26	115.60	1.93	0.78	0.78
23.20	102.21	86.20	1.28	110.62	1.97	0.77	0.77

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
23.26	95.46	80.15	1.31	105.23	2.01	0.76	0.76
23.35	88.68	74.00	1.36	100.36	2.05	0.75	0.75
23.39	81.66	67.80	1.42	95.97	2.10	0.74	0.74
23.48	74.68	61.55	1.51	93.11	2.15	0.73	0.73
23.54	68.33	55.99	1.61	90.41	2.20	0.73	0.73
23.63	63.44	51.67	1.69	87.24	2.23	0.72	0.72
23.69	60.07	48.84	1.63	79.68	2.21	0.57	0.71
23.78	58.37	47.34	1.59	75.09	2.19	0.39	0.70
23.87	57.71	46.70	1.56	72.76	2.18	0.32	0.69
23.88	57.81	46.69	1.62	75.51	2.20	0.40	0.70
23.93	57.42	46.23	1.69	78.05	2.23	0.50	0.70
24.02	57.22	45.85	1.76	80.73	2.25	0.62	0.71
24.04	56.97	45.57	1.82	82.98	2.27	0.71	0.71
24.05	57.34	45.82	1.85	84.83	2.28	0.72	0.72
24.15	58.27	46.42	1.87	86.71	2.28	0.72	0.72
24.20	60.11	47.86	1.85	88.32	2.28	0.73	0.73
24.30	62.64	49.86	1.75	87.06	2.25	0.72	0.72
24.40	65.07	51.83	1.63	84.41	2.21	0.72	0.72
24.46	66.59	53.10	1.53	81.44	2.16	0.66	0.71
24.54	66.42	52.90	1.50	79.49	2.15	0.56	0.71
24.64	64.09	50.78	1.55	78.59	2.17	0.52	0.70
24.73	59.94	47.12	1.68	79.13	2.22	0.54	0.71
24.78	54.64	42.55	1.92	81.62	2.30	0.67	0.71
24.88	48.57	37.36	2.28	85.25	2.38	0.72	0.72
24.94	41.92	31.81	2.80	89.16	2.47	0.73	0.73
25.02	35.00	26.12	3.52	92.04	2.57	0.73	0.73
25.12	28.43	20.76	4.59	95.35	2.69	0.74	0.74
25.17	22.86	16.30	6.02	98.17	2.81	0.74	0.74
25.27	18.41	12.75	7.69	98.13	2.93	0.74	0.74
25.36	15.13	9.96	9.50	94.69	3.04	0.34	0.71
25.43	12.60	8.11	11.16	90.44	3.13	0.30	0.58
25.50	10.88	6.84	12.76	87.31	3.20	0.27	0.49
25.60	9.77	6.01	14.03	84.31	3.25	0.24	0.43
25.64	9.26	5.64	14.52	81.86	3.27	0.23	0.40
25.67	9.06	5.48	14.58	79.98	3.28	0.22	0.39
25.71	8.86	5.33	14.38	76.65	3.27	0.20	0.38
25.79	8.52	5.07	14.25	72.22	3.26	0.16	0.36
25.93	8.18	4.80	14.17	68.01	3.26	0.14	0.34
26.03	8.02	4.66	13.97	65.11	3.25	0.13	0.33
26.13	8.02	4.64	13.74	63.74	3.24	0.11	0.33
26.24	8.08	4.67	13.54	63.18	3.23	0.12	0.33
26.37	8.18	4.71	13.48	63.49	3.23	0.12	0.34
26.47	8.25	4.73	13.53	64.09	3.23	0.12	0.34
26.60	8.25	4.71	13.24	62.33	3.22	0.12	0.34
26.71	8.38	4.78	12.59	60.15	3.19	0.09	0.34
26.85	8.75	5.00	11.78	58.94	3.16	0.09	0.36
26.95	8.96	5.12	12.24	62.69	3.18	0.11	0.37
27.04	9.60	5.54	12.21	67.66	3.18	0.15	0.40

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
27.09	10.14	5.90	12.33	72.68	3.18	0.17	0.42
27.19	10.95	6.42	11.76	75.49	3.16	0.20	0.46
27.23	11.18	6.56	11.88	78.01	3.16	0.21	0.47
27.33	11.42	6.70	11.98	80.22	3.17	0.22	0.48
27.40	11.76	6.91	11.94	82.48	3.16	0.24	0.49
27.47	12.30	7.25	11.72	84.94	3.15	0.25	0.52
27.57	12.97	7.66	11.34	86.93	3.14	0.28	0.55
27.66	13.85	8.22	10.99	90.36	3.12	0.30	0.59
27.77	14.96	8.93	10.64	94.93	3.10	0.34	0.64
27.86	16.28	9.76	10.29	100.42	3.08	0.40	0.70
27.96	17.39	10.45	10.06	105.14	3.07	0.45	0.75
28.06	17.73	10.63	10.22	108.70	3.08	0.49	0.76
28.15	17.29	10.31	10.64	109.63	3.10	0.50	0.74
28.25	17.04	10.10	10.32	104.18	3.08	0.47	0.72
28.34	16.50	9.71	10.12	98.29	3.07	0.34	0.69
28.44	16.94	9.96	9.46	94.21	3.04	0.34	0.71
28.54	16.11	9.38	10.45	98.03	3.09	0.38	0.67
28.62	17.46	10.22	9.90	101.19	3.06	0.41	0.73
28.71	18.34	10.74	9.72	104.45	3.05	0.45	0.77
28.77	20.26	11.95	8.92	106.63	3.01	0.48	0.85
28.86	20.73	12.21	8.93	109.00	3.01	0.51	0.87
28.91	21.34	12.56	8.78	110.37	3.00	0.52	0.90
28.97	22.04	12.99	8.63	112.06	2.99	0.77	0.77
29.04	22.92	13.50	8.45	114.13	2.98	0.77	0.77
29.10	23.97	14.13	8.26	116.69	2.97	0.78	0.78
29.15	25.15	14.85	8.08	120.01	2.96	0.78	0.78
29.25	26.40	16.30	7.69	125.36	2.93	0.79	0.79
29.34	27.38	16.91	7.60	128.48	2.93	0.80	0.80
29.38	27.75	17.12	7.63	130.55	2.93	0.80	0.80
29.48	27.72	16.25	7.97	129.55	2.95	0.80	0.80
29.55	27.48	16.06	8.07	129.61	2.96	0.80	0.80
29.63	27.41	16.75	7.61	127.50	2.93	0.79	0.79
29.72	28.43	17.61	6.01	105.80	2.81	0.76	0.76
29.82	31.56	20.09	3.98	79.94	2.63	0.58	0.71
29.88	36.83	24.31	2.33	56.65	2.39	0.09	0.65
29.96	45.23	30.47	1.87	56.98	2.29	0.09	0.65
30.06	49.92	33.83	1.75	59.16	2.25	0.11	0.65
30.13	54.67	37.29	1.64	60.99	2.21	0.12	0.66
30.18	56.02	38.21	1.63	62.30	2.21	0.14	0.66
30.28	58.72	40.06	1.61	64.44	2.20	0.16	0.67
30.37	59.53	40.40	1.67	67.53	2.22	0.21	0.68
30.47	60.51	40.85	1.74	71.05	2.25	0.28	0.69
30.57	63.28	42.69	1.73	73.87	2.24	0.35	0.69
30.66	67.26	45.46	1.67	76.12	2.22	0.42	0.70
30.74	71.34	48.33	1.62	78.31	2.20	0.51	0.70
30.82	74.51	50.51	1.59	80.52	2.19	0.61	0.71
30.90	76.30	51.60	1.61	82.93	2.20	0.71	0.71
31.01	76.90	51.74	1.66	85.67	2.22	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
31.10	77.02	51.51	1.74	89.47	2.24	0.73	0.73
31.19	77.06	51.19	1.84	93.96	2.28	0.74	0.74
31.28	77.57	51.24	1.92	98.21	2.30	0.74	0.74
31.35	78.53	51.70	1.97	101.82	2.31	0.75	0.75
31.43	80.52	52.90	1.98	104.59	2.31	0.76	0.76
31.53	83.11	54.53	1.97	107.28	2.31	0.76	0.76
31.60	85.91	56.74	1.78	101.10	2.26	0.75	0.75
31.67	88.07	58.52	1.64	95.74	2.21	0.74	0.74
31.77	89.46	59.74	1.53	91.18	2.16	0.73	0.73
31.84	89.86	59.77	1.56	93.40	2.18	0.74	0.74
31.91	86.18	56.78	1.68	95.19	2.22	0.74	0.74
31.98	79.10	51.41	1.89	97.23	2.29	0.74	0.74
31.98	77.21	49.95	1.99	99.23	2.32	0.75	0.75
32.04	78.73	50.91	1.98	100.65	2.31	0.75	0.75
32.12	82.68	53.56	1.91	102.19	2.30	0.75	0.75
32.16	80.04	51.46	2.05	105.63	2.33	0.76	0.76
32.27	75.66	48.11	2.26	108.77	2.38	0.76	0.76
32.33	70.76	44.53	2.50	111.51	2.42	0.77	0.77
32.41	66.31	41.33	2.72	112.40	2.46	0.77	0.77
32.50	61.79	38.14	2.93	111.66	2.49	0.77	0.77
32.58	56.66	34.61	3.18	110.12	2.53	0.77	0.77
32.66	50.22	30.23	3.59	108.68	2.58	0.76	0.76
32.74	43.30	25.56	4.22	107.79	2.65	0.76	0.76
32.84	36.12	20.76	5.20	107.96	2.75	0.76	0.76
32.90	29.88	16.68	6.45	107.62	2.85	0.76	0.76
32.98	24.92	12.71	8.19	104.08	2.96	0.76	0.76
33.08	20.77	10.40	9.80	101.84	3.06	0.43	0.74
33.14	17.05	8.34	11.93	99.50	3.16	0.40	0.60
33.22	14.12	6.71	14.31	96.06	3.27	0.36	0.48
33.32	12.19	5.64	16.21	91.43	3.34	0.30	0.40
33.37	11.28	5.14	16.60	85.28	3.35	0.27	0.37
33.47	11.05	4.99	16.37	81.70	3.34	0.22	0.36
33.56	11.66	5.30	15.06	79.85	3.30	0.23	0.38
33.63	12.43	5.71	14.04	80.15	3.26	0.23	0.41
33.71	12.67	5.82	13.47	78.37	3.23	0.23	0.42
33.81	11.99	5.44	13.27	72.19	3.22	0.19	0.39
33.90	11.05	4.92	13.35	65.65	3.23	0.11	0.35
33.95	10.31	4.51	13.36	60.28	3.23	0.11	0.32
34.04	10.07	4.37	13.69	59.84	3.24	0.11	0.31
34.14	9.87	4.25	14.01	59.54	3.25	0.10	0.30
34.17	9.81	4.21	14.16	59.63	3.26	0.11	0.30
34.20	10.07	4.35	13.78	59.92	3.24	0.11	0.31
34.26	10.38	4.50	13.36	60.14	3.23	0.11	0.32
34.35	10.61	4.61	12.99	59.91	3.21	0.11	0.33
34.43	10.41	4.49	13.24	59.45	3.22	0.11	0.32
34.49	10.27	4.41	13.28	58.59	3.22	0.10	0.32
34.59	10.17	4.34	13.18	57.25	3.22	0.10	0.31
34.69	10.07	4.28	13.07	55.91	3.21	0.09	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
34.73	9.90	4.18	13.12	54.88	3.22	0.08	0.30
34.83	9.80	4.12	13.19	54.34	3.22	0.08	0.29
34.90	9.74	4.07	13.37	54.48	3.23	0.08	0.29
34.98	9.84	4.12	13.48	55.47	3.23	0.09	0.29
35.07	10.14	4.26	13.68	58.28	3.24	0.10	0.30
35.16	10.58	4.47	14.49	64.79	3.27	0.12	0.32
35.26	11.29	4.82	15.85	76.48	3.32	0.19	0.34
35.33	13.25	5.82	15.42	89.71	3.31	0.31	0.42
35.40	16.76	7.61	13.28	101.03	3.22	0.42	0.54
35.50	20.84	9.67	11.03	106.70	3.12	0.52	0.69
35.57	23.37	10.95	10.02	109.72	3.07	0.54	0.78
35.65	23.77	11.12	10.10	112.36	3.07	0.57	0.79
35.71	22.86	10.64	10.83	115.22	3.11	0.61	0.76
35.79	21.65	9.99	11.64	116.27	3.15	0.61	0.71
35.85	20.37	9.32	12.22	113.90	3.18	0.57	0.67
35.94	19.29	8.75	12.53	109.71	3.19	0.51	0.63
35.99	18.31	8.24	12.58	103.66	3.19	0.46	0.59
36.08	17.16	7.64	12.55	95.94	3.19	0.38	0.55
36.17	15.54	6.80	12.98	88.35	3.21	0.28	0.49
36.24	14.22	6.13	13.50	82.76	3.23	0.26	0.44
36.33	13.58	5.79	14.00	81.11	3.25	0.24	0.41
36.42	13.58	5.77	14.22	82.08	3.26	0.24	0.41
36.52	14.05	5.99	12.88	77.16	3.21	0.28	0.43
36.61	15.40	6.64	11.27	74.88	3.13	0.14	0.47
36.70	17.73	7.78	9.87	76.79	3.06	0.21	0.56
36.78	20.23	8.99	9.83	88.43	3.06	0.34	0.64
36.85	18.24	7.99	12.41	99.18	3.19	0.44	0.57
36.87	20.20	8.95	11.61	103.88	3.15	0.46	0.64
36.91	23.23	10.43	10.08	105.17	3.07	0.51	0.75
36.97	31.40	15.73	6.66	104.77	2.86	0.76	0.76
37.06	35.24	17.97	5.86	105.20	2.80	0.76	0.76
37.12	38.62	19.91	5.42	107.91	2.76	0.76	0.76
37.20	42.40	22.04	5.10	112.33	2.74	0.77	0.77
37.27	47.56	25.06	4.56	114.30	2.69	0.77	0.77
37.35	52.21	27.88	4.03	112.42	2.63	0.77	0.77
37.44	55.22	29.75	3.64	108.21	2.59	0.76	0.76
37.49	58.42	31.83	3.23	102.76	2.53	0.75	0.75
37.59	67.19	37.46	2.56	95.81	2.43	0.74	0.74
37.64	85.65	49.64	1.82	90.11	2.27	0.73	0.73
37.70	111.29	67.10	1.41	94.79	2.10	0.74	0.74
37.78	136.59	84.81	1.28	108.37	1.96	0.76	0.76
37.83	155.69	98.45	1.22	120.19	1.88	0.78	0.78
37.92	167.53	106.83	1.19	126.68	1.83	0.79	0.79
37.97	174.58	111.69	1.17	130.53	1.81	0.80	0.80
38.07	178.80	114.34	1.16	133.13	1.81	0.80	0.80
38.14	181.84	116.07	1.17	135.64	1.81	0.81	0.81
38.22	185.72	118.33	1.17	138.68	1.82	0.81	0.81
38.31	191.72	121.94	1.17	143.23	1.82	0.82	0.82

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
38.41	201.37	128.37	1.16	148.66	1.80	0.83	0.83
38.52	212.64	135.94	1.14	154.32	1.79	0.83	0.83
38.64	221.04	141.59	1.11	157.41	1.77	0.84	0.84
38.74	217.87	138.67	1.14	158.10	1.79	0.84	0.84
38.80	214.19	135.62	1.16	157.57	1.81	0.84	0.84
38.89	210.42	132.43	1.18	156.57	1.83	0.84	0.84
38.94	213.65	134.37	1.18	158.84	1.83	0.84	0.84
39.03	213.59	133.74	1.19	159.69	1.84	0.84	0.84
39.13	213.25	132.81	1.21	160.46	1.86	0.84	0.84
39.23	211.36	130.76	1.22	160.12	1.88	0.84	0.84
39.35	207.85	127.69	1.24	158.27	1.90	0.84	0.84
39.42	201.04	122.59	1.26	154.08	1.93	0.83	0.83
39.51	192.09	116.15	1.28	148.22	1.96	0.82	0.82
39.60	181.50	108.71	1.30	141.37	1.99	0.82	0.82
39.70	172.83	102.65	1.32	135.85	2.02	0.81	0.81
39.78	164.63	97.07	1.35	130.75	2.04	0.80	0.80
39.90	157.35	92.05	1.37	126.28	2.06	0.79	0.79
39.99	149.05	86.44	1.41	121.65	2.09	0.79	0.79
40.09	141.42	81.31	1.45	117.75	2.12	0.78	0.78
40.18	133.79	76.23	1.50	114.33	2.15	0.77	0.77
40.23	126.04	71.16	1.56	111.30	2.18	0.77	0.77
40.33	118.01	65.88	1.65	108.90	2.22	0.76	0.76
40.43	110.12	60.74	1.76	107.17	2.25	0.76	0.76
40.52	101.85	55.31	1.95	107.68	2.31	0.76	0.76
40.61	92.44	49.44	2.15	106.53	2.36	0.76	0.76
40.69	80.59	42.14	2.54	106.96	2.43	0.76	0.76
40.80	68.65	35.01	3.03	106.21	2.51	0.76	0.76
40.87	59.91	29.84	3.59	107.20	2.58	0.76	0.76
40.95	53.47	26.09	4.12	107.50	2.64	0.76	0.76
40.97	51.37	24.94	4.24	105.79	2.65	0.76	0.76
41.01	54.31	26.70	3.81	101.77	2.61	0.75	0.75
41.07	61.80	31.20	3.04	94.92	2.51	0.74	0.74
41.15	67.40	34.61	2.61	90.47	2.44	0.73	0.73
41.26	67.13	34.39	2.61	89.74	2.44	0.73	0.73
41.35	63.05	31.86	2.87	91.40	2.48	0.73	0.73
41.47	60.28	30.09	3.10	93.27	2.52	0.74	0.74
41.59	59.67	29.62	3.18	94.19	2.53	0.74	0.74
41.69	60.42	29.94	3.18	95.29	2.53	0.74	0.74
41.78	59.17	29.08	3.36	97.63	2.55	0.74	0.74
41.88	54.75	26.41	3.82	100.94	2.61	0.75	0.75
41.98	49.45	23.32	4.43	103.21	2.67	0.75	0.75
42.08	45.13	20.88	4.96	103.54	2.72	0.75	0.75
42.16	44.32	20.43	4.99	102.01	2.73	0.75	0.75
42.24	47.12	21.98	4.53	99.69	2.68	0.75	0.75
42.31	52.25	24.86	3.91	97.23	2.62	0.74	0.74
42.45	56.94	27.44	3.48	95.61	2.57	0.74	0.74
42.55	59.37	28.78	3.30	94.91	2.54	0.74	0.74
42.60	59.78	28.96	3.29	95.14	2.54	0.74	0.74

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
42.70	59.34	28.59	3.38	96.60	2.55	0.74	0.74
42.81	57.38	27.33	3.64	99.43	2.59	0.75	0.75
42.89	53.57	25.06	4.12	103.15	2.64	0.75	0.75
42.98	48.27	22.02	4.84	106.61	2.71	0.76	0.76
43.08	43.14	19.16	5.69	108.99	2.79	0.76	0.76
43.17	40.44	17.68	6.18	109.35	2.83	0.76	0.76
43.27	41.05	18.01	5.94	107.03	2.81	0.76	0.76
43.37	43.81	19.71	4.84	95.48	2.71	0.74	0.74
43.50	46.82	21.62	3.86	83.44	2.61	0.71	0.71
43.61	48.54	22.85	3.24	73.95	2.54	0.35	0.69
43.74	49.31	23.16	3.25	75.29	2.54	0.39	0.70
43.79	49.31	22.99	3.44	79.06	2.56	0.54	0.71
43.86	48.47	22.31	3.79	84.59	2.60	0.72	0.72
43.94	47.05	21.30	4.28	91.16	2.66	0.73	0.73
44.00	44.89	19.92	4.92	98.08	2.72	0.74	0.74
44.08	42.33	18.39	5.62	103.37	2.78	0.75	0.75
44.17	38.85	16.48	6.45	106.26	2.85	0.76	0.76
44.27	35.44	14.71	7.14	105.00	2.90	0.76	0.76
44.42	34.16	14.09	7.15	100.72	2.90	0.75	0.75
44.52	37.10	15.69	6.06	95.03	2.82	0.74	0.74
44.61	44.15	19.52	4.49	87.72	2.68	0.72	0.72
44.71	51.91	23.77	3.51	83.46	2.57	0.71	0.71
44.85	56.66	26.27	3.19	83.87	2.53	0.72	0.72
44.95	57.30	26.40	3.34	88.11	2.55	0.72	0.72
45.09	54.98	24.92	3.69	92.06	2.59	0.73	0.73
45.19	50.09	22.17	4.29	95.00	2.66	0.74	0.74
45.33	43.44	18.53	5.31	98.48	2.76	0.75	0.75
45.42	37.17	15.25	6.56	100.02	2.85	0.75	0.75
45.57	34.20	13.74	7.18	98.64	2.90	0.75	0.75
45.68	32.58	12.98	7.29	94.66	2.91	0.74	0.74
45.81	30.45	12.02	7.30	87.72	2.91	0.72	0.72
45.92	26.54	9.26	8.96	82.93	3.01	0.26	0.66
46.05	22.29	7.59	10.87	82.51	3.11	0.33	0.54
46.16	19.32	6.43	13.40	86.12	3.23	0.32	0.46
46.17	17.73	5.82	14.71	85.57	3.28	0.32	0.42
46.23	17.46	5.70	14.75	84.09	3.28	0.30	0.41
46.29	16.85	5.46	15.02	82.02	3.29	0.28	0.39
46.34	16.04	5.15	15.32	78.81	3.31	0.26	0.37
46.42	15.30	4.85	15.44	74.90	3.31	0.22	0.35
46.48	14.90	4.69	15.10	70.80	3.30	0.19	0.34
46.52	14.69	4.61	14.73	67.86	3.28	0.17	0.33
46.60	14.56	4.55	14.47	65.79	3.27	0.16	0.32
46.67	14.49	4.51	14.23	64.21	3.26	0.15	0.32
46.74	14.45	4.49	14.03	63.02	3.25	0.14	0.32
46.82	14.42	4.47	13.84	61.88	3.25	0.14	0.32
46.88	14.19	4.37	13.96	61.07	3.25	0.13	0.31
46.96	14.10	4.33	13.99	60.61	3.25	0.13	0.31
47.06	13.97	4.27	14.16	60.52	3.26	0.13	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
47.15	14.11	4.31	14.15	61.03	3.26	0.13	0.31
47.24	14.43	4.42	14.72	65.10	3.28	0.14	0.32
47.35	16.18	5.07	14.87	75.39	3.29	0.20	0.36
47.49	19.69	6.36	12.67	80.67	3.20	0.35	0.45
47.58	24.11	8.00	10.33	82.65	3.09	0.29	0.57
47.73	26.03	8.69	9.32	80.95	3.03	0.30	0.62
47.83	27.06	9.05	9.05	81.84	3.02	0.33	0.65
47.87	26.18	8.71	9.55	83.19	3.04	0.32	0.62
47.89	26.93	8.98	9.14	82.12	3.02	0.32	0.64
47.94	26.64	8.87	9.20	81.59	3.02	0.31	0.63
48.02	26.81	8.91	9.08	80.90	3.02	0.31	0.64
48.07	26.40	8.75	9.26	81.07	3.03	0.31	0.63
48.12	25.97	8.58	9.61	82.45	3.05	0.31	0.61
48.18	25.43	8.37	10.05	84.09	3.07	0.34	0.60
48.26	25.01	8.20	10.42	85.42	3.09	0.34	0.59
48.31	24.60	8.04	10.54	84.77	3.10	0.34	0.57
48.38	24.56	8.01	10.30	82.58	3.08	0.31	0.57
48.46	24.71	8.05	9.85	79.31	3.06	0.29	0.58
48.52	24.41	7.93	9.58	75.99	3.05	0.26	0.57
48.60	23.16	7.46	9.70	72.40	3.05	0.23	0.53
48.68	20.77	6.57	10.59	69.64	3.10	0.19	0.47
48.74	18.20	5.63	12.04	67.76	3.17	0.18	0.40
48.82	15.94	4.80	14.01	67.24	3.25	0.17	0.34
48.89	14.56	4.29	15.49	66.41	3.31	0.17	0.31
48.99	13.82	4.01	16.21	64.98	3.34	0.16	0.29
49.05	13.65	3.94	15.85	62.48	3.32	0.14	0.28
49.12	13.51	3.89	15.38	59.74	3.31	0.12	0.28
49.18	13.55	3.89	14.70	57.20	3.28	0.11	0.28
49.27	13.75	3.96	14.08	55.71	3.26	0.10	0.28
49.32	13.92	4.01	13.56	54.42	3.24	0.10	0.29
49.42	13.55	3.87	13.92	53.88	3.25	0.09	0.28
49.48	13.11	3.71	14.46	53.63	3.27	0.09	0.26
49.56	13.01	3.66	14.76	54.09	3.28	0.09	0.26
49.66	13.28	3.75	14.73	55.25	3.28	0.10	0.27
49.76	13.68	3.89	14.49	56.33	3.27	0.11	0.28
49.85	14.06	4.01	13.46	54.00	3.23	0.11	0.29
49.99	14.87	4.29	11.96	51.28	3.17	0.06	0.31
50.09	14.43	4.12	11.90	49.07	3.16	0.08	0.29
50.21	13.82	3.89	12.94	50.39	3.21	0.08	0.28
50.24	13.21	3.68	13.72	50.47	3.24	0.08	0.26
50.29	13.59	3.81	13.05	49.66	3.21	0.08	0.27
50.38	13.69	3.83	12.73	48.82	3.20	0.07	0.27
50.47	13.39	3.72	13.00	48.36	3.21	0.07	0.27
50.52	12.98	3.57	13.61	48.61	3.24	0.07	0.26
50.62	13.01	3.58	13.73	49.09	3.24	0.07	0.26
50.66	13.15	3.62	13.70	49.58	3.24	0.08	0.26
50.76	13.28	3.66	13.70	50.11	3.24	0.08	0.26
50.83	14.13	3.95	12.99	51.29	3.21	0.08	0.28

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
50.91	14.30	4.00	13.34	53.36	3.23	0.09	0.29
51.00	15.61	4.45	12.42	55.29	3.19	0.11	0.32
51.06	17.36	5.06	11.27	56.99	3.13	0.11	0.36
51.15	17.67	5.15	11.86	61.08	3.16	0.13	0.37
51.24	16.35	4.68	14.43	67.57	3.27	0.18	0.33
51.31	12.88	3.47	21.69	75.27	3.51	0.23	0.25
51.39	18.55	5.43	14.77	80.15	3.28	0.29	0.39
51.48	32.14	11.43	7.23	82.64	2.90	0.71	0.71
51.58	35.38	12.78	6.83	87.30	2.87	0.72	0.72
51.68	27.82	8.59	10.70	91.85	3.10	0.45	0.61
51.77	17.84	5.13	19.49	100.06	3.45	0.43	0.37
51.90	36.80	11.62	9.16	106.47	3.02	0.53	0.83
52.01	74.42	30.49	3.61	110.20	2.58	0.77	0.77
52.11	128.50	57.50	2.11	121.05	2.34	0.78	0.78
52.26	161.87	74.64	1.77	131.90	2.25	0.80	0.80
52.30	209.17	100.78	1.45	146.55	2.12	0.82	0.82
52.33	248.44	124.60	1.31	162.63	2.00	0.84	0.84
52.35	302.93	158.50	1.21	192.22	1.87	0.88	0.88
52.40	347.53	187.07	1.12	209.95	1.78	0.90	0.90
52.45	381.51	208.63	1.04	216.58	1.72	0.90	0.90
52.50	415.58	229.89	1.00	229.89	1.69	0.92	0.92
52.55	447.33	248.98	1.00	248.98	1.67	0.93	0.93
52.60	486.53	273.15	1.00	273.15	1.63	0.96	0.96
52.65	516.02	289.64	1.00	289.64	1.60	0.97	0.97
52.71	531.14	297.95	1.00	297.95	1.57	0.98	0.98
52.77	541.83	303.79	1.00	303.79	1.53	0.98	0.98
52.82	558.50	312.99	1.00	312.99	1.51	0.99	0.99
52.88	578.13	323.84	1.00	323.84	1.48	1.00	1.00
52.93	592.07	331.46	1.00	331.46	1.46	1.00	1.00
52.98	605.70	338.95	1.00	338.95	1.46	1.01	1.01
53.03	608.64	340.39	1.00	340.39	1.46	1.01	1.01
53.08	608.27	340.01	1.00	340.01	1.46	1.01	1.01
53.12	601.01	335.78	1.00	335.78	1.47	1.00	1.00
53.17	598.22	333.99	1.00	333.99	1.46	1.00	1.00
53.23	600.71	335.19	1.00	335.19	1.45	1.00	1.00
53.28	596.23	332.45	1.00	332.45	1.47	1.00	1.00
53.37	588.50	327.80	1.00	327.80	1.48	1.00	1.00
53.42	584.11	325.17	1.00	325.17	1.50	1.00	1.00
53.46	586.81	326.50	1.00	326.50	1.52	1.00	1.00
53.53	599.03	333.09	1.00	333.09	1.53	1.00	1.00
53.61	597.34	331.84	1.00	331.84	1.56	1.00	1.00
53.62	582.26	323.39	1.00	323.39	1.60	1.00	1.00
53.65	574.05	318.67	1.00	318.67	1.60	0.99	0.99
53.67	571.35	317.12	1.00	317.12	1.61	0.99	0.99
53.70	583.83	323.95	1.00	323.95	1.59	1.00	1.00
53.74	582.83	323.26	1.00	323.26	1.60	1.00	1.00
53.76	583.81	323.74	1.00	323.74	1.60	1.00	1.00
53.80	581.08	322.06	1.00	322.06	1.59	0.99	0.99

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
53.84	577.81	320.07	1.00	320.07	1.59	0.99	0.99
53.90	578.23	320.12	1.00	320.12	1.58	0.99	0.99
53.91	570.20	315.61	1.00	315.61	1.59	0.99	0.99
53.95	573.64	317.38	1.00	317.38	1.58	0.99	0.99
53.96	579.94	320.83	1.00	320.83	1.58	0.99	0.99
53.98	601.06	332.48	1.00	332.48	1.56	1.00	1.00
53.99	602.95	333.50	1.00	333.50	1.56	1.00	1.00
54.01	592.15	327.46	1.00	327.46	1.57	1.00	1.00
54.02	579.33	320.31	1.00	320.31	1.58	0.99	0.99
54.03	553.15	305.74	1.00	305.74	1.61	0.98	0.98
54.04	504.84	276.21	1.00	276.21	1.67	0.96	0.96
54.05	452.17	241.19	1.08	260.14	1.75	0.94	0.94
54.09	422.63	221.81	1.15	254.46	1.79	0.94	0.94
54.10	421.59	220.94	1.15	254.57	1.80	0.94	0.94
54.13	421.89	221.06	1.15	254.64	1.80	0.94	0.94
54.14	420.96	220.34	1.16	254.59	1.80	0.94	0.94
54.19	422.82	221.19	1.16	255.77	1.80	0.94	0.94
54.19	428.79	224.52	1.15	258.95	1.80	0.94	0.94
54.24	439.22	231.86	1.12	259.93	1.77	0.94	0.94
54.29	456.97	245.94	1.02	249.88	1.71	0.94	0.94
54.33	474.10	261.31	1.00	261.31	1.64	0.95	0.95
54.38	494.95	272.80	1.00	272.80	1.57	0.96	0.96
54.39	512.70	282.62	1.00	282.62	1.53	0.96	0.96
54.43	529.13	291.66	1.00	291.66	1.52	0.97	0.97
54.48	543.10	299.32	1.00	299.32	1.44	0.98	0.98
54.52	556.66	306.76	1.00	306.76	1.36	0.98	0.98
54.58	573.87	316.20	1.00	316.20	1.26	0.99	0.99
54.62	587.13	323.46	1.00	323.46	1.28	1.00	1.00
54.65	604.44	333.00	1.00	333.00	1.29	1.00	1.00
54.67	623.33	343.41	1.00	343.41	1.30	1.01	1.01
54.71	658.15	362.60	1.00	362.60	1.28	1.02	1.02
54.77	679.34	374.21	1.00	374.21	1.20	1.03	1.03
54.81	702.99	387.19	1.00	387.19	1.11	1.04	1.04
54.85	704.07	387.70	1.00	387.70	1.04	1.04	1.04
54.86	709.13	390.48	1.00	390.48	1.06	1.04	1.04
54.87	703.33	387.26	1.00	387.26	1.09	1.04	1.04
54.91	703.66	387.35	1.00	387.35	1.13	1.04	1.04
54.96	707.14	389.17	1.00	389.17	1.16	1.04	1.04
55.00	703.19	386.89	1.00	386.89	1.18	1.04	1.04
55.01	695.84	382.82	1.00	382.82	1.19	1.04	1.04
55.05	679.11	373.47	1.00	373.47	1.21	1.03	1.03
55.10	651.07	357.87	1.00	357.87	1.24	1.02	1.02
55.12	603.77	331.72	1.00	331.72	1.29	1.00	1.00
55.13	570.97	313.58	1.00	313.58	1.33	0.99	0.99
55.14	563.11	309.22	1.00	309.22	1.33	0.98	0.98
55.19	576.91	316.75	1.00	316.75	1.31	0.99	0.99
55.20	576.27	316.38	1.00	316.38	1.31	0.99	0.99
55.25	562.13	308.48	1.00	308.48	1.33	0.98	0.98

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
55.29	546.07	299.55	1.00	299.55	1.37	0.98	0.98
55.33	519.69	284.92	1.00	284.92	1.42	0.97	0.97
55.38	481.16	263.59	1.00	263.59	1.52	0.95	0.95
55.48	439.32	240.38	1.00	240.38	1.63	0.93	0.93
55.57	411.39	218.55	1.04	227.87	1.73	0.92	0.92
55.63	398.09	206.42	1.15	237.94	1.80	0.92	0.92
55.72	402.04	206.08	1.19	244.53	1.83	0.93	0.93
55.80	431.09	221.88	1.17	260.68	1.82	0.95	0.95
55.86	480.55	259.76	1.00	259.76	1.67	0.94	0.94
55.97	527.85	288.32	1.00	288.32	1.51	0.97	0.97
56.01	560.55	306.20	1.00	306.20	1.34	0.98	0.98
56.06	587.84	186.61	1.00	186.61	1.50	0.87	0.87
56.11	613.11	194.57	1.00	194.57	1.50	0.88	0.88
56.15	640.71	203.27	1.00	203.27	1.51	0.89	0.89
56.20	660.92	209.60	1.00	209.60	1.52	0.90	0.90
56.27	663.16	210.15	1.00	210.15	1.53	0.90	0.90
56.27	664.17	210.45	1.00	210.45	1.56	0.90	0.90
56.30	642.20	203.39	1.00	203.39	1.61	0.89	0.89
56.33	649.54	205.64	1.00	205.64	1.64	0.89	0.89
56.35	647.65	205.00	1.00	205.00	1.66	0.89	0.89
56.40	667.86	211.31	1.00	211.31	1.64	0.90	0.90
56.41	669.34	211.76	1.00	211.76	1.64	0.90	0.90
56.44	681.53	215.53	1.00	215.53	1.63	0.90	0.90
56.49	695.19	219.75	1.00	219.75	1.62	0.91	0.91
56.54	717.49	226.71	1.00	226.71	1.61	0.91	0.91
56.58	737.23	232.85	1.00	232.85	1.61	0.92	0.92
56.59	750.18	236.93	1.00	236.93	1.61	0.92	0.92
56.64	757.34	239.07	1.00	239.07	1.60	0.93	0.93
56.69	764.80	241.29	1.00	241.29	1.60	0.93	0.93
56.73	778.16	245.40	1.00	245.40	1.59	0.93	0.93
56.78	778.56	245.38	1.00	245.38	1.58	0.93	0.93
56.83	759.53	239.22	1.00	239.22	1.58	0.93	0.93
56.88	731.80	230.32	1.00	230.32	1.58	0.92	0.92
56.89	708.89	223.03	1.00	223.03	1.60	0.91	0.91
56.95	692.53	217.71	1.00	217.71	1.59	0.91	0.91
57.01	668.00	209.81	1.00	209.81	1.59	0.90	0.90
57.07	645.94	202.70	1.00	202.70	1.58	0.89	0.89
57.11	619.45	194.25	1.00	194.25	1.52	0.88	0.88
57.17	598.63	187.56	1.00	187.56	1.46	0.87	0.87
57.26	574.07	179.66	1.00	179.66	1.37	0.86	0.86
57.31	547.05	171.06	1.00	171.06	1.43	0.85	0.85
57.37	520.16	162.50	1.00	162.50	1.45	0.84	0.84
57.45	490.27	152.96	1.00	152.96	1.51	0.83	0.83
57.51	451.30	140.63	1.00	140.63	1.55	0.81	0.81
57.53	421.54	131.27	1.00	131.27	1.59	0.80	0.80
57.59	401.40	124.87	1.00	124.87	1.62	0.79	0.79
57.63	398.96	124.05	1.00	124.05	1.62	0.79	0.79
57.68	391.51	121.66	1.00	121.66	1.63	0.79	0.79

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
57.73	386.48	120.01	1.00	120.01	1.64	0.78	0.78
57.78	379.02	117.62	1.00	117.62	1.65	0.78	0.78
57.86	359.96	111.55	1.00	111.55	1.66	0.77	0.77
57.92	326.32	100.97	1.00	100.97	1.71	0.75	0.75
57.98	290.83	89.82	1.00	89.82	1.76	0.73	0.73
58.06	263.33	81.16	1.18	95.51	1.82	0.74	0.74
58.12	242.92	74.75	1.24	92.39	1.90	0.73	0.73
58.21	222.41	68.28	1.30	88.73	1.99	0.73	0.73
58.26	204.43	62.64	1.37	85.71	2.06	0.72	0.72
58.35	180.37	55.10	1.48	81.38	2.14	0.65	0.71
58.41	154.93	47.15	1.59	74.91	2.19	0.38	0.70
58.50	122.84	37.13	1.90	70.73	2.29	0.27	0.69
58.56	98.18	29.45	2.28	67.27	2.38	0.20	0.68
58.64	77.90	23.14	3.23	74.61	2.53	0.37	0.69
58.73	63.67	18.70	4.34	81.15	2.66	0.64	0.71
58.80	51.12	14.80	5.89	87.16	2.80	0.72	0.72
58.84	42.24	12.04	7.59	91.44	2.93	0.73	0.73
58.85	43.79	12.52	7.27	91.06	2.90	0.73	0.73
58.93	50.50	14.59	6.00	87.49	2.81	0.72	0.72
58.98	58.12	16.94	4.87	82.49	2.72	0.71	0.71
59.02	61.77	18.06	4.38	79.02	2.67	0.54	0.70
59.12	63.39	18.54	4.19	77.74	2.65	0.48	0.70
59.17	65.41	19.15	4.09	78.34	2.64	0.51	0.70
59.27	67.33	19.73	4.06	80.06	2.63	0.59	0.71
59.31	67.64	19.81	4.15	82.31	2.64	0.71	0.71
59.41	64.84	18.93	4.46	84.40	2.68	0.72	0.72
59.46	57.99	16.81	5.11	85.91	2.74	0.72	0.72
59.55	48.77	13.96	6.20	86.53	2.83	0.72	0.72
59.65	39.66	11.14	7.37	82.12	2.91	0.70	0.71
59.70	34.25	9.47	8.28	78.48	2.97	0.51	0.70
59.80	32.07	8.80	8.61	75.77	2.99	0.41	0.70
59.89	32.04	8.78	9.03	79.29	3.01	0.30	0.63
59.94	31.04	8.47	9.76	82.68	3.06	0.33	0.60
60.01	30.35	8.25	10.33	85.21	3.09	0.36	0.59
60.02	32.64	8.95	9.57	85.70	3.04	0.36	0.64
60.08	35.54	9.83	8.61	84.70	2.99	0.72	0.72
60.12	36.56	10.14	8.23	83.40	2.97	0.71	0.71
60.17	32.87	9.01	9.03	81.32	3.01	0.34	0.64
60.27	28.56	7.68	10.03	76.99	3.07	0.27	0.55
60.31	24.81	6.53	11.00	71.83	3.12	0.21	0.47
60.37	22.21	5.73	11.72	67.16	3.15	0.19	0.41
60.46	20.93	5.33	12.03	64.16	3.17	0.15	0.38
60.51	20.76	5.28	11.57	61.05	3.15	0.14	0.38
60.61	21.43	5.48	10.86	59.48	3.11	0.13	0.39
60.65	21.84	5.60	10.44	58.49	3.09	0.13	0.40
60.75	22.18	5.70	10.27	58.52	3.08	0.13	0.41
60.81	22.25	5.72	10.24	58.52	3.08	0.13	0.41
60.89	22.21	5.70	10.20	58.14	3.08	0.13	0.41

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
60.94	22.45	5.77	10.12	58.37	3.07	0.12	0.41
61.03	22.62	5.81	10.19	59.27	3.08	0.13	0.42
61.09	22.65	5.82	10.23	59.56	3.08	0.14	0.42
61.19	22.38	5.74	10.30	59.09	3.08	0.13	0.41
61.24	22.96	5.91	9.90	58.48	3.06	0.12	0.42
61.33	24.51	6.37	9.35	59.55	3.03	0.14	0.46
61.38	24.20	6.28	10.50	65.92	3.09	0.15	0.45
61.47	23.16	5.95	12.35	73.50	3.18	0.24	0.43
61.53	21.88	5.56	14.59	81.14	3.28	0.29	0.40
61.62	27.61	7.29	11.24	81.97	3.13	0.33	0.52
61.70	44.48	12.39	6.68	82.73	2.86	0.71	0.71
61.77	66.81	19.14	4.44	84.93	2.67	0.72	0.72
61.86	81.96	23.70	3.78	89.66	2.60	0.73	0.73
61.95	81.02	23.39	4.06	94.89	2.63	0.74	0.74
61.97	72.62	20.85	4.65	96.91	2.69	0.74	0.74
62.01	62.36	17.75	5.62	99.66	2.78	0.75	0.75
62.10	52.17	14.66	6.77	99.23	2.87	0.75	0.75
62.24	55.41	15.61	5.76	89.92	2.79	0.73	0.73
62.34	87.70	25.31	2.83	71.54	2.48	0.29	0.69
62.49	127.58	37.26	1.74	64.77	2.25	0.17	0.67
62.54	164.52	48.34	1.44	69.68	2.11	0.25	0.68
62.66	181.39	53.35	1.37	73.33	2.07	0.34	0.69
62.74	199.68	58.78	1.33	77.94	2.02	0.49	0.70
62.87	211.65	62.29	1.30	80.99	1.99	0.63	0.71
62.92	217.18	63.92	1.29	82.65	1.98	0.71	0.71
63.03	219.18	64.44	1.29	83.41	1.98	0.71	0.71
63.15	218.06	64.03	1.30	83.38	1.99	0.71	0.71
63.26	213.11	62.49	1.32	82.35	2.01	0.71	0.71
63.37	206.70	60.51	1.34	80.92	2.03	0.63	0.71
63.45	200.15	58.51	1.34	78.49	2.04	0.51	0.70
63.54	197.59	57.70	1.32	76.31	2.02	0.43	0.70
63.61	190.30	55.49	1.33	73.61	2.02	0.34	0.69
63.69	172.04	50.02	1.39	69.47	2.08	0.24	0.68
63.79	141.71	40.98	1.65	67.77	2.22	0.21	0.68
63.89	106.15	30.39	2.20	66.74	2.36	0.19	0.67
63.98	75.22	21.20	3.37	71.48	2.55	0.29	0.69
64.07	53.15	14.65	4.91	71.91	2.72	0.30	0.69
64.15	39.12	10.48	7.30	76.48	2.91	0.44	0.70
64.23	29.98	7.77	10.00	77.68	3.07	0.27	0.56
64.26	25.15	6.34	12.34	78.26	3.18	0.27	0.45
64.29	23.57	5.87	13.31	78.14	3.22	0.26	0.42
64.33	23.37	5.81	12.89	74.86	3.21	0.26	0.41
64.43	22.99	5.69	12.43	70.78	3.19	0.19	0.41
64.47	22.29	5.48	12.05	66.07	3.17	0.17	0.39
64.53	21.82	5.34	12.01	64.15	3.17	0.16	0.38
64.62	20.60	4.98	12.74	63.40	3.20	0.15	0.36
64.72	19.12	4.53	13.95	63.23	3.25	0.15	0.32
64.78	18.00	4.20	15.17	63.74	3.30	0.15	0.30

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
64.86	18.21	4.26	15.26	65.01	3.30	0.16	0.30
64.96	18.78	4.42	15.44	68.31	3.31	0.18	0.32
65.06	19.22	4.55	15.74	71.61	3.32	0.21	0.32
65.11	19.22	4.55	16.41	74.58	3.34	0.23	0.32
65.21	18.85	4.43	17.13	75.90	3.37	0.24	0.32
65.31	18.45	4.31	17.70	76.26	3.39	0.24	0.31
65.40	18.28	4.25	17.10	72.77	3.37	0.23	0.30
65.50	18.58	4.34	15.67	67.97	3.32	0.16	0.31
65.58	19.02	4.46	14.15	63.13	3.26	0.14	0.32
65.68	19.05	4.47	13.69	61.17	3.24	0.14	0.32
65.78	17.67	4.06	14.89	60.45	3.29	0.13	0.29
65.84	16.40	3.69	16.19	59.69	3.34	0.13	0.26
65.86	15.56	3.44	17.33	59.62	3.38	0.12	0.25
65.87	16.51	3.72	15.97	59.36	3.33	0.12	0.27
65.98	17.26	3.93	15.03	59.09	3.29	0.12	0.28
66.10	17.84	4.09	14.69	60.13	3.28	0.12	0.29
66.21	18.21	4.20	14.85	62.32	3.29	0.14	0.30
66.34	18.48	4.27	14.76	63.01	3.28	0.16	0.31
66.48	19.00	4.42	14.39	63.55	3.27	0.13	0.32
66.62	18.46	4.25	14.69	62.45	3.28	0.15	0.30
66.68	18.67	4.31	14.87	64.07	3.29	0.14	0.31
66.87	18.92	4.37	15.53	67.94	3.31	0.16	0.31
66.96	19.16	4.44	16.65	73.89	3.35	0.23	0.32
67.11	18.25	4.17	18.76	78.15	3.42	0.27	0.30
67.21	16.83	3.75	20.42	76.60	3.47	0.26	0.27
67.35	16.22	3.57	20.50	73.18	3.48	0.19	0.26
67.45	16.16	3.55	21.95	77.86	3.52	0.19	0.25
67.59	27.42	6.79	13.06	88.71	3.21	0.37	0.49
67.68	77.39	21.19	3.95	83.67	2.62	0.72	0.72
67.83	159.77	44.89	1.66	74.68	2.22	0.38	0.69
67.92	241.25	68.29	1.30	88.64	1.99	0.73	0.73
68.02	283.19	80.28	1.24	99.35	1.90	0.75	0.75
68.07	299.01	84.78	1.22	103.71	1.88	0.75	0.75
68.16	305.70	86.62	1.22	105.26	1.87	0.76	0.76
68.26	310.93	88.04	1.21	106.54	1.86	0.76	0.76
68.35	307.75	87.05	1.22	106.44	1.88	0.76	0.76
68.45	299.96	84.74	1.24	105.37	1.91	0.76	0.76
68.55	291.49	82.23	1.26	103.72	1.94	0.75	0.75
68.65	271.72	76.50	1.29	98.57	1.98	0.75	0.75
68.78	253.59	71.23	1.32	94.35	2.02	0.74	0.74
68.78	238.18	66.83	1.36	90.91	2.05	0.73	0.73
68.79	234.24	65.70	1.37	89.70	2.06	0.73	0.73
68.83	237.70	66.66	1.34	89.08	2.03	0.73	0.73
68.93	243.69	68.30	1.30	88.59	1.99	0.73	0.73
68.98	253.54	71.08	1.25	89.18	1.93	0.73	0.73
69.04	257.79	72.25	1.23	89.05	1.89	0.73	0.73
69.12	259.28	72.61	1.23	89.10	1.89	0.73	0.73
69.22	255.36	71.43	1.24	88.23	1.90	0.72	0.72

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
69.28	247.73	69.22	1.25	86.25	1.91	0.72	0.72
69.36	237.41	66.24	1.26	83.22	1.93	0.71	0.71
69.45	223.58	62.26	1.27	79.21	1.95	0.55	0.71
69.60	210.12	58.37	1.29	75.34	1.98	0.40	0.70
69.70	198.18	54.94	1.31	72.05	2.01	0.30	0.69
69.80	193.42	53.54	1.32	70.68	2.01	0.27	0.69
69.89	192.07	53.12	1.32	70.30	2.02	0.26	0.68
69.98	190.15	52.53	1.33	69.82	2.02	0.25	0.68
70.08	181.88	50.15	1.35	67.53	2.04	0.21	0.68
70.18	159.82	43.89	1.45	63.51	2.12	0.15	0.67
70.32	124.32	33.85	1.81	61.16	2.27	0.12	0.66
70.42	84.31	22.56	2.96	66.77	2.50	0.20	0.68
70.54	51.82	13.41	5.53	74.19	2.77	0.36	0.69
70.66	31.85	7.79	9.69	75.54	3.05	0.25	0.56
70.75	23.52	5.45	13.34	72.70	3.23	0.21	0.39
70.80	21.80	4.97	13.43	66.71	3.23	0.18	0.35
70.89	22.64	5.20	11.52	59.87	3.14	0.12	0.37
70.99	22.34	5.11	10.38	53.00	3.09	0.09	0.36
71.08	21.63	4.90	10.09	49.46	3.07	0.07	0.35
71.17	21.43	4.84	9.87	47.79	3.06	0.07	0.35
71.23	20.92	4.70	10.01	47.05	3.07	0.07	0.34
71.33	21.09	4.74	9.74	46.20	3.05	0.06	0.34
71.42	21.73	4.92	9.08	44.64	3.02	0.06	0.35
71.52	22.81	5.22	8.26	43.06	2.97	0.03	0.62
71.58	23.21	5.33	8.27	44.01	2.97	0.04	0.62
71.67	22.88	5.23	9.07	47.43	3.02	0.07	0.37
71.81	22.47	5.11	9.94	50.76	3.06	0.09	0.36
71.82	22.24	5.04	10.42	52.55	3.09	0.09	0.36
71.86	21.97	4.96	10.64	52.82	3.10	0.09	0.35
71.91	21.83	4.92	10.75	52.95	3.11	0.09	0.35
71.97	21.60	4.86	10.97	53.27	3.12	0.09	0.35
72.05	21.36	4.79	11.22	53.72	3.13	0.10	0.34
72.10	21.13	4.72	11.52	54.35	3.14	0.10	0.34
72.20	20.99	4.68	11.71	54.79	3.15	0.10	0.33
72.25	20.99	4.67	11.87	55.49	3.16	0.10	0.33
72.34	21.09	4.70	12.12	56.94	3.17	0.11	0.34
72.44	21.09	4.69	12.53	58.80	3.19	0.12	0.34
72.53	20.89	4.63	13.04	60.40	3.21	0.13	0.33
72.63	20.79	4.60	13.29	61.13	3.22	0.14	0.33
72.69	20.48	4.51	13.55	61.14	3.23	0.14	0.32
72.82	20.69	4.56	13.34	60.87	3.23	0.13	0.33
72.92	21.13	4.68	12.83	60.05	3.20	0.13	0.33
73.06	22.11	4.95	11.98	59.27	3.17	0.12	0.35
73.16	22.34	5.01	11.90	59.57	3.16	0.12	0.36
73.30	20.86	4.59	13.21	60.65	3.22	0.14	0.33
73.35	19.88	4.32	14.25	61.53	3.26	0.14	0.31
73.38	19.20	4.13	14.83	61.23	3.29	0.13	0.30
73.47	20.02	4.35	13.95	60.67	3.25	0.13	0.31

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
73.53	20.08	4.37	13.79	60.20	3.24	0.13	0.31
73.62	20.18	4.39	13.66	59.95	3.24	0.13	0.31
73.71	19.95	4.32	13.95	60.28	3.25	0.13	0.31
73.77	19.61	4.23	14.55	61.46	3.28	0.13	0.30
73.86	19.34	4.15	15.21	63.08	3.30	0.15	0.30
73.96	19.38	4.15	15.56	64.61	3.31	0.15	0.30
74.06	19.58	4.20	15.60	65.59	3.32	0.16	0.30
74.13	20.02	4.32	15.32	66.22	3.31	0.16	0.31
74.24	20.36	4.41	15.12	66.66	3.30	0.17	0.31
74.34	20.56	4.46	15.08	67.26	3.30	0.17	0.32
74.44	20.42	4.42	15.35	67.81	3.31	0.18	0.32
74.58	20.37	4.40	15.30	67.28	3.30	0.18	0.31
74.68	20.30	4.38	14.35	62.80	3.27	0.16	0.31
74.80	20.47	4.42	13.30	58.74	3.22	0.09	0.32
74.92	20.26	4.35	12.97	56.43	3.21	0.11	0.31
75.07	20.06	4.29	13.60	58.35	3.24	0.12	0.31
75.08	19.75	4.21	14.10	59.34	3.26	0.12	0.30
75.11	19.62	4.17	14.28	59.53	3.26	0.12	0.30
75.16	19.55	4.15	14.53	60.28	3.27	0.13	0.30
75.25	19.31	4.08	15.14	61.74	3.30	0.13	0.29
75.32	19.14	4.03	15.69	63.23	3.32	0.15	0.29
75.40	18.98	3.98	16.00	63.73	3.33	0.15	0.28
75.50	18.81	3.93	15.96	62.77	3.33	0.14	0.28
75.59	18.30	3.79	16.02	60.75	3.33	0.13	0.27
75.69	17.56	3.59	16.34	58.60	3.34	0.11	0.26
75.78	16.85	3.39	16.66	56.46	3.35	0.11	0.24
75.88	16.41	3.27	16.73	54.66	3.36	0.10	0.23
75.96	16.11	3.18	16.62	52.90	3.35	0.09	0.23
76.05	16.04	3.16	16.34	51.65	3.34	0.08	0.23
76.14	15.97	3.14	16.25	51.00	3.34	0.08	0.22
76.26	16.07	3.16	16.16	51.09	3.34	0.08	0.23
76.36	16.07	3.16	16.26	51.38	3.34	0.08	0.23
76.41	16.07	3.16	16.31	51.50	3.34	0.08	0.23
76.51	15.84	3.09	16.56	51.17	3.35	0.08	0.22
76.65	15.50	2.99	17.04	51.04	3.37	0.08	0.21
76.72	15.26	2.93	17.45	51.12	3.38	0.08	0.21
76.79	15.16	2.90	17.72	51.39	3.39	0.08	0.21
76.89	15.23	2.91	18.36	53.53	3.41	0.08	0.21
76.98	15.47	2.98	20.80	61.89	3.48	0.11	0.21
77.08	18.00	3.65	19.05	69.60	3.43	0.21	0.26
77.18	22.18	4.77	16.19	77.29	3.34	0.23	0.34
77.28	26.73	5.99	14.06	84.26	3.26	0.29	0.43
77.37	27.88	6.30	14.87	93.62	3.29	0.40	0.45
77.42	28.76	6.53	15.41	100.64	3.31	0.49	0.47
77.42	30.22	6.92	15.09	104.44	3.30	0.50	0.49
77.44	34.00	7.94	13.49	107.05	3.23	0.53	0.57
77.48	37.40	8.85	12.47	110.31	3.19	0.60	0.63
77.52	40.61	9.70	11.65	113.00	3.15	0.64	0.69

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
77.54	42.94	10.33	11.08	114.44	3.12	0.66	0.74
77.57	43.37	10.44	11.07	115.54	3.12	0.68	0.75
77.62	42.26	10.14	11.44	115.93	3.14	0.69	0.72
77.65	40.10	9.55	12.10	115.64	3.17	0.66	0.68
77.67	38.72	9.18	12.34	113.32	3.18	0.65	0.66
77.71	37.91	8.96	12.41	111.24	3.19	0.59	0.64
77.71	37.03	8.73	12.35	107.78	3.18	0.58	0.62
77.76	34.77	8.12	12.85	104.25	3.20	0.52	0.58
77.81	31.76	7.31	13.53	98.88	3.23	0.45	0.52
77.90	29.03	6.57	14.40	94.60	3.27	0.39	0.47
77.95	27.32	6.11	15.14	92.44	3.30	0.37	0.44
78.01	26.34	5.84	15.63	91.29	3.32	0.38	0.42
78.10	27.59	6.17	14.49	89.37	3.27	0.35	0.44
78.16	36.29	8.49	9.98	84.71	3.07	0.33	0.61
78.24	48.94	11.86	6.66	79.05	2.86	0.54	0.70
78.29	64.83	16.10	4.54	73.14	2.68	0.33	0.69
78.39	77.42	19.44	3.56	69.27	2.58	0.24	0.68
78.47	87.30	22.06	3.11	68.51	2.52	0.23	0.68
78.53	92.74	23.49	3.05	71.72	2.51	0.29	0.69
78.62	94.25	23.88	3.25	77.71	2.54	0.48	0.70
78.68	91.22	23.06	3.64	84.02	2.59	0.72	0.72
78.69	92.97	23.52	3.81	89.57	2.61	0.73	0.73
78.78	93.95	23.76	4.00	95.10	2.63	0.74	0.74
78.81	94.86	24.00	4.25	102.04	2.65	0.75	0.75
78.92	85.28	21.43	5.01	107.35	2.73	0.76	0.76
79.03	72.83	18.11	5.93	107.43	2.81	0.76	0.76
79.16	68.41	16.91	5.87	99.26	2.80	0.75	0.75
79.26	78.39	19.54	4.53	88.45	2.68	0.73	0.73
79.35	97.35	24.54	3.42	83.92	2.56	0.72	0.72
79.45	114.43	29.03	2.95	85.78	2.50	0.72	0.72
79.54	124.25	31.60	2.84	89.58	2.48	0.73	0.73
79.64	131.23	33.41	2.75	91.91	2.47	0.73	0.73
79.74	153.43	39.23	2.39	93.85	2.40	0.74	0.74
79.88	186.93	48.00	1.98	94.86	2.31	0.74	0.74
79.98	228.94	59.00	1.62	95.73	2.20	0.74	0.74
80.12	248.77	64.13	1.48	95.14	2.14	0.74	0.74
80.22	253.19	65.23	1.40	91.22	2.09	0.73	0.73
80.36	244.79	62.94	1.37	86.07	2.06	0.72	0.72
80.46	238.82	61.33	1.32	81.11	2.02	0.64	0.71
80.60	231.84	59.42	1.30	77.21	1.99	0.46	0.70
80.70	223.91	57.30	1.30	74.37	1.99	0.37	0.69
80.83	213.12	54.42	1.32	72.04	2.02	0.30	0.69
80.94	194.49	49.51	1.41	69.62	2.09	0.25	0.68
81.01	177.96	45.17	1.50	67.91	2.15	0.21	0.68
81.04	164.23	41.58	1.60	66.50	2.19	0.19	0.67
81.09	158.43	40.05	1.65	65.97	2.21	0.18	0.67
81.13	149.59	37.74	1.75	66.04	2.25	0.18	0.67
81.18	136.87	34.41	1.98	67.98	2.31	0.22	0.68

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
81.23	123.31	30.87	2.34	72.13	2.39	0.30	0.69
81.28	109.41	27.24	2.85	77.64	2.48	0.48	0.70
81.33	98.17	24.30	3.46	84.19	2.57	0.72	0.72
81.37	88.49	21.78	4.25	92.48	2.65	0.73	0.73
81.42	81.24	19.88	5.05	100.46	2.73	0.75	0.75
81.47	75.77	18.46	5.75	106.15	2.79	0.76	0.76
81.52	71.99	17.47	6.25	109.13	2.83	0.76	0.76
81.56	70.98	17.20	6.46	111.09	2.85	0.77	0.77
81.61	70.58	17.08	6.60	112.75	2.86	0.77	0.77
81.64	68.79	16.62	6.89	114.41	2.88	0.77	0.77
81.70	62.18	14.89	7.85	116.91	2.94	0.78	0.78
81.75	54.38	12.87	9.25	118.94	3.03	0.76	0.92
81.79	46.89	10.92	10.91	119.14	3.11	0.73	0.78
81.82	41.90	9.62	12.12	116.62	3.17	0.68	0.69
81.86	37.62	8.51	13.21	112.49	3.22	0.61	0.61
81.91	34.01	7.57	14.21	107.66	3.26	0.54	0.54
81.95	30.63	6.70	15.27	102.27	3.30	0.48	0.48
82.00	27.33	5.84	16.41	95.81	3.34	0.41	0.42
82.09	24.26	5.04	17.74	89.46	3.39	0.33	0.36
82.15	21.66	4.37	19.38	84.64	3.44	0.29	0.31
82.19	19.83	3.89	20.80	81.03	3.48	0.27	0.28
82.26	18.38	3.52	22.06	77.56	3.52	0.23	0.25
82.34	17.00	3.16	23.49	74.17	3.56	0.21	0.23
82.39	15.65	2.81	25.58	71.81	3.61	0.20	0.20
82.48	14.77	2.58	27.14	69.97	3.64	0.18	0.18
82.58	14.64	2.54	26.84	68.21	3.64	0.17	0.18
82.62	14.74	2.57	25.95	66.60	3.62	0.16	0.18
82.70	14.88	2.60	25.23	65.56	3.60	0.15	0.19
82.77	14.81	2.58	24.98	64.46	3.59	0.15	0.18
82.87	15.08	2.65	24.19	64.01	3.57	0.14	0.19
82.96	16.23	2.94	21.57	63.38	3.51	0.14	0.21
83.06	18.22	3.45	18.38	63.34	3.41	0.14	0.25
83.16	21.39	4.26	14.82	63.10	3.29	0.14	0.30
83.25	24.46	5.04	12.49	62.94	3.19	0.15	0.36
83.34	27.20	5.74	10.91	62.57	3.11	0.15	0.41
83.44	28.34	6.03	10.55	63.55	3.10	0.15	0.43
83.54	28.75	6.12	10.60	64.89	3.10	0.17	0.44
83.64	28.61	6.08	10.93	66.49	3.12	0.17	0.43
83.73	27.70	5.84	11.68	68.29	3.15	0.18	0.42
83.83	27.26	5.73	12.30	70.46	3.18	0.20	0.41
83.85	26.83	5.62	13.07	73.38	3.21	0.21	0.40
83.89	27.47	5.78	13.14	75.93	3.22	0.24	0.41
83.94	28.11	5.94	13.69	81.26	3.24	0.26	0.42
84.04	29.26	6.23	13.80	85.92	3.25	0.34	0.44
84.09	30.40	6.51	13.83	90.10	3.25	0.36	0.47
84.13	31.28	6.74	13.65	91.94	3.24	0.37	0.48
84.18	31.68	6.83	13.70	93.61	3.24	0.40	0.49
84.25	31.52	6.79	13.97	94.85	3.25	0.41	0.48

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
84.33	30.64	6.56	14.57	95.60	3.28	0.41	0.47
84.37	29.46	6.26	15.33	95.90	3.31	0.41	0.45
84.46	28.35	5.97	15.91	94.98	3.33	0.41	0.43
84.52	27.50	5.75	16.25	93.43	3.34	0.38	0.41
84.57	26.90	5.59	16.32	91.27	3.34	0.36	0.40
84.67	26.52	5.49	16.38	90.00	3.34	0.34	0.39
84.71	26.15	5.40	16.62	89.72	3.35	0.34	0.39
84.81	25.58	5.25	17.32	90.86	3.38	0.35	0.37
84.86	24.84	5.06	18.32	92.62	3.41	0.37	0.36
84.91	24.06	4.86	19.36	94.03	3.44	0.38	0.35
85.00	23.42	4.69	20.18	94.63	3.47	0.39	0.33
85.05	22.81	4.53	20.72	93.94	3.48	0.39	0.32
85.15	22.34	4.41	20.94	92.30	3.49	0.36	0.31
85.19	21.80	4.27	20.88	89.13	3.49	0.34	0.30
85.29	21.33	4.15	20.74	85.98	3.48	0.30	0.30
85.35	20.72	3.99	20.84	83.14	3.49	0.28	0.28
85.42	20.08	3.82	21.32	81.54	3.50	0.27	0.27
85.48	19.40	3.65	22.03	80.45	3.52	0.26	0.26
85.55	18.77	3.49	22.80	79.50	3.54	0.25	0.25
85.63	18.19	3.34	23.58	78.76	3.56	0.25	0.24
85.68	17.62	3.19	24.50	78.25	3.58	0.24	0.23
85.77	17.18	3.08	25.34	78.03	3.60	0.24	0.22
85.82	17.04	3.04	25.74	78.34	3.61	0.24	0.22
85.89	17.42	3.13	25.13	78.79	3.60	0.25	0.22
85.96	18.33	3.36	23.51	79.01	3.56	0.25	0.24
86.03	19.71	3.71	21.16	78.44	3.49	0.25	0.26
86.11	21.06	4.04	19.14	77.40	3.44	0.24	0.29
86.16	22.11	4.30	17.71	76.21	3.39	0.23	0.31
86.25	21.67	4.19	18.09	75.81	3.40	0.22	0.30
86.36	19.98	3.76	19.76	74.32	3.45	0.23	0.27
86.50	18.16	3.30	22.08	72.85	3.52	0.19	0.24
86.51	17.25	3.07	23.09	70.91	3.55	0.19	0.22
86.52	17.32	3.09	22.53	69.58	3.53	0.19	0.22
86.57	17.35	3.10	21.58	66.80	3.51	0.17	0.22
86.65	17.39	3.10	20.48	63.50	3.48	0.13	0.22
86.71	17.35	3.09	19.65	60.73	3.45	0.13	0.22
86.80	17.08	3.02	19.57	59.11	3.45	0.12	0.22
86.90	16.48	2.87	20.04	57.42	3.46	0.11	0.20
86.99	15.77	2.69	20.75	55.74	3.48	0.10	0.19
87.04	15.26	2.56	21.24	54.32	3.50	0.09	0.18
87.14	15.16	2.53	21.16	53.51	3.49	0.09	0.18
87.19	15.36	2.58	20.70	53.36	3.48	0.09	0.18
87.28	15.87	2.70	20.13	54.40	3.46	0.09	0.19
87.38	16.51	2.86	19.47	55.67	3.45	0.10	0.20
87.43	17.18	3.03	18.79	56.85	3.42	0.11	0.22
87.52	17.76	3.17	18.12	57.36	3.40	0.11	0.23
87.61	18.23	3.28	17.55	57.58	3.38	0.11	0.23
87.66	18.53	3.35	17.13	57.47	3.37	0.11	0.24

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
87.76	18.57	3.36	17.00	57.12	3.37	0.11	0.24
87.84	18.43	3.32	17.02	56.58	3.37	0.10	0.24
87.91	18.13	3.25	17.27	56.08	3.37	0.10	0.23
88.00	17.79	3.16	17.58	55.54	3.39	0.10	0.23
88.11	17.46	3.07	17.98	55.23	3.40	0.10	0.22
88.19	17.22	3.01	18.27	55.01	3.41	0.10	0.22
88.25	17.08	2.98	18.42	54.79	3.41	0.10	0.21
88.34	17.02	2.96	18.36	54.27	3.41	0.09	0.21
88.44	16.98	2.94	18.20	53.59	3.41	0.09	0.21
88.54	16.98	2.94	17.99	52.93	3.40	0.09	0.21
88.64	16.95	2.93	17.92	52.52	3.40	0.08	0.21
88.72	16.88	2.91	18.00	52.42	3.40	0.08	0.21
88.82	16.82	2.89	18.16	52.53	3.40	0.08	0.21
88.91	16.72	2.87	18.42	52.79	3.41	0.08	0.20
89.01	16.62	2.84	18.68	53.02	3.42	0.09	0.20
89.10	16.49	2.80	18.99	53.22	3.43	0.09	0.20
89.19	16.32	2.76	19.19	52.91	3.44	0.09	0.20
89.30	16.21	2.73	18.48	50.44	3.41	0.08	0.19
89.39	16.31	2.75	17.80	48.98	3.39	0.05	0.20
89.49	16.62	2.82	17.53	49.49	3.38	0.07	0.20
89.59	16.90	2.89	18.25	52.76	3.41	0.09	0.21
89.69	17.04	2.92	18.79	54.90	3.42	0.10	0.21
89.73	17.68	3.08	18.14	55.86	3.40	0.10	0.22
89.78	18.48	3.27	17.18	56.23	3.37	0.10	0.23
89.83	19.36	3.49	16.22	56.56	3.34	0.10	0.25
89.88	19.63	3.55	16.06	57.05	3.33	0.11	0.25
89.93	19.86	3.61	16.01	57.77	3.33	0.11	0.26
90.00	20.24	3.70	15.90	58.79	3.33	0.11	0.26
90.07	20.88	3.85	15.53	59.82	3.31	0.12	0.28
90.12	21.62	4.03	15.19	61.24	3.30	0.13	0.29
90.22	22.26	4.19	15.01	62.84	3.29	0.14	0.30
90.27	23.04	4.37	15.02	65.70	3.29	0.15	0.31
90.36	24.99	4.85	14.09	68.34	3.26	0.18	0.35
90.46	27.46	5.45	12.89	70.27	3.21	0.20	0.39
90.50	29.28	5.89	12.05	71.01	3.17	0.20	0.42
90.61	29.48	5.94	12.02	71.39	3.17	0.20	0.42
90.66	28.70	5.75	12.38	71.12	3.18	0.20	0.41
90.75	27.62	5.48	12.73	69.74	3.20	0.19	0.39
90.84	26.17	5.12	13.28	67.94	3.22	0.17	0.37
90.89	24.72	4.76	13.90	66.20	3.25	0.16	0.34
90.99	23.48	4.45	14.63	65.12	3.28	0.15	0.32
91.04	22.50	4.21	15.24	64.21	3.30	0.15	0.30
91.14	21.59	3.99	15.98	63.69	3.33	0.14	0.28
91.22	20.75	3.78	16.73	63.19	3.36	0.14	0.27
91.28	19.83	3.55	17.61	62.55	3.39	0.14	0.25
91.37	19.26	3.41	18.11	61.75	3.40	0.13	0.24
91.47	18.99	3.34	18.18	60.75	3.40	0.13	0.24
91.61	19.26	3.40	17.69	60.19	3.39	0.12	0.24

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
91.71	19.40	3.43	17.48	59.97	3.38	0.12	0.25
91.81	19.50	3.45	17.39	60.03	3.38	0.12	0.25
91.87	19.36	3.42	17.46	59.68	3.38	0.12	0.24
92.00	19.38	3.42	16.82	57.50	3.36	0.12	0.24
92.10	19.41	3.42	16.30	55.77	3.34	0.09	0.24
92.20	19.62	3.47	15.85	54.98	3.32	0.09	0.25
92.33	19.76	3.50	16.12	56.37	3.33	0.10	0.25
92.38	19.89	3.53	16.27	57.43	3.34	0.11	0.25
92.43	20.03	3.56	16.28	57.96	3.34	0.11	0.25
92.48	19.98	3.55	16.52	58.57	3.35	0.11	0.25
92.56	19.88	3.52	16.79	59.09	3.36	0.12	0.25
92.63	19.64	3.46	17.17	59.41	3.37	0.12	0.25
92.67	19.57	3.44	17.27	59.42	3.37	0.12	0.25
92.72	19.54	3.43	17.30	59.38	3.38	0.12	0.25
92.77	19.64	3.46	17.18	59.37	3.37	0.12	0.25
92.86	19.84	3.50	16.99	59.49	3.37	0.12	0.25
92.92	20.08	3.56	16.84	59.88	3.36	0.12	0.25
92.97	20.21	3.59	17.01	61.03	3.37	0.12	0.26
93.05	20.35	3.62	17.17	62.12	3.37	0.14	0.26
93.10	20.62	3.68	17.13	63.07	3.37	0.14	0.26
93.16	21.10	3.79	16.68	63.28	3.35	0.14	0.27
93.25	21.70	3.94	16.06	63.20	3.33	0.14	0.28
93.35	22.78	4.19	14.99	62.84	3.29	0.14	0.30
93.40	23.19	4.29	14.52	62.27	3.27	0.14	0.31
93.49	23.25	4.30	14.38	61.82	3.27	0.13	0.31
93.56	22.71	4.17	14.77	61.55	3.28	0.13	0.30
93.64	22.88	4.21	14.66	61.65	3.28	0.13	0.30
93.73	23.63	4.38	14.34	62.81	3.27	0.13	0.31
93.83	24.91	4.69	13.81	64.72	3.25	0.15	0.33
93.88	26.43	5.05	13.44	67.85	3.23	0.17	0.36
93.97	27.01	5.18	13.58	70.35	3.24	0.20	0.37
94.07	26.43	5.04	14.48	72.95	3.27	0.20	0.36
94.17	25.76	4.87	15.51	75.57	3.31	0.22	0.35
94.26	26.70	5.09	15.04	76.60	3.29	0.25	0.36
94.36	27.88	5.37	15.22	81.75	3.30	0.23	0.38
94.45	29.47	5.75	15.14	87.02	3.30	0.34	0.41
94.55	35.88	7.27	12.61	91.74	3.19	0.39	0.52
94.64	48.46	10.27	8.71	89.52	3.00	0.73	0.73
94.72	59.93	13.01	6.55	85.22	2.85	0.72	0.72
94.74	73.87	16.33	4.89	79.85	2.72	0.58	0.71
94.77	84.50	18.86	4.08	76.98	2.64	0.45	0.70
94.85	97.35	21.92	3.39	74.39	2.56	0.37	0.69
94.90	102.75	23.20	3.24	75.17	2.54	0.39	0.70
94.95	105.32	23.80	3.27	77.89	2.54	0.49	0.70
95.01	104.68	23.63	3.61	85.22	2.58	0.72	0.72
95.09	100.83	22.70	4.16	94.37	2.64	0.74	0.74
95.14	94.49	21.18	5.05	107.02	2.73	0.76	0.76
95.23	86.42	19.25	6.10	117.34	2.82	0.78	0.78

:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
95.29	78.06	17.25	7.36	126.89	2.91	0.79	0.79
95.38	71.11	15.59	8.45	131.69	2.98	0.80	0.80
95.43	67.53	14.73	9.06	133.43	3.02	0.97	1.05
95.52	67.83	14.79	8.96	132.50	3.01	0.95	1.06
95.57	70.23	15.35	8.40	128.95	2.98	0.80	0.80
95.67	71.24	15.58	7.93	123.49	2.95	0.79	0.79
95.77	66.52	14.45	8.22	118.72	2.97	0.78	0.78
95.86	56.97	12.17	9.76	118.80	3.06	0.69	0.87
95.95	52.94	11.21	10.40	116.56	3.09	0.74	0.80
96.03	46.73	9.74	12.16	118.40	3.17	0.62	0.70
96.11	51.55	10.87	10.92	118.64	3.12	0.68	0.78
96.20	59.20	12.66	9.84	124.65	3.06	0.80	0.90
96.30	80.15	17.59	7.15	125.73	2.90	0.79	0.79
96.39	101.37	22.58	5.51	124.50	2.77	0.79	0.79
96.50	122.96	27.64	4.35	120.31	2.67	0.78	0.78
96.59	144.96	32.80	3.25	106.72	2.54	0.76	0.76
96.69	164.86	37.45	2.44	91.36	2.41	0.73	0.73
96.78	180.18	41.02	1.89	77.51	2.29	0.47	0.70
96.87	185.95	42.35	1.72	72.98	2.24	0.33	0.69
96.98	185.28	42.15	1.69	71.40	2.23	0.29	0.69
97.02	177.79	40.38	1.78	71.90	2.26	0.30	0.69
97.06	176.40	40.04	1.83	73.47	2.27	0.34	0.69
97.12	175.60	39.84	1.91	76.16	2.30	0.42	0.70
97.16	176.98	40.15	1.98	79.48	2.31	0.56	0.71
97.21	173.67	39.35	2.13	83.99	2.35	0.72	0.72
97.27	170.50	38.59	2.31	89.17	2.39	0.73	0.73
97.33	168.21	38.04	2.46	93.67	2.42	0.74	0.74
97.40	165.98	37.49	2.57	96.33	2.44	0.74	0.74
97.45	163.92	37.00	2.64	97.51	2.45	0.74	0.74
97.50	161.39	36.39	2.76	100.38	2.47	0.75	0.75
97.58	155.82	35.06	2.99	104.78	2.50	0.76	0.76
97.65	146.95	32.97	3.34	110.26	2.55	0.77	0.77
97.69	134.43	30.04	3.79	113.95	2.60	0.77	0.77
97.74	121.75	27.07	4.27	115.68	2.66	0.78	0.78
97.81	110.51	24.44	4.76	116.42	2.71	0.78	0.78
97.88	103.09	22.69	5.14	116.63	2.74	0.78	0.78
97.93	108.66	23.98	4.67	111.98	2.70	0.77	0.77
98.03	138.72	30.95	3.15	97.35	2.52	0.74	0.74
98.15	182.62	41.12	2.03	83.50	2.33	0.71	0.71
98.21	228.43	51.75	1.51	78.05	2.15	0.50	0.70
98.32	264.20	60.00	1.34	80.19	2.03	0.59	0.71
98.42	301.85	68.69	1.25	85.96	1.92	0.72	0.72
98.47	349.59	79.73	1.00	79.73	1.79	0.57	0.71
98.57	388.76	88.75	1.00	88.75	1.69	0.73	0.73
98.70	411.84	94.00	1.00	94.00	1.61	0.74	0.74
98.78	404.01	92.13	1.00	92.13	1.62	0.73	0.73
98.85	372.43	84.79	1.00	84.79	1.67	0.72	0.72
98.86	337.78	76.77	1.00	76.77	1.74	0.45	0.70

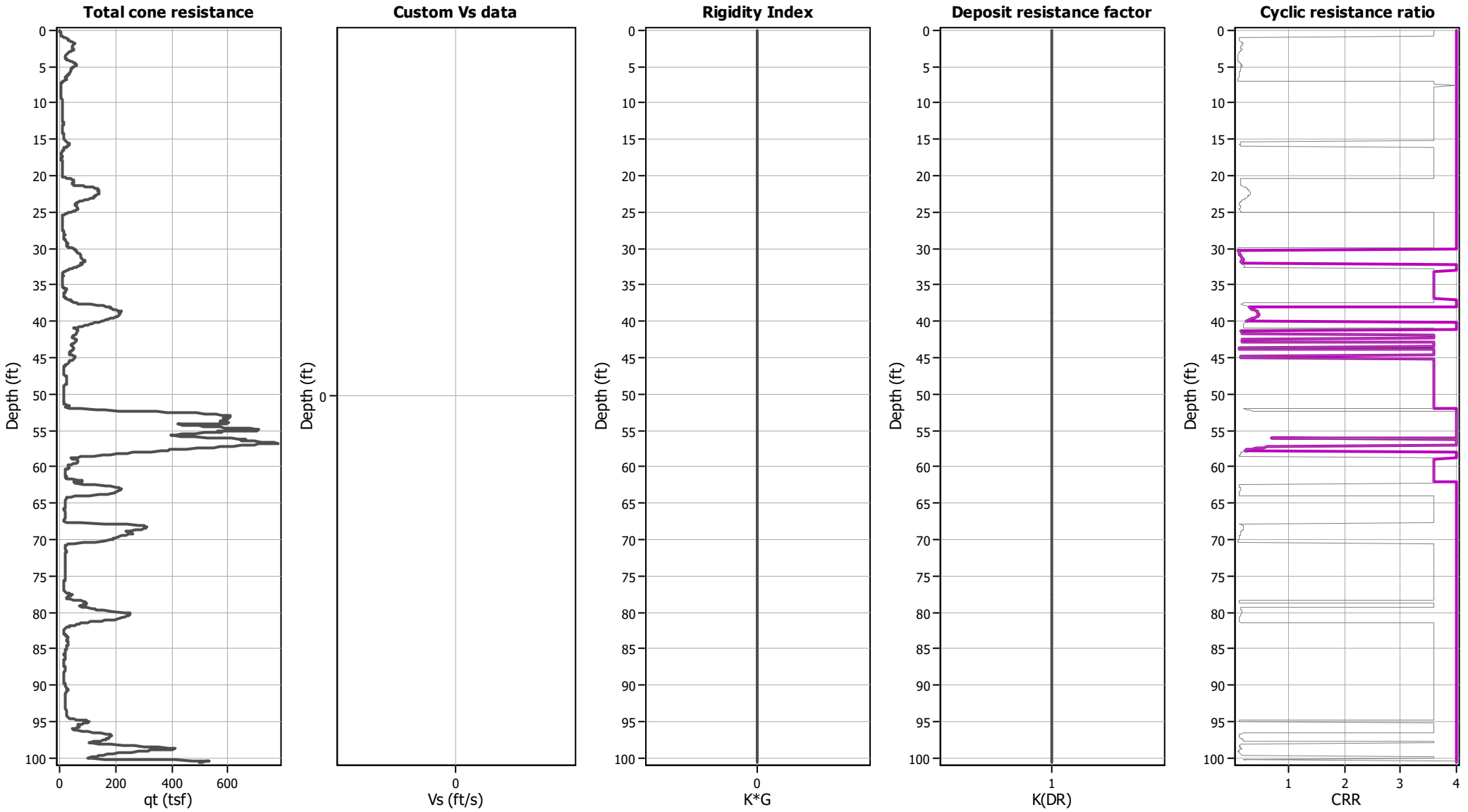
:: Strength loss calculation (Robertson (2009) :: (continued)

Depth (ft)	q_t (tsf)	Q_{tn}	K_c	$Q_{tn,cs}$	I_c	$S_{u(liq)}/\sigma'_v$	$S_{u(peak)}/\sigma'_v$
98.92	322.73	73.26	1.00	73.26	1.77	0.33	0.69
98.98	318.48	72.24	1.00	72.24	1.78	0.31	0.69
99.03	309.41	70.12	1.00	70.12	1.81	0.26	0.68
99.11	281.64	63.67	1.00	63.67	1.90	0.15	0.67
99.18	255.32	57.57	1.30	74.69	1.99	0.38	0.69
99.23	231.33	52.01	1.41	73.25	2.09	0.33	0.69
99.32	209.84	47.02	1.62	76.01	2.20	0.42	0.70
99.37	189.39	42.29	1.96	83.05	2.31	0.71	0.71
99.45	170.57	37.93	2.37	90.04	2.40	0.73	0.73
99.56	157.24	34.83	2.76	96.01	2.47	0.74	0.74
99.64	147.39	32.55	3.13	101.90	2.52	0.75	0.75
99.71	140.04	30.84	3.53	108.77	2.57	0.76	0.76
99.75	128.26	28.12	4.04	113.72	2.63	0.77	0.77
99.90	116.32	25.35	4.67	118.27	2.70	0.78	0.78
99.95	101.78	22.01	5.75	126.55	2.79	0.79	0.79
100.04	116.32	25.32	5.03	127.45	2.73	0.79	0.79
100.14	159.30	35.14	3.33	116.89	2.55	0.78	0.78
100.14	204.99	45.59	2.33	106.43	2.39	0.76	0.76
100.15	235.79	52.64	2.00	105.52	2.32	0.76	0.76
100.19	258.80	57.89	1.93	111.71	2.30	0.77	0.77
100.21	298.07	66.86	1.78	119.29	2.26	0.78	0.78
100.24	351.88	79.16	1.37	108.37	2.06	0.76	0.76
100.28	410.56	92.54	1.15	106.62	1.80	0.76	0.76
100.31	470.98	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.33	508.57	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.38	524.63	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.39	526.55	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.43	531.78	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.48	522.24	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.53	509.38	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.57	496.12	-1.00	1.00	-1.00	-1.00	0.00	0.00
100.60	497.27	-1.00	1.00	-1.00	-1.00	0.00	0.00

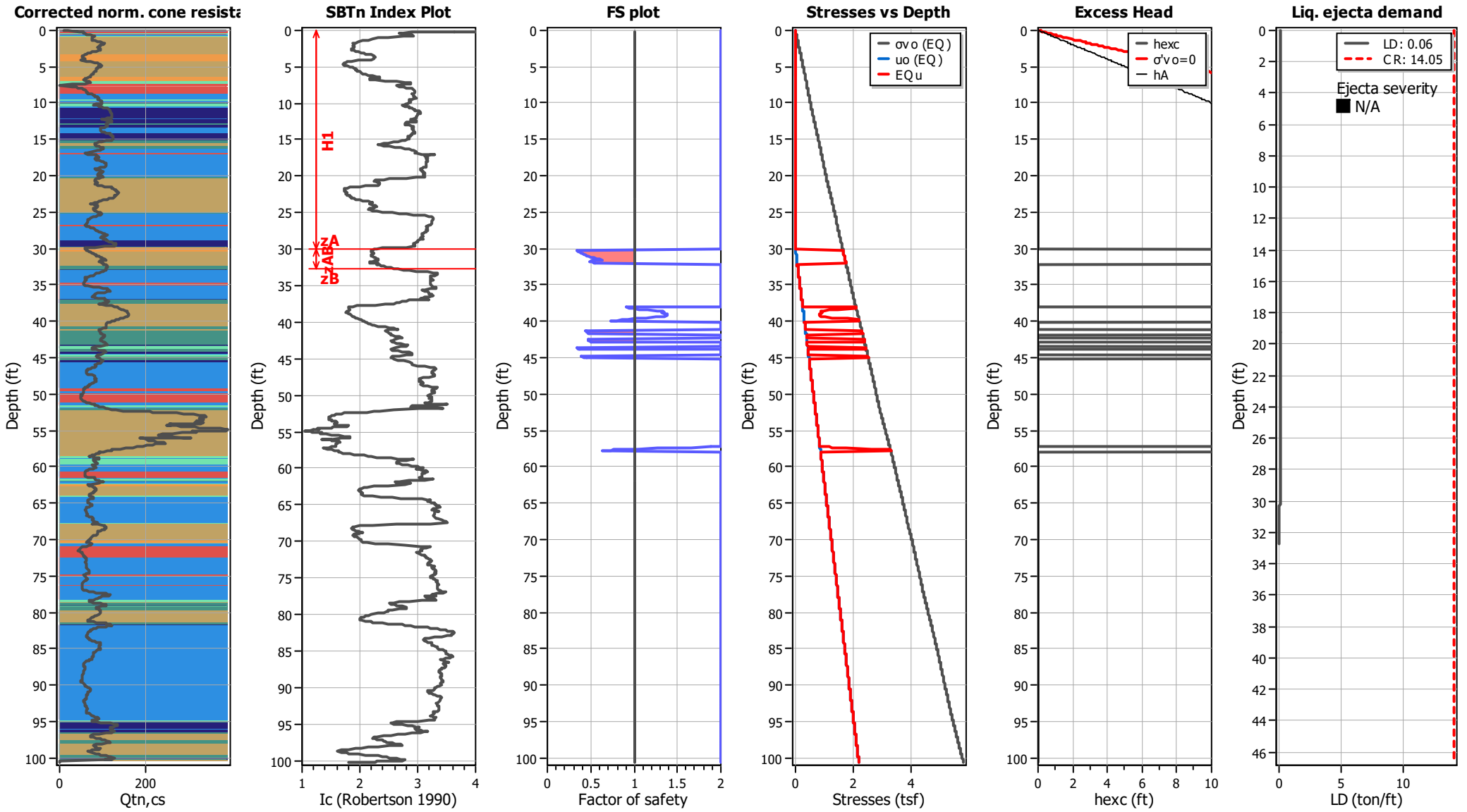
Abbreviations

q_t:	Total cone resistance
K_c:	Cone resistance correction factor due to fines
$Q_{tn,cs}$:	Adjusted and corrected cone resistance due to fines
I_c:	Soil behavior type index
$S_{u(liq)}/\sigma'_v$:	Calculated liquefied undrained strength ratio
$S_{u(peak)}/\sigma'_v$:	Calculated peak undrained strength ratio

Aging Calculation Estimation

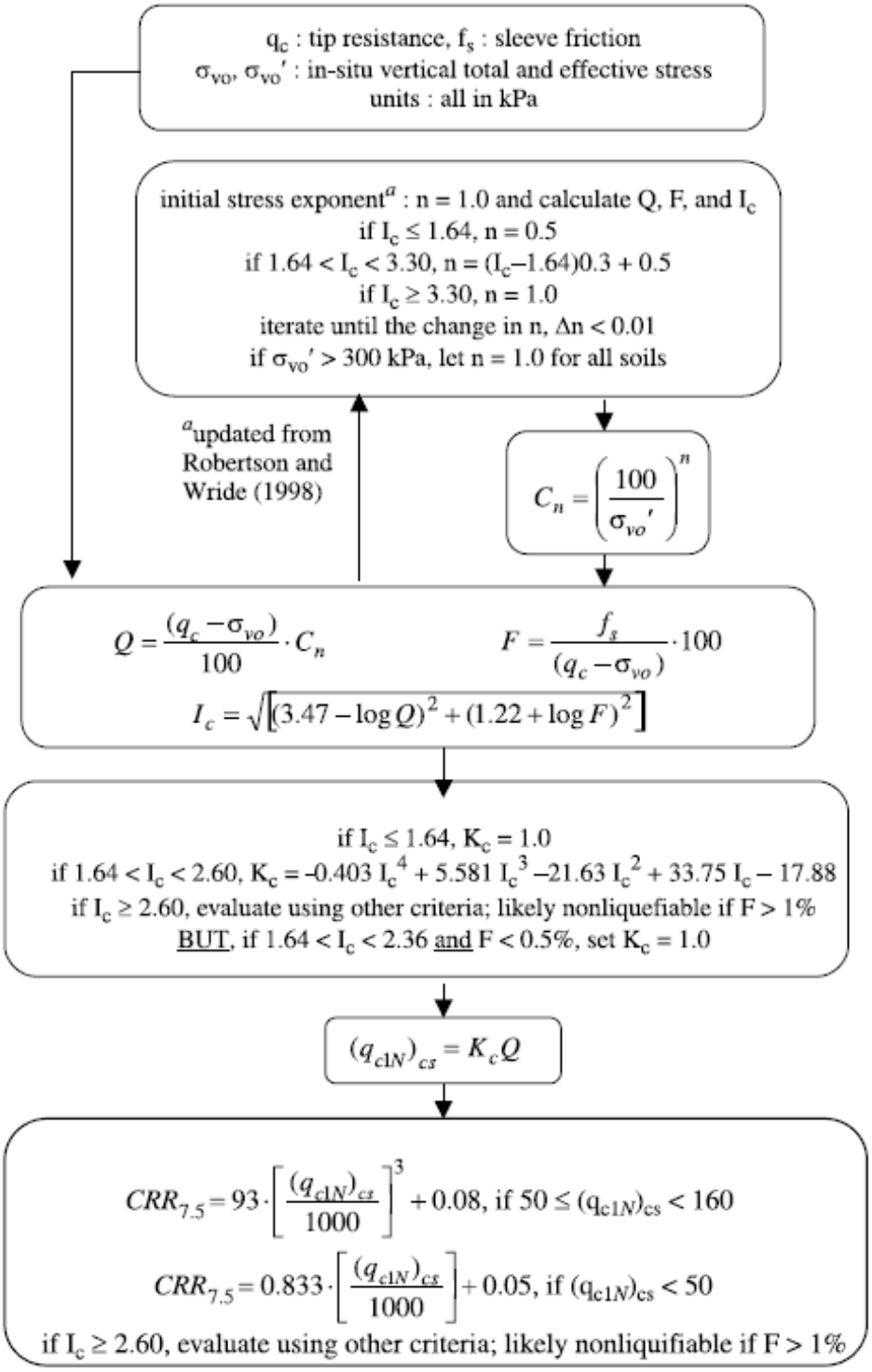


Ejecta Severity Estimation



Procedure for the evaluation of soil liquefaction resistance, NCEER (1998)

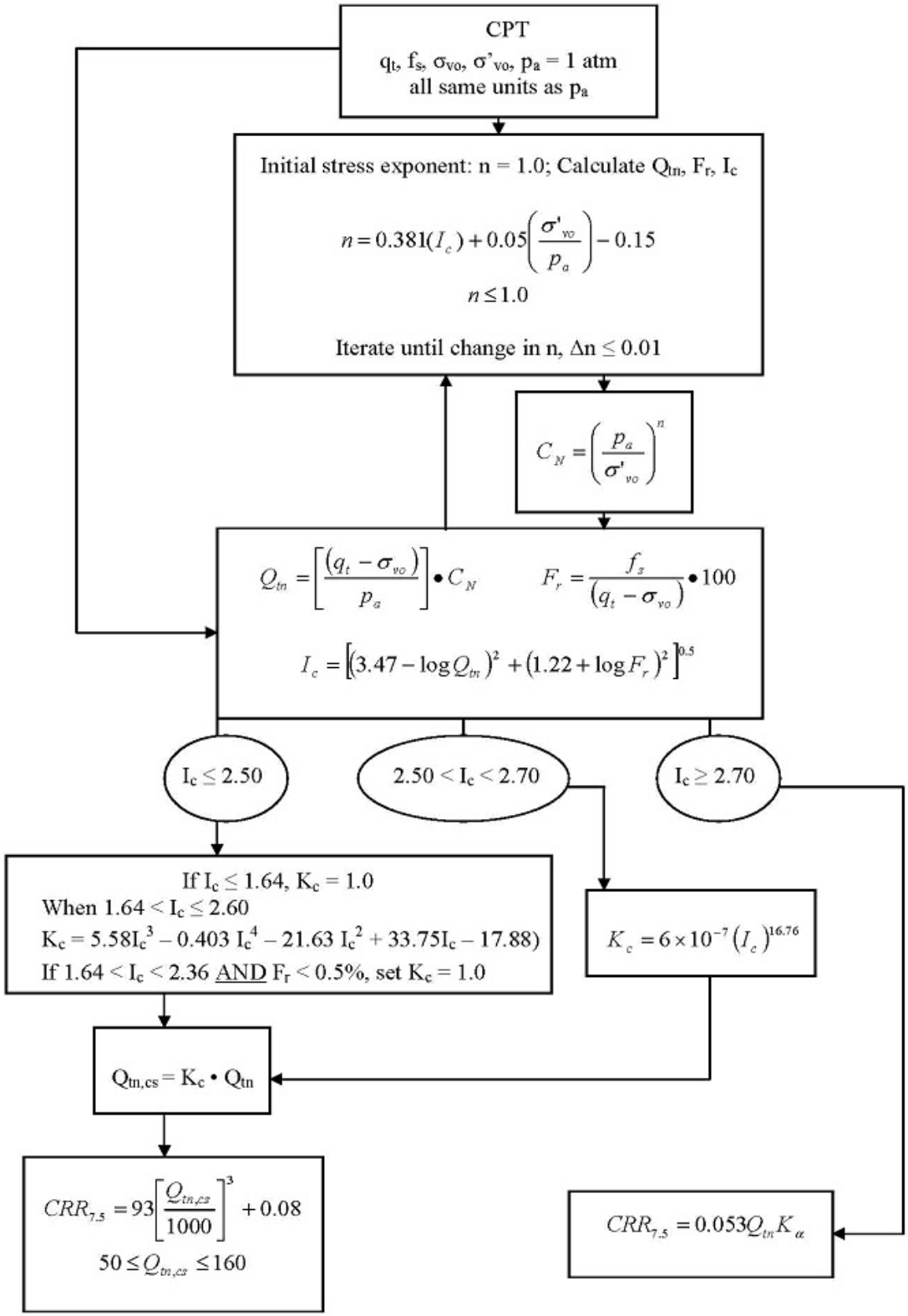
Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. The procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:



[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

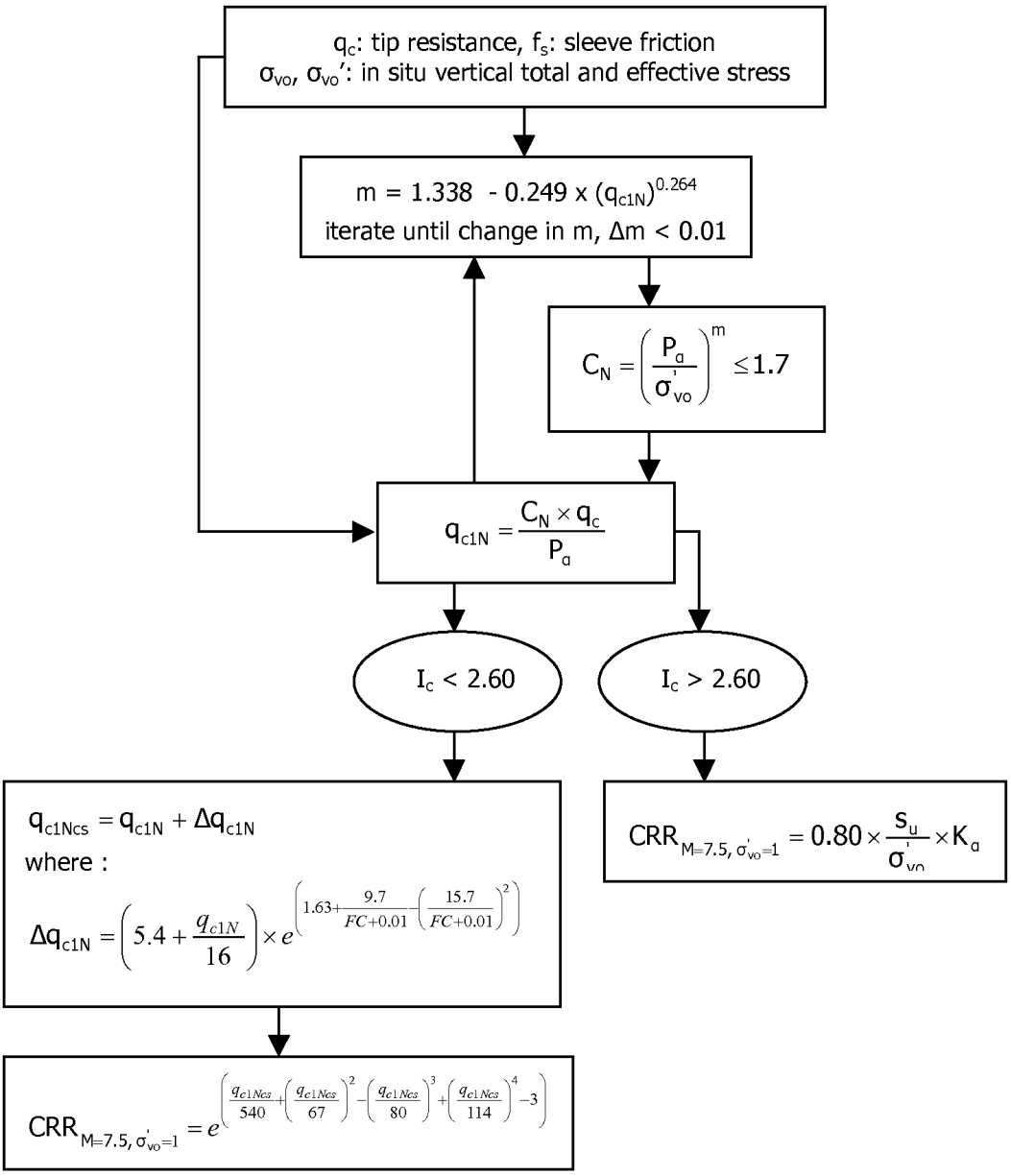
Procedure for the evaluation of soil liquefaction resistance (all soils), Robertson (2010)

Calculation of soil resistance against liquefaction is performed according to the Robertson & Wride (1998) procedure. This procedure used in the software, slightly differs from the one originally published in NCEER-97-0022 (Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils). The revised procedure is presented below in the form of a flowchart[1]:

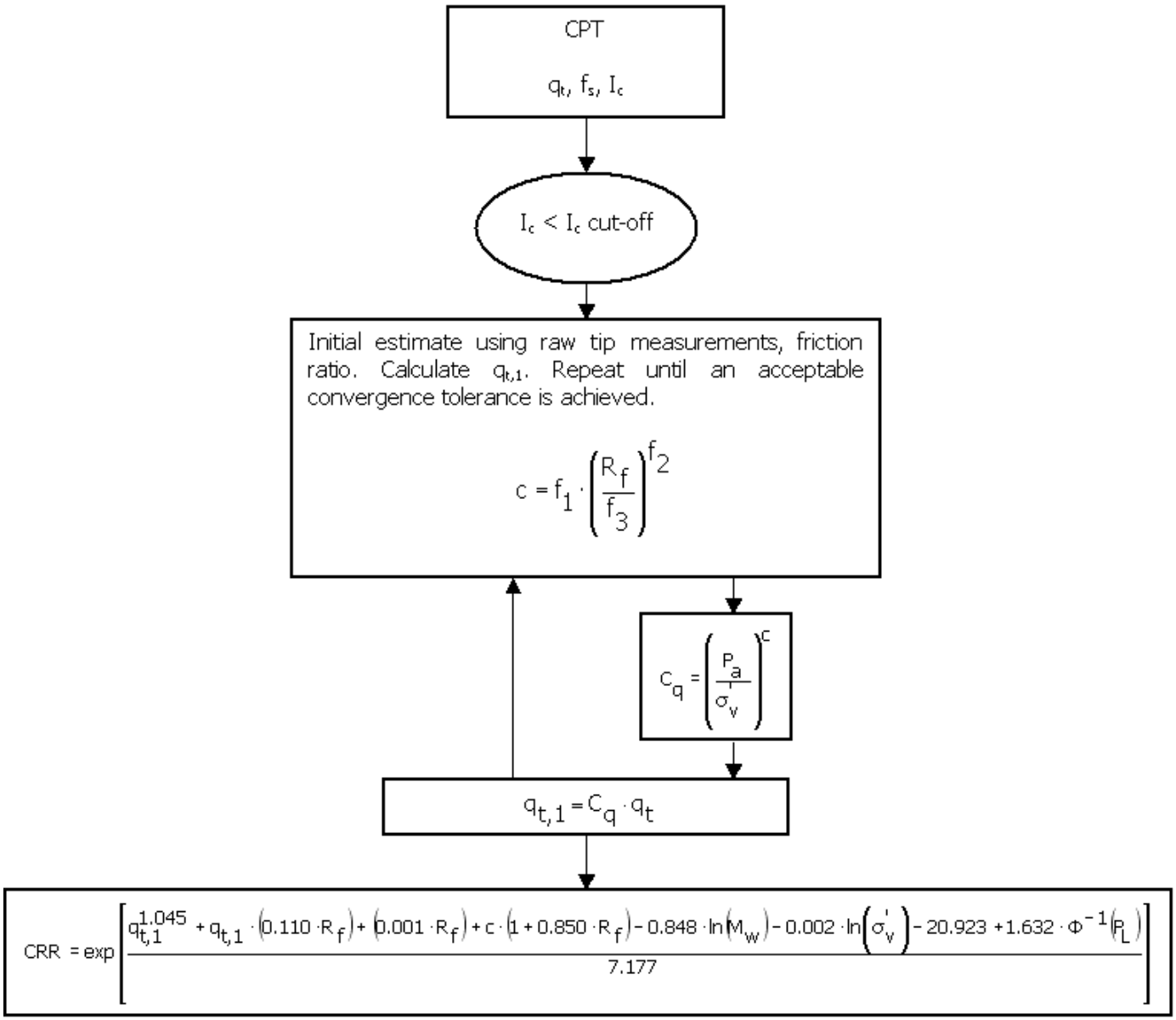


[1] P.K. Robertson, 2009. "Performance based earthquake design using the CPT", Keynote Lecture, International Conference on Performance-based Design in Earthquake Geotechnical Engineering – from case history to practice, IS-Tokyo, June 2009

Procedure for the evaluation of soil liquefaction resistance, Idriss & Boulanger (2008)



Procedure for the evaluation of soil liquefaction resistance (sandy soils), Moss et al. (2006)



Procedure for the evaluation of soil liquefaction resistance, Boulanger & Idriss(2014)

$$FS_{liq} = \frac{CRR_{M=7.5,\sigma'_v=1atm}}{CSR_{M=7.5,\sigma'_v=1atm}}$$

$$CSR_{M=7.5,\sigma'_v=1atm} = 0.65 \frac{\sigma_v}{\sigma'_v} \frac{a_{max}}{g} r_d \frac{1}{MSF} \frac{1}{K_\sigma}$$

$$r_d = \exp\left[\alpha(z) + \beta(z) \cdot M\right]$$

$$\alpha(z) = -1.012 - 1.126 \sin\left(\frac{z}{11.73} + 5.133\right)$$

$$\beta(z) = 0.106 + 0.118 \sin\left(\frac{z}{11.28} + 5.142\right)$$

$$K_\sigma = 1 - C_\sigma \ln\left(\frac{\sigma'_v}{P_a}\right) \le 1.1$$

$$C_\sigma = \frac{1}{37.3 - 8.27\left(q_{c1Ncs}\right)^{0.264}} \le 0.3$$

$$MSF = 1 + \left(MSF_{max} - 1\right)\left(8.64 \exp\left(\frac{-M}{4}\right) - 1.325\right)$$

$$MSF_{max} = 1.09 + \left(\frac{q_{C1Ncs}}{180}\right)^3 \le 2.2$$

σ'_v *and* σ_v *at start of earthquake shaking*

$$CRR_{M=7.5,\sigma'_v=1atm} = \exp\left(\frac{q_{c1Ncs}}{113} + \left(\frac{q_{c1Ncs}}{1000}\right)^2 - \left(\frac{q_{c1Ncs}}{140}\right)^3 + \left(\frac{q_{c1Ncs}}{137}\right)^4 - 2.80\right)$$

$$q_{c1Ncs} = q_{c1N} + \Delta q_{c1N}$$

$$\Delta q_{c1N} = \left(11.9 + \frac{q_{c1N}}{14.6}\right) \exp\left(1.63 - \frac{9.7}{FC+2} - \left(\frac{15.7}{FC+2}\right)^2\right)$$

$$q_{c1N} = C_{Ne} \frac{q_c}{P_a}$$

$$C_{Ne} = \left(\frac{P_a}{\sigma'_v}\right)^m \le 1.7$$

$$m = 1.338 - 0.249\left(q_{c1Ncs}\right)^{0.264} \quad with \quad 0.264 \le m \le 0.782$$

$$FC = 80\left(I_C + C_{FC}\right) - 137 \quad with \quad 0\% \le FC \le 100\%$$

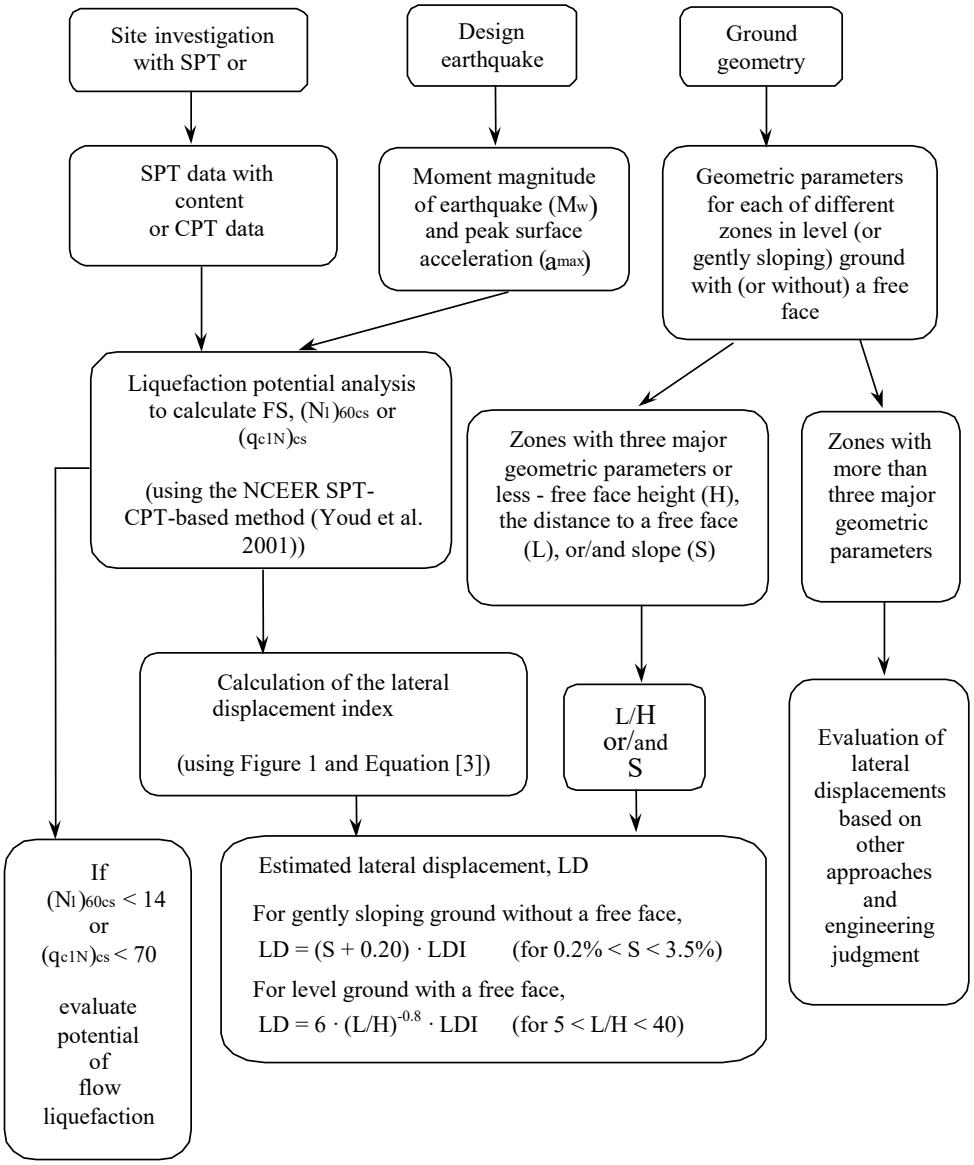
$$I_c = \left[\left(3.47 - \log\left(Q\right)\right)^2 + \left(1.22 + \log\left(F\right)\right)^2\right]^{0.5}$$

$$Q = \left(\frac{q_c - \sigma_{vc}}{P_a}\right)\left(\frac{P_a}{\sigma'_{vc}}\right)^n \; with \; 0.5 \le n \le 1.0 \; per \; Robertson \; \& \; Wride \; (1998)$$

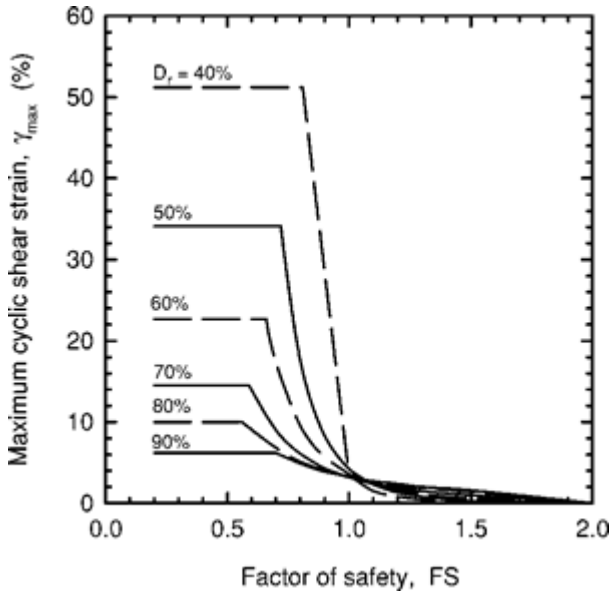
$$F = \left(\frac{f_s}{q_c - \sigma_{vc}}\right) \cdot 100\%$$

σ'_v *at time of CPT sounding*

Procedure for the evaluation of liquefaction-induced lateral spreading displacements



[1] Flow chart illustrating major steps in estimating liquefaction-induced lateral spreading displacements using the proposed approach



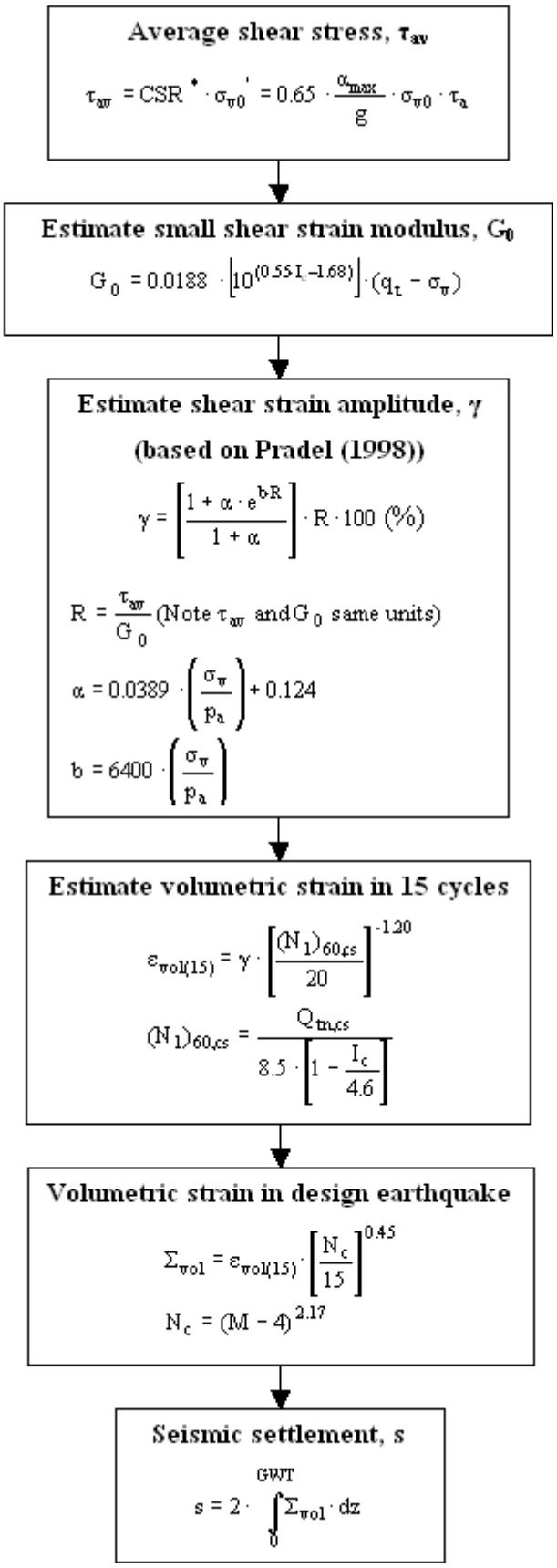
[1] Figure 1

$$LDI = \int_0^{z_{max}} \gamma_{max} dz$$

[1] Equation [3]

[1] "Estimating liquefaction-induced ground settlements from CPT for level ground", G. Zhang, P.K. Robertson, and R.W.I. Brachman

Procedure for the estimation of seismic induced settlements in dry sands



Robertson, P.K. and Lisheng, S., 2010, "Estimation of seismic compression in dry soils using the CPT" FIFTH INTERNATIONAL CONFERENCE ON RECENT ADVANCES IN GEOTECHNICAL EARTHQUAKE ENGINEERING AND SOIL DYNAMICS, Symposium in honor of professor I. M. Idriss, San Diego, CA

Liquefaction Potential Index (LPI) calculation procedure

Calculation of the Liquefaction Potential Index (LPI) is used to interpret the liquefaction assessment calculations in terms of severity over depth. The calculation procedure is based on the methology developed by Iwasaki (1982) and is adopted by AFPS.

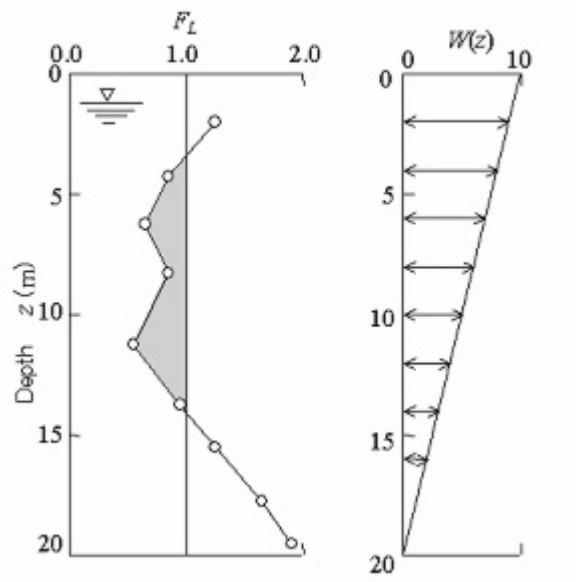
To estimate the severity of liquefaction extent at a given site, LPI is calculated based on the following equation:

$$\mathbf{LPI} = \int_0^{20} (10 - 0{,}5z) \times F_L \times dz$$

where:
F_L = 1 - F.S. when F.S. less than 1
F_L = 0 when F.S. greater than 1
z depth of measurment in meters

Values of LPI range between zero (0) when no test point is characterized as liquefiable and 100 when all points are characterized as susceptible to liquefaction. Iwasaki proposed four (4) discrete categories based on the numeric value of LPI:

- LPI = 0 : Liquefaction risk is very low
- 0 < LPI <= 5 : Liquefaction risk is low
- 5 < LPI <= 15 : Liquefaction risk is high
- LPI > 15 : Liquefaction risk is very high



Graphical presentation of the LPI calculation procedure

Shear-Induced Building Settlement (Ds) calculation procedure

The shear-induced building settlement (Ds) due to liquefaction below the building can be estimated using the relationship developed by Bray and Macedo (2017):

$$Ln(Ds) = c1 + c2 * LBS + 0.58 * Ln\left(Tanh\left(\frac{HL}{6}\right)\right) + 4.59 * Ln(Q) - 0.42 * Ln(Q)^2 - 0.02 * B + 0.84 * Ln(CAVdp) + 0.41 * Ln(Sa1) + \varepsilon$$

where Ds is in the units of mm, c1= -8.35 and c2= 0.072 for LBS ≤ 16, and c1= -7.48 and c2= 0.014 otherwise. Q is the building contact pressure in units of kPa, HL is the cumulative thickness of the liquefiable layers in the units of m, B is the building width in the units of m, CAVdp is a standardized version of the cumulative absolute velocity in the units of g-s, Sa1 is 5%-damped pseudo-acceleration response spectral value at a period of 1 s in the units of g, and ε is a normal random variable with zero mean and 0.50 standard deviation in Ln units. The liquefaction-induced building settlement index (LBS) is:

$$LBS = \sum W * \frac{\varepsilon_{shear}}{z} dz$$

where z (m) is the depth measured from the ground surface > 0, W is a foundation-weighting factor wherein W = 0.0 for z less than Df, which is the embedment depth of the foundation, and W = 1.0 otherwise. The shear strain parameter (ε_shear) is the liquefaction-induced free-field shear strain (in %) estimated using Zhang et al. (2004). It is calculated based on the estimated Dr of the liquefied soil layer and the calculated safety factor against liquefaction triggering (FSL).

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Attachment 2

WIHMP Criteria and Opportunities (NOC Only)

Stormwater Requirements
INSERT PROJECT FILE NO. HERE

A WIHMP is not applicable for this project.

Attachment 3

Additional DMA and BMP Summary Tables

Table 15-1 DMA Summary

DMA ID	Total Area	Imperviousness	DCV
	ac	%	ac-ft
Phase 1 – DMA 1, Behavioral Health	0.289	100%	0.02
Phase 1 – DMA 2, Kitchen	0.096	100%	0.01
Phase 1 – DMA 3, Vocation	0.253	100%	0.01
Phase 1 – DMA 4, Duplex	0.278	100%	0.02
Phase 1 – DMA 5, Triplex	0.273	100%	0.02
Phase 1 – DMA 6, Site	5.382	20%	0.10
Phase 2A – DMA 1, Long-Term Housing	1.409	65%	0.06
Phase 2B – DMA 1, Independent Living	1.083	75%	0.05

Table 15-2 BMP Summary

BMP ID	Infiltration Feasibility			Associated DMA(s)	Total DCV
	Full	Partial	No Infiltration	-	ac-ft
BH	☐	☐	☒	Phase 1 – DMA 1, Behavioral Health	0.02
K	☐	☐	☒	Phase 1 – DMA 2, Kitchen	0.01
V	☐	☐	☒	Phase 1 – DMA 3, Vocation	0.01
D	☐	☐	☒	Phase 1 – DMA 4, Duplex	0.02
T	☐	☐	☒	Phase 1 – DMA 5, Triplex	0.02
LTH	☐	☐	☒	Phase 2A – DMA 1, Long-Term Housing	0.234
IL	☐	☐	☒	Phase 2B – DMA 1, Independent Living	0.201
	☐	☐	☐		
	☐	☐	☐		
	☐	☐	☐	

Attachment 4

DCV Calculations

PHASE 1 – DCV CALCULATIONS

Building: Transitional Living & Behavioral Health

Site info:

$$Total\ Building\ Area = 12{,}600\ sq.ft\ (0.29\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.29\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 708.75\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
BH1	3	115	345
BH2	3	115	345
BH3	3	120	360
		TOTAL:	1050

Building: Kitchen

Site info:

$$Total\ Building\ Area = 4{,}200\ sq.ft\ (0.10\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.10\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 236.25\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
1	4	60	240
		TOTAL:	240

Building: Education & Vocational Education

Site info:

$$Total\ Building\ Area = 11{,}000\ sq.ft\ (0.25\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.25\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 618.75\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
V1	3	96	288
V2	3	144	432
V3	3	48	144
		TOTAL:	864

Building: Duplex Housing

Site info:

$$Total\ Building\ Area = 12{,}100\ sq.ft\ (0.28\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.28\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 680.63\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
D1	3	50	150
D2	3	49	147
D3	3	49	147
D4	3	50	150
D5	3	48	144
D6	3	48	144
		TOTAL:	882

Building: Triplex Housing

Site info:

$$Total\ Building\ Area = 19{,}000\ sq.ft\ (0.44\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.44\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 1{,}068.75\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
T1	3	28	84
T2	3	24	72
T3	3	40	119
T4	3	42	125
T5	3	24	72
T6	3	49	147
T7	3	70	210
T8	3	67	201
T9	3	66	198
T10	3	67	201
T11	3	71	213
		TOTAL:	1,428

Building: Remaining Site

Site info:

$$Total\ Area = 234{,}447.9\ sq.ft\ (5.38\ acres)$$

$$\%\ Impervious = 20\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(0.20) + 0.15 = 0.30$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.30)(0.75\ in.)(5.38\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 4{,}395.7\ ft^3$$

PHASE 2 – DCV CALCULATIONS

Phase 2A													
Drainage Area Name / DMA	**BMP ID, Feature or Land Use Type**	**Total Drainage Area (ft^2)**	**Total Drainage Area (acres)**	**Total Pervious Area (ft^2)**	**Calculated % impervious**	**Assumed % impervious**	**Runoff Coefficient**	**Design Storm Depth (in)**	**Average or Estimated Tc (min)**	**Rainfall Intensity (in/hr)**	**Simple Method DCV (ft^3)**	**Q_{Design} (cfs)**	**Acre-Feet (ac-ft)**
Phase 2A – DMA 1	Long-Term Housing	61,381.8	1.409	22,140.3	63.9%	65%	0.638	0.8	5	0.26	**2,610.5**	**0.234**	**0.060**

Phase 2B													
Drainage Area Name / DMA	**BMP ID, Feature or Land Use Type**	**Total Drainage Area (ft^2)**	**Total Drainage Area (acres)**	**Total Pervious Area (ft^2)**	**Calculated % impervious**	**Assumed % impervious**	**Runoff Coefficient**	**Design Storm Depth (in)**	**Average or Estimated Tc (min)**	**Rainfall Intensity (in/hr)**	**Simple Method DCV (ft^3)**	**Q_{Design} (cfs)**	**Acre-Feet (ac-ft)**
Phase 2B – DMA 1	Independent Living	47,190.7	1.083	12,299.8	73.9%	75%	0.713	0.8	5	0.26	**2,242.4**	**0.201**	**0.051**

Attachment 5

Supplementary Infiltration Investigation Report

Attachment 6

Additional Infiltration and Harvest and Use Feasibility Tables

Stormwater Requirements
INSERT PROJECT FILE NO. HERE

BMP ID	Infiltration Feasibility			Harvest and Use Feasibility		
	Full	Partial	No Infiltration	Feasible	Not Feasible	NA
	☐	☐	☐	☐	☐	☐
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Attachment 7

Priority Project BMP Conformance Analysis Tables

NOC PRIORITY PROJECT BMP CONFORMANCE ANALYSIS

DMA ID:	**DCV =**	0 ac-ft

Hydrologic Source Controls

Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Localized On-Lot Infiltration[4]	HSC-1	0 ac-ft
☐	Impervious Area Dispersion[5]	HSC-2	0 ac-ft
☐	Street Trees[6]	HSC-3	0 ac-ft
☐	Residential Rain Barrels (Not Actively Managed)	HSC-4	0 ac-ft
☐	Amended Soils Over Tight Underlying Soils[7]	MISC-2	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	HSCs will not be implemented, as selected LID BMPs will sufficiently treat the DCV for this DMA.	-	0 ac-ft
		Total DCV Reduction =	**0 ac-ft**
		Remaining DCV = DCV – Total DCV Reduction =	**0 ac-ft**

Check only one of the two boxes below:

☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the hydrologic source controls checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by hydrologic source controls. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.

Low Impact Development BMPs | Infiltration

Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Infiltration Basin[8]	INF-1	0 ac-ft
☐	Infiltration Trench[9]	INF-2	0 ac-ft
☐	Bioretention with no Underdrain[10]	INF-3	0 ac-ft
☐	Bioinfiltration with Raised Underdrain	INF-4	0 ac-ft
☐	Drywell[11]	INF-5	0 ac-ft

[4] Also known as Downspout Infiltration, Retention Grading, French Drains, or On-Lot Rain Gardens.
[5] Also known as Downspout Dispersion, Downspout Disconnection, Impervious Area Disconnection, or Sheet Flow Dispersion.
[6] Also known as Canopy Interception.
[7] No DCV Reduction credit is allowed for amended soils alone. Amended soils must be used as part of HSC-2 – Impervious Area Dispersion, and to increase the retention volume of Infiltration and Biotreatment BMPs.
[8] Also known as Recharge Basin or Infiltration Pond.
[9] Also known as French Drain, Rock Trench, Exfiltration trench, Soak-Aways or Soakage Trench.
[10] Also known as Rain Garden or Infiltration Planter.
[11] Also known as Soak-Away Pits, Infiltration Sumps, Rock Sumps, or Underground Injection Controls. Calculations for determining DCV reduction provided by drywells is highly site-specific. No template is

☐	Permeable Pavement[12]	INF-6	0 ac-ft
☐	Underground Infiltration[13]	INF-7	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**
Check only one of the two boxes below:			
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the infiltration LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.		
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by infiltration LID BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.		
Low Impact Development BMPs | Harvest and Use			
Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Above-Ground Cisterns and Rain Barrels	HU-1	0 ac-ft
☐	Underground Detention[14]	HU-2	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**
Check only one of the two boxes below:			
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the harvest and use LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.		
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by harvest and use LID BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.		

provided. Drywells must be designed to ensure a drawdown time of 48 hours. Calculations for DCV reduction are to be provided as **Attachment 8**.

[12] Also known as Pervious Pavement, Porous Concrete, Pavers, or Permeable Asphalt.

[13] Also known as Subsurface Infiltration Galleries, Infiltration Vault, or Recharge Vault. For underground infiltration devices with open pore volume (e.g. vaults, crates, pipe sections, etc.), refer to the Infiltration Basin BMP Template. For underground infiltration devices with pore space (e.g. aggregate reservoirs), refer to the permeable Pavement BMP Template.

[14] Refer to the Above-Ground Cisterns and Rain Barrels calculation template.

Low Impact Development BMPs | Evapotranspiration			
Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Green Roof / Brown Roof	HSC-5	0 ac-ft
☐	Blue Roof	HSC-6	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**
Check only one of the two boxes below:			
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the evapotranspiration LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.		
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by evapotranspiration LID BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.		

Low Impact Development BMPs | Biotreatment			
Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Bioretention with Underdrains[15]	BIO-1	0 ac-ft
☐	Vegetated Swale[16]	BIO-2	0 ac-ft
☐	Vegetated Filter Strip[17]	BIO-3	0 ac-ft
☐	Wet Detention Basin[18]	BIO-4	0 ac-ft
☐	Constructed Wetlands[19]	BIO-5	0 ac-ft
☐	Dry Extended Detention Basin[20]	BIO-6	0 ac-ft
☐	Proprietary Biotreatment[21]	BIO-7	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**

[15] Also known as Rain Gardens with Underdrains, Vegetated Media Filter, or Downspout Planter Boxes.
[16] Also known as Bioswale, Biofiltration Swale, or Grass Swale.
[17] Also known as Buffer Strip or Vegetated Buffer.
[18] Also known as Wet Ponds or Retention Ponds. A calculation template is not provided for wet detention basins. If implemented, calculations are required to be included in **Attachment 8**.
[19] Also known as Stormwater Wetlands, Wetland Basins, or Treatment Wetland. A calculation template is not provided for Constructed Wetlands. If implemented, calculates are required to be included in **Attachment 8**.
[20] Also known as Dry Ponds or Detention Ponds.
[21] Also known as Catch Basin Planter Box, Bioretention Vault, or Tree Box Filter. A calculation template is not provided for Proprietary Biotreatment. If implemented, calculations are required to be included in **Attachment 8**.

Check only one of the two boxes below:	
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the biotreatment LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by biotreatment LID BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.

Treatment Control BMPs

Treatment Control BMPs can only be considered if the BMP Conformance Analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs.

Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Sand Filter[22]	TRT-1	0 ac-ft
☐	Cartridge Media Filter[23]	TRT-2	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**

Check only one of the two boxes below:	
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the treatment BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by treatment control BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.

Regional/Sub-Regional LID BMPs

Off-site Regional/Sub-Regional LID BMPs can only be considered if the BMP Conformance Analysis indicates that it is not feasible to retain the full design capture volume with on-site LID BMPs and with Treatment Control BMPs. Describe regional/sub-regional LID BMPs in which the Project will participate. Refer to Section 7.II-2.4.3.2 of the Model WQMP.

INSERT DESCRIPTION HERE

DMA ID: INSERT DMA ID HERE	**Final Remaining DCV =**	0 ac-ft

[22] Also known as Bed Media Filter.
[23] Also known as Manufactured Media Filters.

SOC PRIORITY PROJECT BMP CONFORMANCE ANALYSIS

DMA ID: INSERT DMA ID HERE	**DCV =**	0 ac-ft

Hydrologic Source Controls

Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Localized On-Lot Infiltration[1]	HSC-1	0 ac-ft
☐	Impervious Area Dispersion[2]	HSC-2	0 ac-ft
☐	Street Trees[3]	HSC-3	0 ac-ft
☐	Residential Rain Barrels (Not Actively Managed)	HSC-4	0 ac-ft
☐	Amended Soils Over Tight Underlying Soils[4]	MISC-2	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	HSCs will not be implemented, as selected LID BMPs will sufficiently treat the DCV for this DMA.	-	0 ac-ft
		Total DCV Reduction =	**0 ac-ft**
		Remaining DCV = DCV – Total DCV Reduction =	**0 ac-ft**

Check only one of the two boxes below:

☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the hydrologic source controls checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by hydrologic source controls. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.

Low Impact Development BMPs | Infiltration

Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Infiltration Basin[5]	INF-1	0 ac-ft
☐	Infiltration Trench[6]	INF-2	0 ac-ft
☐	Bioretention with no Underdrain[7]	INF-3	0 ac-ft
☐	Bioinfiltration with Raised Underdrain	INF-4	0 ac-ft
☐	Drywell[8]	INF-5	0 ac-ft

[1] Also known as Downspout Infiltration, Retention Grading, French Drains, or On-Lot Rain Gardens.
[2] Also known as Downspout Dispersion, Downspout Disconnection, Impervious Area Disconnection, or Sheet Flow Dispersion.
[3] Also known as Canopy Interception.
[4] No DCV Reduction credit is allowed for amended soils alone. Amended soils must be used as part of HSC-2 – Impervious Area Dispersion, and to increase the retention volume of Infiltration and Biotreatment BMPs.
[5] Also known as Recharge Basin or Infiltration Pond.
[6] Also known as French Drain, Rock Trench, Exfiltration trench, Soak-Aways or Soakage Trench.
[7] Also known as Rain Garden or Infiltration Planter.
[8] Also known as Soak-Away Pits, Infiltration Sumps, Rock Sumps, or Underground Injection Controls. Calculations for determining DCV reduction provided by drywells is highly site-specific. No template is

☐	Permeable Pavement[9]	INF-6	0 ac-ft
☐	Underground Infiltration[10]	INF-7	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**
Check only one of the two boxes below:			
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the infiltration LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.		
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by infiltration LID BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.		
Low Impact Development BMPs | Harvest and Use			
Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Above-Ground Cisterns and Rain Barrels	HU-1	0 ac-ft
☐	Underground Detention[11]	HU-2	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**
Check only one of the two boxes below:			
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the harvest and use LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.		
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by harvest and use LID BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.		

provided. Drywells must be designed to ensure a drawdown time of 48 hours. Calculations for DCV reduction are to be provided as **Attachment 8**.

[9] Also known as Pervious Pavement, Porous Concrete, Pavers, or Permeable Asphalt.

[10] Also known as Subsurface Infiltration Galleries, Infiltration Vault, or Recharge Vault. For underground infiltration devices with open pore volume (e.g. vaults, crates, pipe sections, etc.), refer to the Infiltration Basin BMP Template. For underground infiltration devices with pore space (e.g. aggregate reservoirs), refer to the permeable Pavement BMP Template.

[11] Refer to the Above-Ground Cisterns and Rain Barrels calculation template.

Low Impact Development BMPs | Evapotranspiration			
Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Green Roof / Brown Roof	HSC-5	0 ac-ft
☐	Blue Roof	HSC-6	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**
Check only one of the two boxes below:			
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the evapotranspiration LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.		
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by evapotranspiration LID BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.		

Low Impact Development BMPs | Biotreatment			
Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Bioretention with Underdrains[12]	BIO-1	0 ac-ft
☐	Proprietary Biotreatment[13]	BIO-7	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
	Total DCV Reduction =		0 **ac-ft**
	Remaining DCV = DCV –Total DCV Reduction =		0 **ac-ft**
Check only one of the two boxes below:			
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the biotreatment LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.		
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by biotreatment LID BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.		

[12] Also known as Rain Gardens with Underdrains, Vegetated Media Filter, or Downspout Planter Boxes.
[13] Also known as Catch Basin Planter Box, Bioretention Vault, or Tree Box Filter. A calculation template is not provided for Proprietary Biotreatment. If implemented, calculations are required to be included in **Attachment 8**.

Treatment Control BMPs			
Treatment Control BMPs can only be considered if the BMP Conformance Analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs.			
Included	Site Design BMP	Fact Sheet	DCV Reduction
☐	Vegetated Swale[14]	BIO-2	0 ac-ft
☐	Vegetated Filter Strip[15]	BIO-3	0 ac-ft
☐	Wet Detention Basin[16]	BIO-4	0 ac-ft
☐	Constructed Wetlands[17]	BIO-5	0 ac-ft
☐	Dry Extended Detention Basin[18]	BIO-6	0 ac-ft
☐	Sand Filter[19]	TRT-1	0 ac-ft
☐	Cartridge Media Filter[20]	TRT-2	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
☐	Other: Insert Other Infiltration BMP Here	-	0 ac-ft
		Total DCV Reduction =	0 **ac-ft**
		Remaining DCV = DCV –Total DCV Reduction =	0 **ac-ft**
Check only one of the two boxes below:			
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the treatment BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable. The conformance analysis for this DMA is complete, and the rest of this table can remain blank.		
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by treatment control BMPs. Additional BMPs are necessary and will be implemented. The conformance analysis for this DMA continues below.		

[14] Also known as Bioswale, Biofiltration Swale, or Grass Swale.
[15] Also known as Buffer Strip or Vegetated Buffer.
[16] Also known as Wet Ponds or Retention Ponds. A calculation template is not provided for wet detention basins. If implemented, calculations are required to be included in **Attachment 8**.
[17] Also known as Stormwater Wetlands, Wetland Basins, or Treatment Wetland. A calculation template is not provided for Constructed Wetlands. If implemented, calculates are required to be included in **Attachment 8**.
[18] Also known as Dry Ponds or Detention Ponds.
[19] Also known as Bed Media Filter.
[20] Also known as Manufactured Media Filters.

Regional/Sub-Regional LID BMPs		
Off-site Regional/Sub-Regional LID BMPs can only be considered if the BMP Conformance Analysis indicates that it is not feasible to retain the full design capture volume with on-site LID BMPs and with Treatment Control BMPs. Describe regional/sub-regional LID BMPs in which the Project will participate. Refer to Section 7.II-2.4.3.2 of the Model WQMP.		
INSERT DESCRIPTION HERE		
DMA ID: INSERT DMA ID HERE	**Final Remaining DCV =**	0 ac-ft

Attachment 8

DCV Reduction Calculations

PHASE 1 – DCV REDUCTION CALCULATIONS

Building: Transitional Living & Behavioral Health

Site info:

$$Total\ Building\ Area = 12{,}600\ sq.ft\ (0.29\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.29\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 708.75\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
BH1	3	115	345
BH2	3	115	345
BH3	3	120	360
		TOTAL:	1050

Building: Kitchen

Site info:

$$Total\ Building\ Area = 4{,}200\ sq.ft\ (0.10\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.10\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 236.25\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
1	4	60	240
		TOTAL:	240

Building: Education & Vocational Education

Site info:

$$Total\ Building\ Area = 11{,}000\ sq.ft\ (0.25\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.25\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 618.75\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
V1	3	96	288
V2	3	144	432
V3	3	48	144
		TOTAL:	864

Building: Duplex Housing

Site info:

$$Total\ Building\ Area = 12{,}100\ sq.ft\ (0.28\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.28\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 680.63\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
D1	3	50	150
D2	3	49	147
D3	3	49	147
D4	3	50	150
D5	3	48	144
D6	3	48	144
		TOTAL:	882

Building: Triplex Housing

Site info:

$$Total\ Building\ Area = 19{,}000\ sq.ft\ (0.44\ acres)$$

$$\%\ Impervious = 100\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(1.0) + 0.15 = 0.90$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.90)(0.75\ in.)(0.44\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 1{,}068.75\ ft^3$$

BMP ID	Planter Height (ft)	Planter Area (sq.ft)	Volume(cu.ft)
T1	3	28	84
T2	3	24	72
T3	3	40	119
T4	3	42	125
T5	3	24	72
T6	3	49	147
T7	3	70	210
T8	3	67	201
T9	3	66	198
T10	3	67	201
T11	3	71	213
		TOTAL:	1,428

Building: Remaining Site

Site info:

$$Total\ Area = 234{,}447.9\ sq.ft\ (5.38\ acres)$$

$$\%\ Impervious = 20\%$$

Simple DCV:

$$C = (0.75)(imp) + 0.15 = (0.75)(0.20) + 0.15 = 0.30$$

$$V = (C)(d)(A)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right)$$

$$V = (0.30)(0.75\ in.)(5.38\ acres)\left(\frac{43{,}560\ sq.ft}{1\ acre}\right)\left(\frac{1\ ft}{12\ in}\right) = 4{,}395.7\ ft^3$$

PHASE 2 – DCV REDUCTION CALCULATIONS

			Phase 2A - DMA 1	Phase 2B - DMA 1	
Step 1: Determine the design capture storm depth used for calculating volume					
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.80	0.80	inches
2	Enter calculated drawdown time of the proposed BMP based on equation provided in applicable BMP Fact Sheet, *T* (hours)	T=	9.64	9.64	hours
3	Using Figure III.2, determine the "fraction of design capture storm depth" at which the BMP drawdown time (T) line achieves 80% capture efficiency, X_1	X_1=	0.50	0.50	
4	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	0	inches
5	Enter capture efficiency corresponding to d_{HSC}, Y_2 (Worksheet A)	Y_2=	0%	0%	%
6	Using Figure III.2, determine the fraction of "design capture storm depth" at which the drawdown time (T) achieves the equivalent of the upstream capture efficiency (Y_2), X_2	X_2=	0.00	0.00	
7	Calculate the fraction of design volume that must be provided by BMP, *fraction* = X_1 - X_2	fraction=	0.50	0.50	
8	Calculate the resultant design capture storm depth (inches), $d_{fraction}$= *fraction* × *d*	$d_{fraction}$=	0.40	0.40	inches
Step 2: Calculate the DCV					
1	Enter Project area tributary to BMP(s), *A* (acres)	A=	1.41	1.08	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	65%	75%	%
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.638	0.713	
4	Calculate runoff volume, V_{design}= *(C x* $d_{fraction}$ *x A x 43560 x (1/12))*	V_{design}=	1,305	1,121	cu-ft

Supporting Calculations

Describe System:		*Phase 2A - DMA 1*	*Phase 2B - DMA 1*	
	Bioretention Without Underdrain	-	-	
	Ponding Depth (d_p) =	*0.5*	*0.5*	ft
	Media Depth (d_M) =	*3*	*3*	ft
	Media Porosity (η_M) =	*20%*	*20%*	
	Gravel Reservoir Depth (d_G) =			ft
	Gravel Porosity (η_G) =	*35%*	*35%*	
	Effective Depth ($d_{Effective}$) =	*1.10*	*1.10*	ft
	Design Infiltration Rate (K_{Design}) =	*1.4*	*1.4*	in/hr
	Minimum Surface Area Required (A_{Min}) =	*1,187*	*1,019*	ft^2
	Total Infiltrating Surface Area Provided =	*1,190*	*1,020*	ft^2
	Total Volume Stored =	*1,309*	*1,122*	ft^3

Provide drawdown time calculations per applicable BMP Fact Sheet:				
	Drawdown (DD or T) = ($d_{Effective}$) / (K_{Design}) x 12			
	Time to Drawdown Effective Depth (T) =	*9.6*	*9.6*	hours

Attachment 9

Green Street Project BMP Conformance Analysis Tables

GREEN STREET PROJECT BMP CONFORMANCE ANALYSIS

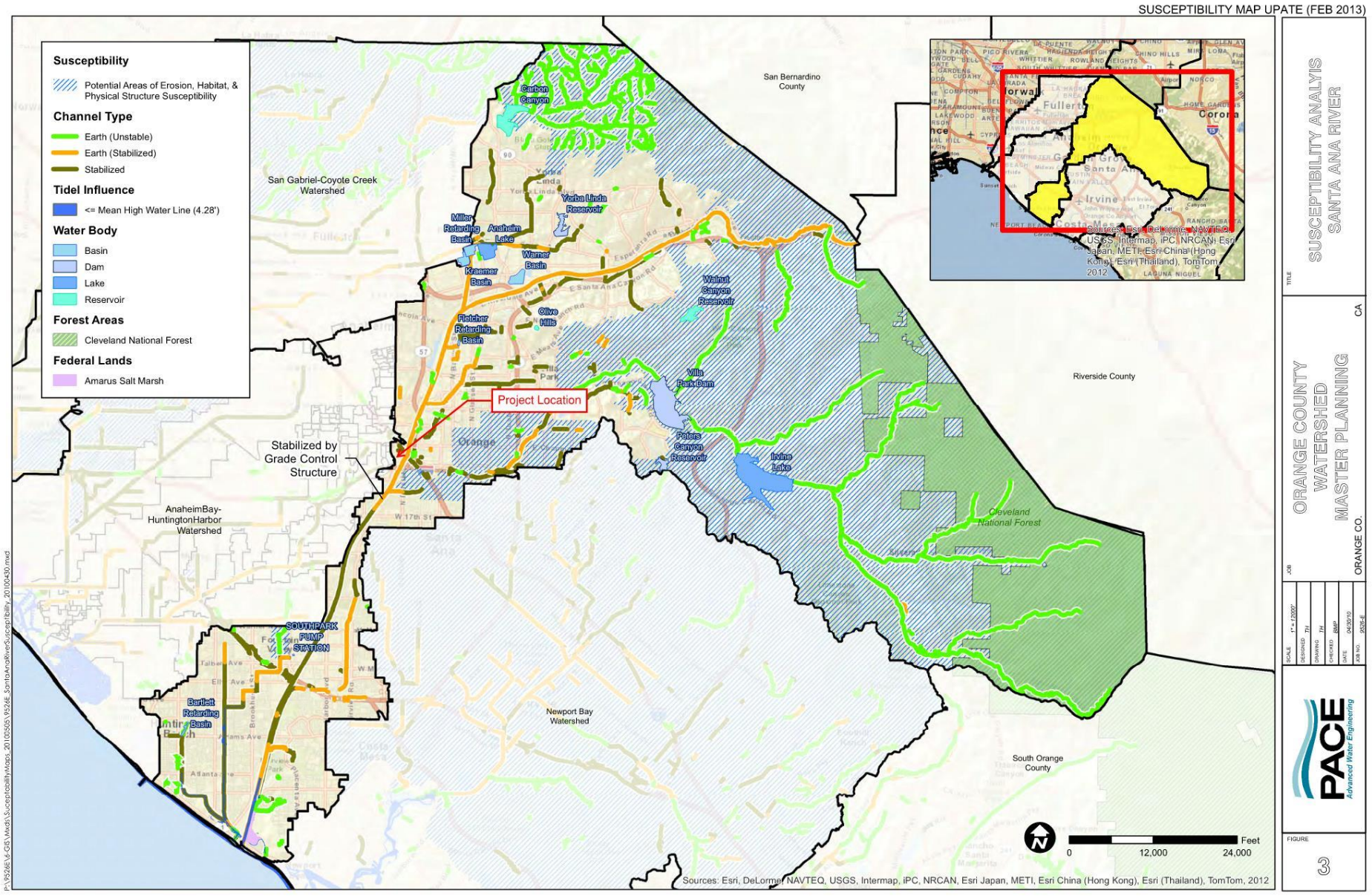
DMA ID: INSERT DMA ID HERE		**DCV =**	0 ac-ft	
Hydrologic Source Controls				
Included	Site Design BMP	Fact Sheet	DCV Reduction	
☐	Street Trees[1]	HSC-3	0 ac-ft	
Low Impact Development BMPs | Infiltration				
☐	Infiltration Trench[2]	INF-2	0 ac-ft	
☐	Bioretention with no Underdrain[3]	INF-3	0 ac-ft	
☐	Bioinfiltration with Raised Underdrain	INF-4	0 ac-ft	
☐	Drywell[4]	INF-5	0 ac-ft	
☐	Permeable Pavement[5]	INF-6	0 ac-ft	
☐	Underground Infiltration[6]	INF-7	0 ac-ft	
Low Impact Development BMPs | Biotreatment				
☐	Bioretention with Underdrains[7]	BIO-1	0 ac-ft	
☐	Vegetated Swale[8]	BIO-2	0 ac-ft	
☐	Vegetated Filter Strip[9]	BIO-3	0 ac-ft	
☐	Proprietary Biotreatment[10]	BIO-7	0 ac-ft	
Treatment Control BMPs				
☐	Sand Filter[11]	TRT-1	0 ac-ft	
☐	Cartridge Media Filter[12]	TRT-2	0 ac-ft	
		Total DCV Reduction =	0	**ac-ft**
		Remaining DCV = DCV –Total DCV Reduction =	0	**ac-ft**

[1] Also known as Canopy Interception.
[2] Also known as French Drain, Rock Trench, Exfiltration Trench, Soak-Aways, or Soakage Trench.
[3] Also known as Rain Garden or Infiltration Planter.
[4] Also known as Soak-Away Pits, Infiltration Sumps, Rock Sumps, or Underground Injection Controls. Calculations for determining DCV reduction provided by drywells is highly site-specific. No template is provided. Drywells must be designed to ensure a drawdown time of 48 hours. Calculations for DCV reduction are to be provided in **Attachment 8**.
[5] Also known as Pervious Pavement, Porous Concrete, Pavers, or Permeable Asphalt.
[6] Also known as Subsurface Infiltration Galleries, Infiltration Vault, or Recharge Vault. For underground infiltration devices with open pore volume (e.g. vaults, crates, pipe sections, etc.), refer to the Infiltration Basin BMP Template. For underground infiltration devices with pore space (e.g. aggregate reservoirs), refer to the permeable Pavement BMP Template.
[7] Also known as Rain Gardens with Underdrains, Vegetated Media Filter, or Downspout Planter Boxes.
[8] Also known as Bioswale, Biofiltration Swale, or Grass Swale.
[9] Also known as Buffer Strip or Vegetated Buffer.
[10] Also known as Catch Basin Planter Box, Bioretention Vault, or Tree Box Filter. A calculation template is not provided for Proprietary Biotreatment. If implemented, calculations are required to be included in **Attachment 8**.
[11] Also known as Bed Media Filter.
[12] Also known as Manufactured Media Filters.

Check only one of the two boxes below:	
☐ Remaining DCV = 0 ac-ft	The DCV for this DMA is fully captured by the LID BMP(s) checked above. No additional BMPs are necessary, except hydromodification control BMPs if applicable.
☐ Remaining DCV > 0 ac-ft	The DCV for this DMA cannot feasibly be fully captured by LID BMPs. If LID or hydromodification sizing criteria cannot be achieved, document the constraints here.

Attachment 10

Hydromodification Exhibits and Calculations


SUSCEPTIBILITY MAP UPATE (FEB 2013)
Susceptibility
Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility
Channel Type
Earth (Unstable)
Earth (Stabilized)
Stabilized
Tidel Influence
<= Mean High Water Line (4.28')
Water Body
Basin
Dam
Lake
Reservoir
Forest Areas
Cleveland National Forest
Federal Lands
Amarus Salt Marsh
San Gabriel-Coyote Creek Watershed
San Bernardino County
Riverside County
Carbon Canyon
Yorba Linda Reservoir
Miller Retarding Basin
Anaheim Lake
Warner Basin
Kraemer Basin
Walnut Canyon Reservoir
Olive Hills
Fletcher Retarding Basin
Villa Park Dam
Project Location
Stabilized by Grade Control Structure
Peters Canyon Reservoir
Irvine Lake
Cleveland National Forest
AnaheimBay-HuntingtonHarbor Watershed
SOUTHPARK PUMP STATION
Bartlett Retarding Basin
Newport Bay Watershed
South Orange County
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012
0
12,000
24,000
Feet
SUSCEPTIBILITY ANALYIS
SANTA ANA RIVER
ORANGE COUNTY
WATERSHED
MASTER PLANNING
ORANGE CO.
CA
PACE
Advanced Water Engineering
FIGURE
3

Attachment 11

Hydromodification Management Plan

Attachment 12

BMP Exhibit

HYDROLOGIC SOIL GROUP: "A"

LEGEND

	MAJOR DRAINAGE BOUNDARY
	SUB-DRAINAGE BOUNDARY
	FLOWLINE
	DRAINAGE FLOW DIRECTION
(SD)	STORM DRAIN LINE
A1 / 0.12AC	SUBAREA DESIGNATION / SUBAREA (ACRES)
10	NODE NUMBER
123.4FS	PROPOSED FINISHED SURFACE ELEV.
123.4FG	PROPOSED FINISHED GRADE ELEV.
123.4INV	INVERT ELEV.
Q25	CALCULATED RUNOFF FOR 25 YR FREQ.
Tc	TIME OF CONCENTRATION
SD	STORM DRAIN
S	SLOPE
L	FLOW PATH LENGTH (SURFACE)
NAP	NOT A PART

Youth Transition Center

Long Term Housing

Classroom and Library Building

Independent Living

2A-1 0.97AC

2A-2 0.44AC

2B 1.08AC

Proposed Bioretention with No Underdrain (INF-3); 1,190 SF

Proposed Bioretention with No Underdrain (INF-3); 1,020 SF

SERVICE WAY

SIDWELL WAY

HOSPITAL FRONTAGE RD

JUSTICE CENTER WAY

ORANGEWOOD CHILDREN'S HOME

ORANGE COUNTY COURT MANCHESTER OFFICE

A.C. PARKING LOT

BREAK ROOM

ADMIN

MEDICAL UNIT

UNIT M

DENTAL

UNIT T

UNIT Q

UNIT B

UNIT C

UNIT Z

UNIT Y

ALLEY

LAMOREAUX JUSTICE CENTER

JUSTICE CENTER

CLASSROOMS

YLA 1

YLA 2

YLA ADMIN

AC PARKING LOT

BASKETBALL COURT

UTILITY ENCLOSURE

NORTH FIELD

SOCCER FIELD

M.R.C. BUILDING

LAUNDRY

KITCHEN

SUB STATION

SANTA ANA RIVER

SANTA ANA FWY (5)

SCALE: 1" = 40'

DRAINAGE CONDITIONS TABLE

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

DRAINAGE CALCULATIONS TABLE

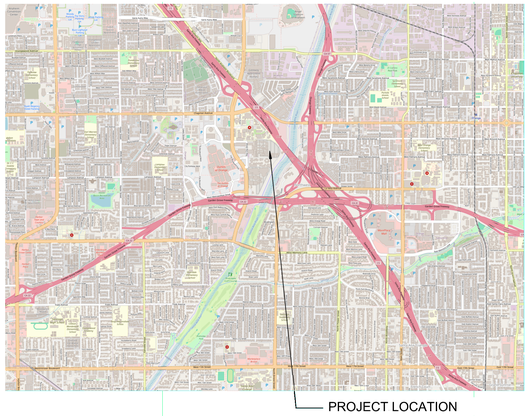
Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

PREPARED FOR:
The County of Orange
601 N. ROSS STREET
SANTA ANA, CA 92701

PREPARED BY:
FUSCOE ENGINEERING
15535 Sand Canyon Ave, Suite 100
Irvine, California 92618
949.474.1960 fuscoe.com

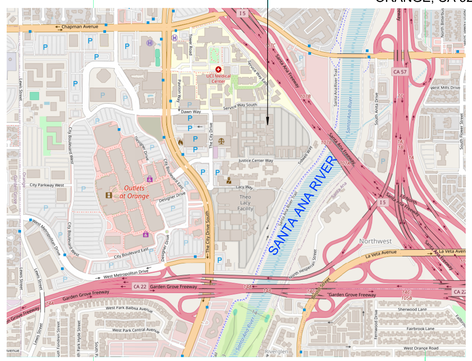
County of Orange
OC Public Works
PROPOSED DRAINAGE AND LID BMP CONCEPTUAL PLAN
ORANGE COUNTY JUVENILE HALL
ORANGE COUNTY, CA
11/18/2024

E:\USERS\DRAINAGE\WORK\ENGINEERING\DOCUMENTS\OC_VISTA\OC_TOPO_2023-BASE_11072024-HYD.DWG [11-18-24 5:52:54PM] Plotted By: dsanchez



VICINITY MAP

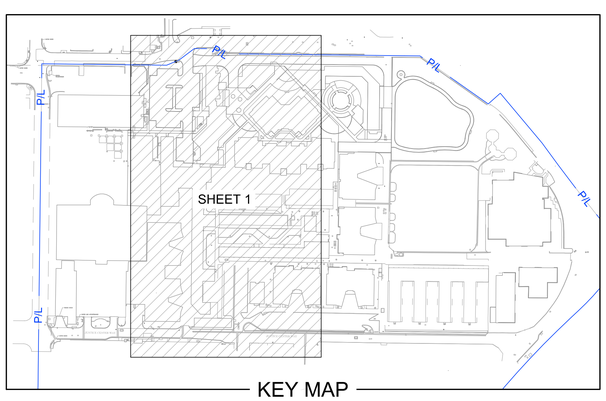
PROJECT LOCATION
ADDRESS: 331 SIDWELL WAY,
ORANGE, CA 92868



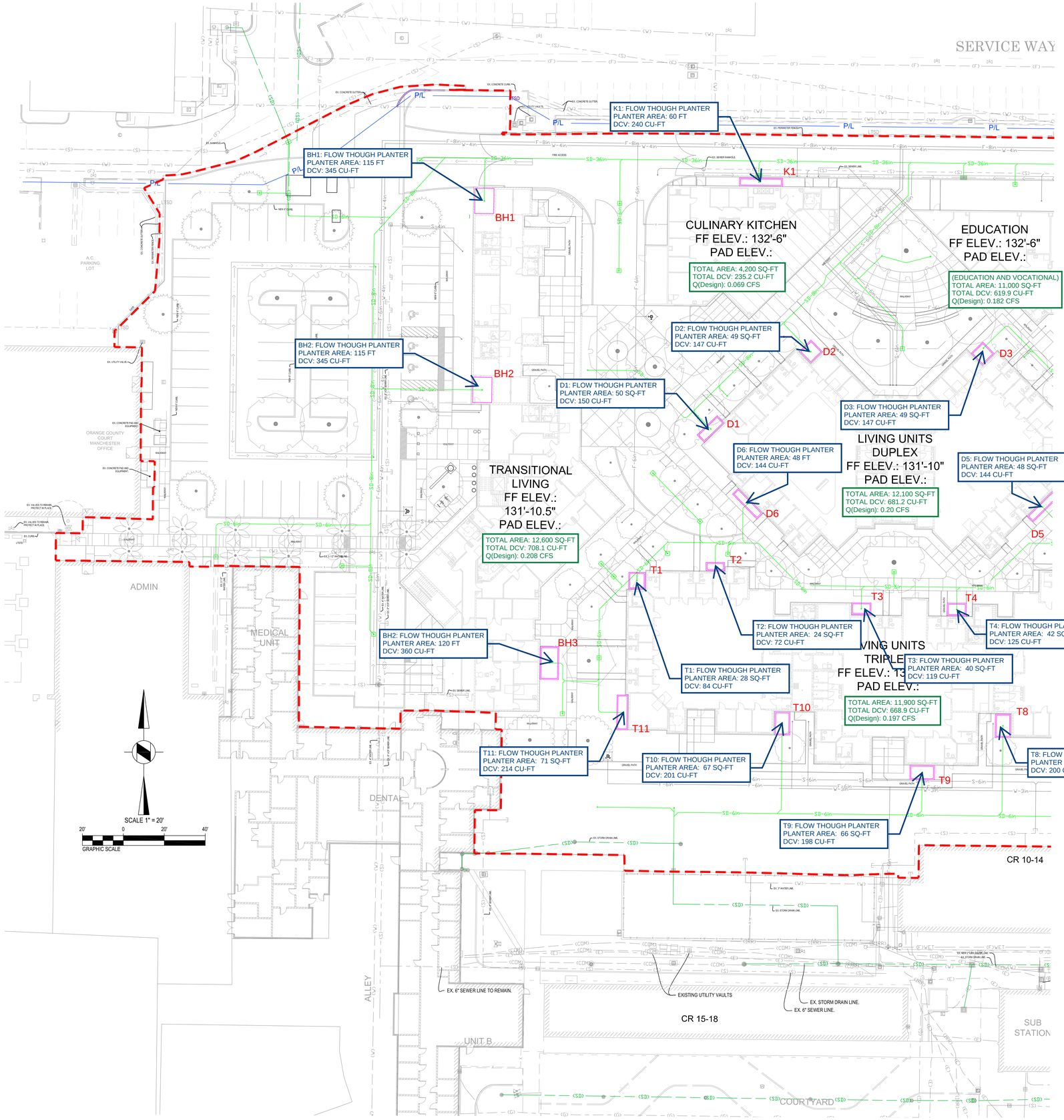
SITE MAP

LEGEND

P/L	PROPERTY LINE
	LIMITS OF WORK
SD	NEW STORM DRAIN LINE
(SD)	EXISTING STORM DRAIN LINE
	NEW FLOW THROUGH PLANTER
BMP ID#	



KEY MAP



County of Orange
PUBLIC WORKS
OC Facilities Design & Construction

Revisions

01	08/19/2024	PLAN CHECK COMMENTS
A	08/19/2024	PLAN CHANGES

Consultants
COFFMAN ENGINEERS
17781 Sky Park Circle, Suite F
Irvine, CA 92614-6417
(949) 660-1911
www.coffman.com

A-E Seal
PROFESSIONAL ENGINEER
STEVE WITHERSPOON
No. C-58311
Exp. 06-30-26
CIVIL
STATE OF CALIFORNIA

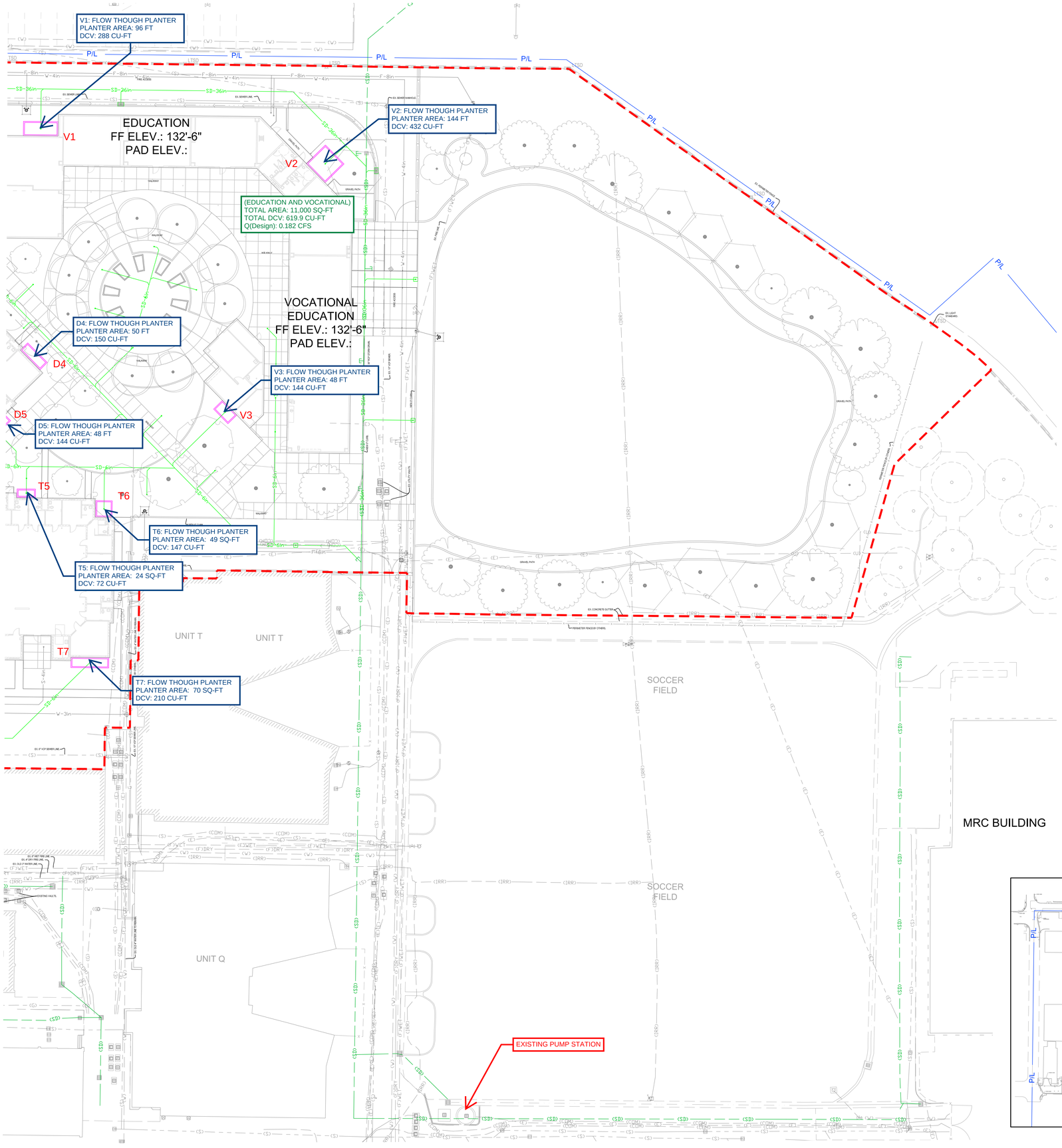
DLRGROUP
300 S. FLOWER ST.
SUITE 1000
LOS ANGELES, CA 90017
© DLR Group

Balfour Beatty

A-E

Sht Title: OC YOUTH TRANSITION CENTER - BMP EXHIBIT
Project: COUNTY OF ORANGE - YOUTH TRANSITION CENTER
331 THE CITY DRIVE S.
ORANGE, CA 92868
Package: -
PROJ. NO. -
DATE 11/06/24

Approve In Concept
Project Manager: _____
Section Manager: _____
OC PUBLIC WORKS
OC FACILITIES DESIGN & CONSTRUCTION
Date: _____
Plan No.
-
Sheet
01



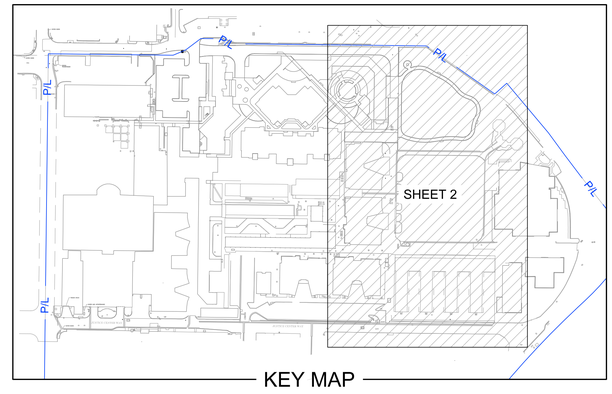
LEGEND

- P/L — PROPERTY LINE
- LIMITS OF WORK
- SD — NEW STORM DRAIN LINE
- (SD) — EXISTING STORM DRAIN LINE
- NEW FLOW THROUGH PLANTER
- BMP ID#

SCALE 1" = 20'

20' 0 20' 40'

GRAPHIC SCALE



KEY MAP

County of Orange

PUBLIC WORKS

OC Facilities Design & Construction

Revisions

01	08/19/2024	PLAN CHECK COMMENTS
A	08/19/2024	PLAN CHANGES

Consultants

COFFMAN ENGINEERS
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A-E Seal

A-E

Balfour Beatty

DLRGROUP
700 S. FLOWER ST.
SUITE 2100
LOS ANGELES, CA 90017
© DLR Group

Sht Title OC YOUTH TRANSITION CENTER - BMP EXHIBIT

Project: COUNTY OF ORANGE - YOUTH TRANSITION CENTER
331 THE CITY DRIVE S.
ORANGE, CA 92868

Package: -

DATE 11/06/24

PROJ. NO. -

Approve In Concept

Project Manager: _____

Section Manager: _____

OC PUBLIC WORKS
OC FACILITIES DESIGN & CONSTRUCTION

Date: _____

Plan No.
-

Sheet
02

Attachment 13

Additional Educational Material

No additional education materials have been identified for the project.

Attachment 14

Additional BMP Inspection and Maintenance Responsibility Tables

Table 12-1 BMP Inspection and Maintenance Responsibilities

BMP	DMA	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities

Attachment 15

Operations and Maintenance Plan

Attachment 16

BMP Inspection Record

Attachment 17

Conceptual Hydrology Report for Phase 1 and Phase 2 (Separate Reports)

COFFMAN ENGINEERS

PRELIMINARY HYDROLOGY REPORT

ORANGE COUNTY TRANSITIONAL YOUTH CENTER |
CITY OF ORANGE, CA

Prepared by: Coffman Engineers, Inc.
626 Wilshire Blvd., Suite 700, Los Angeles, CA 90017
Job No. 232144
Date Prepared: November 15, 2024

Table of Contents

A. INTRODUCTION 3

1. Project Description 3
2. Location 3
3. Focus of Report 4

B. Methodology 4

1. Hydrology Manual 4
2. Existing Site Conditions 4
3. Proposed Site Condition 4

C. Summary 5

D. References 5

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A. INTRODUCTION

1. Project Description

The County of Orange plans to undertake a multi-phase project to demolish and rebuild several structures, along with associated infrastructure and landscaping, within the Orange County Juvenile Hall Campus. This portion of the report will focus on phase 1 of the project focusing on the northern part of the campus, improving about 5.8 acres of the approximate overall 17-acre property.

2. Location

The project site is located at 331 The City Drive South in the City of Orange, California. The site is located near the 5 Freeway, the 22 Freeway, and The City Drive Street and sits on parcel number 231-271-10. Additionally this project is located west of the Santa Ana River.

Vicinity Map

3. Focus of Report

This preliminary report will focus on the area impacted by phase 1 improvements by identifying changes to existing and post project conditions. This study will outline the general project characteristics and methodology used in water treatment.

B. Methodology

1. Hydrology Manual

The post-development hydrology analysis for the site will be determined using the methodology outlined in the Orange County Hydrology Manual for post-developed conditions, using the Rational Method, in accordance with the manual.

2. Existing Site Conditions

Phase 1 of the project occupies approximately 5.8 acres of the site. The project site is relatively level and slopes from the northwest to the southeast. Site drainage flows into existing 36in RCP storm drain between the existing library and baseball field. The existing storm drain flows off campus and eventually discharges into the Santa Ana River Channel.

3. Proposed Site Condition

Phase 1 of the project will leverage the existing storm drain system to manage new drainage flows. The site will be divided into multiple drainage areas, encompassing both the buildings and the overall site. Roof runoff from each building will be directed into flow-through planters for water treatment. Any surface runoff not treated by the flow-through planters will be managed and treated using an underground treatment unit.

Phase 1 – Drainage Area	Area (sq-ft)	Area (acres)	Impervious Area (sq-ft)	Percent Impervious
Behavioral Health	12,600	0.29	0	100%
Kitchen	4,200	5.81	0	100%
Education and Vocational Ed.	11,000	0.25	0	100%
Duplex	12,100	0.28	0	100%
Triplex	11,900	0.27	0	100%
Non-Building Area	234,448	5.38	187,638	20%

C. Summary

We are expecting a difference in peak flow rates between pre-development and post-development conditions which will primarily be attributed to the decrease in impervious surface area, which will decrease by approximately 33% in post-development conditions. See below for the summary table for the entire site, comparing pre-development and post-development conditions:

Phase 1	Area (sq-ft)	Area (acres)	Impervious Area (acres)	Percent Impervious
Existing Conditions	252,999.45	5.81	3.41	58.7%
Proposed Conditions	252.999.45	5.81	1.51	32.8%

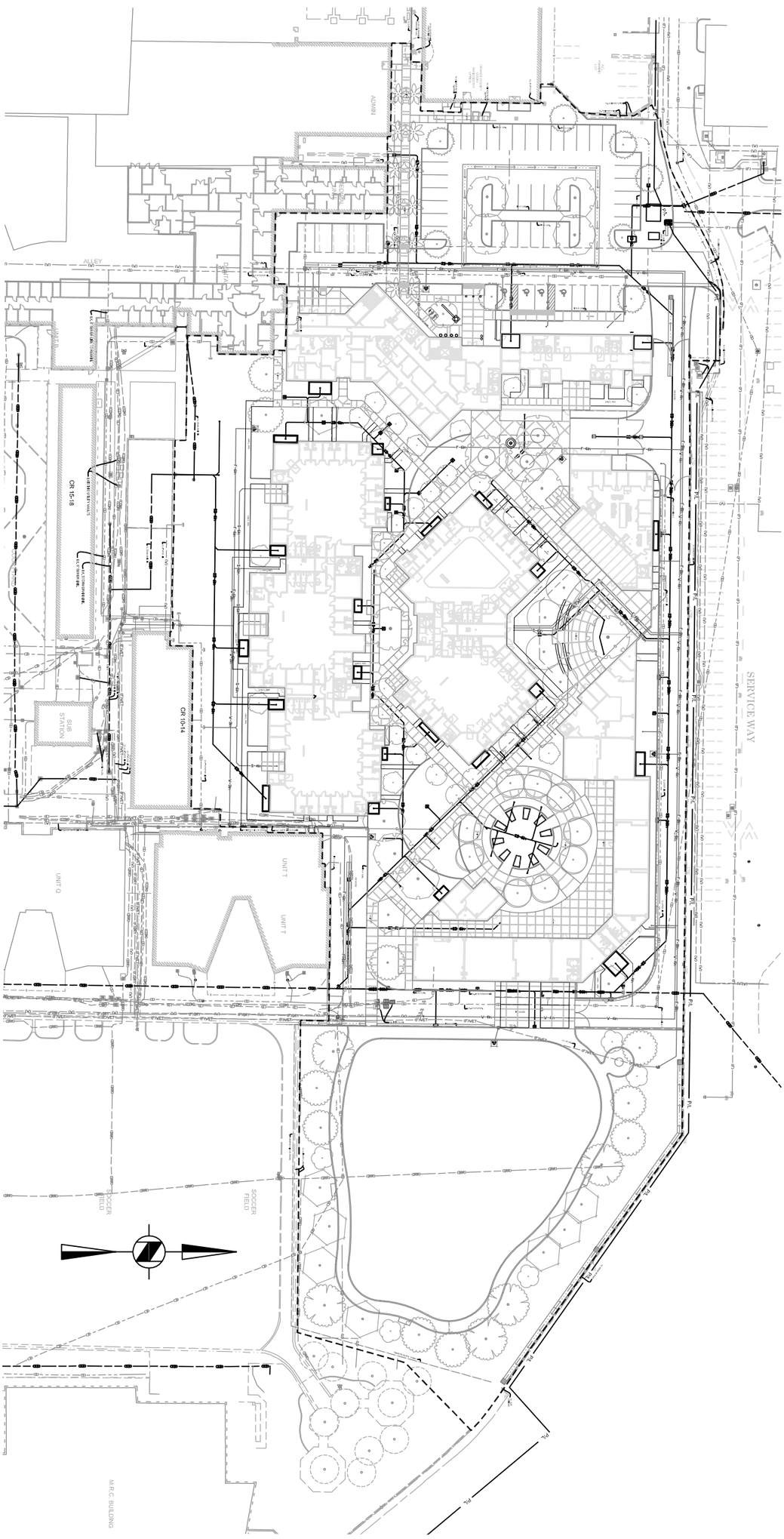
This report is based off a preliminary hydrology study for phase 1 of this project.

D. References

- Orange County Hydrology Manual (October 1986)

- Orange County Hydrology Manual Addendum No. 1 (1996)

APPENDIX A – Site Plan



VICINITY MAP

PROJECT LOCATION

SITE MAP

SANTA ANA RIVER

PROJECT LOCATION
ADDRESS: 331 THE CITY DRIVE S.
ORANGE, CA 92868

LEGEND

P/L — PROPERTY LINE

SD — STORM DRAIN

GSD — GRAY WATER STORM DRAIN

ELECTRIC UNDERGROUND

Sheet

Plan No.

OC PUBLIC WORKS
OC FACILITIES DESIGN & CONSTRUCTION

Date:

Approve In Concept

Project Manager:

Section Manager:

Sht Title

Project: COUNTY OF ORANGE - YOUTH TRANSITION CENTER
331 THE CITY DRIVE S.
ORANGE, CA 92868

Package:

PROJ. NO.

DATE 11/06/24

A-E

Balfour Beatty DLRGROUP
550 S. FLOWER ST.
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LOS ANGELES, CA 90017
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A-E Seal

Consultants

COFFMAN ENGINEERS
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LOS ANGELES, CA 90017
www.coffman.com

Revisions

01	05/19/2024	PLAN CHECK COMMENTS
A	05/19/2024	PLAN CHANGES

County of Orange

OC PUBLIC WORKS

OC Facilities Design & Construction

PRELIMINARY HYDROLOGY REPORT

Orange County Juvenile Hall

Orange County, California

PREPARED BY:

Fuscoe Engineering, Inc.

15535 Sand Canyon Ave, Suite 100

Irvine, CA 92618

(949) 474-1960

Project Number:

309-026-01

Date Prepared:

November 2024

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1.0 INTRODUCTION 3

1.1 Geographic Setting 3

1.2 Purpose of this Report 4

1.3 References 4

2.0 HYDROLOGY 5

2.1 Existing Condition 5

2.2 Proposed Condition 5

3.0 FEMA 6

4.0 RESULTS AND CONCLUSIONS 6

5.0 APPENDICESS 7

Appendix A Architect's Site Plan

Appendix B Existing Storm Drain Information

Appendix C Existing Hydrology

Appendix D Proposed Hydrology

Appendix E FEMA Map

1.0 INTRODUCTION

1.1 Geographic Setting

The County of Orange (County) proposes to demolish and replace ten buildings and associated infrastructure within the existing Orange County Juvenile Hall Campus (campus) located in the City of Orange (City), California, which occupies an approximately 17-acre property located at 331 The City Drive South (project site). The study area is bounded by Justice Way to the south, Hospital Frontage Road to the west, Interstate 5 freeway and Santa Ana River to the east and Service Way to the north. A Vicinity Map is shown below.

VICINITY MAP

The proposed site improvements will be divided into three phases. The architect's Overall Site Plan is included in this report as Appendix 1. This portion of the site will focus on Phases 2A and 2B of the development. Phase 2A comprises of Long Term Housing and Classroom and Library

Building, located adjacent to the south of Phase 1. Phase 2B comprises of Independent Living, located near the southeast edged of the property.

1.2 Purpose of this Report

The purpose of this analysis is to identify and analyze the pre- and post-project drainage conditions in order to provide adequate drainage facilities for the proposed development located in the County of Orange, California.

This Drainage Study will analyze and compare the 2-, 10-, 25- and 100-year storm events for the existing and proposed conditions. Outcomes of the analysis will facilitate the conceptual layout of a drainage system to adequately convey storm runoff through the site without adversely impacting surrounding areas. The project is HCOC exempt and therefore Hydromodification requirements are not applicable.

The project is within Soil Type "A", based on the County of Orange Hydrology Manual.

All hydrology and hydrologic calculations would be performed and verified for protection in a 100-year storm event according to the Orange County Hydrology Manual (1986) and its Addendum (1996) during final design. All calculations will be based on AES Rational Method and will follow requirements per Orange County Hydrology Manual. Impervious rates will be calculated per existing and proposed plans. AES does now offer specific impervious rates but rather it utilizes pre-determined rates based on estimated land use. For these calculations, similar pre-determined rates were selected that conservatively follows the hand calculations.

1.3 References

The following references were used to evaluate hydrologic conditions and water quality requirements:

- Orange County Hydrology Manual (October 1986)
- Orange County Hydrology Manual Addendum No. 1 (1996)
- Orange County Local Drainage Manual (January 1996)
- AES (Advanced Engineering Software), Rational Method (July 2016)

2.0 HYDROLOGY

2.1 Existing Condition

The approximate overall 17-acre study area is a developed site that contains the Orange County Juvenile Hall Campus. The existing site generally slopes in a southerly direction to southerly area of the property.

An existing 33-inch RCP storm drain drains from the north to the south and bisects the project site, allowing for a collection point for on-site stormwater. This storm drain connects to an existing 42-inch RCP that is located offsite and adjacent to the south which runs south along The City Drive and discharges into the Santa Ana River Channel, and ultimately the Pacific Ocean.

Phases 2A and 2B will be analyzed for existing hydrological conditions using AES Rational Method to generate storm runoff rates using calculated existing impervious rates. Hydrology Calculations are located in Existing Hydrology (Appendix C).

2.2 Proposed Condition

The proposed project improvements will maintain the existing drainage patterns.

Phases 2A and 2B will be analyzed for proposed hydrological conditions using AES Rational Method to generate storm runoff rates using calculated proposed impervious rates based on the Overall Site Plan. Hydrology Calculations are located in Proposed Hydrology (Appendix D).

The overall drainage strategy is to convey onsite stormwater runoff into an onsite storm drain system that mitigates the proposed runoff's water quality, hydraulic and volumetric parameters per the regulating agencies (County of Orange) drainage codes. There will be several drainage management areas defined in the water quality analysis. The proposed project would provide a series of proposed bioretention with underdrain planter systems to capture and treat stormwater runoff.

As discussed in the existing condition, the drainage conveyance will similarly connect to the existing 33-inch RCP storm drain drains from the north to the south, ultimately connecting to an

existing 42-inch RCP location off-site to the south, that discharges into the Santa Ana River Channel, and ultimately the Pacific Ocean.

3.0 FEMA

The project site is located at FEMA flood zone 'X' per FEMA Flood Insurance Rate Map (FIRM) No. 06059C0142J, map revised December 3, 2021. The site is entirely within Zone X, which depicts area of reduced flood risk due to levee. A CLOMR or LOMR will not be required. A FEMA Map (Firmette) is included in this report as Appendix E.

4.0 RESULTS AND CONCLUSIONS

The results of the hydrologic analyses are shown on the following table.

Tabe A - Phase 2 Drainage Conditions

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

Tabe B - Phase 2 Drainage Calculations

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

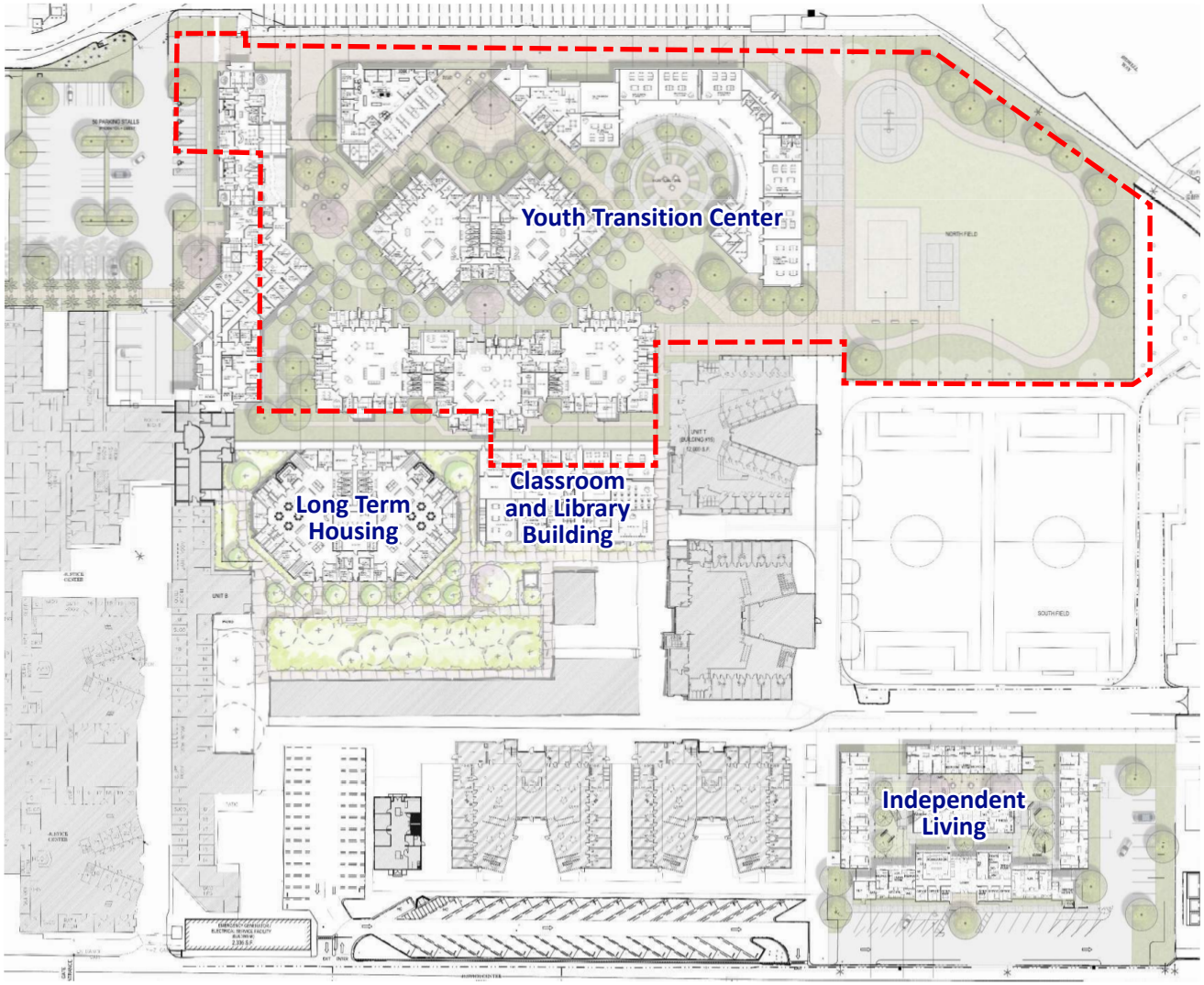
When comparing the Q allowable to the proposed condition, the proposed condition discharges less than expected. This is mostly due to the increase in pervious areas when comparing pre vs. post-development. Based on the hydrologic analyses included in this report, the proposed project will not adversely impact the drainage systems.

5.0 APPENDICESS

Appendix 1 Architect's Site Plan
Appendix 2 Existing Storm Drain Information
Appendix 3 Existing Hydrology
Appendix 4 Proposed Hydrology
Appendix 5 FEMA Map

APPENDIX A

Architect's Site Plan



LSA

LEGEND

Youth Transition Boundary

FIGURE 2-6

N

NO SCALE

SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

I:\O\OCY2001.48\G\Overall_Site_Plan.ai (10/17/2024)

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Overall Site Plan

APPENDIX B

Existing Storm Drain Information

SUBJECT TO FURTHER REVISION

PROJECT LOCATION

LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
ORANGE COUNTY
RIVERSIDE COUNTY
ORANGE COUNTY
LOS ANGELES COUNTY
ORANGE COUNTY

LEGEND

City Boundaries

Hydrologic Soil Groups

- A Soils
- B Soils
- C Soils
- D Soils

Source:
Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

0 2.5 5 10 Kilometers
0 1.8 3.6 7.2 Miles

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TITLE
NRCS HYDROLOGIC SOILS GROUPS

JOB
ORANGE COUNTY INFILTRATION STUDY
ORANGE CO. CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	95226-E

PACE
Advanced Water Engineering

FIGURE
XVI-2a

Susceptibility

Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility

Channel Type

Earth (Unstable)
Earth (Stabilized)
Stabilized

Tidel Influence

<= Mean High Water Line (4.28')

Water Body

Basin
Dam
Lake
Reservoir

Forest Areas

Cleveland National Forest

Federal Lands

Amarus Salt Marsh

PROJECT LOCATION

Stabilized by Grade Control Structure

San Gabriel-Coyote Creek Watershed

San Bernardino County

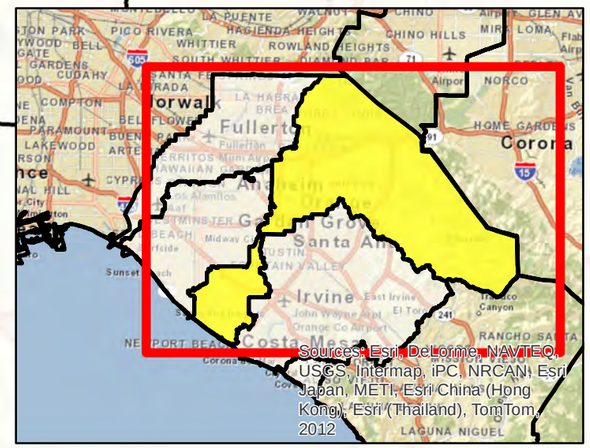
Riverside County

South Orange County

Newport Bay Watershed

AnaheimBay-HuntingtonHarbor Watershed

Carbon Canyon
Yorba Linda Reservoir
Miller Retarding Basin
Anaheim Lake
Warner Basin
Kraemer Basin
Olive Hills
Fletcher Retarding Basin
Walnut Canyon Reservoir
Villa Park Dam
Peters Canyon Reservoir
Irvine Lake
SOUTHPARK PUMP STATION
Bartlett Retarding Basin
Cleveland National Forest



0 12,000 24,000 Feet

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

P:\9526E\16-GIS\Mxds\SuceptabilityMaps_20100505\9526E_SantaAnaRiverSusceptibility_20100430.mxd

TITLE
SUSCEPTIBILITY ANALYIS
SANTA ANA RIVER

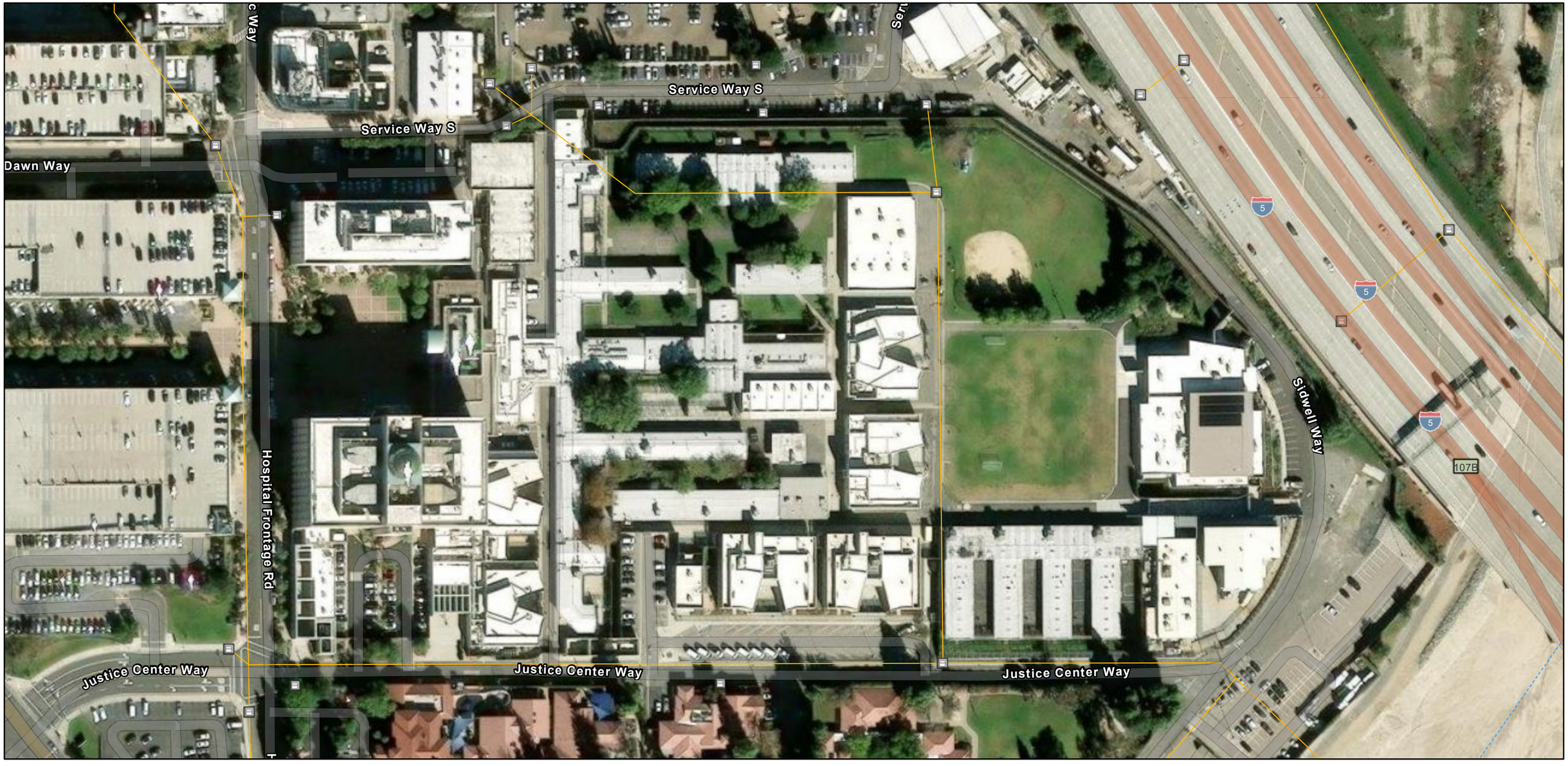
JOB
ORANGE COUNTY
WATERSHED
MASTER PLANNING
ORANGE CO. CA

SCALE	1" = 12000'
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/30/10
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
3

OC - YTC Storm Drain Layout



11/4/2024

Inlets

Local Drainage

Closed Conveyance

Regional Channels

Open Conveyance

1:1,869

0 0.02 0.04 0.07 mi

0 0.03 0.06 0.11 km

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APPENDIX C

Existing Hydrology

HYDROLOGIC SOIL GROUP: "A"

LEGEND

	MAJOR DRAINAGE BOUNDARY
	SUB-DRAINAGE BOUNDARY
	FLOWLINE
	DRAINAGE FLOW DIRECTION
(SD)	STORM DRAIN LINE
A1 / 0.12AC	SUBAREA DESIGNATION / SUBAREA (ACRES)
10	NODE NUMBER
123.4FS	PROPOSED FINISHED SURFACE ELEV.
123.4FG	PROPOSED FINISHED GRADE ELEV.
123.4INV	INVERT ELEV.
Q25	CALCULATED RUNOFF FOR 25 YR FREQ.
Tc	TIME OF CONCENTRATION
SD	STORM DRAIN
S	SLOPE
L	FLOW PATH LENGTH (SURFACE)
NAP	NOT A PART

PHASE DESIGNATION:

- PHASE 1
- PHASE 2
- PHASE 3

N

40' 0' 20' 40' 80'

SCALE: 1" = 40'

DRAINAGE CONDITIONS TABLE

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
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DRAINAGE CALCULATIONS TABLE

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

PREPARED FOR:	PREPARED BY:	County of Orange OC Public Works
The County of Orange 601 N. ROSS STREET SANTA ANA, CA 92701	FUSCOE ENGINEERING 15535 Sand Canyon Ave, Suite 100 Irvine, California 92618 949.474.1960 fuscoe.com	EXISTING DRAINAGE CONDITIONS ORANGE COUNTY JUVENILE HALL ORANGE COUNTY, CA 11/18/2024

C:\USERS\CMASON\DOWNLOADS\EXHIBIT - FUSCOE ENGINEERING\DOCUMENTS\OC_VITL\VITL_TOPO_2023-BASE_11072024-HYD.DWG [11-18-24 8:25:17PM] Plotted by: cmason

Phase 2A

Existing Conditions

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* EXISTING 2-YEAR STORM                                                  *
 ************************************************************************

  FILE NAME: YTC2A.DAT
  TIME/DATE OF STUDY: 17:45 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.583
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    17    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.30
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      1.30

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   1.58
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.30

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.778
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    17    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      0.66
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      0.66

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   1.78
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.66

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        1.30    9.32    1.583  0.40( 0.10) 0.25       1.0       1.00
    2        0.66    7.61    1.778  0.40( 0.10) 0.25       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.86    7.61    1.778  0.40( 0.10) 0.25       1.2       1.10
      2        1.88    9.32    1.583  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.88    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       1.88

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.86    7.61    1.778  0.40( 0.10) 0.25       1.2       1.10
      2        1.88    9.32    1.583  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                 *
* PHASE 2A                                                              *
* EXISTING 10-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YTC2A10.DAT
  TIME/DATE OF STUDY: 17:47 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.841
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    32    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.39
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.39

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   2.84
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.39

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.190
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    32    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.22
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.22

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   3.19
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.22

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        2.39    9.32    2.841  0.40( 0.10) 0.25       1.0       1.00
    2        1.22    7.61    3.190  0.40( 0.10) 0.25       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.43    7.61    3.190  0.40( 0.10) 0.25       1.2       1.10
      2        3.48    9.32    2.841  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.48    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       3.48

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.43    7.61    3.190  0.40( 0.10) 0.25       1.2       1.10
      2        3.48    9.32    2.841  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2A25.DAT
  TIME/DATE OF STUDY: 17:48 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.391
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    32    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.87
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.87

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   3.39
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.87

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.802
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    32    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.47
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.47

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   3.80
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.47

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        2.87    9.32    3.391  0.40( 0.10) 0.25       1.0       1.00
    2        1.47    7.61    3.802  0.40( 0.10) 0.25       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.11    7.61    3.802  0.40( 0.10) 0.25       1.2       1.10
      2        4.18    9.32    3.391  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       4.18    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       4.18

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.11    7.61    3.802  0.40( 0.10) 0.25       1.2       1.10
      2        4.18    9.32    3.391  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* EXISTING 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YTC2A100.DAT
  TIME/DATE OF STUDY: 17:50 11/12/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.331
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    52    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      3.69
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      3.69

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   4.33
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.69

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.862
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK            A        0.44      0.40     0.250    52    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.89
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.89

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   4.86
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.89

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        3.69    9.32    4.331  0.40( 0.10) 0.25       1.0       1.00
    2        1.89    7.61    4.862  0.40( 0.10) 0.25       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.28    7.61    4.862  0.40( 0.10) 0.25       1.2       1.10
      2        5.37    9.32    4.331  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.37    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       5.37

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.28    7.61    4.862  0.40( 0.10) 0.25       1.2       1.10
      2        5.37    9.32    4.331  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Phase 2B

Existing Conditions

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 2-YEAR STORM                                                  *
 **************************************************************************

  FILE NAME: YTC2B.DAT
  TIME/DATE OF STUDY: 17:22 11/11/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.780
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    17    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.65
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      1.65
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       1.65
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 10-YEAR STORM                                                 *
 **************************************************************************

  FILE NAME: YTC2B10.DAT
  TIME/DATE OF STUDY: 17:28 11/11/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.193
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    32    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      3.03
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.03
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       3.03
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B25.DAT
  TIME/DATE OF STUDY: 17:37 11/11/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.806
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    32    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      3.62
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.62
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       3.62
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YTC2B100.DAT
  TIME/DATE OF STUDY: 17:42 11/11/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.867
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    52    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      4.65
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      4.65
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       4.65
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX D

Proposed Hydrology

HYDROLOGIC SOIL GROUP: "A"

LEGEND

	MAJOR DRAINAGE BOUNDARY
	SUB-DRAINAGE BOUNDARY
	FLOWLINE
	DRAINAGE FLOW DIRECTION
(SD)	STORM DRAIN LINE
A1 / 0.12AC	SUBAREA DESIGNATION / SUBAREA (ACRES)
10	NODE NUMBER
123.4FS	PROPOSED FINISHED SURFACE ELEV.
123.4FG	PROPOSED FINISHED GRADE ELEV.
123.4INV	INVERT ELEV.
Q25	CALCULATED RUNOFF FOR 25 YR FREQ.
Tc	TIME OF CONCENTRATION
SD	STORM DRAIN
S	SLOPE
L	FLOW PATH LENGTH (SURFACE)
NAP	NOT A PART

Youth Transition Center

Long Term Housing

Classroom and Library Building

Independent Living

2A-1 0.97AC

2A-2 0.44AC

2B 1.08AC

Proposed Bioretention with No Underdrain (INF-3); 1,190 SF

Proposed Bioretention with No Underdrain (INF-3); 1,020 SF

SERVICE WAY

SIDWELL WAY

HOSPITAL FRONTAGE RD

JUSTICE CENTER WAY

ORANGEWOOD CHILDREN'S HOME

ORANGE COUNTY COURT MANCHESTER OFFICE

A.C. PARKING LOT

BREAK ROOM

ADMIN

MEDICAL UNIT

UNIT M

DENTAL

UNIT T

UNIT Q

UNIT B

UNIT C

UNIT Z

UNIT Y

ALLEY

LAMOREAUX JUSTICE CENTER

JUSTICE CENTER

CLASSROOMS

YLA 1

YLA 2

YLA ADMIN

AC PARKING LOT

BASKETBALL COURT

UTILITY ENCLOSURE

NORTH FIELD

SOCCER FIELD

M.R.C. BUILDING

LAUNDRY

KITCHEN

SUB STATION

SANTA ANA RIVER

SANTA ANA FWY (5)

SCALE: 1" = 40'

DRAINAGE CONDITIONS TABLE

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

DRAINAGE CALCULATIONS TABLE

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

PREPARED FOR:
The County of Orange
601 N. ROSS STREET
SANTA ANA, CA 92701

PREPARED BY:
FUSCOE ENGINEERING
15535 Sand Canyon Ave, Suite 100
Irvine, California 92618
949.474.1960 fuscoe.com

County of Orange
OC Public Works
PROPOSED DRAINAGE AND LID BMP CONCEPTUAL PLAN
ORANGE COUNTY JUVENILE HALL
ORANGE COUNTY, CA
11/18/2024

E:\USERS\DRAINAGE\WORK\ENGINEERING\DOCUMENTS\OC_VISTA\OC_TOPO_2023-BASE_11072024-HYD.DWG [11-18-24 5:52:54PM] Plotted By: dsanchez

Phase 2A

Proposed Conditions

```
**************************************************************************
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 2-YEAR STORM                                                  *
 **************************************************************************

  FILE NAME: YTC2AP.DAT
  TIME/DATE OF STUDY: 18:37 11/12/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.522
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    17    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.21
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      1.21

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   1.52
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.21

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.709
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    17    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   1.71
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.62

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        1.21    9.98    1.522  0.40( 0.14) 0.35       1.0       1.00
    2        0.62    8.16    1.709  0.40( 0.14) 0.35       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.74    8.16    1.709  0.40( 0.14) 0.35       1.2       1.10
      2        1.75    9.98    1.522  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.75    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       1.75

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.74    8.16    1.709  0.40( 0.14) 0.35       1.2       1.10
      2        1.75    9.98    1.522  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 10-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2A10P.DAT
  TIME/DATE OF STUDY: 18:40 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.731
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    32    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      2.26
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.26

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   2.73
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.26

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.066
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    32    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.16
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.16

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   3.07
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.16

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        2.26    9.98    2.731  0.40( 0.14) 0.35       1.0       1.00
    2        1.16    8.16    3.066  0.40( 0.14) 0.35       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.25    8.16    3.066  0.40( 0.14) 0.35       1.2       1.10
      2        3.29    9.98    2.731  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.29    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       3.29

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.25    8.16    3.066  0.40( 0.14) 0.35       1.2       1.10
      2        3.29    9.98    2.731  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 25-YEAR STORM                                                 *
 **************************************************************************

  FILE NAME: YTC2A25P.DAT
  TIME/DATE OF STUDY: 18:41 11/12/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.261
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    32    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      2.72
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.72

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   3.26
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.72

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.656
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    32    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.39
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.39

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   3.66
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.39

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        2.72    9.98    3.261  0.40( 0.14) 0.35       1.0       1.00
    2        1.39    8.16    3.656  0.40( 0.14) 0.35       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.90    8.16    3.656  0.40( 0.14) 0.35       1.2       1.10
      2        3.96    9.98    3.261  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.96    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       3.96

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.90    8.16    3.656  0.40( 0.14) 0.35       1.2       1.10
      2        3.96    9.98    3.261  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

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******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YT2A100P.DAT
  TIME/DATE OF STUDY: 18:44 11/12/2024
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.163
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    52    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      3.51
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      3.51

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   4.16
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.51

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.674
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    52    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.80
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.80

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   4.67
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.80

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        3.51    9.98    4.163  0.40( 0.14) 0.35       1.0       1.00
    2        1.80    8.16    4.674  0.40( 0.14) 0.35       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.03    8.16    4.674  0.40( 0.14) 0.35       1.2       1.10
      2        5.10    9.98    4.163  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.10    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       5.10

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.03    8.16    4.674  0.40( 0.14) 0.35       1.2       1.10
      2        5.10    9.98    4.163  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Phase 2B

Proposed Conditions

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 2-YEAR STORM                                                  *
 ************************************************************************

  FILE NAME: YTC2BP.DAT
  TIME/DATE OF STUDY: 17:24 11/11/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.743
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    17    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.60
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      1.60
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       1.60
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 10-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B10P.DAT
  TIME/DATE OF STUDY: 17:30 11/11/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.128
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    32    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.94
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      2.94
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       2.94
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B25P.DAT
  TIME/DATE OF STUDY: 17:37 11/11/2024
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.728
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    32    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      3.53
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.53
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       3.53
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YT2B100P.DAT
  TIME/DATE OF STUDY: 17:44 11/11/2024
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.767
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    52    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      4.54
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      4.54
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       4.54
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

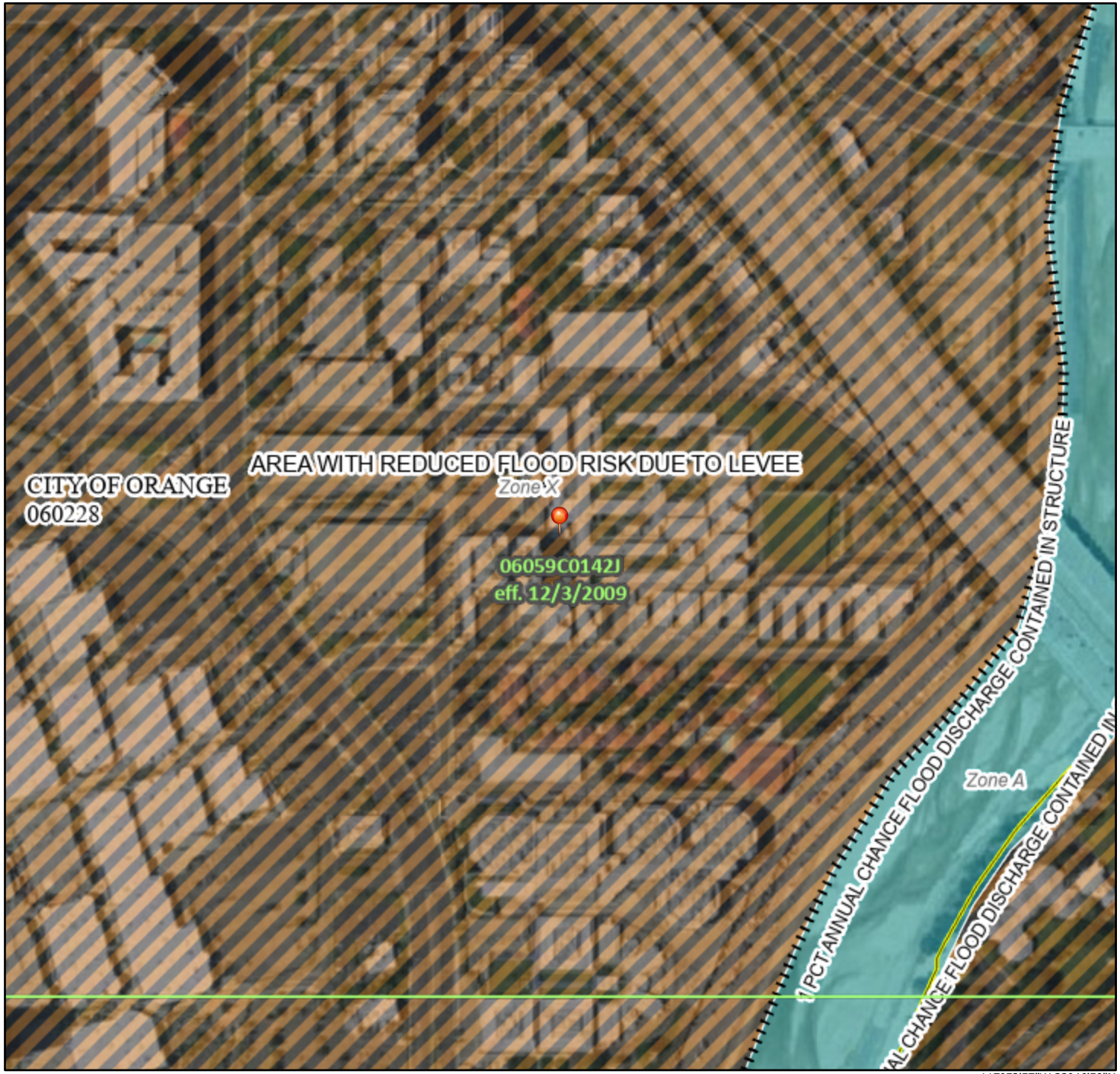
APPENDIX E

FEMA Map

National Flood Hazard Layer FIRMette

FEMA

117°53'34"W 33°47'20"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

117°52'57"W 33°46'50"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/14/2024 at 1:03 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX I

PRELIMINARY HYDROLOGY REPORT

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PRELIMINARY HYDROLOGY REPORT

Orange County Youth Transition Center

Orange County, California

PREPARED BY:

Fuscoe Engineering, Inc.

15535 Sand Canyon Ave, Suite 100

Irvine, CA 92618

(949) 474-1960

Project Number:

XXX-XXX-XX

Date Prepared:

November 2024

Table of Contents

1.0 INTRODUCTION 3

1.1 Geographic Setting 3

1.2 Purpose of this Report 4

1.3 References 4

2.0 HYDROLOGY 5

2.1 Existing Condition 5

2.2 Proposed Condition 5

3.0 FEMA 6

4.0 RESULTS AND CONCLUSIONS 6

5.0 APPENDICESS 7

Appendix A Architect's Site Plan

Appendix B Existing Storm Drain Information

Appendix C Existing Hydrology

Appendix D Proposed Hydrology

Appendix E FEMA Map

1.0 INTRODUCTION

1.1 Geographic Setting

The County of Orange (County) proposes to demolish and replace ten buildings and associated infrastructure within the existing Orange County Juvenile Hall Campus (campus) located in the City of Orange (City), California, which occupies an approximately 17-acre property located at 331 The City Drive South (project site). The study area is bounded by Justice Way to the south, Hospital Frontage Road to the west, Interstate 5 freeway and Santa Ana River to the east and Service Way to the north. A Vicinity Map is shown below.

VICINITY MAP

The proposed site improvements will be divided into three phases. The architect's Overall Site Plan is included in this report as Appendix 1. This portion of the site will focus on Phases 2A and 2B of the development. Phase 2A comprises of Long Term Housing and Classroom and Library

Building, located adjacent to the south of Phase 1. Phase 2B comprises of Independent Living, located near the southeast edged of the property.

1.2 Purpose of this Report

The purpose of this analysis is to identify and analyze the pre- and post-project drainage conditions in order to provide adequate drainage facilities for the proposed development located in the County of Orange, California.

This Drainage Study will analyze and compare the 2-, 10-, 25- and 100-year storm events for the existing and proposed conditions. Outcomes of the analysis will facilitate the conceptual layout of a drainage system to adequately convey storm runoff through the site without adversely impacting surrounding areas. The project is HCOC exempt and therefore Hydromodification requirements are not applicable.

The project is within Soil Type "A", based on the County of Orange Hydrology Manual.

All hydrology and hydrologic calculations would be performed and verified for protection in a 100-year storm event according to the Orange County Hydrology Manual (1986) and its Addendum (1996) during final design. All calculations will be based on AES Rational Method and will follow requirements per Orange County Hydrology Manual. Impervious rates will be calculated per existing and proposed plans. AES does now offer specific impervious rates but rather it utilizes pre-determined rates based on estimated land use. For these calculations, similar pre-determined rates were selected that conservatively follows the hand calculations.

1.3 References

The following references were used to evaluate hydrologic conditions and water quality requirements:

- Orange County Hydrology Manual (October 1986)
- Orange County Hydrology Manual Addendum No. 1 (1996)
- Orange County Local Drainage Manual (January 1996)
- AES (Advanced Engineering Software), Rational Method (July 2016)

2.0 HYDROLOGY

2.1 Existing Condition

The approximate overall 17-acre study area is a developed site that contains the Orange County Juvenile Hall Campus. The existing site generally slopes in a southerly direction to southerly area of the property.

An existing 33-inch RCP storm drain drains from the north to the south and bisects the project site, allowing for a collection point for on-site stormwater. This storm drain connects to an existing 42-inch RCP that is located offsite and adjacent to the south which runs south along The City Drive and discharges into the Santa Ana River Channel, and ultimately the Pacific Ocean.

Phases 2A and 2B will be analyzed for existing hydrological conditions using AES Rational Method to generate storm runoff rates using calculated existing impervious rates. Hydrology Calculations are located in Existing Hydrology (Appendix C).

2.2 Proposed Condition

The proposed project improvements will maintain the existing drainage patterns.

Phases 2A and 2B will be analyzed for proposed hydrological conditions using AES Rational Method to generate storm runoff rates using calculated proposed impervious rates based on the Overall Site Plan. Hydrology Calculations are located in Proposed Hydrology (Appendix D).

The overall drainage strategy is to convey onsite stormwater runoff into an onsite storm drain system that mitigates the proposed runoff's water quality, hydraulic and volumetric parameters per the regulating agencies (County of Orange) drainage codes. There will be several drainage management areas defined in the water quality analysis. The proposed project would provide a series of proposed bioretention with underdrain planter systems to capture and treat stormwater runoff.

As discussed in the existing condition, the drainage conveyance will similarly connect to the existing 33-inch RCP storm drain drains from the north to the south, ultimately connecting to an

existing 42-inch RCP location off-site to the south, that discharges into the Santa Ana River Channel, and ultimately the Pacific Ocean.

3.0 FEMA

The project site is located at FEMA flood zone 'X' per FEMA Flood Insurance Rate Map (FIRM) No. 06059C0142J, map revised December 3, 2021. The site is entirely within Zone X, which depicts area of reduced flood risk due to levee. A CLOMR or LOMR will not be required. A FEMA Map (Firmette) is included in this report as Appendix E.

4.0 RESULTS AND CONCLUSIONS

The results of the hydrologic analyses are shown on the following table.

Tabe A - Phase 2 Drainage Conditions

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

Tabe B - Phase 2 Drainage Calculations

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

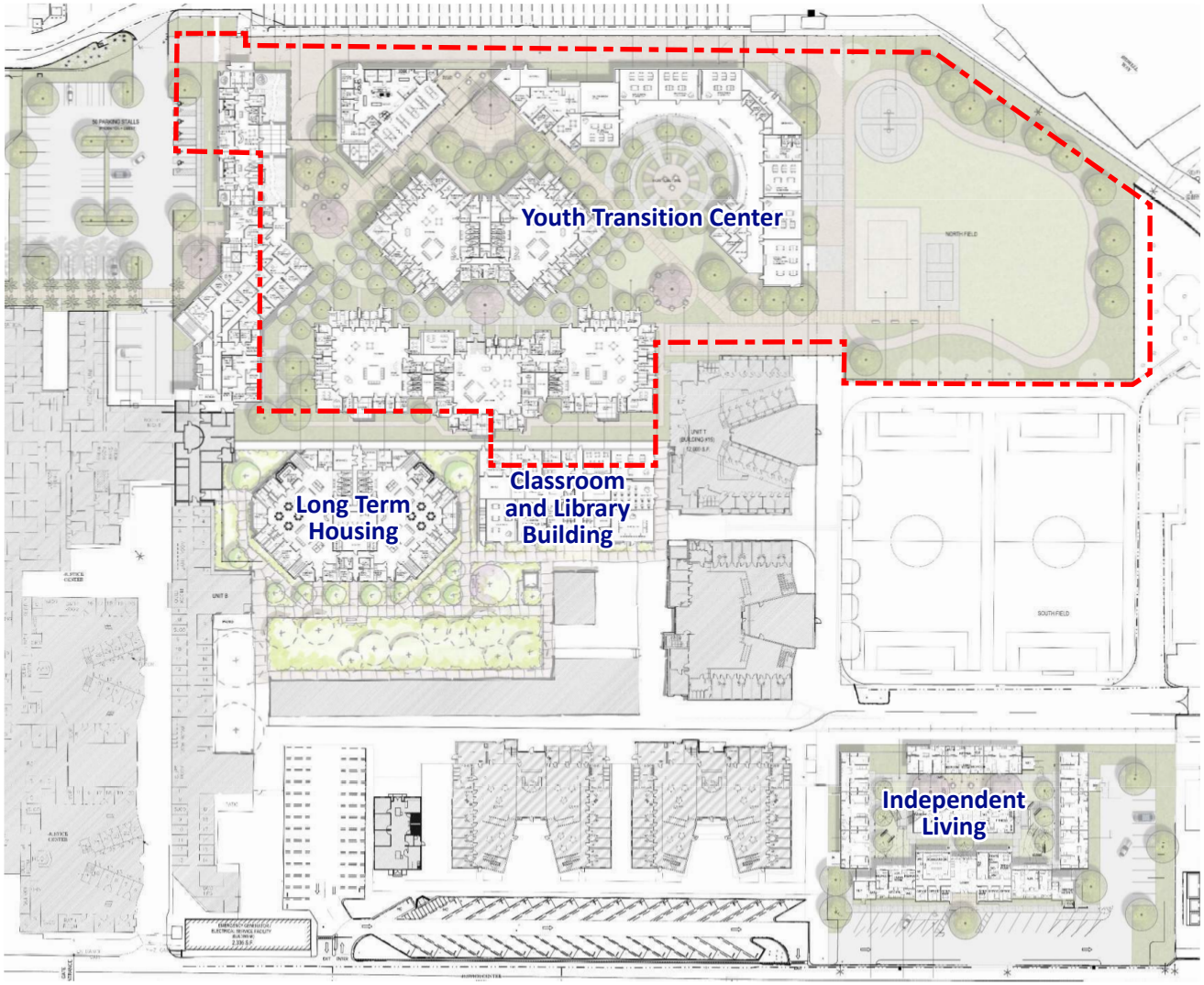
When comparing the Q allowable to the proposed condition, the proposed condition discharges less than expected. This is mostly due to the increase in pervious areas when comparing pre vs. post-development. Based on the hydrologic analyses included in this report, the proposed project will not adversely impact the drainage systems.

5.0 APPENDICESS

Appendix 1 Architect's Site Plan
Appendix 2 Existing Storm Drain Information
Appendix 3 Existing Hydrology
Appendix 4 Proposed Hydrology
Appendix 5 FEMA Map

APPENDIX A

Architect's Site Plan



LSA

LEGEND

Youth Transition Boundary

FIGURE 2-6

N

NO SCALE

SOURCE: DLR Group, Balfour Beatty, OC Dept of Public Works

I:\O\OCY2001.48\G\Overall_Site_Plan.ai (10/17/2024)

Orange County Youth Transition Center
Juvenile Hall Replacement Project
Overall Site Plan

APPENDIX B

Existing Storm Drain Information

SUBJECT TO FURTHER REVISION

PROJECT LOCATION

LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
ORANGE COUNTY
RIVERSIDE COUNTY
ORANGE COUNTY
LOS ANGELES COUNTY
ORANGE COUNTY

LEGEND

City Boundaries

Hydrologic Soil Groups

- A Soils
- B Soils
- C Soils
- D Soils

Source:
Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

0 2.5 5 10 Kilometers
0 1.8 3.6 7.2 Miles

P:\95226E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\95226E_FigureXVI-2a_HydroSoils_20110215.mxd

TITLE
NRCS HYDROLOGIC SOILS GROUPS

JOB
ORANGE COUNTY INFILTRATION STUDY
ORANGE CO. CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	95226-E

PACE
Advanced Water Engineering

FIGURE
XVI-2a

Susceptibility

Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility

Channel Type

Earth (Unstable)
Earth (Stabilized)
Stabilized

Tidel Influence

<= Mean High Water Line (4.28')

Water Body

Basin
Dam
Lake
Reservoir

Forest Areas

Cleveland National Forest

Federal Lands

Amarus Salt Marsh

PROJECT LOCATION

Stabilized by Grade Control Structure

San Gabriel-Coyote Creek Watershed

San Bernardino County

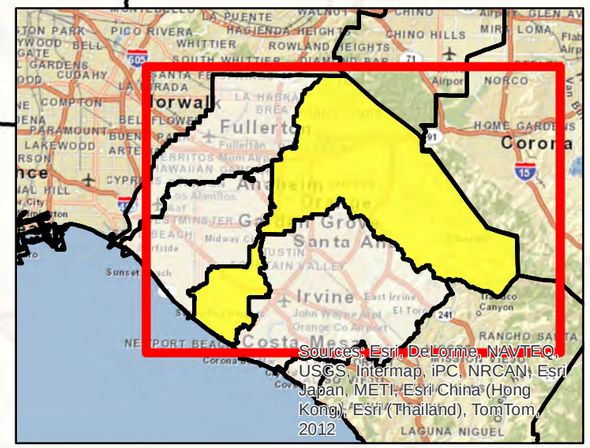
Riverside County

South Orange County

Newport Bay Watershed

AnaheimBay-HuntingtonHarbor Watershed

Carbon Canyon
Yorba Linda Reservoir
Miller Retarding Basin
Anaheim Lake
Warner Basin
Kraemer Basin
Olive Hills
Fletcher Retarding Basin
Walnut Canyon Reservoir
Villa Park Dam
Peters Canyon Reservoir
Irvine Lake
SOUTHPARK PUMP STATION
Bartlett Retarding Basin
Cleveland National Forest



0 12,000 24,000 Feet

Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

P:\9526E\16-GIS\Mxds\SuceptabilityMaps_20100505\9526E_SantaAnaRiverSusceptibility_20100430.mxd

TITLE
SUSCEPTIBILITY ANALYIS
SANTA ANA RIVER

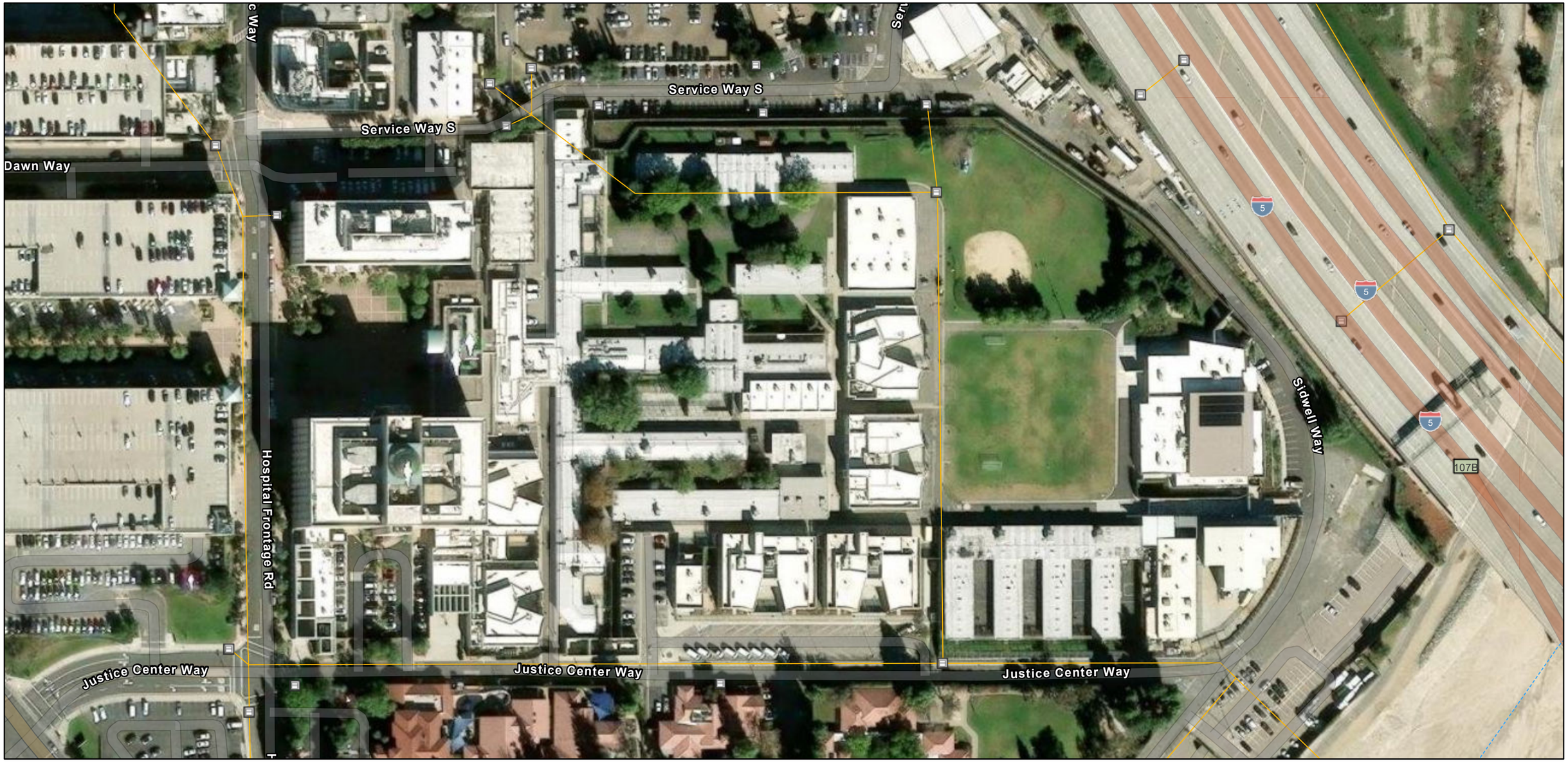
JOB
ORANGE COUNTY
WATERSHED
MASTER PLANNING
ORANGE CO. CA

SCALE	1" = 12000'
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/30/10
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
3

OC - YTC Storm Drain Layout



11/4/2024

Inlets

Local Drainage

Closed Conveyance

Regional Channels

Open Conveyance

1:1,869

0 0.02 0.04 0.07 mi

0 0.03 0.06 0.11 km

Esri Community Maps Contributors, County of Los Angeles, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS, Maxar

APPENDIX C

Existing Hydrology

HYDROLOGIC SOIL GROUP: "A"

LEGEND

	MAJOR DRAINAGE BOUNDARY
	SUB-DRAINAGE BOUNDARY
	FLOWLINE
	DRAINAGE FLOW DIRECTION
(SD)	STORM DRAIN LINE
A1 / 0.12AC	SUBAREA DESIGNATION / SUBAREA (ACRES)
10	NODE NUMBER
123.4FS	PROPOSED FINISHED SURFACE ELEV.
123.4FG	PROPOSED FINISHED GRADE ELEV.
123.4INV	INVERT ELEV.
Q25	CALCULATED RUNOFF FOR 25 YR FREQ.
Tc	TIME OF CONCENTRATION
SD	STORM DRAIN
S	SLOPE
L	FLOW PATH LENGTH (SURFACE)
NAP	NOT A PART

DRAINAGE CONDITIONS TABLE

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

DRAINAGE CALCULATIONS TABLE

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

N

40' 0' 20' 40' 80'

SCALE: 1" = 40'

PREPARED FOR:	PREPARED BY:	County of Orange
CLIENT ADDRESS LINE 1 ADDRESS LINE 2 PHONE: (XXX) XXX-XXXX	FUSCOE ENGINEERING 15535 Sand Canyon Ave, Suite 100 Irvine, California 92618 949.474.1960 fuscoe.com	OC Public Works EXISTING DRAINAGE PLAN ORANGE COUNTY YOUTH TRANSITION CENTER ORANGE COUNTY, CA 11/14/2024

C:\USERS\CMASON\DROPBOX\ENGRESS - FUSCOE ENGINEERING\DOCUMENTS\OC YETC\YTC_TOPO_2023-BASE_11072024-HYD.DWG 11-14-24 7:54:05PM Plotted by: cmason

Phase 2A

Existing Conditions

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* EXISTING 2-YEAR STORM                                                  *
 ************************************************************************

  FILE NAME: YTC2A.DAT
  TIME/DATE OF STUDY: 17:45 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.583
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    17    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.30
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      1.30

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   1.58
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.30

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.778
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    17    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      0.66
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      0.66

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   1.78
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.66

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        1.30    9.32    1.583  0.40( 0.10) 0.25       1.0       1.00
    2        0.66    7.61    1.778  0.40( 0.10) 0.25       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.86    7.61    1.778  0.40( 0.10) 0.25       1.2       1.10
      2        1.88    9.32    1.583  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.88    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       1.88

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.86    7.61    1.778  0.40( 0.10) 0.25       1.2       1.10
      2        1.88    9.32    1.583  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                 *
* PHASE 2A                                                              *
* EXISTING 10-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YTC2A10.DAT
  TIME/DATE OF STUDY: 17:47 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.841
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    32    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.39
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.39

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   2.84
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.39

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.190
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    32    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.22
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.22

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   3.19
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.22

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        2.39    9.32    2.841  0.40( 0.10) 0.25       1.0       1.00
    2        1.22    7.61    3.190  0.40( 0.10) 0.25       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.43    7.61    3.190  0.40( 0.10) 0.25       1.2       1.10
      2        3.48    9.32    2.841  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.48    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       3.48

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.43    7.61    3.190  0.40( 0.10) 0.25       1.2       1.10
      2        3.48    9.32    2.841  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2A25.DAT
  TIME/DATE OF STUDY: 17:48 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.391
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    32    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.87
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.87

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   3.39
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.87

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.802
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK           A        0.44      0.40     0.250    32    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.47
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.47

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   3.80
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.47

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        2.87    9.32    3.391  0.40( 0.10) 0.25       1.0       1.00
    2        1.47    7.61    3.802  0.40( 0.10) 0.25       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.11    7.61    3.802  0.40( 0.10) 0.25       1.2       1.10
      2        4.18    9.32    3.391  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       4.18    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       4.18

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.11    7.61    3.802  0.40( 0.10) 0.25       1.2       1.10
      2        4.18    9.32    3.391  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* EXISTING 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YTC2A100.DAT
  TIME/DATE OF STUDY: 17:50 11/12/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.319
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.331
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        0.97      0.40     0.250    52    9.32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      3.69
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      3.69

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.32
  RAINFALL INTENSITY(INCH/HR) =   4.33
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.69

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.615
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.862
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  MOBILE HOME PARK            A        0.44      0.40     0.250    52    7.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.89
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.89

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.61
  RAINFALL INTENSITY(INCH/HR) =   4.86
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.25
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.89

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        3.69    9.32    4.331  0.40( 0.10) 0.25       1.0       1.00
    2        1.89    7.61    4.862  0.40( 0.10) 0.25       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.28    7.61    4.862  0.40( 0.10) 0.25       1.2       1.10
      2        5.37    9.32    4.331  0.40( 0.10) 0.25       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.37    Tc(MIN.) =     9.32
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.25
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.32
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       5.37

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.28    7.61    4.862  0.40( 0.10) 0.25       1.2       1.10
      2        5.37    9.32    4.331  0.40( 0.10) 0.25       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Phase 2B

Existing Conditions

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 2-YEAR STORM                                                  *
 **************************************************************************

  FILE NAME: YTC2B.DAT
  TIME/DATE OF STUDY: 17:22 11/11/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.780
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    17    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.65
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      1.65
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       1.65
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 10-YEAR STORM                                                 *
 **************************************************************************

  FILE NAME: YTC2B10.DAT
  TIME/DATE OF STUDY: 17:28 11/11/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.193
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    32    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      3.03
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.03
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       3.03
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B25.DAT
  TIME/DATE OF STUDY: 17:37 11/11/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.806
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    32    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      3.62
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.62
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       3.62
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* EXISTING 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YTC2B100.DAT
  TIME/DATE OF STUDY: 17:42 11/11/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.601
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.867
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  APARTMENTS                  A        1.08      0.40     0.200    52    7.60
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      4.65
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      4.65
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.60
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.08
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       4.65
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

APPENDIX D

Proposed Hydrology

HYDROLOGIC SOIL GROUP: "A"

LEGEND

	MAJOR DRAINAGE BOUNDARY
	SUB-DRAINAGE BOUNDARY
	FLOWLINE
	DRAINAGE FLOW DIRECTION
(SD)	STORM DRAIN LINE
A1 / 0.12AC	SUBAREA DESIGNATION / SUBAREA (ACRES)
10	NODE NUMBER
123.4FS	PROPOSED FINISHED SURFACE ELEV.
123.4FG	PROPOSED FINISHED GRADE ELEV.
123.4INV	INVERT ELEV.
Q25	CALCULATED RUNOFF FOR 25 YR FREQ.
Tc	TIME OF CONCENTRATION
SD	STORM DRAIN
S	SLOPE
L	FLOW PATH LENGTH (SURFACE)
NAP	NOT A PART

Youth Transition Center

Classroom and Library Building

Long Term Housing

Independent Living

2A-1 0.97AC

2A-2 0.44AC

2B 1.08AC

SERVICE WAY

SIDWELL WAY

HOSPITAL FRONTAGE RD

JUSTICE CENTER WAY

ORANGEWOOD CHILDREN'S HOME

LAMOREAUX JUSTICE CENTER

JUSTICE CENTER

ORANGE COUNTY COURT MANCHESTER OFFICE

A.C. PARKING LOT

AC PARKING LOT

BASKETBALL COURT

NORTH FIELD

SOCCER FIELD

M.R.C. BUILDING

LAUNDRY

KITCHEN

SANTA ANA FWY (5)

DRAINAGE CONDITIONS TABLE

Subarea	Area (SF)	Area (AC)	Pervious Area (SF)	Impervious Rate (%)	Soil Type	Pervious Rate (AES)
Existing Phase 2A	61,381.78	1.41	15,644.66	74.51%	A	25%
Proposed Phase 2A	61,381.78	1.41	22,140.30	63.93%	A	35%
Existing Phase 2B	47,190.68	1.08	7,860.61	83.34%	A	20%
Proposed Phase 2B	47,190.68	1.08	12,299.84	73.94%	A	25%

DRAINAGE CALCULATIONS TABLE

Subarea	Q_2 (CFS)	TC (Min)	Q_{10} (CFS)	TC (Min)	Q_{25} (CFS)	TC (Min)	Q_{100} (CFS)	TC (Min)
Existing Phase 2A	1.88	9.32	3.48	9.32	4.18	9.32	5.37	9.32
Proposed Phase 2A	1.75	9.98	3.29	9.98	3.96	9.98	5.10	9.98
Change	-0.13	0.66	-0.19	0.66	-0.22	0.66	-0.27	0.66
Existing Phase 2B	1.65	7.60	3.03	7.60	3.62	7.60	4.65	7.60
Proposed Phase 2B	1.60	7.88	2.94	7.88	3.53	7.88	4.54	7.88
Change	-0.05	0.28	-0.09	0.28	-0.09	0.28	-0.11	0.28

40' 0' 20' 40' 80'

SCALE: 1" = 40'

PREPARED FOR:

CLIENT
ADDRESS LINE 1
ADDRESS LINE 2
PHONE: (XXX) XXX-XXXX

PREPARED BY:

FUSCOE ENGINEERING
15535 Sand Canyon Ave, Suite 100
Irvine, California 92618
949.474.1960
fuscoe.com

County of Orange
OC Public Works

PROPOSED DRAINAGE PLAN
ORANGE COUNTY YOUTH TRANSITION CENTER
ORANGE COUNTY, CA
11/14/2024

C:\USERS\JOMACKEWICH\ONEDRIVE - FUSCOE ENGINEERING\DOCUMENTS\OC YTC\YTC_TEMPLATE_2023 - BASE - 11072024-HYD.DWG, 11-14-24 3:53:13 PM, Plotted by: okeefemichaela

Phase 2A

Proposed Conditions

```
**************************************************************************
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 2-YEAR STORM                                                  *
 **************************************************************************

  FILE NAME: YTC2AP.DAT
  TIME/DATE OF STUDY: 18:37 11/12/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.522
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    17    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.21
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      1.21

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   1.52
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.21

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.709
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    17    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   1.71
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.62

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        1.21    9.98    1.522  0.40( 0.14) 0.35       1.0       1.00
    2        0.62    8.16    1.709  0.40( 0.14) 0.35       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.74    8.16    1.709  0.40( 0.14) 0.35       1.2       1.10
      2        1.75    9.98    1.522  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.75    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       1.75

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.74    8.16    1.709  0.40( 0.14) 0.35       1.2       1.10
      2        1.75    9.98    1.522  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 10-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2A10P.DAT
  TIME/DATE OF STUDY: 18:40 11/12/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.731
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    32    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      2.26
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.26

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   2.73
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.26

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.066
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    32    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.16
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.16

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   3.07
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.16

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        2.26    9.98    2.731  0.40( 0.14) 0.35       1.0       1.00
    2        1.16    8.16    3.066  0.40( 0.14) 0.35       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.25    8.16    3.066  0.40( 0.14) 0.35       1.2       1.10
      2        3.29    9.98    2.731  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.29    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       3.29

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.25    8.16    3.066  0.40( 0.14) 0.35       1.2       1.10
      2        3.29    9.98    2.731  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 25-YEAR STORM                                                 *
 **************************************************************************

  FILE NAME: YTC2A25P.DAT
  TIME/DATE OF STUDY: 18:41 11/12/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.261
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    32    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      2.72
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      2.72

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   3.26
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.72

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.656
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    32    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.39
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.39

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   3.66
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.39

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
```

```
    1        2.72    9.98    3.261  0.40( 0.14) 0.35       1.0       1.00
    2        1.39    8.16    3.656  0.40( 0.14) 0.35       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.90    8.16    3.656  0.40( 0.14) 0.35       1.2       1.10
      2        3.96    9.98    3.261  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.96    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       3.96

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.90    8.16    3.656  0.40( 0.14) 0.35       1.2       1.10
      2        3.96    9.98    3.261  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2A                                                               *
* PROPOSED 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YT2A100P.DAT
  TIME/DATE OF STUDY: 18:44 11/12/2024
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   423.27
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.985
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.163
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  CONDOMINIUMS                A        0.97      0.40     0.350    52    9.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      3.51
  TOTAL AREA(ACRES) =      0.97   PEAK FLOW RATE(CFS) =      3.51

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.98
  RAINFALL INTENSITY(INCH/HR) =   4.16
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.97
  TOTAL STREAM AREA(ACRES) =       0.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.51

****************************************************************************
  FLOW PROCESS FROM NODE      1.10 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   302.28
  ELEVATION DATA: UPSTREAM(FEET) =    131.50  DOWNSTREAM(FEET) =    126.88

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.159
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.674
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS                A        0.44      0.40     0.350    52    8.16
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      1.80
  TOTAL AREA(ACRES) =      0.44   PEAK FLOW RATE(CFS) =      1.80

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      2.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.16
  RAINFALL INTENSITY(INCH/HR) =   4.67
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.44
  TOTAL STREAM AREA(ACRES) =       0.44
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.80

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap      Ae      HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)     NODE
```

```
    1        3.51    9.98    4.163  0.40( 0.14) 0.35       1.0       1.00
    2        1.80    8.16    4.674  0.40( 0.14) 0.35       0.4       1.10

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.03    8.16    4.674  0.40( 0.14) 0.35       1.2       1.10
      2        5.10    9.98    4.163  0.40( 0.14) 0.35       1.4       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.10    Tc(MIN.) =     9.98
  EFFECTIVE AREA(ACRES) =       1.41   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.4
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      2.00 =     423.27 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.4  TC(MIN.) =      9.98
  EFFECTIVE AREA(ACRES) =      1.41  AREA-AVERAGED Fm(INCH/HR)=  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       5.10

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.03    8.16    4.674  0.40( 0.14) 0.35       1.2       1.10
      2        5.10    9.98    4.163  0.40( 0.14) 0.35       1.4       1.00
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Phase 2B

Proposed Conditions

```
**************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 2-YEAR STORM                                                  *
 ************************************************************************

  FILE NAME: YTC2BP.DAT
  TIME/DATE OF STUDY: 17:24 11/11/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.743
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    17    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      1.60
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      1.60
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       1.60
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 10-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B10P.DAT
  TIME/DATE OF STUDY: 17:30 11/11/2024
================================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
================================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.128
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    32    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      2.94
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      2.94
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       2.94
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 25-YEAR STORM                                                 *
 ************************************************************************

  FILE NAME: YTC2B25P.DAT
  TIME/DATE OF STUDY: 17:37 11/11/2024
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)   (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.728
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    32    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      3.53
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      3.53
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       3.53
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:

                         Fuscoe Engineering, Inc.
                          15535 Sand Canyon Ave
                                Suite 100
                             Irvine, CA 92618

 ************************* DESCRIPTION OF STUDY *************************
* ORANGE COUNTY YOUTH TRANSITION CENTER                                  *
* PHASE 2B                                                               *
* PROPOSED 100-YEAR STORM                                                *
 ************************************************************************

  FILE NAME: YT2B100P.DAT
  TIME/DATE OF STUDY: 17:44 11/11/2024
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   4.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    131.80  DOWNSTREAM(FEET) =    128.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.882
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.767
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  MOBILE HOME PARK           A        1.08      0.40     0.250    52    7.88
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.40
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
  SUBAREA RUNOFF(CFS) =      4.54
  TOTAL AREA(ACRES) =      1.08   PEAK FLOW RATE(CFS) =      4.54
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.1  TC(MIN.) =      7.88
  EFFECTIVE AREA(ACRES) =      1.08  AREA-AVERAGED Fm(INCH/HR)=  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.40  AREA-AVERAGED Ap = 0.250
  PEAK FLOW RATE(CFS)   =       4.54
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

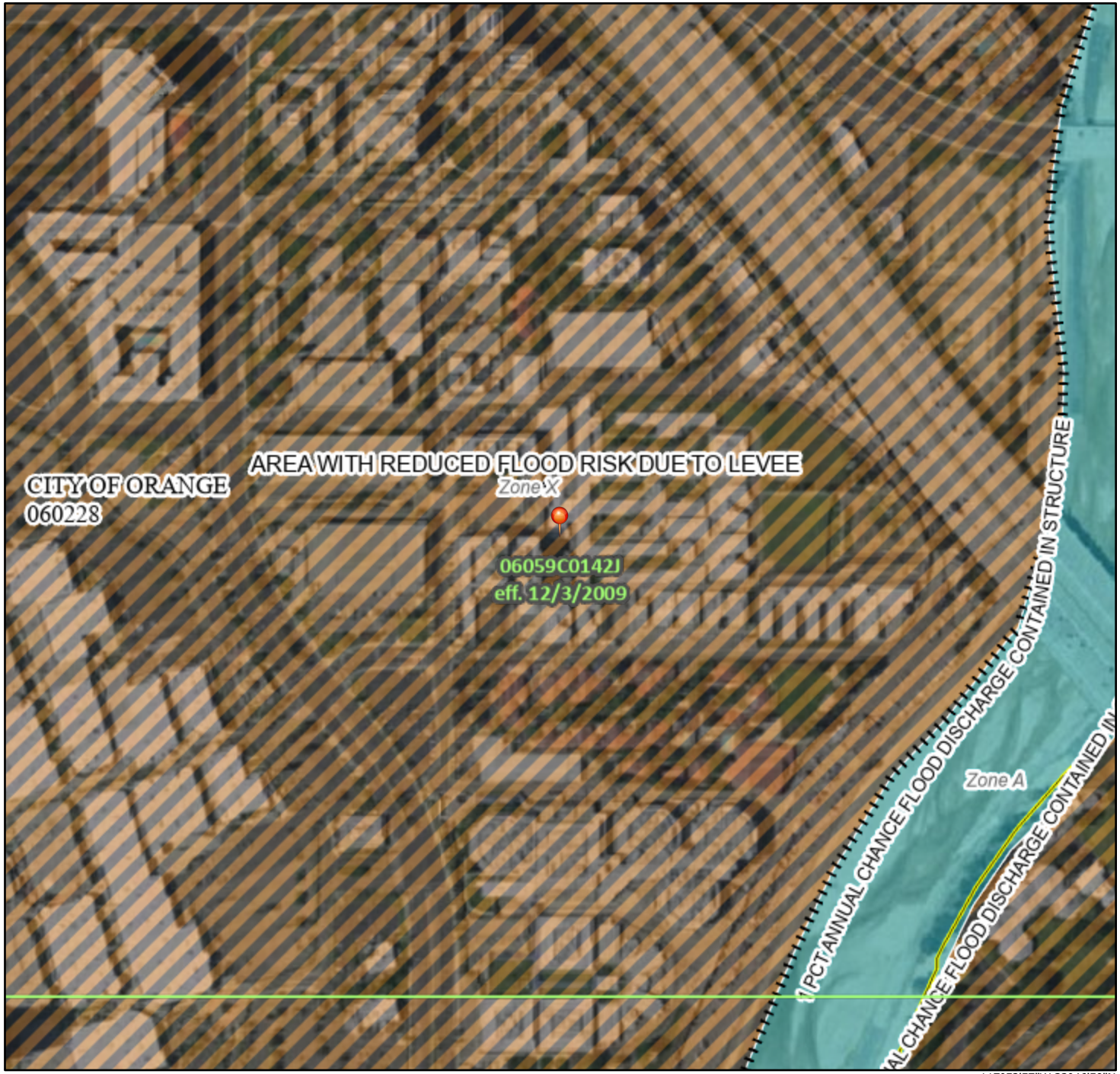
APPENDIX E

FEMA Map

National Flood Hazard Layer FIRMette

FEMA

117°53'34"W 33°47'20"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

117°52'57"W 33°46'50"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/14/2024 at 1:03 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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APPENDIX J

NOISE SURVEY SHEETS

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Noise Measurement Survey – 48 HR

Project Number: OCY2001.48
Project Name: OC YTC Juvenile Hall

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (sn17206)

Site Number: LT-1 Start Date: 10/15/2024

Time: From 10:00 a.m. To 10:00 a.m.

Site Location: 331 The City Drive S, on a light pole on the northern property fence. Approximately 450 feet from the I-5 centerline.

Primary Noise Sources: Traffic on I-5 and parking activity.

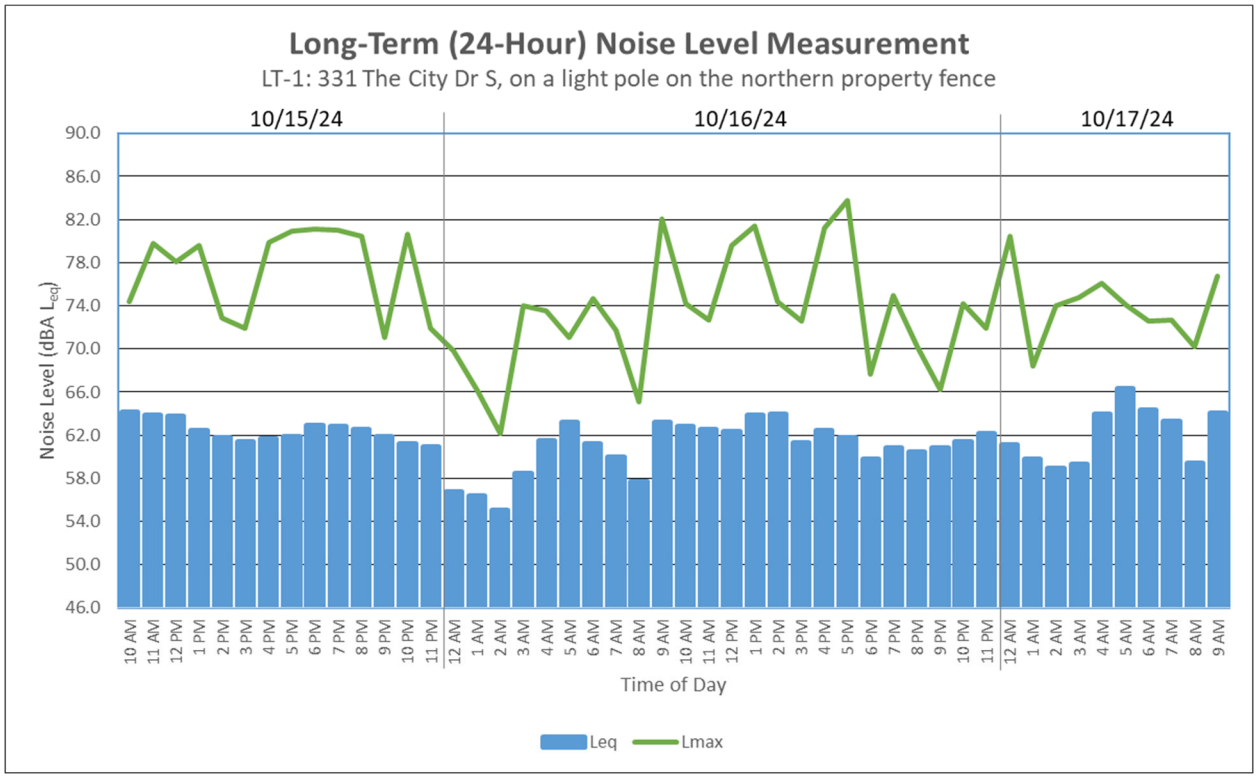
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-1

Start Time	Day One Noise Level (dBA)		Day Two Noise Level (dBA)	
	L_{eq}	L_{max}	L_{eq}	L_{max}
10:00 AM	63.9	79.8	62.8	74.2
11:00 AM	63.7	78.1	62.5	72.7
12:00 PM	62.4	79.6	62.3	79.6
1:00 PM	61.7	72.9	63.9	81.4
2:00 PM	61.4	71.9	63.9	74.4
3:00 PM	61.7	79.9	61.3	72.6
4:00 PM	61.8	80.9	62.4	81.2
5:00 PM	63.0	81.1	61.8	83.8
6:00 PM	62.8	81.0	59.8	67.7
7:00 PM	62.6	80.5	60.8	75.0
8:00 PM	61.9	71.1	60.4	70.2
9:00 PM	61.2	80.6	60.8	66.2
10:00 PM	60.9	71.9	61.4	74.2
11:00 PM	56.7	69.8	62.2	71.9
12:00 AM	56.4	66.1	61.1	80.5
1:00 AM	55.0	62.2	59.8	68.4
2:00 AM	58.5	74.0	58.9	74.0
3:00 AM	61.5	73.5	59.3	74.8
4:00 AM	63.2	71.1	64.0	76.1
5:00 AM	61.2	74.7	66.3	74.1
6:00 AM	60.0	71.7	64.3	72.6
7:00 AM	57.7	65.1	63.3	72.7
8:00 AM	63.2	82.1	59.4	70.2
9:00 AM	62.8	74.2	64.1	76.8

Source: Compiled by LSA Associates, Inc. (2024).
Note: Noise measurement was conducted from 10 a.m. on Tuesday, October 15 through 10 a.m. on Thursday, October 17.
dBA = A-weighted decibel
L_{max} = maximum instantaneous noise level
L_{eq} = equivalent continuous sound level
L_{min} = minimum measured sound level



Noise Measurement Survey – 48 HR

Project Number: OCY2001.48
Project Name: OC YTC Juvenile Hall

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (sn17814)

Site Number: LT-2 Start Date: 10/15/2024

Time: From 10:00 a.m. To 10:00 a.m.

Site Location: 333 The City Drive S, on the southeast corner of the fence west of the open yard. Approximately 640 feet from the I-5 centerline.

Primary Noise Sources: Traffic on I-5.

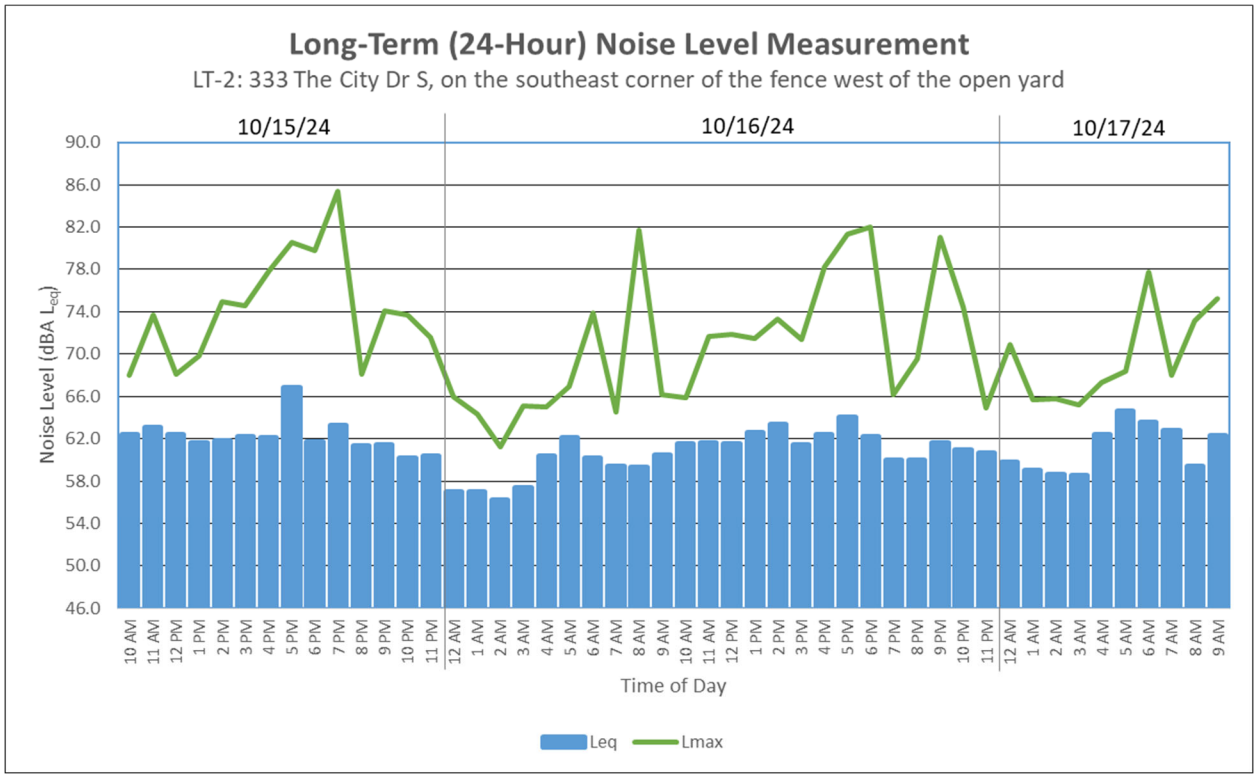
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-2

Start Time	Day One Noise Level (dBA)		Day Two Noise Level (dBA)	
	L_{eq}	L_{max}	L_{eq}	L_{max}
10:00 AM	62.4	68.0	61.5	65.9
11:00 AM	63.1	73.7	61.7	71.7
12:00 PM	62.4	68.1	61.5	71.9
1:00 PM	61.6	69.8	62.6	71.5
2:00 PM	61.8	74.9	63.3	73.3
3:00 PM	62.2	74.6	61.4	71.4
4:00 PM	62.1	77.8	62.4	78.2
5:00 PM	66.8	80.5	64.0	81.3
6:00 PM	61.7	79.8	62.2	82.0
7:00 PM	63.2	85.4	59.9	66.2
8:00 PM	61.4	68.1	60.0	69.5
9:00 PM	61.4	74.1	61.6	81.0
10:00 PM	60.2	73.7	60.9	74.5
11:00 PM	60.4	71.6	60.6	64.9
12:00 AM	57.0	66.0	59.8	70.9
1:00 AM	57.0	64.3	59.1	65.7
2:00 AM	56.2	61.2	58.6	65.8
3:00 AM	57.4	65.1	58.6	65.2
4:00 AM	60.3	65.0	62.4	67.3
5:00 AM	62.1	66.9	64.7	68.4
6:00 AM	60.2	73.9	63.5	77.7
7:00 AM	59.4	64.5	62.8	68.0
8:00 AM	59.3	81.7	59.5	73.1
9:00 AM	60.5	66.2	62.3	75.2

Source: Compiled by LSA Associates, Inc. (2024).
Note: Noise measurement was conducted from 10 a.m. on Tuesday, October 15 through 10 a.m. on Thursday, October 17.
dBA = A-weighted decibel
L_{max} = maximum instantaneous noise level
L_{eq} = equivalent continuous sound level
L_{min} = minimum measured sound level



Noise Measurement Survey –48 HR

Project Number: OCY2001.48
Project Name: OC YTC Juvenile Hall

Test Personnel: Corey Knips
Equipment: LD Spark 706RC (sn17637)

Site Number: LT-3 Start Date: 10/15/2024

Time: From 10:00 a.m. To 10:00 a.m.

Site Location: 401 The City Drive S, on a utility pole on the south side of Justice Center Way. Approximately 980 feet from the I-5 centerline.

Primary Noise Sources: Traffic on I-5.

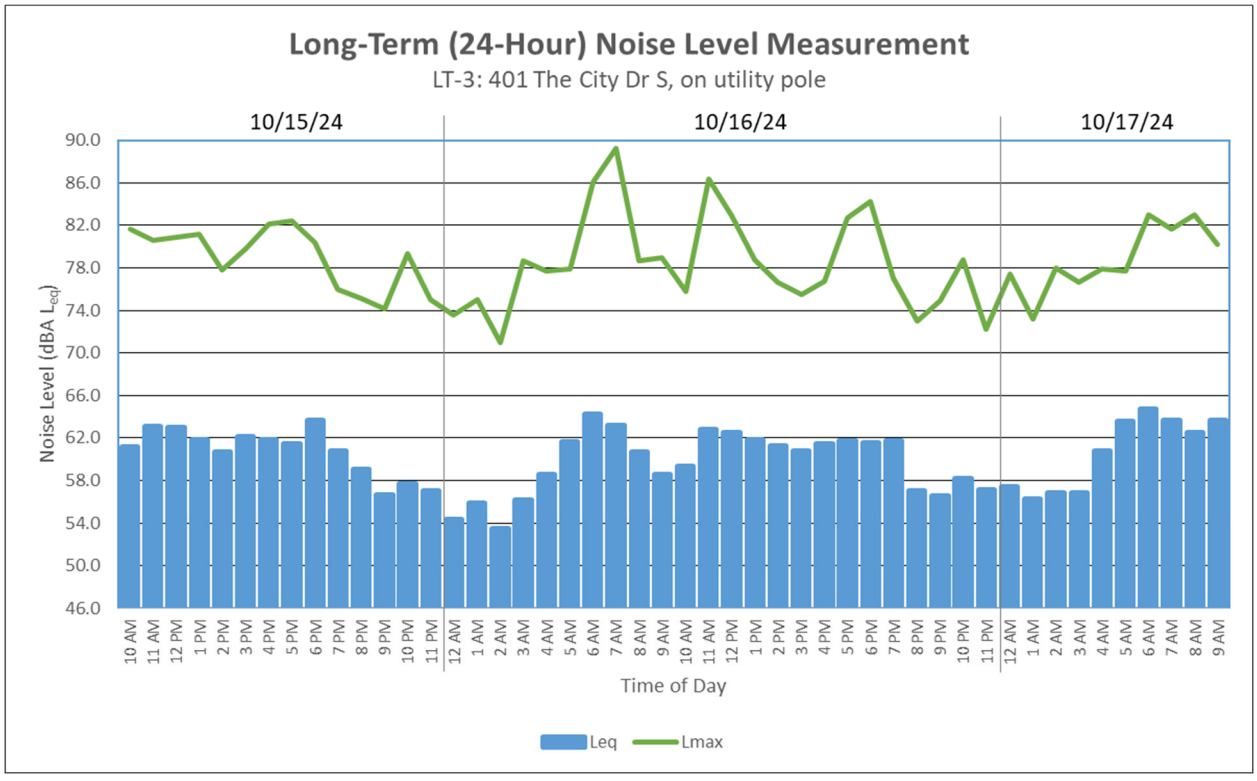
Comments:

Photo:

Long-Term (24-Hour) Noise Level Measurement Results at LT-3

Start Time	Day One Noise Level (dBA)		Day Two Noise Level (dBA)	
	L_{eq}	L_{max}	L_{eq}	L_{max}
10:00 AM	61.2	81.6	59.4	75.8
11:00 AM	63.1	80.6	62.8	86.4
12:00 PM	63.0	80.9	62.5	82.9
1:00 PM	61.8	81.2	61.8	78.8
2:00 PM	60.7	77.8	61.3	76.6
3:00 PM	62.1	79.8	60.8	75.5
4:00 PM	61.9	82.1	61.5	76.7
5:00 PM	61.5	82.4	61.8	82.7
6:00 PM	63.7	80.4	61.5	84.2
7:00 PM	60.8	76.0	61.7	77.0
8:00 PM	59.0	75.1	57.0	73.0
9:00 PM	56.6	74.1	56.5	74.9
10:00 PM	57.7	79.3	58.2	78.8
11:00 PM	57.1	75.0	57.1	72.2
12:00 AM	54.4	73.6	57.4	77.4
1:00 AM	55.9	75.0	56.3	73.2
2:00 AM	53.5	71.0	56.8	78.0
3:00 AM	56.2	78.7	56.8	76.6
4:00 AM	58.5	77.7	60.8	77.9
5:00 AM	61.7	77.9	63.6	77.7
6:00 AM	64.3	86.1	64.7	83.0
7:00 AM	63.2	89.2	63.7	81.6
8:00 AM	60.7	78.7	62.5	83.0
9:00 AM	58.6	79.0	63.7	80.2

Source: Compiled by LSA Associates, Inc. (2024).
Note: Noise measurement was conducted from 10 a.m. on Tuesday, October 15 through 10 a.m. on Thursday, October 17.
dBA = A-weighted decibel
L_{max} = maximum instantaneous noise level
L_{eq} = equivalent continuous sound level
L_{min} = minimum measured sound level



APPENDIX K

PROJECT SCHEDULE AND TRIP GENERATION TABLE

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LSA

Table A: Project Schedule and Trips

15 Minutes		Deputized Correctional Officers[1]			Deputized Supervisors[2]			Deputized Administrative Staff[3]			Support Staff[4]			Behavioral Health Staff[5]			School Staff[6]			Transitional Age Youth Housing Resident[7]			Total			Hourly		Total		
Start	End	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	Start	End	In	Out	Total
12:00 AM	12:15 AM			0			0			0			0			0			0			0	0	0	0	-	-	-	-	-
12:15 AM	12:30 AM			0			0			0			0			0			0			0	0	0	0	-	-	-	-	-
12:30 AM	12:45 AM			0			0			0			0			0			0			0	0	0	0	-	-	-	-	-
12:45 AM	1:00 AM			0			0			0			0			0			0			0	0	0	0	12:00 AM	1:00 AM	0	0	0
1:00 AM	1:15 AM			0			0			0			0			0			0			0	0	0	0	12:15 AM	1:15 AM	0	0	0
1:15 AM	1:30 AM			0			0			0			0			0			0			0	0	0	0	12:30 AM	1:30 AM	0	0	0
1:30 AM	1:45 AM			0			0			0			0			0			0			0	0	0	0	12:45 AM	1:45 AM	0	0	0
1:45 AM	2:00 AM			0			0			0			0			0			0			0	0	0	0	1:00 AM	2:00 AM	0	0	0
2:00 AM	2:15 AM			0			0			0			0			0			0			0	0	0	0	1:15 AM	2:15 AM	0	0	0
2:15 AM	2:30 AM			0			0			0			0			0			0			0	0	0	0	1:30 AM	2:30 AM	0	0	0
2:30 AM	2:45 AM			0			0			0			0			0			0			0	0	0	0	1:45 AM	2:45 AM	0	0	0
2:45 AM	3:00 AM			0			0			0			0			0			0			0	0	0	0	2:00 AM	3:00 AM	0	0	0
3:00 AM	3:15 AM			0			0			0			0			0			0			0	0	0	0	2:15 AM	3:15 AM	0	0	0
3:15 AM	3:30 AM			0			0			0			0			0			0			0	0	0	0	2:30 AM	3:30 AM	0	0	0
3:30 AM	3:45 AM			0			0			0			0			0			0			0	0	0	0	2:45 AM	3:45 AM	0	0	0
3:45 AM	4:00 AM			0			0			0			0			0			0			0	0	0	0	3:00 AM	4:00 AM	0	0	0
4:00 AM	4:15 AM			0			0			0			0			0			0			0	0	0	0	3:15 AM	4:15 AM	0	0	0
4:15 AM	4:30 AM			0			0			0			0			0			0			0	0	0	0	3:30 AM	4:30 AM	0	0	0
4:30 AM	4:45 AM			0			0			0			0			0			0			0	0	0	0	3:45 AM	4:45 AM	0	0	0
4:45 AM	5:00 AM			0			0			0			0			0			0			0	0	0	0	4:00 AM	5:00 AM	0	0	0
5:00 AM	5:15 AM			0			0			0			0			0			0			0	0	0	0	4:15 AM	5:15 AM	0	0	0
5:15 AM	5:30 AM			0			0			0			0			0			0			0	0	0	0	4:30 AM	5:30 AM	0	0	0
5:30 AM	5:45 AM			0			0			0			0			0			0			0	0	0	0	4:45 AM	5:45 AM	0	0	0
5:45 AM	6:00 AM	12		12			0			0	1		1			0			0			0	13	0	13	5:00 AM	6:00 AM	13	0	13
6:00 AM	6:15 AM		6	6			0			0			0			0			0			0	0	6	6	5:15 AM	6:15 AM	13	6	19
6:15 AM	6:30 AM			0			0			0			0			0			0			0	0	0	0	5:30 AM	6:30 AM	13	6	19
6:30 AM	6:45 AM			0			0			0			0			0	2		2			0	2	0	2	5:45 AM	6:45 AM	15	6	21
6:45 AM	7:00 AM	4		4			0			0	1		1	2		2			0			0	7	0	7	6:00 AM	7:00 AM	9	6	15
7:00 AM	7:15 AM			0			0			0			0			0			0			0	0	0	0	6:15 AM	7:15 AM	9	0	9
7:15 AM	7:30 AM			0			0			0			0			0	7		7			0	7	0	7	6:30 AM	7:30 AM	16	0	16
7:30 AM	7:45 AM			0			0			0			0			0			0			0	0	0	0	6:45 AM	7:45 AM	14	0	14
7:45 AM	8:00 AM			0	7		7	2		2	1		1			0			0		4	4	10	4	14	7:00 AM	8:00 AM	17	4	21
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8:15 AM	8:30 AM			0			0			0			0			0			0			0	0	0	0	7:30 AM	8:30 AM	10	4	14
8:30 AM	8:45 AM			0			0			0			0			0			0			0	0	0	0	7:45 AM	8:45 AM	10	4	14
8:45 AM	9:00 AM			0			0			0			0	2		2			0			0	2	0	2	8:00 AM	9:00 AM	2	0	2
9:00 AM	9:15 AM			0			0			0			0			0			0			0	0	0	0	8:15 AM	9:15 AM	2	0	2
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9:30 AM	9:45 AM			0			0			0			0			0			0			0	0	0	0	8:45 AM	9:45 AM	2	0	2
9:45 AM	10:00 AM			0			0			0			0			0			0			0	0	0	0	9:00 AM	10:00 AM	0	0	0
10:00 AM	10:15 AM			0			0			0			0			0			0			0	0	0	0	9:15 AM	10:15 AM	0	0	0
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10:45 AM	11:00 AM			0			0			0			0	2		2			0			0	2	0	2	10:00 AM	11:00 AM	2	0	2
11:00 AM	11:15 AM			0			0			0			0			0			0			0	0	0	0	10:15 AM	11:15 AM	2	0	2
11:15 AM	11:30 AM			0			0			0			0			0			0			0	0	0	0	10:30 AM	11:30 AM	2	0	2
11:30 AM	11:45 AM			0			0			0			0			0			0			0	0	0	0	10:45 AM	11:45 AM	2	0	2
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12:00 PM	12:15 PM			0			0			0			0			0			0			0	0	0	0	11:15 AM	12:15 PM	0	0	0
12:15 PM	12:30 PM			0			0			0			0			0			0			0	0	0	0	11:30 AM	12:30 PM	0	0	0
12:30 PM	12:45 PM			0			0			0			0			0			0			0	0	0	0	11:45 AM	12:45 PM	0	0	0
12:45 PM	1:00 PM			0			0			0			0			0			0			0	0	0	0	12:00 PM	1:00 PM	0	0	0
1:00 PM	1:15 PM			0			0			0			0			0			0			0	0	0	0	12:15 PM	1:15 PM	0	0	0
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2:00 PM	2:15 PM		12	12			0			0			0			0			0			0	0	12	12	1:15 PM	2:15 PM	12	12	24
2:15 PM	2:30 PM			0			0			0			0			0			0			0	0	0	0	1:30 PM	2:30 PM	12	12	24
2:30 PM	2:45 PM			0			0			0			0			0		7	7			0	0	7	7	1:45 PM	2:45 PM	12	19	31
2:45 PM	3:00 PM			0			0			0			0			0			0			0	0	0	0	2:00 PM	3:00 PM	0	19	19
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3:45 PM	4:00 PM			0			0			0			0			0			0			0	0	0	0	3:00 PM	4:00 PM	0	5	5
4:00 PM	4:15 PM			0			0			0		1	1		2	2			0			0	0	3	3	3:15 PM	4:15 PM	0	3	3
4:15 PM	4:30 PM			0			0			0			0			0			0			0	0	0	0	3:30 PM	4:30 PM	0	3	3
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11:15 PM	11:30 PM			0			0			0			0			0			0			0	0	0	0	10:30 PM	11:30 PM	0	0	0
11:30 PM	11:45 PM			0			0			0			0			0			0			0	0	0	0	10:45 PM	11:45 PM	0	0	0
11:45 PM	12:00 AM			0			0			0			0			0			0			0	0	0	0	11:00 PM	12:00 AM	0	0	0
Total		34	34	68	7	7	14	2	2	4	3	3	6	6	6	12	9	9	18	4	4	8	65	65	130					

[1] Includes the following schedules (and staff): 6 am to 2 p.m. (12), 7 am to 3 pm (4), 2 pm to 10 pm (12), and 10 pm to 6 am (6).

[2] Includes the following schedule (and staff): 8 am to 5 pm (7).

[3] Includes the following schedule (and staff): 8 am to 5 pm (2).

[4] Includes the following schedules (and staff): 6 am to 3 pm (1), 7 am to 4 pm (1), and 8 am to 5 pm (1).

[5] Includes the following schedules (and staff): 7 am to 4 pm (2), 9 am to 6 pm (2), and 11 am to 8 pm (2).

[6] Includes the following schedules (and staff): 6:45 am to 2:30 pm (2), 7:30 am to 2:30 pm (5), and 7:30 am to 5:30 pm (2).

[7] Includes the following schedule (and residents): 8 am to 5 pm (4).

	In	Out	Total
Daily	65	65	130
AM Peak Hour	17	4	21
PM Peak Hour	4	12	16

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APPENDIX L

TRIBAL CONSULTATION RECORD

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Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: OC Juvenile Hall Youth Transition Center Redevelopment Project (OCY2001.48)

County: Orange County

USGS Quadrangle Name: Anaheim (1981), CA

Township: 4S **Range:** 10W **Section(s):** 36

Company/Firm/Agency: LSA Associates, Inc.

Street Address: 285 South Street, Suite P

City: San Luis Obispo **Zip:** 93401

Phone: 805-782-0745

Fax:

Email: Jaimi.Starr@lsa.net

Project Description:

Demolition and replacement of ten existing buildings within the existing Orange County Juvenile Hall facility in the City of Orange.

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Reginald Pagaling
Chumash

VICE-CHAIRPERSON
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

SECRETARY
Sara Dutschke
Miwok

PARLIAMENTARIAN
Wayne Nelson
Luiseño

COMMISSIONER
Isaac Bojorquez
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Kumeyaay

COMMISSIONER
Laurena Bolden
Serrano

COMMISSIONER
Reid Milanovich
Cahuilla

COMMISSIONER
Bennae Calac
Pauma-Yuima Band of Luiseño Indians

ACTING EXECUTIVE SECRETARY
Steven Quinn

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov

October 25, 2024

Ivan Strudwick
LSA

Via Email to: Ivan.Strudwick@lsa.net

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, OC-YTC Juvenile Hall Project, Orange County

To Whom It May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

      All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of the Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Orange County
10/25/2024

Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Cahuilla Band of Indians	F	BobbyRay Esparza, Cultural Director	52701 CA Highway 371 Anza, CA, 92539	(951) 763-5549		besparza@cahuilla-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	6/28/2023
Cahuilla Band of Indians	F	Anthony Madrigal, Tribal Historic Preservation Officer	52701 CA Highway 371 Anza, CA, 92539	(951) 763-5549		anthonymad2002@gmail.com	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	6/28/2023
Cahuilla Band of Indians	F	Erica Schenk, Chairperson	52701 CA Highway 371 Anza, CA, 92539	(951) 590-0942	(951) 763-2808	chair@cahuilla-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	2/1/2024
Gabrieleno Band of Mission Indians - Kizh Nation	N	Andrew Salas, Chairperson	P.O. Box 393 Covina, CA, 91723	(844) 390-0787		admin@gabrielenoindians.org	Gabrieleno	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	8/18/2023
Gabrieleno Band of Mission Indians - Kizh Nation	N	Christina Swindall Martinez, Secretary	P.O. Box 393 Covina, CA, 91723	(844) 390-0787		admin@gabrielenoindians.org	Gabrieleno	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	8/18/2023
Gabrieleno/Tongva San Gabriel Band of Mission Indians	N	Anthony Morales, Chairperson	P.O. Box 693 San Gabriel, CA, 91778	(626) 483-3564	(626) 286-1262	GTTribalcouncil@aol.com	Gabrieleno	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	12/4/2023
Gabrielino Tongva Indians of California Tribal Council	N	Christina Conley, Cultural Resource Administrator	P.O. Box 941078 Simi Valley, CA, 93094	(626) 407-8761		christina.marsden@alumni.usc.edu	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	3/16/2023
Gabrielino Tongva Indians of California Tribal Council	N	Robert Dorame, Chairperson	P.O. Box 490 Bellflower, CA, 90707	(562) 761-6417	(562) 761-6417	gtongva@gmail.com	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	3/16/2023
Gabrielino/Tongva Nation	N	Sandonne Goad, Chairperson	106 1/2 Judge John Aiso St., #231 Los Angeles, CA, 90012	(951) 807-0479		sgoad@gabrielino-tongva.com	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	3/28/2023
Gabrielino-Tongva Tribe	N	Sam Dunlap, Cultural Resource Director	P.O. Box 3919 Seal Beach, CA, 90740	(909) 262-9351		tongvatcr@gmail.com	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	5/30/2023
Gabrielino-Tongva Tribe	N	Charles Alvarez, Chairperson	23454 Vanowen Street West Hills, CA, 91307	(310) 403-6048		Chavez1956metro@gmail.com	Gabrielino	Los Angeles,Orange,Riverside,San Bernardino,Santa Barbara,Ventura	5/30/2023
Juaneno Band of Mission Indians Acjachemen Nation - Belardes	N	Joyce Perry, Cultural Resource Director	4955 Paseo Segovia Irvine, CA, 92603	(949) 293-8522		kaamalam@gmail.com	Juaneno	Los Angeles,Orange,Riverside,San Bernardino,San Diego	3/17/2023
Juaneno Band of Mission Indians Acjachemen Nation 84A	N	Heidi Lucero, Chairperson, THPO	31411-A La Matanza Street San Juan Capistrano, CA, 92675	(562) 879-2884		jbmian.chairwoman@gmail.com	Juaneno	Los Angeles,Orange,Riverside,San Bernardino,San Diego	3/28/2023
Pala Band of Mission Indians	F	Alexis Wallick, Assistant THPO	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3537		awallick@palatribe.com	Cupeno Luiseno	Orange,Riverside,San Bernardino,San Diego	11/27/2023
Pala Band of Mission Indians	F	Christopher Nejo, Legal Analyst/Researcher	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3564		cnejo@palatribe.com	Cupeno Luiseno	Orange,Riverside,San Bernardino,San Diego	11/27/2023
Pala Band of Mission Indians	F	Shasta Gaughen, Tribal Historic Preservation Officer	PMB 50, 35008 Pala Temecula Road Pala, CA, 92059	(760) 891-3515		sgaughen@palatribe.com	Cupeno Luiseno	Orange,Riverside,San Bernardino,San Diego	11/27/2023
Santa Rosa Band of Cahuilla Indians	F	Vanessa Minott, Tribal Administrator	P.O. Box 391820 Anza, CA, 92539	(951) 659-2700	(951) 659-2228	vminott@santarosa-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	4/8/2024
Santa Rosa Band of Cahuilla Indians	F	Steven Estrada, Tribal Chairman	P.O. Box 391820 Anza, CA, 92539	(951) 659-2700	(951) 659-2228	sestrada@santarosa-nsn.gov	Cahuilla	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	4/8/2024
Soboba Band of Luiseno Indians	F	Joseph Ontiveros, Tribal Historic Preservation Officer	P.O. Box 487 San Jacinto, CA, 92581	(951) 663-5279	(951) 654-4198	jontiveros@soboba-nsn.gov	Cahuilla Luiseno	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	7/14/2023
Soboba Band of Luiseno Indians	F	Jessica Valdez, Cultural Resource Specialist	P.O. Box 487 San Jacinto, CA, 92581	(951) 663-6261	(951) 654-4198	jvaldez@soboba-nsn.gov	Cahuilla Luiseno	Imperial,Los Angeles,Orange,Riverside,San Bernardino,San Diego	7/14/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed OC-YTC Juvenile Hall Project, Orange County.

Record: PROJ-2024-005556
Report Type: AB52 GIS
Counties: Orange
NAHC Group: All

ORANGE COUNTY
OC Public Works

October 14, 2024

Mr. Andrew Salas, Chairman
Gabrieleño Band of Mission Indians - Kizh Nation
P.O. Box 393
Covina, CA 91723

VIA CERTIFIED MAIL

Subject: AB 52 Notification for the Orange County Youth Transition Center Juvenile Hall Replacement Project

Dear Chairman Salas:

Orange County Public Works (County), OC Development Services/Planning provides this notice pursuant to the provisions of Assembly Bill 52 and Section 21080.3.1(d) of the Public Resources Code, requiring formal notification of projects in the geographic area that is traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1, California Native American tribes have 30 days from receipt of this notification to request consultation with OC Development Services/Planning regarding possible significant effects that implementation of this project may have on Tribal Cultural Resources. However, this deadline may be affected by various Executive Orders issued by the Governor.

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County Administration South
601 North Ross Street
Santa Ana, California 92701

P.O. Box 4048
Santa Ana, CA 92702-4048

(714) 667-8800

info@ocpw.ocgov.com

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ORANGE COUNTY
OC Public Works

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Should you have any questions related to this project, please contact me at Virginia.Gomez@ocpw.ocgov.com or (714) 667-1614, or contact Cindy Salazar at Cindy.Salazar@ocpw.ocgov.com or (714) 667-8870.

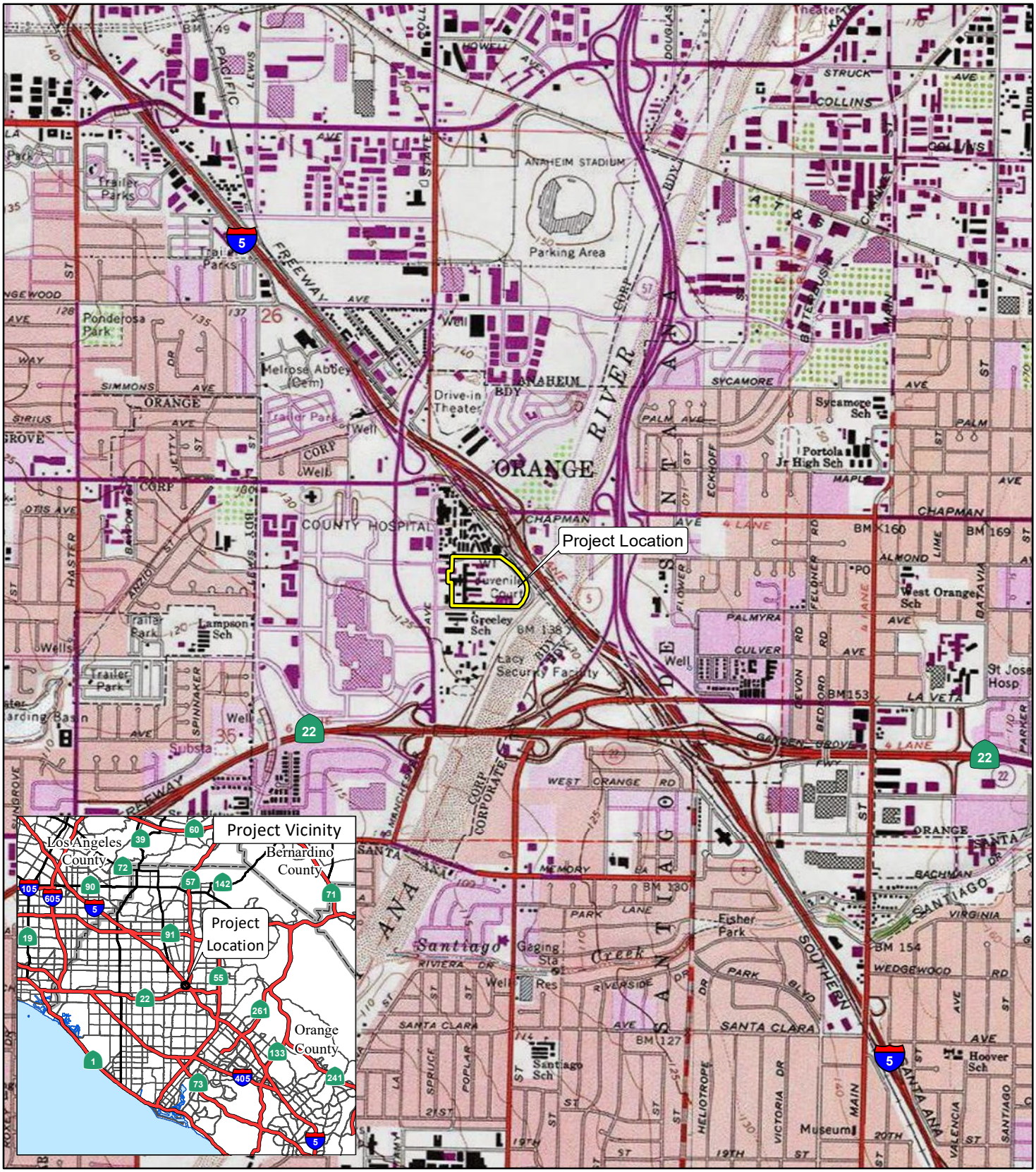
Sincerely,

Virginia Gomez
Senior Planner
OCPW/Development Services

Cc: Cindy Salazar, OCPW/Development Services, Planning Division Manager

Attachments:

1. Figure 1: Project Location and Vicinity Map
2. Figure 2: Field Map



LSA

LEGEND

Project Location

FIGURE 1

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FEET

SOURCE: USGS 7.5' Quad - Anaheim (1981), CA

OC Juvenile Hall YTC Project

Project Location and Vicinity

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LSA

Project Site

Figure 2

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FEET

Orange County Youth Transition Center Juvenile Hall Replacement Project

Field Map

SOURCE: Nearmap Imagery (August 26, 2024)

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ORANGE COUNTY
OC Public Works

October 14, 2024

Ms. Joyce Stanfield Perry
Juaneño Band of Mission Indians
4955 Paseo Segovia
Irvine, CA 92603

VIA CERTIFIED MAIL

Subject: AB 52 Notification for the Orange County Youth Transition Center Juvenile Hall Replacement Project

Dear Ms. Joyce Stanfield Perry:

Orange County Public Works (County), OC Development Services/Planning provides this notice pursuant to the provisions of Assembly Bill 52 and Section 21080.3.1(d) of the Public Resources Code, requiring formal notification of projects in the geographic area that is traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1, California Native American tribes have 30 days from receipt of this notification to request consultation with OC Development Services/Planning regarding possible significant effects that implementation of this project may have on Tribal Cultural Resources. However, this deadline may be affected by various Executive Orders issued by the Governor.

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Should you have any questions related to this project, please contact me at Virginia.Gomez@ocpw.ocgov.com or (714) 667-1614, or contact Cindy Salazar at Cindy.Salazar@ocpw.ocgov.com or (714) 667-8870.

Sincerely,

Virginia Gomez
Senior Planner
OCPW/Development Services

Cc: Cindy Salazar, OCPW/Development Services, Planning Division Manager

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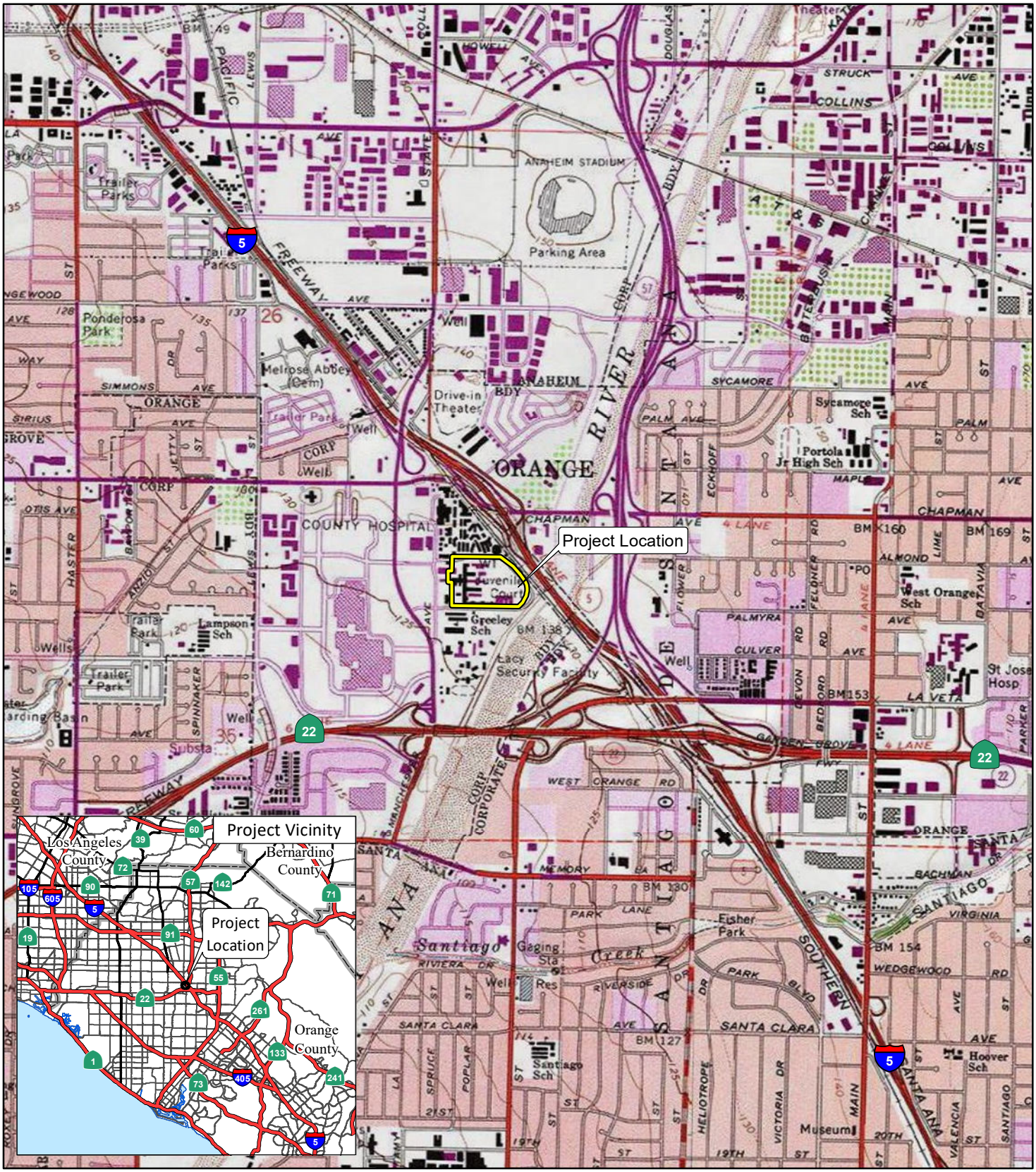

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Project Location

FIGURE 1

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SOURCE: USGS 7.5' Quad - Anaheim (1981), CA

OC Juvenile Hall YTC Project

Project Location and Vicinity

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LSA

Project Site

Figure 2

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0 100 200
FEET

Orange County Youth Transition Center Juvenile Hall Replacement Project

Field Map

SOURCE: Nearmap Imagery (August 26, 2024)

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ORANGE COUNTY
OC Public Works

October 14, 2024

Mr. Anthony Morales, Chief
San Gabriel Band of Mission Indians
PO Box 693
San Gabriel, CA 91778

VIA CERTIFIED MAIL

Subject: AB 52 Notification for the Orange County Youth Transition Center Juvenile Hall Replacement Project

Dear Chief Morales:

Orange County Public Works (County), OC Development Services/Planning provides this notice pursuant to the provisions of Assembly Bill 52 and Section 21080.3.1(d) of the Public Resources Code, requiring formal notification of projects in the geographic area that is traditionally and culturally affiliated with your tribe. Pursuant to Public Resources Code Section 21080.3.1, California Native American tribes have 30 days from receipt of this notification to request consultation with OC Development Services/Planning regarding possible significant effects that implementation of this project may have on Tribal Cultural Resources. However, this deadline may be affected by various Executive Orders issued by the Governor.

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ORANGE COUNTY
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Sincerely,

Virginia Gomez
Senior Planner
OCPW/Development Services

Cc: Cindy Salazar, OCPW/Development Services, Planning Division Manager

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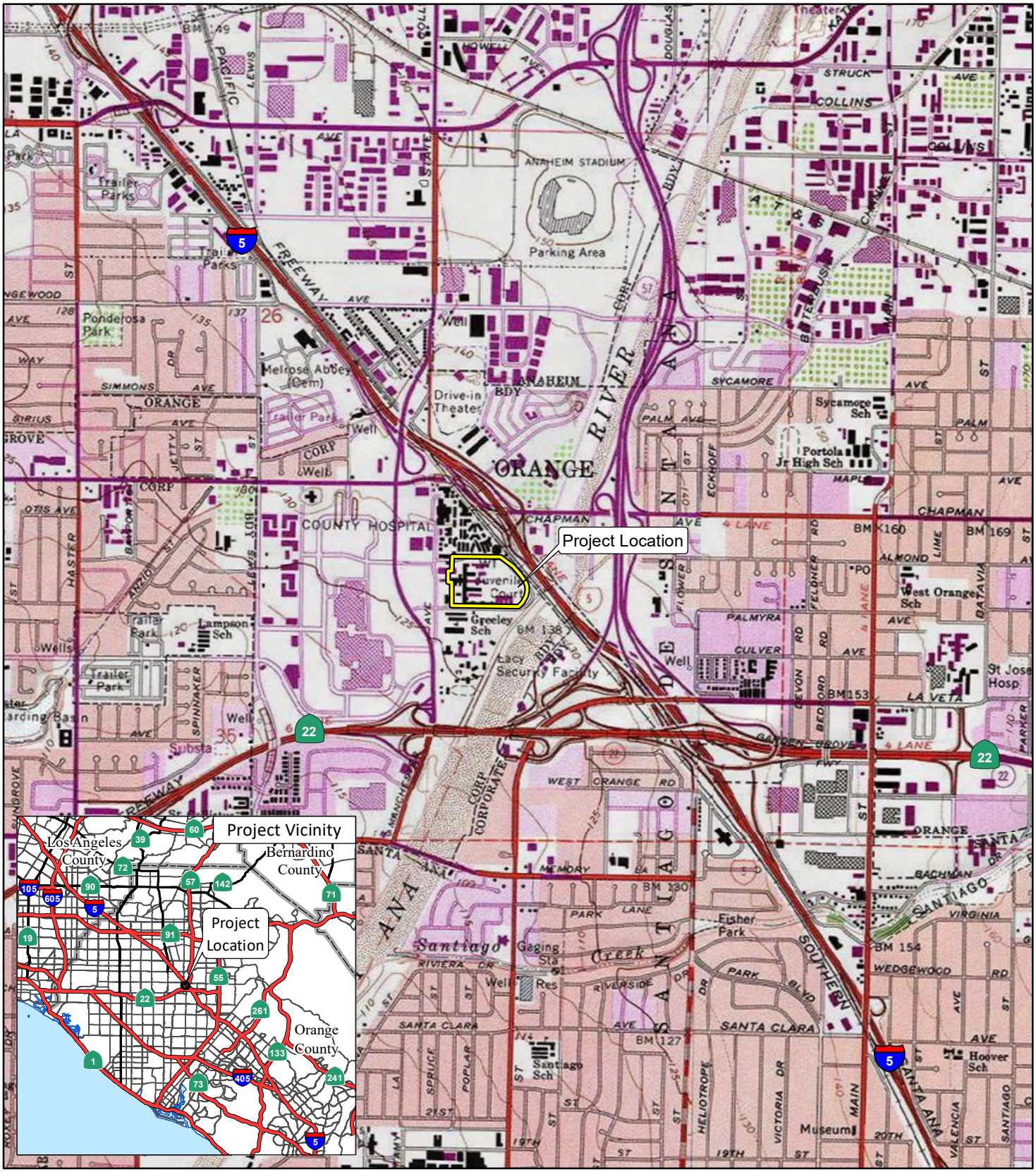

LSA

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Project Location

FIGURE 1

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FEET

SOURCE: USGS 7.5' Quad - Anaheim (1981), CA

OC Juvenile Hall YTC Project

Project Location and Vicinity

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LSA

Project Site

Figure 2

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FEET

Orange County Youth Transition Center Juvenile Hall Replacement Project

Field Map

SOURCE: Nearmap Imagery (August 26, 2024)

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ORANGE COUNTY
OC Public Works

October 14, 2024

Mr. Joseph Ontiveros
Soboba Band of Luiseño Indians
PO Box 487
San Jacinto, CA 92581

VIA CERTIFIED MAIL

Subject: AB 52 Notification for the Orange County Youth Transition Center Juvenile Hall Replacement Project

Dear Mr. Joseph Ontiveros:

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Sincerely,

Virginia Gomez
Senior Planner
OCPW/Development Services

Cc: Cindy Salazar, OCPW/Development Services, Planning Division Manager

Attachments:

1. Figure 1: Project Location and Vicinity Map
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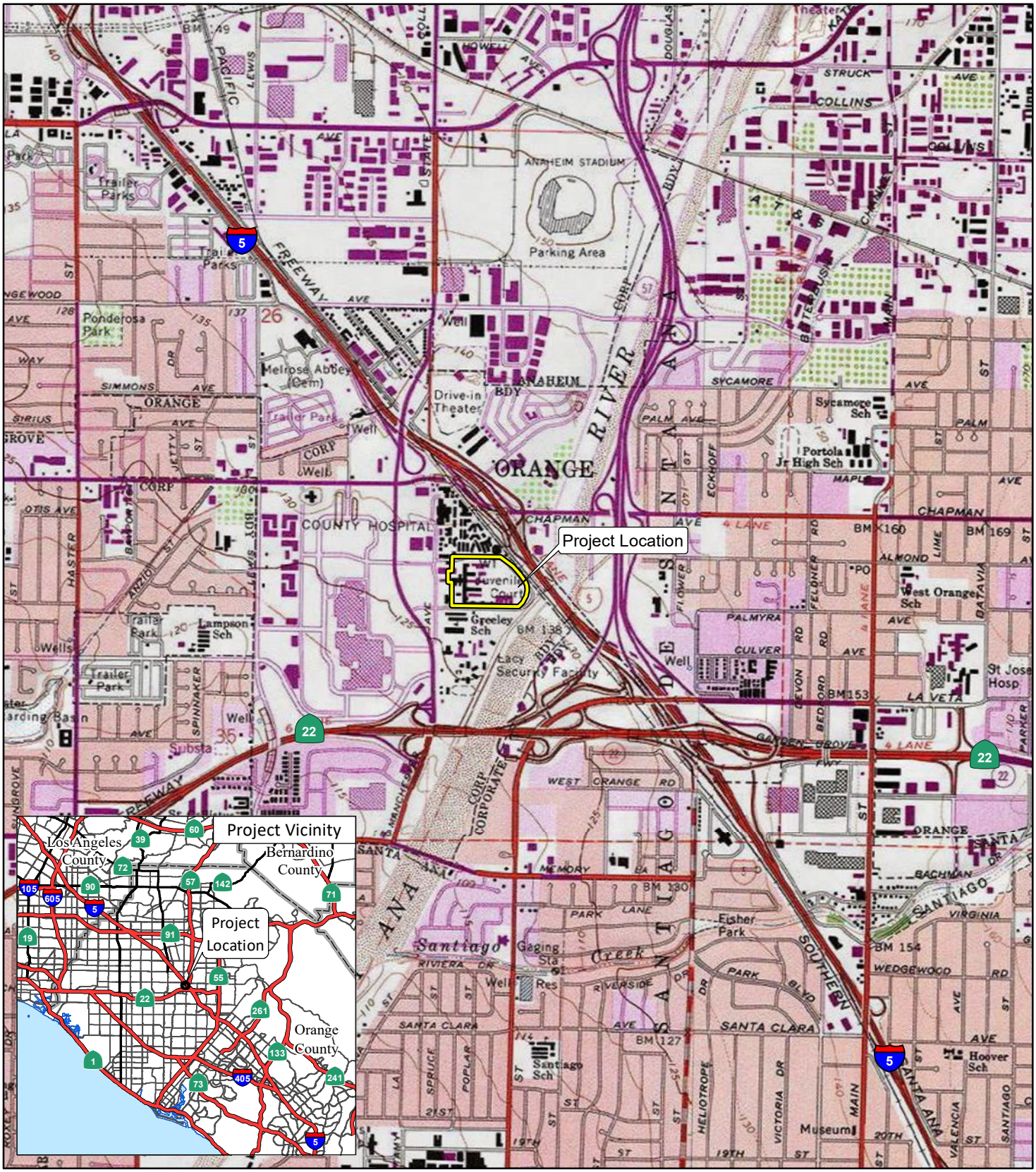

LSA

LEGEND

Project Location

FIGURE 1

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FEET

SOURCE: USGS 7.5' Quad - Anaheim (1981), CA

OC Juvenile Hall YTC Project

Project Location and Vicinity

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LSA

Project Site

Figure 2

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FEET

Orange County Youth Transition Center Juvenile Hall Replacement Project

Field Map

SOURCE: Nearmap Imagery (August 26, 2024)

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Certified Mail Receipt Numbers – Youth Transition Center AB52 Letters

Mr. Andrew Salas, Chairman
Gabrieleño Band of Mission Indians - Kizh Nation
P.O. Box 393
Covina, CA 91723
CM #: 9489 0090 0027 6168 0032 17

Mr. Joseph Ontiveros
Soboba Band of Luiseño Indians
PO Box 487
San Jacinto, CA 92581
CM #: 9489 0090 0027 6168 0032 00

Mr. Anthony Morales, Chief
San Gabriel Band of Mission Indians
PO Box 693
San Gabriel, CA 91778
CM #: 9489 0090 0027 6265 4919 24

Joyce Stanfield Perry
Juaneño Band of Mission Indians
4955 Paseo Segovia
Irvine, CA 92603
CM #: 9489 0090 0027 6265 4919 17

GABRIELENO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The Gabrielino Tribal Council - San Gabriel Band of Mission Indians
recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Date: October 30, 2024

Project Name: Orange County Youth Transition Center Juvenile Hall replacement Project

Dear Virginia,

Thank you for your letter dated October 14, 2024, regarding AB52 consultation. The above proposed project location is within our Ancestral Tribal Territory; therefore, our Tribal Government requests to schedule a consultation with you as the lead agency, to discuss the project and the surrounding location in further detail.

Please contact us at your earliest convenience. ***Please Note:AB 52, "consultation" shall have the same meaning as provided in SB 18 (Govt. Code Section 65352.4).***

Thank you for your time,

Andrew Salas, Chairman
Gabrieleno Band of Mission Indians – Kizh Nation
1(844)390-0787

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Dr. Christina Swindall Martinez, secretary
Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the council of Elders

Gabrieleno/Tongva Tribal Council

SAN GABRIEL BAND OF MISSION INDIANS

November 1, 2024

To: Virginia Gomez
Senior Planner
OCPW Development Services

RE : AB- 52 Notification for the Orange County Youth Transition Center Juvenile Hall Replacement Project

Dear Ms. Virginia Gomez,

After reviewing the Project's description and the location, The Gabrieleno Tongva San Gabriel Band of Mission Indians would like to inform The Orange County Public Works (County), OC Development Services/Planning that the project's undertakings would have a high potential to cause significant adverse effects to several Historic/Prehistoric Tribal Resources as defined in the Public Resource Code 21074, including resources that could be eligible for the California & the National Registers of Historic Places.

Please consider that frequently historic properties of religious and cultural significance are located on ancestral, aboriginal, or ceded lands of Indian tribes. Tribal Resources recorded are defined as Traditional Cultural Properties (TCP), landscapes, burial grounds, and prehistoric/historic interstate travel routes from and through the coastal, forest, and desert regions of California.

The Tribe/Band request to continue with the AB- 52 consultation process and to assist with establishing preventable mitigation measures as referenced in the PRC Section 21080.3.2 & 21084.3.

Thank you,
Respectfully,

Adrian Morales
Tribal Consultations, CRM
Gabrieleno Tongva San Gabriel Band of Mission Indians

P.O. Box 693 San Gabriel, CA. 91778
(626) 209-7642
gtsgbmiconsultations@yahoo.com

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